



**Investigating the factors influencing banks' adoption and development of  
e-banking, the case of Algeria**

A thesis submitted for the degree of Doctor of Philosophy

By

**Anas Boumediene Zerhouni**

Brunel Business School

Brunel University London

November 2016

## **Abstract**

The creation of electronic banking (e-banking) has revolutionised traditional banking practices and enabled banks to provide various services, which are accessible to their clients anywhere and anytime. E-banking services have known noticeable development and seen widespread acceptance across the world for the benefits they offer to both banks and clients. However, the case is different in developing countries such as Algeria where its adoption and development remain in their infancy stage.

Many studies have been undertaken to identify and explain the benefits and barriers related to e-banking adoption by customers in general and to identify the socio-demographic characteristics of customers in particular. However, a limited amount of work explaining banks' adoption of e-banking solutions has been provided in the literature as banks' adoption of e-banking is claimed to be a more complex and difficult phenomenon to investigate due the internal and external environments' effects on banks' innovation.

Hence this study aims to address the gap in the literature and to investigate the interactions between political and financial interests and their impact on banks' innovation by uncovering the contextual and institutional factors and actors affecting banks' adoption and development of e-banking with a greater focus on the external environment. To do so, a conceptual framework was built on a combination of Technology, Organisation, and Environment (TOE) framework and Institutional Theory, in which a set of variables were added to each context of the TOE framework for their potential effect on banks' innovation.

In order to answer the research questions and to achieve its objectives, this study adopts the pragmatic paradigm and uses a qualitative case study strategy to collect and analyse data in order to develop a better understanding of the studied phenomenon. Five case studies including four banks (public Algerian, private French, private Arab and a private Anglo-Saxon) and two regulatory organisations were used in this research and counted as one. Ten interviews were conducted in total with two bank representatives (namely an e-banking department manager and a senior relationship manager) interviewed in each of the four banks, in addition to one director from each of the two regulatory organisations.

The findings of this study confirm that banks' adoption and development of e-banking is affected by contextual factors, namely the technological, organisational and environmental, and also by institutional factors and actors. These contextual and institutional factors and actors result from the interaction between the political and financial interests in electronic banking solutions, which have an important impact on banks' innovation. A model was developed and validated to provide an insight into the adoption and development of e-banking by banks and can be used for studies in other countries with similar features. Finally this study makes a number of recommendations and actions for researchers to extend this model and also for banks to increase the diffusion of e-banking within the Algerian banking sector.

**Keywords:** Electronic banking (e-banking), TOE framework, Institutional theory, Pragmatism.

## **Dedication**

I would like to dedicate this thesis to the memory of my late beloved uncle, Mr. Mohammed Bouselham, who from an early age inspired me to always work hard and to never give up.

His affection, wisdom, humour and encouragement were very important in all my endeavours.

He will always be in my thoughts.

## **Acknowledgements**

I am eternally thankful to God, for granting me health, love and grit to achieve my goals and also for keeping me focused and determined when life was challenging and I felt like giving up. The achievement of this study would not have been possible without such blessings along with the support of many people, whom I would like to offer my sincere gratitude.

Firstly, I would like to thank my supervisors, Mr. Fintan Clear and Dr. Tariq Khan, for their help, support, guidance and patience throughout my Doctorate. Their continuous advice and invaluable feedback have had a great impact on me as a novice researcher and also on my study.

I would like to thank my beloved parents, who have worked all their lives to provide me with all I need, and have given me endless love and support. To my father, Mr. Mohammed Benamar Zerhouni, who has been a great example and taught me that efforts, perseverance and will to succeed are vital in life. To my mother, Dr. Zakiya Zerhouni, who has inculcated me with such good values and without her presence, support, guidance, and love I would have never reached my goal.

I would also like to offer my sincere gratitude to my brother in law, Si Nabil, who has inspired, guided and supported me in various ways throughout my professional development; to my sister, Dr. Widad Zerhouni, for her love, affection and encouragement; to my nephews, Nour and Adnane, who have brought us so much joy; to my grandmother, El Hadja Fatna, who has unconditionally been given me love and prayers whenever needed and to all my family members particularly my aunts Karima, Goergina, and Dalila as well as Si Djamel who have supported and prayed for me.

Moreover, I would like to extend my gratitude to different staff members of the library and business school including Dr. Farouk Missi, Dr. Andreea Molnar and Mrs. Dalia Gawish and all of those who have been supporting me in my journey.

Furthermore, I have been fortunate to meet and become friends with many individuals who taught me more than I could have imagined during the last few years. Particularly, to Dr. Heba Alqurashi, who helped, supported, motivated, and has given me so much during this journey. I owe her an enormous debt of gratitude for all the

positive changes she inspired me; to Dr. Mohammad Alghababsheh, for inspiring me my research and for always sharing his time and knowledge with me; to Dr. Alan Saeed and Dr. Luay Jum'a, for their time, affection, and constructive criticisms; my life at Brunel would not have been the same without them. I would also like to thank Dr. Alireza Nazarian, Dr. Behzadan Behrouz, Dr. Peter Atkinson and Dr. Shaihana Almutairi, who have generously helped me and given me advice whenever needed; and to Dr. Ahmed Alsarairh and his family, Dr. Haneen Zafir, Dr. Rim Hamacha, Dr. Salakjit Jongsaguan, Dr. Heba Hatamlah, Dr. Mohammad Radi, Dr. Maher Alaraj and Mr. Yehia Al-Melegi for their continuous support.

To all my friends and particularly Housseem, Sophiane, Snowy, James, Matt, Naceur, Moncef, Jazil, Rabah, Ilyas, Djeloul, Chems, Yacine, Mehdi, El Hadi, Hichem, Walid, Nisreen, Hamza, Khaled, Anys, Sara, Amine, Wassila, Nadia, Donia, Nesrine, Sif, Maria, Youssef, Agustina, Maya, Yasmine, Meriem, Arafat, Abdelmoumene, Tarek, Mohamed, Kamel, and Nouha, for their constant affection, support and encouragement.

Finally, I would like to thank all of those who participated in this study in addition to the staff of both the Ministry of Higher Education and Scientific Research of Algeria and the Algerian Consulate in London, particularly Mr. Boudjeloude, Mrs. Serrai, Mr. Bouatrous, and Mrs. Hamrouche for the help and facilities they granted me whenever I needed.

## **Declarations**

I declare that, to the best of my knowledge, no portion of the work referred to in this thesis has been submitted in support of an application for another degree, or qualification, to any other university, or institute of learning.

The following publications have been produced as direct or indirect results of the research discussed in this thesis.

## **Conferences**

Zerhouni, A. and Clear, F. (2016) Political and financial barriers to banks' innovation, *Management and Business Academy Conference*, 16-18 December, Brunel University London, UK.

Zerhouni, A. (2016). Factors influencing banks' adoption and development of e-Banking: case of Algeria, *Organisational Studies and Innovation Review*, 2 (2), 53-64

Zerhouni, A. (2016). Factors affecting banks' adoption and development of e-Banking: exploratory study on Algeria, *Management and Business Academy Conference*, 15-16 April, Brunel University London, UK.

Zerhouni, A. (2016). Factors affecting adoption and development of e-Banking by banks: exploratory study on Algeria, *United Kingdom Academy of Information System (UKAIS) Conference*, 13-14 April, Oxford University, UK

Zerhouni, A. (2015). Barriers restricting e-banking development: the case of Algeria, *Brunel Business School Annual Doctoral Symposium*, 27-28 March, UK.

Zerhouni, A. (2014). Barriers restricting e-Banking adoption by banks, *Organisational Change and Innovation (OCI) Conference*, 04 April, West London University, UK **[Best Paper Award]**

Zerhouni, A. (2013). Factors influencing the development of the e-banking culture in Algeria, *Brunel Business School Annual Doctoral Symposium*, 20-21 March, UK.

**Mr Anas B. Zerhouni**

## Table of Abbreviations

ABEF	Association des Banques et Établissement Financiers
ATM	Automated Teller Machine
DOI	Diffusion of Innovation
GIE	Groupement d'Intérêt Économique
ICT	Information and Communication Technology
IS	Information Systems
IT	Information Technology
SATIM	Société d'Automatisation des Transactions Interbancaires et de Monétique
TOE	Technology, Organisation and Environment
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
UTAUT	Unified Theory of Acceptance and Use of Technology
UNCTAD	United Nations Conference on Trade and Development
UNCITRAL	United Nations Commission on International Trade Law

## List of Tables

Table 2.1: Some studies built on the TOE framework .....	38
Table 4.1: Deductive and Inductive approaches' differences .....	80
Table 4.2: Differences between Quantitative and Qualitative research methods .....	83
Table 4.3: Comparison between Quantitative, Qualitative and mixed methods .....	86
Table 4.4: Participants' positions in the case studies .....	94
Table 4.5: Source of evidences: weaknesses, strengths, and their usage in research...	95
Table 4.6: Types of interviews .....	99
Table 5.1: Findings summary and explanations (public bank case study A) .....	125
Table 5.2: Findings summary and explanations (French Bank Case Study B) .....	139
Table 5.3: Findings summary and explanations (Arab Bank Case Study C) .....	149
Table 5.4: Findings summary and explanations (Anglo-Saxon Bank Case Study D) .....	161
Table 5.5: Findings summary and explanations (The Regulatory Organisations Case Study E) .....	171
Table 6.1: TOE Factors (public bank case study A) .....	177
Table 6.2: TOE Factors (French Bank Case Study B) .....	178
Table 6.3: TOE Factors (Arab Bank Case Study C) .....	179
Table 6.4: TOE Factors (Anglo-Saxon Bank Case Study D) .....	180
Table 6.5: TOE Factors (The Regulatory Organisations Case Study E) .....	181

## List of Figures

Figure 2.1: Diffusion of Innovation Theory .....	30
Figure 2.2: Technology, Organisation and Environment Framework .....	32
Figure 3.1: Initial Conceptual Framework .....	70
Figure 4.1: Research Design Process .....	72
Figure 4.2: The Research Process of this Study.....	73
Figure 4.3: Deductive Approach.....	79
Figure 4.4: Inductive Approach .....	80
Figure 4.5: Flow Model of Data Analysis .....	104
Figure 5.1: The Technological Factors (public bank case study A) .....	111
Figure 5.2: The Organisational Factors (public bank case study A) .....	114
Figure 5.3: The Environmental Factors (public bank case study A) .....	117
Figure 5.4: The Technological Factors (French Bank Case Study B) .....	127
Figure 5.5: The Organisational Factors (French Bank Case Study B) .....	129
Figure 5.6: The Environmental Factors (French Bank Case Study B) .....	132
Figure 5.7: The Technological Factors (Arab Bank Case Study C) .....	141
Figure 5.8: The Organisational Factors (Arab Bank Case Study C) .....	142
Figure 5.9: The Environmental Factors (Arab Bank Case Study C) .....	145
Figure 5.10: The Technological Factors (Anglo-Saxon Bank Case Study D) .....	152
Figure 5.11: The Organisational Factors (Anglo-Saxon Bank Case Study D) .....	154
Figure 5.12: The Environmental Factors (Anglo-Saxon Bank Case Study D) .....	156
Figure 5.13: The Technological Factors (The Regulatory Case Study E) .....	164
Figure 5.14: The Organisational Factors (The Regulatory Case Study E) .....	165
Figure 5.15: The Environmental Factors (The Regulatory Case Study E) .....	166
Figure 6.1: Revised Conceptual Model .....	185

## Contents

Abstract.....	2
Dedication.....	4
Acknowledgements.....	5
Declarations .....	7
Table of Abbreviations .....	8
List of Tables .....	9
List of Figures .....	10
Contents .....	11
Chapter 1 Introduction .....	16
1.1 Introduction.....	16
1.2 Contextual Analysis .....	19
1.3 Research Problem and Research Gap .....	23
1.4 Research Aim and Objectives .....	24
1.4.2 Research Objectives.....	25
1.5 Research Questions.....	25
1.6 Research Method .....	25
1.7 Thesis Outline .....	26
1.8 Summary .....	26
Chapter 2 Literature Review .....	27
2.1 Introduction.....	27
2.2 Theories of Information Systems Adoption.....	27
2.3 Technology, Organisation and Environment (TOE) Framework Description.....	30
2.3.1 Technological Context (TC) .....	31
2.3.2 Organisational Context (OC) .....	32
2.3.3 Environmental Context ‘EC’ .....	34
2.4 TOE Framework .....	35
2.5 Institutional Theory and its Combination with the TOE Framework .....	40
2.6 Other External Actors and Factors.....	43
2.6.1 Underground Economy .....	43

2.6.2 Political and Economic Reforms .....	45
2.6.3 Legal Framework .....	46
2.7 Banks and Information and Communication Technologies (ICTs).....	46
2.7.1 E-banking Definitions and Benefits.....	49
2.7.2 Studies of e-Banking Adoption.....	52
2.8 Customers' Adoption of e-Banking .....	52
2.8.1 Impact of Culture on e-Banking Adoption .....	53
2.9 Banks' Adoption of e-Banking in the Developing Context.....	56
2.10 Summary .....	58
Chapter 3 Initial Conceptual Framework for this study.....	60
3.1 Introduction.....	60
3.2 Rationale for Combining the Technology, Organisation and Environment Framework with Institutional Theory .....	60
3.2.1 Technological Context of the TOE in this Study.....	62
3.2.2 Organisational context of the TOE in this Study .....	64
3.2.3 Environmental Context of the TOE in this Study.....	66
3.3 Chapter Summary .....	69
Chapter 4 Research Methodology.....	70
4.1 Introduction.....	70
4.2 Research Design.....	70
4.3 Research Philosophy.....	72
4.3.1 Ontology .....	73
4.3.2 Epistemology .....	73
4.3.3 Positivism.....	73
4.3.4 Interpretivism.....	74
4.3.4 Pragmatism .....	75
4.4 Selection and Justification of Research Paradigm .....	76
4.5 Methodology .....	78
4.6 Research Approach .....	78
4.7 Research Methods .....	80

4.7.1 Quantitative Research .....	81
4.7.2 Qualitative Research .....	81
4.8 Research Strategy.....	86
4.8.1 Case Study .....	87
4.9 Sampling .....	90
4.9.1 Probability vs. Non-probability sampling.....	91
4.10 Data Collection .....	94
4.10.1 Types of Interview .....	98
4.10.2 Documentation.....	100
4.10.3 Observation.....	101
4.10.4 Pre-Testing Interview.....	102
4.11 Data Analysis .....	102
4.12 Data Reduction.....	103
4.12.1 Data Display.....	104
4.12.2 Verifying .....	105
4.12.3 Cross Case Synthesis .....	105
4.12.4 Triangulation.....	106
4.13 Ethical Considerations .....	107
4.14 Summary .....	107
Chapter 5 Findings: Case to Case Analysis .....	108
5.1 Introduction.....	108
5.2 Case Studies Analysis .....	108
5.3. Public Bank Case Study A.....	109
5.3.1. Brief Overview of the Category.....	109
5.3.2. Contextual and Institutional Factor Analysis.....	109
5.3.2.1 Technological Factors .....	110
5.3.2.2 Organisational Factors .....	112
5.3.2.3 Environmental Factors .....	116

5.3.3 Summarising the Findings of the Public Bank Case Study .....	123
5.4 French Bank Case Study B .....	125
5.4.1 Brief Overview of the Category .....	125
5.4.2. Contextual and Institutional Factors Analysis .....	126
5.4.2.1 Technological Factors: .....	126
5.4.2.2 Organisational Factors .....	128
5.4.2.3 Environmental Context .....	131
5.4.3. Summarising the Findings of the French Bank Case Study .....	137
5.5 Arab Bank Case Study C .....	139
5.5.1. Brief Overview of the Category .....	139
5.5.2. Contextual and Institutional Factors Analyses .....	140
5.5.2.1 Technological Factors .....	140
5.5.2.2 Organisational Factors .....	141
5.5.2.3 Environmental Factors .....	143
5.5.3. Summarising the Findings of the Arab Bank .....	148
5.6 Anglo-Saxon Bank Case Study D .....	150
5.6.1. Brief Overview of the Category .....	150
5.6.2. Contextual and Institutional Factor Analysis .....	151
5.6.2.1 Technological Factors .....	151
5.6.2.2. Organisational Factors .....	153
5.6.2.3 Environmental Factors .....	154
5.6.3. Summarising the Findings of the Anglo-Saxon Bank .....	160
5.7 The Regulatory Organisations Case Study E .....	162
5.7.1. Brief Overview of the Category .....	162
5.7.2. Contextual and Institutional Factors Analysis .....	163
5.7.2.1 Technology Factors .....	163
5.7.2.2 Organisational Factors .....	164

5.7.2.3 Environmental Context .....	165
5.7.3. Summarising the Findings of the Regulatory Organisations .....	169
5.8 Chapter Summary .....	172
Chapter 6 Cross Case Synthesis and Discussion .....	174
6.1 Introduction.....	174
6.2 Factors Affecting Banks' Adoption and Development of e-Banking Services	174
6.2.1 Technology Factors.....	180
6.2.2 Organisational Factors .....	181
6.2.3 Environmental Factors .....	183
6.3 Revised Conceptual Framework .....	184
6.4 Conclusion .....	186
Chapter 7 Conclusion.....	188
7.1 Introduction.....	188
7.2 Thesis Overview and Summary .....	188
7.3 Research Findings .....	189
7.4 Key Contributions of this Research .....	191
7.4.1 Theoretical Contribution .....	192
7.4.2 Practical Contribution .....	193
7.5 Limitations .....	193
7.6 Recommendations and Conclusion.....	194
References.....	197
Appendices.....	227
Appendix 1: Participant Consent Form.....	227
Appendix 2: Participant Information Leaflet.....	229
Appendix 3: Interview Questions .....	231

## **Chapter 1 Introduction**

### **1.1 Introduction**

The rapid growth of Information and Communication Technologies (ICT) and, particularly the proliferation of the internet, has changed the way business is conducted and has transformed the world's economy into a "global economy" where all the national economies operate as one system (Gereffi, 2001; Manyika and Roxburg, 2011). This development in ICT encompasses various domains including education, business, banking, health, entertainment (Kramer, Jenkins and Katz, 2007). It has also enabled the creation of new businesses that has improved the ways services and information are delivered and allowed organisations and people to communicate, interact and, eventually, collaborate regardless of time and space (Morris and Ogan, 1996; McCown et al. 2001; Dillman, Smyth and Christian, 2014).

The banking industry has not been an exception to this adoption of ICT (Benamraoui, 2003). As a result of recognising its importance banks have used it to make their services accessible to more customers (Kramer, Jenkins and Katz, 2007). Moreover, diversification in banking services has become more vital for banks to preserve their competitiveness by meeting their customers' constantly changing needs (Shih and Fang, 2004). Ever since customers have become more demanding in their daily needs, they expect their banks to provide them with simplified solutions so that they can access their money anytime, anywhere and in the most secure way possible (Shah and Clarke, 2009). Electronic banking (e-banking) is a consequence of the continuous development and innovation in the banking industry that enables customers to use banks without visiting the actual bank premises. E-banking introduction was aimed at better serving customers by offering them a wider range of products at lower costs and enabling them to make transactions without time and space restrictions (Isern, 2008).

E-banking has numerous definitions (Bultum, 2014) such as banking service through which money is transferred between banks via an electronic signal rather than cheques, and cash or other instruments (Kamrul, 2009). It is also known as "electronic funds transfer" (EFT) (Malak, 2007). Milutinović and Patricelli (2002) defined e-banking as the usage of any means of modern communication such as the internet,

automated machines (ATMs), short message services (SMS) and Fax messaging to perform banking transactions. Thus, by using e-banking technology, customers can access their account whenever and wherever they need to.

E-banking has become very popular amongst banks as it offers several advantages to both banks and their clients (Daghfous, and Toufaily, 2007). On the one hand, banks offering e-banking can reduce their costs, diversify their products, enhance competitiveness, and improve their reputation and revenues. On the other hand, according to Daghfous, and Toufaily (2007), e-banking offers an easy, cheap and convenient alternative to visiting banks, giving customers the option of choosing between face-to-face interactions with their banker and making online personal transactions. Consequently, there has been an increase in the number of banks and their clients adopting e-banking (Al-Somali, Gholami and Clegg, 2009; Alsomali, 2015). In this respect Norway could be taken as an example since it holds one of the highest internet banking penetrations in Europe with over 90% of Norwegian people using banking websites (Statista, 2015).

Algeria is an example of a country that has acknowledged the numerous benefits of ICTs, and has thus made it one of its main priorities (Lazreg, 2015). The internet has changed society; people have access to more information consequently changing their perception of online services (Harrison, Waite and Hunter, 2006). L'Autorité de Régulation de la Poste et des Télécommunications (ARPT) which is a company in charge of regulating both postal and telecommunication services reported that the country counts more than 10 million internet users corresponding to 25% of the population, who have access to broadband connections (Arrami, 2015). On the other hand, the Algerian government has been introducing reforms in the banking sector to boost the national economy, enhance the effectiveness of Algeria's monetary policy and absorb the significant liquidity existing within the market (Bellal, 2008; Global Insight, 2012).

The Algerian banking industry comprises twenty one (21) banks, which are led by six public commercial banks that cover 70% of the sector's assets while the remaining 30% of assets are owned by the other 15 foreign banks. The main duty of all these banks is to support investment and growth of several national and multinational companies (KPMG, 2014). Nevertheless, the country holds one of the lowest banking

penetration rates in Africa, with one bank for every 24,000 inhabitants, as stated by the former head of l'Association des Banques et des Etablissements Financiers "ABEF", M. Benkhalfa (Rondeleux, 2014). With the spread of the internet in the country, some banks have included basic e-banking solutions in their services to reduce cash usage and circulation in the market, offer more functionality to clients and reinforce the image of modernity of the Algerian banking sector in the international marketplace (Tazerout, 2011). Being aware of these deficiencies, the government has been willing to offer some remedies through forming a number of institutions to promote e-banking in the country, notably the 'Société d'Automatisation des Transactions Interbancaire et Monétique' (SATIM) and Groupement d'Interet Economique' (GIE).

The adoption of e-banking in many developing countries, particularly in Algeria, is in its infancy stage (Lazreg, 2015). Although corporate e-banking is widely used, retail e-banking has not known the same acceptance among Algerians. Thus, the former classification of e-banking types helps this research to further investigate e-banking adoption and development since senior management in the Algerian banking industry call automated banking "Retail e-banking" as it serves personal accounts, through debit cards and ATMs, while corporate e-banking refers to online solutions for major companies to facilitate their business transactions, hence it refers to corporate banking. Retail e-banking has not been widely adopted yet apart from using automated banking (usage of payment cards) to primarily withdraw money when the access to bank premises is limited. International banks such as Citibank Algeria or BNP Paribas El Djazair have invested in solutions exclusively tailored to their customers who are mostly foreign national and big corporations that require this technology to facilitate their banking needs.

Accordingly KPMG Algeria (2014) reported that the electronic banking network in Algeria is composed of: 3000 Electronic Payment Terminals (EPT), 1300 Automated Teller Machines (ATM) nationwide that record an average daily activity of 6000 transactions on normal days and 10,000 transactions on average on public holidays. As previously mentioned, it has been claimed that few customers use their local debit cards for making payments while the majority use them only for withdrawals, with some clients who have never collected their cards from their banks (Mahloul cited in

Hamzi, 2012). The adoption of automated banking services in Algeria has been claimed to be largely affected by the consumer mentality and cash cultural habits of potential users who prefer dealing directly with bank representatives (Mekideche, 2010). The adoption of electronic banking by banks exists to improve their customers' experience and facilitate their daily banking transactions as it has been recognized by the industry and extensively studied by many researchers (Iser, 2008; Al-Smadi, 2012). Several studies have revealed the importance and benefits of e-banking adoption for both banks and their clients (Al-Smadi, 2012; Isern, 2008; Kiang, Raghu and Shang, 2000; Howcroft and Beckett, 1996), after broadly investigating customers' attitudes towards e-banking and internet banking in particular, or investigating the characteristics of e-banking adopters (Azouzi, 2009; Sergeant, 2000). However, there has been a lack of studies on organisational adoption of e-banking and its adoption by banks in particular.

This study is on the adoption and development of e-banking by banks in Algeria. There has been an absence of studies explaining the role and impact of the contextual factors along with institutional forces on banks' adoption and development of e-banking. Therefore, this study aims to address the gap in knowledge and to develop an in-depth and holistic understanding of the interactions between political and financial interests and their impact on banks' innovation based on the Algerian example.

The following section will present an overview on the Algerian banking market in general and the level of development of electronic banking in particular.

## **1.2 Contextual Analysis**

Since the end of the 1980s, Algeria has witnessed several changes in its political, social, and economic situation. The banking system in Algeria remains embryonic despite having been open to foreign banks since 1998 (Tazerout, 2011). However, *Algerie Poste* (Algeria Post) possesses the largest branch network in the country with more than 3,500 branches and 15 million current accounts (Mahloul cited by Hamzi, 2012). It aims to create its own bank due to its privileged position to offset the lack of liquidity of its post offices, as it is considered an important channel for money transfers and also since its biggest customer remains the state, which deals exclusively with *Algerie Poste* for salary payments to all state employees (Djouadi, 2012).

Within the framework of economic development, the Algerian government has decided to reform the banking sector in the medium term in order to boost the economy, enhance the effectiveness of Algeria's monetary policy, and absorb the significant liquidity existing within the market (Global Insight, 2012). The banking industry has dramatically changed from the time that the Global Insight study was initiated (Imam, 2014), as the current global economic crunch and the downslide of oil prices have adversely affected the Algerian economy, due to the government's over reliance on oil and gas exports (Mebtoul and Goumiri, 2016). However, this phenomenon has created a surplus of liquidity for the banks in previous years with oil prices above the \$100 mark. The situation has dramatically changed in the past year with the government initiating austerity measures and various other initiatives in an attempt to diversify its revenue streams and inject liquidity into the banking network to support public spending and economic growth (Mebtoul, 2016). In the past year alone, the government has devalued the Algerian Dinar to decrease the country's reliance on imports and attempt to boost national production. The complexity of this situation has persuaded the government to launch a 7% fiscal amnesty in an attempt to attract the estimated \$40 billion of the grey market back into its banking circuit, and lastly issued a 3 and 5 government bond at 5% and 5.75%, as another attempt to increase liquidity in the banking industry (ibid).

As a result, the Algerian government has recently simplified the setting-up of bank accounts for private individuals, who only need to present an identification and proof of residence to hold one and benefit from basic banking services (Boumazza, 2012). Besides, with the proliferation of internet users in Algeria, and to keep up with the spirit of modernity, some banks have tried to diversify their services by offering "electronic banking" service (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 reinforcing the image of modernity of the Algerian banking sector in the international marketplace (Tazerout, 2011). Conversely, there are issues associated with the use of e-banking (Al Hajiri, 2008) such as problems related to internet security, fear of hackers, and fraud. However, internet banking in Algeria remains at an early stage of development, with only a few banks offering online services to their clients (SATIM, 2013). As

most banks perceive this service as an additional expense, which would offer them, limited benefits (Tazerout, 2011) and requires effective coordination and collaboration between the government, the central bank and the banks within the industry.

In this respect, the government allowed and initiated the creation of two institutions, the '*Société d'Automatisation des Transactions Interbancaire et Monétique*' (SATIM) and '*Groupement d'Interet Economique*' (GIE) to promote e-banking in the country (Ameyar, 2012). SATIM was first created in 1995 by the banking community and it became the technical entity which would insure and accompany the development and modernization program of banks along with a primary goal of promoting different means of payments, particularly card payments (Oxford Business Group, 2015). The SATIM is also the only interbank electronic banking operator in Algeria for domestic cards. As for the GIE, it was created in 2014 to overcome the shortcomings of SATIM, to 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 (ibid). This will further ensure the standardization of e-banking products and systems. As a regulator of e-banking in Algeria, GIE also has the role of defining the technical specifications and certifying all hardware and software that would be used for e-banking purposes (ibid).

In Algeria, 'Automatic Teller Machines' (ATM) is the most popular e-banking service among the banks in Algeria, according to SATIM. The number of debit cards issued by the banking community has significantly increased since 2005, so the number of cards went up from 120,000 in 2005 to 750,000 cards in 2012 (SATIM, 2013). However, few clients use this service, since some clients have still not collected their cards from their bank (Mahloul cited by Hamzi, 2012).

Algeria's economy is dominated by cash as the main means of payment due to its culture of money hoarding, people's inexperience with using bank cards, lack of trust and poor understanding of the benefits of digital payment systems, i.e. debit cards and online funds transfer (Benkritly cited by Faradji, 2012). Sherif and Serhouchni (1999) claim that the phenomenon could also be due to a lack of communication and gaps in the law in this sector. This view was supported by various Algerian economists, for example the former head of the National Economic and Social Council, Mr

Mekideche, who have observed that the reason that makes Algerian customers hesitant to adopt e-banking is “culture” (Mekideche, 2010). The Algerian customer is not accustomed to use any other means of payment than cash (Mekideche, 2010). Moreover, Financial Afrik (2013) cites Ould Moussa’s belief that economic changes, which the country has experienced since its independence, have had a significant role in shaping the banking culture and people’s behaviour towards banks and their services.

Even though, the Algerian government has reformed the banking sector at different times in order to boost the economy, enhance the effectiveness of Algeria’s monetary policy and absorb the significant liquidity existing within the market (Global Insight, 2012), it seems that in terms of e-banking development, few improvements have been accomplished in the last four years. This is also indicated by the former head of ABEF, who also claimed that there is a lack of collaboration between banks in this matter as well as an absence of marketing strategy to commercialise it. This is in addition to the absence of a legal framework to help regulate e-business activities within the country (Rondeleux, 2014). Khalfan and Ashwaf (2004), Shah et al, (2009) and Al-Hajri (2008) who conducted a study of this matter in Oman, identified the presence of certain barriers to e-banking, which he identified as: lack of integration of similar systems, short term target culture of the banks, lack of understanding of its benefit, lack of offers as well as bad marketing. Their study shows some similarities between the cases of Algeria and Oman based on the observations made by the author on the Algerian case (Shah et al., 2009). Another study in Jordan, conducted by Alawneh and Hattab (2009), who investigated factors affecting e-banking diffusion, stated that there is limited knowledge of the main reasons why e-banking was still in its infancy in Jordan. This study investigated relationships between the variables of the Technology, Organisation, and Environment (TOE) framework in addition to adding independent variables including: technology readiness, bank size, financial commitment, competitive presence and pressure, regulatory support, as well as dependent variables such as e-banking usage.

Bearing in mind that, in relation to Algeria, other external factors such as political and economic reforms and the underground economy need to be taken into account in this research, as these factors may affect the banking culture (Bouchelit, 2015); this also

refers to which bank services are used by bank clients and how it can be measured including calculating the number of people that hold a bank account. This is in addition to the electronic banking culture (that can be associated with the e-habits of customers) as defined by Centeno (2004). The context of the development and implementation of electronic banking and commerce has also significantly changed since the beginning of this study as formerly mentioned. The GIE has released a report of the actions initiated by ABEF with a tender offer for the installation of electronic payment terminals as part of the government's strategy to develop electronic payments (Mouzaoui, 2016). This report also sheds some light on the problems encountered in the development and implementation of electronic payments. The problems outlined include: insufficiency of interbank cards, lack of card product diversification, lack of electronic payment terminals and disparity of investments made by banks in the development of electronic payments (public banks have been investing more than the private banks in the e-banking platform provided by SATIM). In addition, the absence of a regulation authority dedicated to electronic payments before 2015, lack of communication and a concrete marketing strategy educating the public on the use, benefits of cards and payment methods were also found to be major barriers to e-banking development. This report also suggests various actions to develop the adoption of electronic payments and banking.

### **1.3 Research Problem and Research Gap**

E-banking has been widely studied for its importance to both banks and their customers (Hanafizadeh, Keating and Khdmatozar, 2014). However, this research is mainly driven by the absence of studies attempting to explain empirically why banks do not adopt or develop e-banking services. Since most of the studies undertaken on e-banking adoption were either assessing customers' barriers to adopt this new service (Rotchanakitumnuai and Speece, 2003; Pikkarainen et al., 2004; Gerrard, Cunningham and Devlin, 2006), investigating the characteristics of e-banking adopters (Azouzi, 2009; Sergeant, 2000) and assessing the benefits of e-banking to both banks and clients (Kiang, Raghu and Shang, 2000; Howcroft and Beckett, 1996; Al-Smadi, 2012) or exploring the challenges of e-banking implementation including security risks, customers' faith and legal security (Yang, 1997; Mihalcescu et al., 2008; Angelakopoulos and Mihiotis, 2011; Kumar, Sareen and Barquissau, 2012).

However, an organisation's adoption of e-banking has been less studied as stated by Wenninger (2000) and later confirmed by Hanafizadeh, Keating and Khedmatgozar (2014). In addition, Bultum (2014) recommends that researchers could conduct this type of study in less developed regions and include new sets of variables such as political or socio-cultural factors as they have an impact on e-banking adoption.

It can be seen that there is the scarcity of relevant knowledge on e-banking adoption and development by banks within a developing economy from both the contextual (external) and institutional (internal) viewpoint, while identifying the main factors would possibly help banks to adopt and develop e-banking services. From the contextual analysis of Algeria, a difference between political and financial interests was made and identified for their role in affecting the e-banking sector. It appears that the political interests were formed by the main political/ institutional authorities and other elements linked to it. These authorities are the government and the central bank, which both aim to primarily defend the state's interest and constitute the main coercive actors within the environmental construct. Linked to these, the political and economic reforms, legal framework, underground economy and the national cash culture are other elements of this political frame to be taken into account for their role played in shaping banks' behaviour and influencing their adoption and development of e-banking in particular. On the other hand, the financial interest was formed by the technological and organisational context of the banks and their parent corporation's strategy. Therefore, it is important to explore the contextual factors (technological, organisational, and environmental) and institutional forces with pressures (coercive, normative, and mimetic) surrounding banking to identify the key influential factors of banks' adoption and development of e-banking.

## **1.4 Research Aim and Objectives**

### ***1.4.1 Research Aim***

This research has been motivated by the dearth of theoretical frameworks that might explain what factors affect banks' adoption and development of e-banking. It is of importance to create a new conceptual model in order to explain e-banking adoption and development. Hence, the aim is to contribute to knowledge of the interaction between financial and political interests and its impact on organisational innovation.

### **1.4.2 Research Objectives**

The objectives of this research are:

- Establish the relative influence of political interests in organisational financial decision making.
- Develop a descriptive model for the specific context of e-banking adoption.

The fulfilment of these objectives provides a novel contribution to the e-banking industry and studies.

### **1.5 Research Questions**

To focus on these objectives, these research questions will be addressed:

- What forms do the interactions take between political and financial interests and the banks?
- How do these political and financial interests interact with each other?

These questions are a guide for choosing data collection strategies, methods and tools to gather the required data.

### **1.6 Research Method**

To fulfil the aims of the study and answer the research questions, this study is based on a pragmatic philosophy. The tools used for data collection were: interviews and documents.

This research adopts a multiple case study strategy whereby data were collected from four banks with different origins (French, Arab, state-owned and an Anglo-Saxon bank) as well as from two regulatory organisations, namely the Bank of Algeria (Central Bank) and the Groupe d'Intérêt Economique de Monétique 'GIE'. In total ten interviews were conducted with the e-banking department managers and senior relationship managers of the selected banks established in Algiers (capital city of Algeria). These interviews included one with the payments' systems director at Bank of Algeria and another with the General Manager of 'GIE'.

Furthermore, the data collected from the interviews were corroborated with industry reports in specialised and scientific journals.

## 1.7 Thesis Outline

The structure of this thesis is as follows:

**Chapter 1 Introduction:** Gives an overview of the Algerian banking industry. It identifies the research problem and gap. It also presents the aim, objectives and research questions, in addition to an overview of the research method applied.

**Chapter 2 Literature review:** Examines the gaps in the literature and highlights the research problem. From this discussion, the research questions are formulated.

**Chapter 3 Conceptual framework:** Presents the initial framework developed from the literature and discusses its main constructs, and components. This framework combines the TOE framework and institutional theory.

**Chapter 4 Methodology:** Identifies the research paradigm, explains its usage and explores the research methods used while collecting and analysing the data.

**Chapter 5 Findings: Case to case analysis:** presents the findings of the individual case studies.

**Chapter 6 Cross-cases analysis:** presents a discussion of the findings from the cross-case analysis and an edited version of the initial framework.

**Chapter 7 Conclusion:** Draws conclusions, and presents the theoretical, practical and methodological contributions of this research. It ends with describing the limitations of the research as well as recommendations for future researchers.

## 1.8 Summary

This chapter provides a brief overview of the Algerian banking market as well as the level of development of electronic banking adoption. Furthermore, it highlights the aims and objectives of this research and the research questions while summarising the research methodology used in this investigation and its scope.

## **Chapter 2 Literature Review**

### **2.1 Introduction**

Since the focus of this research is on understanding the impact of the contextual factors and institutional forces on the adoption and development of electronic banking by banks, this chapter reviews the existing literature on electronic banking adoption. It also examines various concepts and factors with the aim of developing a framework to guide the researcher throughout the investigation and aids in understanding the phenomenon in its context.

The following sections will review the literature of the main information systems' theories related to technology adoption. This chapter lists the main advantages of e-banking, defines concepts and variables used in this study and reviews several studies on the adoption of e-banking by customers and banks particularly in developing countries. Moreover, it gives an overview of the literature of the level of development of electronic banking in Algeria from which the main gaps are revealed and the research questions are formulated. Finally, the conclusions are given.

### **2.2 Theories of Information Systems Adoption**

Several information systems theories have been applied extensively by researchers in the area of e-banking, which have introduced new theoretical models and constructs for the adoption of new technologies Wade (2009) cited in Oliveira and Martins (2009). The Technology Acceptance Model (TAM) developed by Davis (1989), for instance, is a well-known theory that has been used by a large number of researchers to predict the acceptance of new technologies. It includes both the 'perceived ease of use' (PEOU) and 'perceived usefulness' (PU) factors. TAM is considered by several scholars to be an adaptation of the Theory of Reasoned Action (TRA). This model was developed by Fishbein (1967) and, later on, simplified by Davis by removing the attitude construct to create TAM. Safeena, Date and Kammani (2010) claim that the success of TAM is due to its parsimony and the wealth of empirical researches that support it. The aforementioned authors also state that customers' attitudes towards online banking are influenced by their prior experience with computers. In this respect, the TAM model was used to predict the adoption of e-banking in Algeria by

Bendiabellah, Dahou and Hacini (2012) who revealed that perceived ease of use, usefulness, and trust have significant impact on the adoption of internet banking, with perceived trust being the most significant of the three factors.

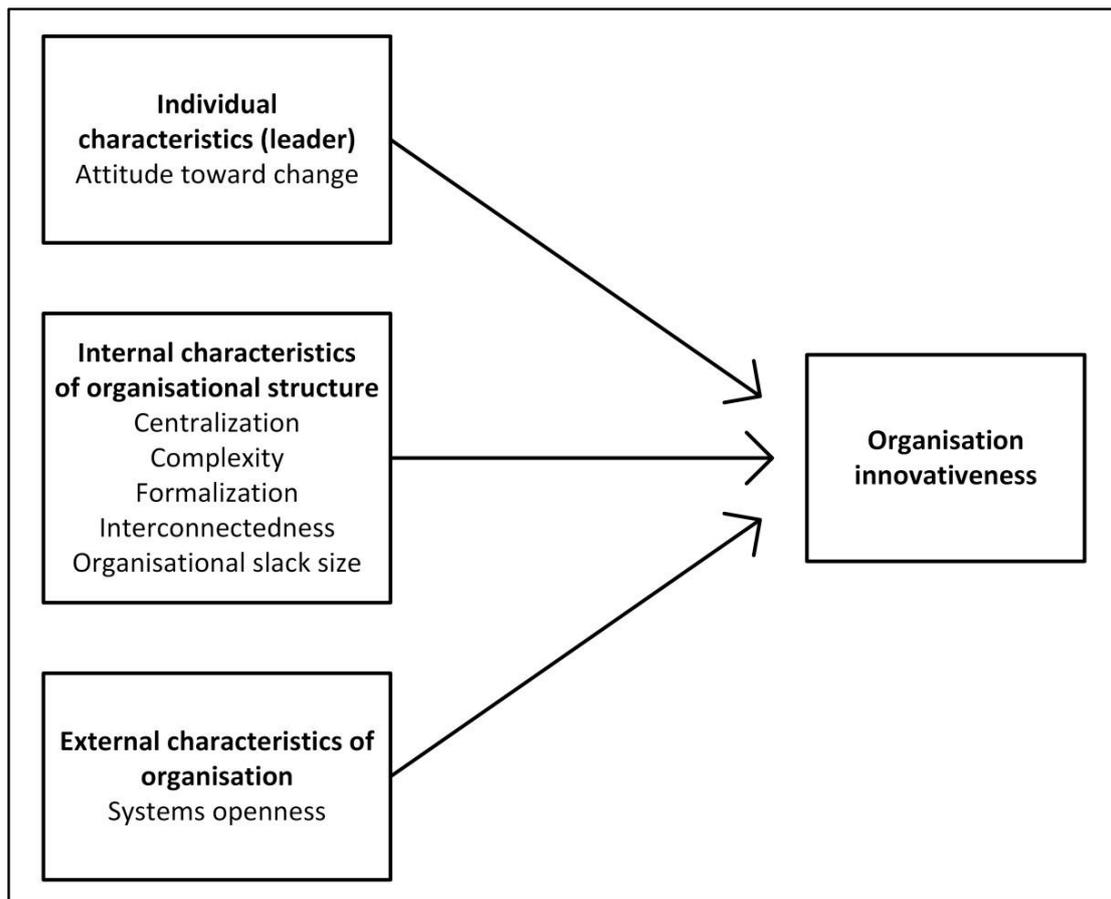
In 1985, Ajzen developed the Theory of Planned Behaviour (TPB) and used it to enhance TRA. Another model called the Unified Theory of Acceptance and Use of Technology (UTAUT), which was developed by Venkatesh, Brown and Bala (2003) aimed to clarify people's intention to use a new technology and how it may affect their behaviour after using it. UTAUT Theory was used by Al-Qeisi (2009) in his study on internet banking adoption by customers. The Technology Acceptance Model, the Theory of planned behaviour as well as the Unified Theory of Acceptance and the Use of Technology theory are frequently employed to investigate technology acceptance at an individual level as stated by Baker (2012).

However, the Diffusion of Innovation (DOI) [see Figure 2.1] theory that was developed by Rogers (1995) and the Technology, Organisation and Environment (TOE) framework developed by Tornatzky and Fleischer (1990) were both developed to investigate technology acceptance at an organisational level (Chong et al., 2009). DOI is a theory for assessing innovation adoption at the organisational and individual levels which focuses on the *why*, *what* and *how* new ideas can become implemented by firms (Baker, 2012). This theory distinguishes between an individual's adoption of innovation and a firm's innovativeness (Rogers, 1995) as being two different processes. Since at an organisational level it is much more complex to innovate and adopt new solutions as it involves a number of people who play a major role in the innovation decision, and may be for or against the idea (Oliveira and Martins, 2011).

DOI is consistent with the TOE framework as it focuses on individual characteristics and both external and internal organisation features, which are considered similar to the technological and organisational context of the TOE framework (Oliveira and Martins, 2011; Baker, 2012). However, the TOE framework includes the environmental context as a new factor because of its important role in innovation adoption (Baker, 2012). Thus, many scholars have incorporated environmental variables with institutional theory, claiming that the institutional environment is crucial in shaping a firm's actions and structures (Gibbs and Kraemer, 2004; Li, 2008; Soares-Aguiar and Palma-Dos-Reis, 2008).

There are other theories available to explain the organisational adoption of new technology (Baker, 2012) such as Task-Technology Fit Theory (Cooper and Zmud, 1990); institutional theory (DiMaggio and Powell, 1983), the Theory of Organisational Design (Swanson and Beath, 1990); and Social Contagion Theory (Angst et al., 2010). Any of these theories could be used as an alternative to TOE framework or Diffusion of Innovation. These theories can also be combined with others to explain the adoption and diffusion of new technologies (Thong, 1999; Zhu et al., 2006b).

Nevertheless, for the purpose of this study, the Technology, Organisation, and Environment (TOE) framework developed by Tornatzky and Fleischer (1990) is combined with the institutional theory created by DiMaggio and Powell (1983) to address the gap in knowledge and lack of theoretical framework to represent the contextual and institutional factors affecting banks' adoption and development of e-banking.



**Figure 2.1. Diffusion of Innovation Theory (Rogers, 1995)**

### **2.3 Technology, Organisation and Environment (TOE) Framework Description**

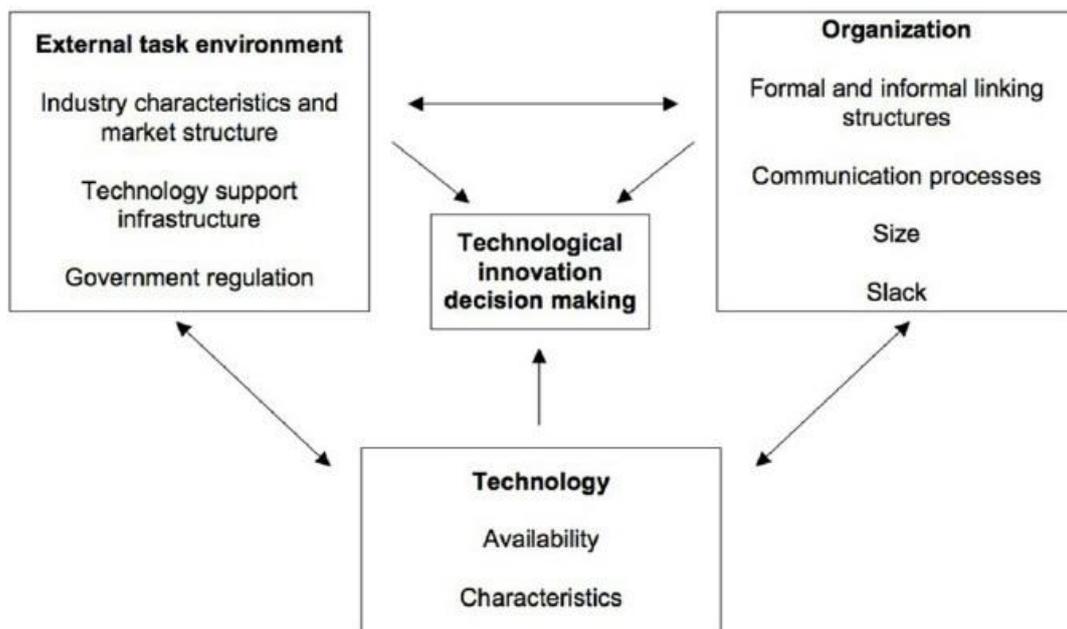
The TOE framework is an organisational-level theory, which was developed by Tornatzky and Fleischer (1990) to study the adoption and implementation of information and communication technology (ICTs) innovations by users at an organisational level. TOE can be applied to examining the adoption of any technology (Zhu, Kraemer and Wu, 2003) including e-business (Yeh, Lee and Pai, 2014) electronic banking (Liao et al., 1999; Bultum, 2014). In this respect, the TOE framework is a rational, goal-orientated theory (Al Nahian, Akter and Islam, 2009).

This theory has been applied in various studies of information technology, and has proven its suitability for studying organisations' adoption of e-banking (Baker, 2012). The TOE framework was applied by various researchers who have reported its openness to accommodating different factors in each of the TOE constructs (Oliveira and Martins, 2011). It was also stated that for each of the investigated contexts and innovations there is a unique set of factors that may influence a firm's decision to adopt this innovation (Baker 2012). Therefore, it can be concluded that each technology has its own factors, and similarly each national/ industrial/ cultural context will be affected by its own factors.

Zhu and Kraemer (2005), for instance, combined technological, organisational and environmental factors in order to evaluate e-business use and value at an organisational level. In their study, they revealed that a firm's size as well as its technological capacities and financial resources, in addition to the legal framework and the level of competition within the market, play a crucial role in the implementation and use of e-business. Moreover, TOE was applied by Oliveira and Martins (2010) to measure the variables that influence e-business adoption in 27 European countries. The authors include in their model: technology readiness and integration in the technological construct; firm size; expected barriers and benefits of e-business, and internal processes within the organisational construct. Finally, in the environmental construct competitive pressure and internet penetration were included. Oliveira and Martin's (2010) study indicates that within the European context, the industry and its characteristics play a major role in e-business adoption but not the country to which the company belongs. Furthermore, and in accordance with the purpose of this study and the type of the technology assessed, Bultum (2014) also

applied TOE to investigate the factors that influence the adoption of electronic banking in the Ethiopian banking sector.

The following sections will discuss the three main constructs or contexts that compose the TOE framework, starting with the technological context, followed by the organisational context and finishing with the environmental context. It will also include the different uses of this framework and examples of how these contexts affect the framework.



**Figure 2.2. Technology, Organisation and Environment framework (Tornatzky and Fleischer, 1990)**

### **2.3.1 Technological Context (TC)**

This construct represents all of the technologies that are important for an organisation, which includes existing technologies (already in use) and others that are available in the marketplace but not yet acquired and used by the firm (Tornatzky and Fleischer, 1990; Baker, 2012). Originally, this construct comprised innovation characteristics and availability as key factors (Tornatzky and Fleischer, 1990). Most technologies result from innovations, which are available in the marketplace, either already adopted or not yet adopted by organisations. These innovations are categorised into three types of change: incremental, synthetic and discontinuous (Tushman and Nadler,

1986 in Baker, 2012). Each type of innovation introduces a different change to the organisation and the marketplace.

Incremental innovations present new characteristics or new versions of existing technologies and represent the minimum amount of risk and change for the adopting firms whereas synthetic innovations create a moderate change as they combine existing technologies or ideas together. Discontinuous innovations, also known as radical innovations (Ettlie et al. 1984 cited in Baker, 2012), on the other hand represent a new beginning or era, which causes the greatest amount of change to the organisation or marketplace. Thus, firms have to carefully consider the type of change that will be triggered by adopting a new technology, as innovations can have a dramatic impact on their growth and development (Tushman and Anderson, 1986 cited in Baker, 2012).

As formerly explained, all the scholars that have used the TOE framework have included a new set of factors in each of their contexts for studying technology adoption in various domains (Oliveira and Martins, 2011; Baker, 2012). However, this research emphasizes the relative advantage or perceived benefits and the relative disadvantage or perceived risks of e-banking in the technological context for their potential impact on banks' adoption and development of e-banking.

Electronic banking is considered a disruptive technology as it affects the way banking transactions are conducted, influences banks to continuously innovate (Alsomali 2015) and may cause some risks for both banks and clients, which can inhibit its adoption (Farzianpour et al., 2011). Therefore, it is crucial for banks to comprehend the risks related to e-banking adoption in order to minimise them and increase its penetration within the marketplace (Alsomali 2015). On the other hand, e-banking is also known to offer various advantages to banks including competitive advantages (Aliyu and Tasmin, 2012). It is, thus, critical to understand the benefits of e-banking in order to better promote it.

### ***2.3.2 Organisational Context (OC)***

This construct refers to the characteristics and resources of an organisation, including the links that provide connections between employees, internal communication processes, organisational slack (resources that are available and not used) and organisation size; this context can affect organisations in different ways (Baker, 2012)

for example, when the innovation adoption and implementation process affects mechanisms that link internal groups within an organisation (Galbraith, 1973; Tushman and Nadler, 1986 cited in Baker, 2012). It is necessary to identify and understand the organisational context in order to differentiate between the supportive and non-supportive power within an organisation (Sajjad, 2014). The following section will explain how each component of this construct affects the implementation of new technology.

Studies have been conducted to explore managerial structures and their relationships with the new technology adoption process where it was revealed that, on the one hand, organic and decentralised organisational structures are central to the adoption phase due to its emphasis on teams, with fair distribution of responsibilities for employees and stimulating lateral communication (Burns and Stalker, 1962; Daft and Becker, 1978 cited in Baker, 2012). In addition, firms with mechanistic and centralised structures are crucial to the implementation phase of the innovation process for the way they imply formal reporting and define employees' responsibilities (Zaltman et al., 1973 cited in Baker, 2012). These studies confirm that the organisational structure has an effect on the adoption of new technologies.

The second factor deals with communication within an organisation and how it can also influence the adoption of new technologies since top managers have the power to support innovations in their organisations by building a more suitable context through which they indicate the role of innovations within the firm's strategy and provide training for the staff to ensure their capabilities to run the technology (Tushman and Nadler, 1986 cited in Baker, 2012; Powell and Dent-Micallef, 1997; Lee and Kim, 2007).

Another factor is slack resources or available resources. Research has shown that slack resources are crucial to the adoption phase (March and Simon, 1958; Rogers, 1995). However, other studies show that innovation does not require slack resources to take place (Tornatzky et al., 1983 cited in Baker, 2012); for example, Tornatzky and Fleischer (1990) argue that having resources is important but it is not sufficient to promote innovation. Slack resources as well as firm's size are the most frequently studied elements within the organisational context, because of their contribution to innovation adoption.

A significant number of studies have been conducted on firm size demonstrated that larger firms are more likely to adopt new technologies (Cyert and March, 1963; Kamien and Schwartz, 1982; Scherer, 1980 cited in Baker, 2012). However, many of these studies have been criticised because of the relationship between the firm's size and its available resources (Kimberly, 1976 cited in Baker, 2012), which makes it difficult to discern a direct link between size and innovation.

With respect to banks and their adoption to e-banking solutions, Hasan, Maccario and Zazzara (2002) found that larger banks and those belonging to a group are more likely to adopt electronic banking than independent and smaller banks. This finding was confirmed by Muwando and Webb (2014) who showed that the size of the bank is a critical success factor for electronic banking adoption as it is generally expected that bigger organisations will be the first to innovate and influence others due to their resources (Buzzacchi, Colombo and Mariotti, 1995). Nevertheless, it was also reported by Malhotra and Singh (2007) that public banks will be less likely to adopt electronic banking regardless of their size. Otherwise the literature asserts that bank size has a positive and significant impact on the adoption of electronic banking.

Organisational context with its different factors from the structure of the organisation, level of support from the management, slack resources and firm size have an effect on organisations' adoption of new technologies. Therefore, the present study intends to assess the impact of the organisational context on the adoption and development of e-banking.

### ***2.3.3 Environmental Context 'EC'***

The environmental context includes all the elements surrounding the organisation such as the structure of the industry, the presence or absence of technology providers as well as the regulatory environment (Oliveira, Martins 2011). The structure of the industry has been widely studied and various results show that intense competition almost always stimulates the adoption of new technologies (Mansfield, 1968; Mansfield et al., 1977 cited in Baker, 2012); other results show that a dominant company can influence others to innovate (Kamath and Liker, 1994). Other factors that foster innovation include the availability of skilled labour and accessibility of technology providers and consultants (Rees, Briggs and Oakey, 1984). In addition, government regulations have an immense power over the adoption of new

technologies, which can either encourage or discourage the adoption process (Hall and Khan, 2003).

Furthermore, it has been observed that this framework (TOE) is similar to Rogers (1995) Diffusion of Innovations (DOI) theory, which focuses on individual characteristics and both external and internal features of the organisation. However, it omits to evaluate a key additional element, which is environment. The environment comprises both obstacles and opportunities for technological change, which were not taken into account by Rogers (1995).

This study primarily focuses on the environmental context surrounding banks due to the numerous external pressures that affect their development and innovation as it represents the main source of obstacles and challenges for banks to adopt and develop e-banking systems as formerly mentioned within the contextual analysis.

Therefore, in order to assess its impact on the adoption and development of e-banking, the author adapts the original TOE framework, demonstrated in the figure below, as it presents “both constraints and opportunities for technological innovation” (Tornatzky and Fleischer, 1990, p.154).

## **2.4 TOE Framework**

Several studies have used the TOE model as a generic theory that possesses explanatory power across various contexts including technology, industry and national culture (Baker, 2012). It has been adopted for many reasons, some of which are to explain the adoption of inter-organisational systems (Grover, 1993; Mishra et al., 2007); e-Business (Zhu et al., 2003; Zhu et al., 2004; Zhu and Kraemer, 2005; Zhu et al., 2006b); electronic data interchange ‘EDI’ (Kuan and Chau; 2001), open systems (Chau and Tam; 1997); enterprise systems (Ramdani et al., 2009); and a broad spectrum of general IS applications (Thong; 2009).

It has also been applied to investigate the adoption of innovations in various industries such as: manufacturing (Mishra et al., 2007; Zhu et al., 2006b), health care (Lee and Shim, 2007), retail, wholesale, and financial services (Zhu et al., 2006; Kurnia, Peng and Liu, 2010).

Examples of different reasons for adoption of this framework include a study by Zhu et al. (2003) where they applied the TOE framework in order to examine the factors affecting e-business adoption of 3,100 firms. Furthermore, this model was mainly tested in both developing and developed countries in Europe, America and Asia (Zhu et al., 2003; Zhu et al., 2004; Zhu and Kraemer, 2005; Zhu et al., 2006b; Baker, 2012). Each study has shown that the three elements of the model have an effect on an organisation's adoption of new technologies.

Several researchers including Iacovou, Benbasat and Dexter (1995), Grover (1993) and Kuan and Chau (2001) have revealed through their studies of the Electronic Data Interchange (EDI) innovation the importance and usefulness of the TOE framework for studying the adoption of new complex technologies. Nevertheless, some researchers have introduced some minor changes to the TOE framework in order to adapt it to their hypotheses (Oliveira and Martins, 2011). For instance, Thong (1999) included Chief Executive Officers (CEO) innovativeness and computer skills in the technological context.

An advantage of this theory is that it has the ability to be combined with other theories such as Diffusion Of Innovation (DOI) and institutional theory, to better understand new technology adoption at an organisational level (Thong, 1999; Gibbs and Kraemer 2004; Hsu, Kraemer and Dunkle, 2006; Zhu et al., 2006a; Li, 2008; Soares-Aguiar and Palma-Dos-Reis, 2008; Chong et al., 2009; Oliveira and Martins, 2010b).

All researchers who have tested the TOE framework have concurred with its authors, Tornatzky and Fleischer (1990) and claimed that for each context there is a unique set of elements that can be measured, because of their potential effect of innovation adoption in relation to each situation.

To conclude, the initial TOE framework has not only been developed theoretically but has been validated through empirical studies and replications since its first development. At the beginning, TOE was considered to be a "generic" theory (Zhu and Kraemer, 2005, p. 63); however, since it has offered many possibilities to test various factors TOE has been used by several researchers, who have made minor adjustments to the theory itself (Baker, 2012). The lack of development in the TOE framework was essentially due to its alignment with other theories of innovation adoption rather than its power to provide alternative explanations (Baker, 2012). The

TOE framework has had some conflicts with other theories, which have been resolved by allowing TOE to incorporate opposing ideas instead of confronting them. As it was stated above, the TOE framework and the Diffusion of Innovation (DOI) have been found to be consistent and, therefore, have not been modified.

For the purpose of this research, the technology, organisation and environment framework was adopted for two reasons. First, because of the confirmatory nature of this research, and secondly because of the integrating power and broadness of the TOE framework that can provide opportunities for identifying new relevant factors in banks' adoption of e-banking and thus create a model that summarises it. Moreover, this theory was chosen for its ability to include the context of the industry and its suitability for investigating organisations' adoption of new technologies, in this case e-banking.

**Table 2.1. Some studies built on the TOE framework**

The table below shows some of the key studies that used the TOE framework as noted above.

<b>IT Adoption</b>	<b>Analysed Variables</b>	<b>Authors</b>
EDI	<p><b>Technological context:</b></p> <p>Perceived direct benefits</p> <p>Perceived indirect benefits</p> <p><b>Organizational context:</b></p> <p>Perceived financial cost</p> <p>Perceived technical competence.</p> <p><b>Environmental context:</b></p> <p>Perceived industry pressure</p> <p>Perceived government pressure</p>	Kuan and Chau (2001)
Web Site	<p><b>Technological context:</b></p> <p>Technology readiness</p>	Oliveira and Martins (2008)

	<p>Technology integration Security applications</p> <p><b>Organizational context:</b></p> <p>Perceived benefits of: Electronic correspondence IT training programmes Access to the IT system of the firm Internet and e-mail norms</p> <p><b>Environmental context:</b> Web site competitive pressure</p> <p><b>Controls:</b> Services sector.</p>	
E-Business usage	<p><b>Technological context:</b></p> <p>Technology competence</p> <p><b>Organizational context:</b></p> <p>Size; International scope Financial commitment</p> <p><b>Environmental context:</b></p> <p>Competitive pressure Regulatory support</p> <p><b>e-Business functionalities:</b></p> <p>Front-end functionality Back-end integration</p>	Zhu and Kraemer (2005)
E-Business initiation E-Business adoption E-Business routinization	<p><b>Technological context:</b></p> <p>Technology readiness Technology integration.</p> <p><b>Organizational context:</b></p> <p>Firm size; Global scopes Trading globalization</p>	Zhu et al. (2006b)

	<p>Managerial obstacles</p> <p><b>Environmental context:</b></p> <p>Competition intensity</p> <p>Regulatory environment</p>	
E-banking adoption	<p><b>Technological Context:</b></p> <p>Perceived risk and perceived benefits.</p> <p><b>Organisational Context:</b></p> <p>Financial and Human resources</p> <p><b>Environmental Context:</b></p> <p>Legal framework</p> <p>National ICT infrastructure</p> <p>Competitive pressure</p> <p>Government support</p>	Bultum (2014)
ERP	<p><b>Technological context:</b></p> <p>IT infrastructure</p> <p>Technology readiness</p> <p><b>Organizational context:</b></p> <p>Size; Perceived barriers</p> <p><b>Environmental context:</b></p> <p>Production and operations improvement; Enhancement of products and services</p> <p>Competitive pressure</p> <p>Regulatory policy.</p>	Pan and Jang (2008)
Deployment of B2B e-commerce: B2B	<p><b>Technological inhibitors:</b></p>	Teo, Ranganthan and

firms versus non-B2B firms	<p>Unresolved technical issues</p> <p>Lack of IT expertise and infrastructure</p> <p>Lack of interoperability</p> <p><b>Organizational inhibitors:</b></p> <p>Difficulties in organizational change</p> <p>Problems in project management</p> <p>Lack of top management support</p> <p>Lack of e-commerce strategy</p> <p>Difficulties in cost-benefit assessment</p> <p><b>Environmental inhibitors:</b></p> <p>Unresolved legal issues</p> <p>Fear and uncertainty</p>	Dhaliwal (2006)
----------------------------	--	-----------------

As shown in the above table, some studies looked at similar variables such Oliveira and Martins (2008) and Zhu et al., (2006b) which investigated the technology readiness and technology integration as key factors within the technological construct; and on the other hand, they looked at the competitive pressure as influential environmental factor. As for the organisational construct, different factors were studied. Nevertheless, in other studies, for instance: Pan and Jang (2008); Bultum (2014) and Dhaliwal (2006) some similar factors were investigated for their impact on the environmental construct, such as government support, legal framework.

This table only confirms the integrating power, broadness and openness of the TOE framework and its flexibility in usage.

## 2.5 Institutional Theory and its Combination with the TOE Framework

Most studies of new technology adoption have relied on the Diffusion of Innovation theory (DOI) developed by Rogers in 1995 that assumes diffusion is driven principally by users' perception or by technological features. However, adoption of

new technologies by organisations could also be affected by the institutional environment (internal context) in which the company is incorporated (Baker, 2012). The environment includes other actors such as suppliers, other partners, customers, competitors, and the government, which play an important role in the process of adoption and use of new technology.

Institutional theory has been adopted to investigate the effect of external forces on organisation when adopting innovation (DiMaggio and Powell, 1983). This perspective was used in various disciplines such as: economics, political science, and business research (Björck, 2004) because it provides a better explanation of how environmental factors surrounding an organisation affect its adoption of innovation (Berger and Luckmann, 1966, cited in Sajjad, 2014). DiMaggio and Powell (1983) claim that there are 3 types of institutional pressures namely coercive, normative and mimetic, which determine technology adoption by individuals and firms. The aforementioned pressures have been tested in various industries in relation to the adoption of new technology (Björck, 2004).

The first “coercive pressures” are exerted by formal and informal forces from the society and dominant actors such as government, suppliers, customers and parent corporations (DiMaggio and Powell, 1983). The second “normative pressures” are the result of frequent contact of firms with other adopters in dyadic relationships that consist of the relationship between one buyer and one seller (DiMaggio and Powell, 1983). It has been proven by Shi, Shambare and Wang (2008) that normative pressure is crucial when it comes to internet banking adoption. The third type is “mimetic pressures” that result from pressures exerted by the leading firms to push other firms to imitate them (DiMaggio and Powell, 1983) and to strengthen their image (Teo, Wei and Benbasat, 2003).

Institutional theory highlights the significant role of the institutional environment in its effects on organisational structures and actions (Scott, 2001; Scott and Christensen, 1995 cited by Gibbs and Kraemer, 2004). This theory asserts that organisational changes are made not only driven by rational goals, but also by the influence of cultural and social factors as well as organisations’ concerns for legitimacy (Gibbs and Kraemer, 2004). This theory also suggests that companies become more similar when exposed to normative pressures and pressures of legitimacy (DiMaggio and

Powell, 1983; cited by Gibbs and Kraemer, 2004). These pressures force firms within the same field to imitate each other due to the different pressures from competitors and customers in order to reach the same competitive level as the sector's leaders.

The literature suggests that combining institutional theory with other theories to overcome the shortcomings of institutionalism, generates new insights and facilitates the understanding of complex managerial issues related to information systems (Currie, 2009). An example is the study of Gibbs and Kraemer (2004) that combined institutional theory with the TOE framework from which an integrated e-commerce model was developed and tested. This model included factors of national environment and policy with organisational and technological factors. Results indicate that the main factors influencing e-business adoption are technology and financial resources, perceived strategic benefits, legislation barriers, external pressures and the government's role. It also indicates the important role played by the legal environment in hindering e-commerce adoption and usage, which has not been formerly discussed in TOE studies.

Björck (2004) stated that banks can be affected by institutional pressures, and thus, can be forced to adopt e-banking technology by external coercive actors such as the central bank, trading partners, customers and government, rather than making purely independent decisions to adopt such a service. Moreover, Al Nahian, Akter and Islam (2009) developed a theoretical model based on the combination of the TOE framework, Technology Adoption Model (TAM) and institutional theory, in order to identify the main factors affecting small/medium enterprises when adopting electronic banking in Bangladesh. They believed that identifying the barriers of electronic banking adoption would influence the banks to pressure the government to enhance the current situation and improve the infrastructure's quality. Their study highlighted the importance of institutional roles in developing countries and suggested the use of institutional theory to assess those roles as TOE was found to be too generic and TAM is limited to organisations' assessment of the usefulness and ease of use of the technology (Al Nahian, Akter and Islam, 2009). Despite these limitations, Awa, Ukoha and Emecheta (2012) combined TAM, TPB and TOE to investigate e-commerce adoption and extend knowledge in the area of technology adoption.

Therefore, this study will adopt institutional theory and include it within the environmental context of the TOE framework to determine which elements of the environment affect the adoption and development of e-banking. This type of combination has precedents in the work of numerous researchers investigating the organisational adoption of innovation (Purvis, et al., 2001, Chattarjee, Grewal and Sambamurthy, 2002; Teo, Wei and Benbasat, 2003 cited by Gibbs and Kraemer, 2004, Soares-Aguiar and Palma-Dos-Reis, 2008, Oliveira and Martins, 2010a, Bultum, 2015).

The next section will discuss the variables that have been identified by the author for their potential role in affecting banks' development in general, and their adoption of electronic banking in particular, as formerly mentioned in the contextual analysis.

## **2.6 Other External Actors and Factors**

There are many pressures that could affect the adoption of new technology; however, in the case of Algeria, other external factors, such as the underground economy, political and economic reforms, and the legal framework, need to be taken into account in this research because of their effect on the banking sector.

### ***2.6.1 Underground Economy***

The underground economy has had multiple names including *unobserved*, *hidden* or *shadow* economy, *grey market*, or *black market* (Feige, 1990; Feige, 2007); all these terms will be used interchangeably in this study. The underground economy has been much investigated because of its significant impact on an economy's public finances although it is difficult to measure its effect, despite the techniques that have been developed to quantify its size and importance (Feige, 1990; Gobbi and Zizza, 2012).

Various researchers have considered the following elements as contributors to the growth of the underground economy's size: complexity, perceived fairness of the tax system, the burden of social security contribution, the extent of bureaucracy and regulations and the incidence of corruption and rent seeking (e.g. Schneider, 1994; Loayza, 1996; Friedman et al., 2000; Schneider, 2010).

Others such as Bose, Capasso and Wurm (2008) have found that both the penetration of the banking sector and its efficiency equally contribute to reducing the size of the underground economy within a country. While on the other hand, other researchers

have claimed the possibility of a strong inverse correlation between the level of business liberalisation and the size of underground economy (Goldberg and Pavcnik 2003; Karlinger 2006; Elgin, 2013), which can be seen by reducing the business barriers that allow competition to grow and consequently offer more occasions for small firms to engage in underground activities in order to reduce their operating costs and survive in the marketplace.

The underground economy in Algeria remains a critical issue mainly due to its negative side effects on the economy, which has cost the government about ten billion Euros since 2009 (Bauer, 2012). Its actions started to surface while the country was facing a civil war against the Islamist opposition (Roberts, 2002; Harrold, 1995), where the ultimate target of the state was maintaining the security of the country. The size of the underground economy in Algeria was estimated to be 10 billion Dollars by Bendjaber (2007) who had limited resources, data related to non-declared activities and not enough time to conduct a more efficient and precise investigation. Despite differences in estimating numbers for this economy throughout the years, this phenomenon continues to be considered by many economists to be an obstacle to the growth of the national economy (Hachemaoui, 2009, Mebtoul, 2012, Mekideche cited by Djouadi, 2012, Mebtoul 2014). In this respect, Harold (1995) tried to identify the responsibility of this critical situation by naming it according to its impact on the country's development and its size within the underground economy. Some of the names he suggested for those involved were the "*mafia*", which is defined as people from the social elite who support, assist and are protected by people from the regime; the second suggestion was "*trabendo*" that is defined as a group of young people hawking their goods on sidewalks for easy profit, also called the "economy of the young".

Moreover, other factors might have contributed to the increase in the size of the underground economy in Algeria including rigidity of the fiscal system, bureaucracy, inefficiency of the education system, difficulty to acquire trade registration, and imbalance of the trade and taxation systems (Boudellal, 2009). Finally, he suggested looking at other variables such as financial laws (regulations), taxation systems, and the level of punishment in case of fraud to explain the underground economy. Therefore, it seems necessary to include the underground economy as one of the

environmental factors in this study in order to test its relationship with the adoption and development of e-banking services in Algeria.

### ***2.6.2 Political and Economic Reforms***

Since Algerian independence in 1962, the country has passed through many phases and changes in its economic doctrine (Jbili, 1997). It was firstly a socialist country that obeyed and applied the administered-economy principles i.e. planned economy through state owned companies (ibid). Then it transitioned into a capitalist economy (market economy), which happened in the mid-1990s. However, the state remains to this day the dominant actor in what can be described as an economy of state-capitalism (Farsoun, 1975; Jbili, 1997).

As a response to the refusal of foreign banks to finance the economy of an independent Algeria (ibid), between 1966 and 1968 the government nationalised all the banks and the ruling elite adopted a socialist political ideology. Following that all commercial sectors were nationalised, which reduced the banks' role to being a creditor for state enterprises (ibid).

The country was plunged into an economic crisis following the collapse of the oil market in 1986 causing an alarming increase in foreign debts (ibid). This worldwide crisis shook the socialist system to its foundation at both its economic and political levels (ibid). The Algerian regime was therefore obliged to introduce economic reforms and open up the banking sector from 1994. Yet, the banking sector has remained dominated by public banks, which are six commercial banks that finance more than 90% of the economy (ibid), as mentioned in the contextual analysis.

Only a few studies have been carried out covering the Algerian electronic banking area, notably the studies by Belkhamza and Wafa (2009); Tebbib (2014); Bendiabellah, Dahou and Hacini (2012) and Bouchelit (2015). For this reason, the author aims to investigate the reasons behind the relatively slow adoption and development of e-banking by banks based on the combination of the TOE framework with institutional theory, in which new variables will be added that have not been previously incorporated, in order to achieve this study's aims and objectives.

### **2.6.3 Legal Framework**

The absence of a clear legal framework in the area on information technology represents a real obstacle to national economies fully benefiting from the opportunities of e-business as stated in the UNCTAD report (2002, 2005). UNCTAD suggested the use of the UNCITRAL Model on Electronic Commerce law of 1996 that has been adopted by many countries, and especially less-developed ones, as a template for their legal systems. The establishment of a law for the adoption of ICT would, therefore, support the countries' development and preserve customers' rights. In the case of Algeria, although the government has made considerable efforts in order to create an appropriate legal framework to regulate the e-commerce in general and e-banking in particular, is still not established, which represents another obstacle to e-commerce enactment and e-banking growth.

In addition to what was previously mentioned, Alawneh and Hattab (2009) revealed in their study of Jordanian banks that there is a positive relationship between e-banking implementation and the presence of a legal framework. Therefore, it is necessary to look at the legal framework as an external and dependent variable that affects the implementation and diffusion of e-banking. Moreover, Zarmeene (2006) stated that having IT policies is very important and governments should take them into serious consideration, otherwise it might cause setbacks if the matter is not addressed properly.

### **2.7 Banks and Information and Communication Technologies (ICTs)**

Stable banks and financial institutions play a major role in every economy (Hasan and Marton, 2003), and have been found to support any country's economic development (Hassan, et al, 2010). In this respect, it has been claimed that the banking sector is at the heart of any economy, while information and communication technology (ICT) is at the heart of the banking system (Aliyu and Tasmin, 2012). Thus, ICT has had an impact on banks' performance and on customer service delivery (Ahmed, Rezaul, Rahman, 2010; Aliyu and Tasmin 2012). The emergence of new technologies in addition to the increase in competition has changed the relationship between banks and their customers, who have become more demanding (Cook, 1997; Shah and Clarke, 2009). This new circumstance has influenced banks to review their strategies

and, with time, introduce electronic products. These electronic services have become perceived to be obligatory if a bank is to preserve its competitive advantage (Aliyu and Tasmin, 2012).

The first appearance of self-service technologies in the finance industry was in the 1970s (Railton, 1985 cited in Hoele, Scornavacca and Huff, 2012) when banks introduced automated teller machines (ATMs) (Dabholkar, 1996). This development was followed by telephone banking in the 80s (Ahmad and Buttle, 2002), then with the proliferation of internet and mobile technologies such as smartphones and tablets, banks started diversifying their products by offering web-based banking (Bhattacharjee, 2001a, b) in addition to mobile banking applications (Laukkanen and Lauronen, 2005). Banks have used various channels including mobile networks, ATMs, SMSs and fax messaging (Milutinović and Patricelli, 2002). These technologies have transformed traditional banking businesses into e-businesses (Hoele, Scornavacca and Huff, 2012), reshaped the way financial services are performed to meet customers' needs (Alam, Musa and Hassan, 2009) and also influenced customers' readiness to make online transactions (Centeno, 2004).

In the early stages of banking innovations, bank websites only contained information about the bank and its products (Milutinovic, Patricelli 2002). However, with the proliferation of the internet, banks have begun to offer transactional services to their clients (Hussien and El Aziz, 2013), which enable them to pay bills, transfer funds between accounts, check balance history, order their check-books, and order and print bank statements at any time (Bahl, 2012). Despite the strong positive correlation between internet penetration and the adoption of internet services (Centeno, 2004), traditional banking services (face-to-face and paper based interactions) remain the preferred way of banking for clients conducting their daily transactions (ibid).

It has become vital for bankers to comprehend the current usage trend of e-banking services. In this respect, Poon (2008) conducted a research exercise to investigate this situation in Malaysia. The author found that providing some options like interactive loan calculators, exchange rate converters, and mortgage calculators on the banks' websites attracts the attention of both users and non-users. He also stated that the content and design of a bank's website, in addition to its image and management, has a positive effect on the consumer acceptance of e-banking. Thus, Poon (2008)

suggested that in order to maintain a solid relationship with their customers, banks should embrace new technologies to compete in this digital era (McMahon, 1996) and earn consumers' loyalty through a diversity of services and high quality of delivery. Hence it was suggested that banks should work on enhancing their reputation within the marketplace to reach more customers.

Furthermore, other scholars observed that banks have developed a certain interest in marketing and worked on the development of relationship banking principles (Axson, 1992; Berry, 1995). The high level of competition in the banking sector was a bank's main motivator for adopting marketing techniques (Howcroft, 1998, Cherchem, 2012) such as segmentation. Therefore, banks started employing segmentation techniques that would provide better understanding and services to customers, especially in a competitive market (Meadows and Dibb, 1998a). Speed and Smith (1992) found that most researchers defined segmentation as the process of collecting information about specific characteristics of the population of interest. Then, after the identification of the segments, purchase behaviour will be easier to predict and also minimise the risks of failure while launching e-banking services. However, they also stated that there is a gap in understanding how segmentation strategies could be employed more effectively and thus makes it more profitable for banks. Meanwhile, Alfansi and Sargeant (2000) also suggested conducting market research to forecast demand, train staff to enable them to sell products, and promote them through a marketing campaign. Moreover, Nunes and Cespedes (2003, p. 99) state that while "demographic segmentation can still tell you what people buy, demographics no longer tell you how people shop . . . It's a poor basis for channel design, the only rational basis is to integrate buyer behaviour", which was supported by Smith (2004) who added that it is an estimation based on assumptions about the characteristics and motivations (i.e. needs/behaviour) of customers, cited in Durkin (2004).

Wells (1993) evaluated the effect of marketing campaigns on debit card usage and found that profit could be made by banks if they invest in marketing to inform their customers on all the benefits of their debit cards. This study compared two banks and their marketing strategies for e-banking diffusion; these banks offered their cards for free to all their employees and encouraged them to use them so that they can get use them and understand their mechanisms and then promote them better. The author

focused on the role of push attitude in changing customer behaviour, he presented his argument by giving examples of banks that succeeded in gaining customers' attention by using different marketing tools, such as billboards, video training, advertising which involved radio, TV and outdoor signs. The studied banks increased their profits and changed customer's perception of cards through using the "works like checks" slogan, which proves that developing a sales culture will contribute to the development of the banking culture. Another author confirmed that marketing push strategy is considered a positive factor for changing customer behaviour (Kerem, 2003).

Baron, Warnaby and Hunter-Jones (2014) suggested that banks should establish a promotion service department based on the marketing of banking services, which includes staff and physical premises in its marketing mix. This approach is essential due to the low level of banking culture, which can be defined by the number of people have a bank account. Promotion should result in attracting new clients, maintaining existing ones, and informing staff about the importance of promoting a good image. Therefore, banks have to combine different elements such as advertising, personal selling, sales promotion, public relations, and direct market (Baron, Warnaby and Hunter-Jones, 2014). Also, Franklin (2004) highlighted the importance of good card strategies in order to strengthen their relationship with customers, while another approach was to offer family options in order to enhance the number of transactions (Elhennawy, 2014).

Moreover, Azizi (2013) examined the principal barriers affecting the development of core banking services, which includes: deposit accounts, loans, mortgages and payments that banks make available across multiple channels like ATMs, internet banking, and branches. He compared banking services in Iran and India by undertaking a descriptive/analytical study that followed a causal/comparative method and found that organisational, technological and financial factors are the most influential barriers for electronic banking services adoption.

### ***2.7.1 E-banking Definitions and Benefits***

Various definitions of e-banking are available, but most of these definitions have a core meaning (Bultum, 2014) that refers generally to products and services offered by banks through various electronic channels to enable clients to carry out banking

transactions via their cards, computers or mobiles (Sathye, 1999; Daniel, 1999). Another viewpoint defines e-banking as the communication of instructions and reception of information between banks in order to satisfy customers' needs (Aliyu, Younus and Tasmin, 2012). Even though, electronic banking has become an integral part of banking products (Casu, Girardone, and Molyneux, 2006), to date, the definition of e-banking is still often misunderstood. Many people confuse e-banking with online/ internet banking (AbuShanab, Pearson and Setterstrom, 2010), which is part of it as it implies the use of the internet to make transactions (Furst, Lang, and Nolle, 2002).

At first many believed that implementing e-banking would damage the traditional banking and financial model, and allow outsiders to enter the market based on Schumpeter's disruptive innovation, 1942 that claims that innovation may cause drastic changes in the economic structure as observed by Isern (2008). In this respect, Enders et al. (2006) state that e-banking is more a sustaining innovation rather than a disruptive one since banks would need to integrate into its business model and make the appropriate changes in its strategy to ensure its successful implementation. Tan and Teo (2000) claim that banks investing in internet technology are more likely to expand and maintain their market share since offering such services would make banks become perceived as adopters of innovation within the marketplace. Similarly, customers are more likely to stay loyal to banks that provide innovative services (Jayawardhena and Foley, 2000).

The aforementioned predictions have been contradicted as e-banking did not cause damages to the traditional banking services but was a complement that gave traditional banking a better image for the adopting banks (Isern, 2008). E-banking has been considered as a transactional and informational medium that can be employed to provide benefits to both banks and clients (Tan and Teo, 2000, Baldock, 1997). Despite these advantages, it has not met the expected success in various developing countries (Al-Smadi, 2012).

In this regard, Musjim and Ramadhan (2011), who have studied banking in Uganda, state that one of the major advantages of e-banking has been operational costs reduction (i.e. transaction fees), which represents a significant part of banks' expenditures (Sanusi, 2012). The electronic channels are therefore considered to be

the cheapest channels for banks (Mols, 1998) and it has been proven that the cost per transaction could be significantly reduced, since the process becomes easier, requires less paperwork, and decreases human errors and customers' disputes (Kiang, Raghu and Shang, 2000). Moreover, clients using e-banking are more likely to conduct most transactions online rather than visiting the bank premises, which allows banks to better serve the rest of their clients (Howcroft and Becket, 1996).

Obisi and Anyim (2012) showed that e-banking reduces corruption within the public sector, if people were forced to use electronic means to make all transactions, while at the same time reducing risks of robberies that may occur while holding or moving large amounts of cash. In other words, e-banking is used as a substitute for cash in making monetary transactions, which might offer some convenience to customers (Chandio, 2012). Another observation stated that e-banking enhances customer service quality, reduces the number of face-to-face interactions between clients and bankers and removes time and place barriers related to traditional banking (Abdulrasheed and Etudaiye-Muntar, 2009; Ovia, 2002).

Those results match the findings of a study conducted by Acharya, Kagan and Linam (2008), who stated that using the internet as an additional banking channel has made a significant improvement to financial performance of the studied banks, in the United States. While another study conducted on the Jordanian banking sector by Al-Smadi and Al-Wabel (2011) contradicted the former study of Acharya, Kagan and Linam (2008) and revealed that banks' performance is not affected by e-banking implementation.

On the other hand, the banking sector in developing countries does not operate in the same way as it does in developed countries (Al-Smadi, 2012). In many developing countries using cash remains the main tool used to undertake many commercial transactions, as is the case for Algeria, where cash is the main tool of payment for products or services (Mekideche, 2010). This cash orientation has been linked to the culture of the country by some local economists, and has also been considered to be one of the main barriers to customers' adoption or usage of e-banking (Mekideche, 2010; Lazreg, 2015).

The following section will review a number of studies on e-banking adoption.

### ***2.7.2 Studies of e-Banking Adoption***

Several studies have been conducted to investigate e-banking adoption and have focused on different perspectives of the adoption process from an individual, organisational, and customer perspective. Some of these studies have focused on customers' barriers to adopt this new service (Rotchanakitumnuai and Speece, 2003; Pikkarainen et al., 2004; Gerrard, Cunningham and Devlin, 2006; Alem and Alem, 2009; Al-Smadi, 2012). Others have emphasised customers' attitudes towards internet banking in retail banking have been extensively studied (Sudarraaj and Wu, 2005; Lassar et al., 2005; Lu et al., 2005; Shih and Fang, 2004; Eriksson, Kerem and Nilsson, 2005; Akinci, Aksoy and Eda., 2004; Gounaris and Korito, 2008; Pikkarainen et al., 2004; Devlin and Yeung 2004, Gerrard and Cunningham 2003, Chau and Lai, 2003; Liao and Cheung, 2002; and Karjaluoto et al. 2002; Alsajjan and Dennis, 2006; Alsajjan and Dennis, 2010; Lazreg, 2015) whereas corporate clients' adoption of e-banking have been less studied (Rotchanakitumnuai and Speece, 2002; Jagero and Abeka, 2011; Alam, Musa and Hassan, 2009; Abeka, Abeka and Omondi, 2012). However, only a limited number of studies have been conducted investigating the factors affecting banks' adoption of e-banking (Bultum, 2014).

### **2.8 Customers' Adoption of e-Banking**

As noted above, customer adoption of electronic banking has been studied by many researchers, who have investigated the different variables that seem to have had an impact on a customer's decision to adopt this service in many countries. For example, El-Adly (2003) revealed through his study, that was conducted within the United Arab Emirates context, that the most important reasons for customers not using internet banking included security concerns, the possibility of errors while connecting to internet banking, not knowing how to use the service, and reluctance to change their current ways of dealing with banks. Similarly, Sohail and Shanmugham (2003) who investigated customer's adoption of e-banking in the Malaysian context, found that customers' monthly income, their internet access, their level of awareness of e-banking, in addition to their reluctance to change old habits, are the most dominant factors influencing their adoption of e-banking.

Other researchers have tried to discover the characteristics of e-banking adopters in order to better serve their clients. For instance, Azouzi (2009) measured the impact of some socio-demographic factors including: age, gender and education level on the adoption of e-banking in Tunisia. He found that the higher the education level the more likely customers are to adopt e-banking and also that younger customers and male clients are more likely to adopt this service. This study also revealed that internet access, e-banking user-friendliness (i.e. ease of use), customers' awareness of e-banking (services and benefits) were key factors affecting customer's willingness to adopt this new banking technology. Nevertheless, other researchers believe that adopters and non-adopters of e-banking have opposite perceptions of this service that are influenced by various socio-economic and situational characteristics (Ozdemir and Trott, 2008; Adesina and Ayo, 2010).

### ***2.8.1 Impact of Culture on e-Banking Adoption***

As described by Hofstede (2001) national culture is seen as common symbols, norms, and values in a society. It has been confirmed that culture has an important impact on people's behaviour, while consequently the quality of the system and culture affect the level of trust in ICT (Lee, Trimi and Kim, 2013). Hofstede's model has been widely used by many researchers (Paul, Roy and Mukhopadhyay, 2006; Nazarian and Atkinson, 2012) and their findings show that national culture has an impact on national infrastructures, the rate of technology acceptance, technology transfer, and personal innovativeness. Thus the national culture plays a crucial role in the creation of national infrastructure.

To gain acceptance for online services from their customers, banks have had to adapt their websites to the local culture (Avery, Baradwaj and Singer, 2008; Singer, Avery and Baradwaj, 2008; Aladwani, 2010). The website has to create a certain value for its users (Davis 1989), in order to encourage their existing clients to use it and to attract new customers (Rai and Jain, 2006).

Durkin (2004) conducted a study in two parts to examine bankers' and customers' perceptions of e-banking. In the first part, the author examined bankers' perception of internet banking, and focused on customers' views of this service in the second part. The first stage of the research was a qualitative study, comprising in-depth interviews with senior bank executives in Sweden, UK/Ireland, and USA (see Durkin and

Howcroft, 2003). The second stage was based on a survey questionnaire distributed to 5,000 UK bank customers with the aim of identifying key influencers and inhibitors on the adoption of internet banking. The results of his study raised key issues for the management of the studied bank as it tried to explain customers' motivations for internet banking adoption and use. It was found that decision-making and decision styles are affected by both national and organisational cultures because when cultural forces are strong, they play an important role in establishing value systems.

Furthermore, it has been found that cultural values have greatly impacted the use and spread of technologies. An example of this phenomenon is a study conducted by Steers, Meyer and Sanchez-Runde (2008), which found that there is a lack of grounded modelling that can explain and measure both the relationship between culture and technology and their impact on each other. Studies that have applied the four dimensions of Hofstede's model of national culture (power distance, individualism, masculinity, and uncertainty avoidance) have shown that these cultural dimensions play a significant role in the diffusion of technologies (Dwyer, Mesak and Hsu, 2005). Another example of the application of Hofstede's theory was the study conducted by Paul, Roy and Mukhopadhyay (2006) that compared India and the United States, using both a factor analysis and a multi-group path analysis, which confirms the influence of the four cultural dimensions in both countries, and also confirms both the power and the relevance of Hofstede's model.

The adoption of new ideas or products/services was studied by Rogers (1995 and 2003); he suggested that the adoption/acceptance of any new technology takes place via a process of communication and social influence where early adopters will inform later adopters about the availability and utility of the new technology (Rogers, 1995). Therefore, we can say that there are innovation and imitation effects, which have been previously studied and Rogers' (1995) results stated that the innovation effect comes from individuals' perceptions and the imitation effect comes from the social effects that are influenced by cultural factors.

We can conclude by saying that there are two types of society influenced by the cultural dimensions. The first is individualistic culture where the society gives more importance to individuals' perceptions and visions (Hofstede, 1980). The second is collectivist culture where the society gives more importance to social perceptions, so

people share the same opinions, beliefs and objectives (Griffith et al., 2000). Consequently, high individualism assumes little communication between people; conversely, high collectivism assumes that there is interaction between people. In addition, the economist and historian David Landes expressed the opinion that “if we learn anything from the history of economic development, it is that culture makes almost all of the difference.” (2000, p. 3).

Most researchers assume that social culture has an influence on technological developments, as stated by Nye (2006, p. 47) who also claimed that technology adoption is the result of constant changes and development of organisations and their social context. In this respect, Al-Samadi (2012) conducted a study on how some cultural aspects can affect the adoption process of e-banking services. He explored the role of national culture, as it is likely to influence the acceptance or resistance to electronic banking services. Hence, the author measured the effects of five of Hofstede’s cultural dimensions, which are: power distance, uncertainty avoidance, individualism vs. collectivism, masculinity vs. femininity and long term vs. short term orientation. Al-Samadi (2012) concluded that it is essential to go beyond the cultural barriers to promote e-banking benefits more effectively. In relation to this, Crispin et al. (2000), a former senior banker, recommended that banks should have long-term strategies in their investment in e-banking. In other words, to overcome this challenge, banks should have a strong marketing strategy.

In this respect, it was revealed in a study by Noknoi, Ngowisir and Boripunt (2009) that customers are influenced by the marketing mix applied by banks. On the other hand, Zeithaml (1988) claimed that banks should have a strong marketing strategy as consumer behaviour is affected by four factors: personal (age, stage in the life cycle, occupation, economic circumstances, lifestyle, personality, and self-concept); cultural (culture, subculture, and social class); social (reference groups, family, and social roles and statuses and psychological (motivation, perception, learning, beliefs, and attitudes).

Furthermore, Yuen et al., (2011) took into account the cultural differences between developed and developing countries, based on ‘the Unified Theory of Acceptance and Use of Technology’ (UTAUT) model. It was revealed that the most important factors influencing the use of internet banking services is attitude and performance

expectancy. Due to cultural differences between developed and developing countries (e.g. the Hofstede dimensions ‘uncertainty avoidance’, ‘individualism’, and ‘power distance’), perceived credibility of internet banking services was found relevant only in the developed countries (Yuen et al., 2011).

## **2.9 Banks’ Adoption of e-Banking in the Developing Context**

There have been a limited number of the studies highlighting factors influencing e-banking adoption; however, it is important to discuss their focus. For instance, (Shah, Mohsin et al. 2009) studied some issues that qualify as organisational barriers to e-banking through reviewing the implementation strategies of two famous UK banks. They identified the following problems: lack of integration of related systems; a culture of achieving only the short-term targets; lack of understanding and knowledge about e-commerce; lack of product differentiation and categorisation; lack of understanding of customers; difficulties in personalisation of products; limited research and development; lack of e-commerce promotion within the organisation; technology surpasses business process change and bad website design and operational functionality. This study also argues that implementing e-banking services by banks requires managerial support and commitment, in addition to availability of resources (Abrahamson, 1991; Shah et al. 2009).

However, Abukhzam and Lee (2010), who conducted an investigation into banks’ adoption of e-banking service before the Libyan civil war, stated that the non-adoption of e-banking by Libyan banks was due to the high resistance of banking staff to new technologies. Their literature review reveals a lack of studies on ICTs’ adoption in developing countries, and even fewer studies of the Arab world. Consequently, they decided to investigate the key elements affecting bankers’ attitudes towards e-banking in order to understand the reasons behind its non-adoption and facilitate its future implementation in Libya and other countries. ATMs and telephone banking are rare in Libya, which provides Libyans with limited to face-to-face interactions (traditional banking) to conduct their daily banking transactions (ibid). This situation has pushed the international banking community to put pressure on the Libyan authorities to update their financial system to keep up with their neighbours’ technological development (ibid). Despite all the efforts made and the money invested by the government to integrate advanced technologies in the banking

sector, the integration has been delayed by the bankers themselves due to their lack of understanding of its benefits, e-banking uncertainty, and their fear of losing their jobs to the new technology.

Various researchers have supported Abukhzam and Lee's (2010) study in relating bankers' resistance to the adoption of e-banking due to many reasons including, but not limited to, the absence of user involvement, lack of understanding, technical difficulties, lack of training, insufficient support from top management and perceived complexity (Manross and Rice, 1986; Liao et al., 1999). Fichman and Kemerer (1999) found that the bankers' rejection of e-banking solutions could be caused by the fact that such solutions may not be compatible with their views, values, beliefs, and past experiences.

Moreover, Shahand and Siddiqui (2006) demonstrated the key factors that positively influence the implementation of e-banking by banks and listed them as understanding customers, organisational flexibility, availability of resources, systems security, established brand name, having multiple integrated channels, e-channel specific marketing, systems integration, systematic change management, support from top management, and good customer services. In order to succeed in their implementation of e-banking, banks have to introduce some changes, for example in their e-business strategy. To achieve that process, several methods can be adopted to study how organisational issues relate to its adoption; examples of that include SWOT (Strengths, Weaknesses, Opportunities and Threats) and cost/benefit analysis. However, the authors have preferred adopting the Critical Success Factors (CSFs) approach because of its wide application in the Information System field. Thus, understanding CSFs would help senior managers in better understanding and adopting e-banking systems (Brubakk and Wilkinson, 1996; Shahand and Siddiqui, 2006).

The analysis and review of e-banking in Romania conducted by Gurau (2002) showed similarities with the Algerian case, as both of them have gradually introduced a series of reforms but neither have achieved the expected results. The author stated that the introduction of e-banking requires suitable conditions linked to different levels within the economy including a clear and solid legal framework to protect e-services and their clients (Gurau, 2002). Another concept to be considered in the adoption of e-banking is e-readiness, which is defined as "the ability to pursue value creation

opportunities facilitated by the use of the Internet” (Economist Intelligence Unit, 2008, p. 2). It can also mean the country’s ability to promote and support digital and ICT services. In this respect, Kundi and Shah (2009) claimed that there are three main factors affecting organisation’s e-readiness that include government, the organizations themselves, and technology, each of which has subheadings and independent variables. Governmental variables include: politics, government IT policy, bureaucracy and infrastructure. As for the organization variables, they include management, organisational structure and organisational IT maturity. Finally, technology includes two independent variables, the first is hardware/software and the second is the availability of information technology professionals. This study correlated all three variables with the adoption of electronic business while omitting some important factors in the model such as security, awareness, and privacy, which together can enable organisations to offer e-business services (Kundi and Shah, 2009). The aforementioned factors were found to be important reasons for electronic banking hindrance and as such two limitations for this study arose. The first one is linked to the level of investigation which viewed the organisation only from the managerial level. The second limitation is related to the fact that their model does not cover the security and privacy aspects of electronic business technology.

This research addresses the imbalance found in the literature and it also addresses the lack of theoretical model explaining banks adoption of e-banking. To address these gaps the Technology, Organisation, and Environment (TOE) framework of Tornatzky and Fleischer (1990) is combined with the institutional theory of DiMaggio and Powell (1983) in order to examine how the technological, organisational, and environmental contexts in addition to institutional forces surrounding an organisation, affect the adoption and development of e-banking services in developing countries.

## **2.10 Summary**

This chapter has reviewed the literature of the fundamental theories in information systems with particular reference to the TOE framework and its different constructs namely technological, organisational and environmental and its usage for investigating the adoption of new technologies. This was followed by a discussion of institutional theory and the possibility of combining it with the TOE framework. A discussion of some external pressures that affect the e-banking sector in the context of

Algeria followed which named the underground economy, legal framework and political reforms as significant external pressures (Akacem, 2004). The chapter also reviewed the key literature on the adoption of new technologies in general and e-banking in particular. It discussed various studies of e-banking by customers and banks.

This chapter discussed the evolution of e-banking innovation and its numerous adoptions by various countries. A large part of the literature was found to focus on customers' perception of e-banking and the obstacles of its adoption while there have been fewer studies taking the banks' perspective.

Building on the results of the literature review, this research intends to fill the gap in the area of e-banking adoption and development by banks through investigating the factors affecting it by combining the TOE framework with institutional theory.

The following chapter discusses the conceptual model adopted and explains how it was developed to guide the author throughout.

## **Chapter 3 Initial Conceptual Framework for this study**

### **3.1 Introduction**

This chapter presents and explains the conceptual framework proposed by this thesis, as suggested by Walsham (1995a, p. 76) who claimed that any researcher should “create an initial theoretical framework which takes account of previous knowledge”. This conceptual framework would reveal and define the main constructs in relation to the phenomenon under study and their potential relationships (Miles and Huberman, 1994). Since e-banking has reached a high level of development in many countries it is now necessary to study this development to better understand how e-banking may be successfully adopted and developed elsewhere.

The aim of this section is to create a conceptual framework to help in exploring e-banking adoption and development within the banking context of Algeria. The proposed framework aims to guide the researcher while investigating the political and financial interactions and their impact on banks’ behaviour towards e-banking adoption and development, and generate a deeper understanding of the phenomenon that would support and help banks and investors in this field. The framework of this research is based on a combination of Technology, Organisation and Environment (TOE) framework and institutional theory as explained in Chapter 2.

The main components of this framework, which play a crucial role in guiding data collection and analysis, and the reasons for their selection, are discussed and explained further in the next sections.

### **3.2 Rationale for Combining the Technology, Organisation and Environment Framework with Institutional Theory**

This section explains the reasons behind the usage of the TOE framework in order to achieve the aims and objectives of this study.

The literature review revealed that there has been a limited amount of empirical research into how political and financial interests interact and affect banks’ behaviour toward new technologies in general and why active banks within an emerging country do not adopt or develop e-banking services in particular and thus factors influencing e-banking adoption and development. Consequently, to address this gap in the

literature and answer the research questions, this study combines the TOE framework with institutional theory to examine the contextual and institutional interactions and their effect in e-banking adoption and development.

As formerly described in Chapter 2, the TOE framework is an organisation-level theory that mainly reviews the effect of a firm's contexts on the adoption and implementation of new technologies (Baker, 2012). It asserts that there are three main elements of an organisation's context that affect its adoption of new technologies (Tornatzky and Fleischer, 1990). These three contexts are the technological, organisational and environmental contexts.

This theory has been adopted in this study for two reasons. Firstly, for the confirmatory nature of this research, and secondly for the integrating nature and broadness of the TOE framework that can provide opportunities for identifying new relevant factors affecting organisations' adoption of new technologies in general and banks' adoption of e-banking in particular. This theory has been used to study various technologies' adoption processes within firms in different industries and has proven its applicability and suitability for investigating different domains in information systems (Baker, 2012; Oliveira and Martins, 2011). It was applied to the study of e-business (Zhu et al., 2003; Zhu and Kraemer, 2005), electronic data interchange EDI (Kuan and Chau, 2001), and most recently e-banking (Bultum, 2014). In each of these studies, the technological, organisational and environmental contexts have shown an impact on firms' willingness to adopt and implement those technologies (Baker, 2012).

Researchers who have used the TOE framework report that this theory provides flexibility for its users to include different factors in each of its contexts (as shown in table 2.1). It was stated that for each of the investigated context or technology there is a unique set of factors that may influence a firm's decision to adopt a new technology (Baker, 2012). Therefore, it can be concluded that each technology has its own factors, and similarly each national, industrial, and cultural context will be affected by its own factors. Therefore, the following assumption can be made regarding the current investigated phenomenon:

**Assumption 1:** *Banks' adoption and development of e-banking are affected by a set of technological, organisational and environmental factors*

For the purpose of this study, the factors selected for investigation of each context were widely adopted factors in the study of information technology adoption. Hence, for each contextual category the researcher proposes a set of factors that will be presented in the following selections.

### ***3.2.1 Technological Context of the TOE in this Study***

Tornatzky and Fleischer (1990) includes all the technologies that are already used by a firm and those available in the marketplace but still not acquired by a firm, which are important within the firm's technological context (Baker, 2012). In the original form, the TOE framework included technology characteristics and their availability as being the most influential factors affecting technological innovation decision making (Tornatzky and Fleischer, 1990). However, several studies have suggested that technological features of a particular information technology have an impact on its adoption (Rogers, 1995; Collins, Hage and Hull, 1988; Li, 2008; Gibbs and Kraemer, 2004).

Furthermore, as formerly explained each researcher who has used the TOE framework, has selected a new set of variables for each of the three constructs (Oliveira and Martins, 2011). For instance, the technological factors selected to study EDI (electronic data interchange) adoption by (Kuan and Chau, 2000) are the perceived direct and indirect benefits of this technology. On the other hand, Oliveira and Martins (2008) used technology readiness, technology integration and security applications to assess the technological context in its review of websites' adoption within large and small Portuguese firms. Additionally, Liu (2008) included technology support, human capital and the potential support from this technology in his technological construct to investigate the determinant of e-commerce development in China. In this respect, Zhu et al. (2003) assessed the IT infrastructure and e-business know-how as the main technological factors in their cross-country analysis of the inhibitors and determinants of e-business adoption. Bultum (2014), measured perceived risks and perceived benefits associated to e-banking adoption in the technological context while examining e-banking adoption in Ethiopia as suggested by Rogers's Diffusion of Innovation theory (Rogers, 2003 cited in Bultum, 2014).

For the purpose of this study, and based on previous studies, this research focuses on the perceived benefits and risks associated with e-banking adoption in the

technological context for their potential impact on banks' adoption and development of e-banking. Since electronic banking is considered a disruptive technology as it affects the way banking transactions are conducted (Alsomali, 2015) and it carries some risks for both banks and clients, which are perceived as inhibitors to its adoption (Farzianpour et al., 2011), it is important for banks to comprehend and limit the risks related to e-banking adoption prior to investing in it, to ensure its good diffusion within the marketplace (Alsomali, 2015). On the other hand, e-banking is also known to offer a competitive advantage (Aliyu and Tasmin, 2012). It is, thus, critical for the banks to understand the benefits of e-banking in order to better promote it.

Consequently, this investigation focuses on banks' perception of both the benefits and risks associated with e-banking adoption and development. Since banks, like any other type of organisation, are more likely to invest in a new technology that offers more and better benefits than the existing technology (Thong, 1999) it is critical for any organisation to match its goals with the benefits of the technology (Sajjad, 2014).

E-banking provides various benefits to the bank, for instance: customers' service costs and staff member reduction, since the customers make their transactions by themselves without visiting a bank's premises. In this sense, it was reported that banks can save up to 50% of transaction costs by using online solutions (TECH-ICT, 2016). Banks' services would be accessible anytime and anywhere, which may serve a larger number of clients (Bojan, Mutu and Paun, 2013; TECH-ICT, 2016), and give the banks the possibility of adapting their services and products to match their customers' needs (ibid). Even though e-banking offers many benefits to the banks implementing it, there are also some disadvantages that may cause problems for both the bank and its clients. Risk of fraud, for instance, is considered to be the most common barrier to its adoption (TECH-ICT, 2016) in addition to trust, technical and security issues, and outsourcing problems that might be faced by the bank. Since banks would have to acquire high standard security solutions, which may require hiring new staff with specialist skills or bringing in consultants to run the platform as well as a significant budget to maintain it (Bojan, Mutu and Paun, 2013; TECH-ICT, 2016).

**Assumption 2:** *Fewer risks and more benefits perceived by the banks will favour the adoption and development of e-banking by banks.*

In other words, a bank might adopt and develop an e-banking platform if it is perceived to be an advantageous and profitable solution with little or no risk associated with its adoption. Thus, an understanding of the benefits and risks might play a positive role in e-banking adoption and development by banks.

### ***3.2.2 Organisational context of the TOE in this Study***

It is essential to identify and understand the organisational context but also to distinguish between the supportive and non-supportive forces within an organisation (Sajjad, 2014). The organisational context refers to the resources and characteristics of the organisation (Baker, 2012; Oliveira and Martins, 2011) that may influence its adoption of new technologies (Sajjad, 2014). Organisations may share the same characteristics; however, they will be affected by their internal environment in different ways (ibid). As has been explained, each adopter of the TOE framework has adapted it building on the phenomenon, technology and context under study (Oliveira and Martins, 2011). For instance, Kuan and Chau (2001) emphasised the perceived financial costs and technical competences in their investigation of EDI adoption while Bultum (2014) investigated the human and financial resources in his research into the factors influencing e-banking adoption by Ethiopian banks.

Thus, studying some of the significant characteristics of a bank that may be positive for the adoption and development of e-banking is important for this research. The organisational factors selected for the purpose of this study, and also for their potential impact on e-banking adoption and development by banks as reported by the literature, are: the size of the bank, management support and human and financial resources.

It has been suggested that having a supportive management is crucial when introducing any changes within an organisation (Sajjad, 2014) as it provides the necessary help and support to successfully implement those changes (Lee and Kim, 2007). This management support is usually linked to the management of the skills, labour, resources and knowledge needed to implement changes within an organisation (Sajjad, 2014; Zhu *et al.*, 2006). It was suggested that organisations' adoption of new technologies often fails due to managers' resistance to changes or their underestimation of the magnitude of changes that might be encountered by the organisation (Powell and Dent-Micallef, 1997). About e-banking adoption by banks,

Shah *et al.* (2009) and Bultum (2014) have claimed that managerial support is a major factor for the success of e-banking adoption. It is thus important to consider the managerial support within a bank for its potential impact on banks' adoption and development of e-banking.

Furthermore, the literature suggests that having supporting and committed managers would enhance the success of information technology adoption and diffusion (Powell and Dent-Micallef, 1997) since those managers will have the power to make the required resources available for the implementation of the technology and its integration to the business strategy and ensure continuous IT investments over time (Kettinger *et al.*, 1994 cited in Powell and Dent-Micallef, 1997). By providing the financial, human and technical resources to run the new technology, an organisation will be able to win customers' trust and increase its capacity to understand their needs (Flavian, Guinaliu and Torres, 2006). Thus, it is important to have enough financial resources while implementing a new technology (Zhu and Kraemer, 2005) in order to maintain the investment and ensure its successful implementation (Gibbs and Kraemer, 2004). In this respect, Bultum's (2014) study identifies financial resources and qualified human resources as being major organisational factors affecting Ethiopian banks' adoption of electronic banking solutions.

On the other hand, Hasan, Maccario and Zazzara (2002) states that larger banks, and banks that are part of international banking groups, are more likely to adopt electronic banking solutions than independent and smaller banks which will, in turn, positively affect their performance. This was confirmed by Muwando and Webb (2014) who stated that the size of the bank is a critical success factor for electronic banking adoption as it is generally expected that bigger organisations will be the first to innovate and influence others due to their resources and the application of results (Buzzacchi, Colombo and Mariotti, 1995). It was also reported by Malhotra and Singh (2007) that public banks will be less likely to adopt electronic banking regardless of their size, which is consistent with El-Haddadeh, Weerakkody and Al-Shafi's (2013) findings that reveal the complexities in implementation of electronic services within public sector. It can be concluded that banks' size might have a positive and significant impact on their adoption of electronic banking.

**Assumption 3:** *Larger banks with considerable financial and human resources that benefit from total managerial support will have stronger chances to innovate and adopt e-banking solutions.*

These three assumptions suggest that supportive managers are needed while implementing a new technology, since they will grant and manage all the resources needed for the success of this change. Similarly, larger banks with significant financial and human resources will be more likely to acquire this solution. Hence, managerial support, availability of financial and human resources and the size of the bank are drivers to e-banking adoption and development by banks.

### ***3.2.3 Environmental Context of the TOE in this Study***

This context comprises all the external elements surrounding an organisation (Sajjad, 2014). The external environment is affected by different socio-political factors such as the type of the industry, the intensity of the competition and government regulations (Tornatzky and Fleischer, 1990). Combined together, these factors can either have a detrimental or a beneficial effect on organisation's adoption of innovation.

The literature states that pressures from competition have a strong impact on IT adoption (Rogers, 1995; Baker, 2012; Sajjad, 2014) and that intense competition boosts and motivates organisations to adopt new technologies (Mansfield, 1968 cited in Baker, 2012), while dominant organisations within an industry can also influence others to innovate (Kamath and Liker, 1994 cited in Baker, 2012). Moreover, it was highlighted that customers can play a major role in innovation adoption by firms (DiMaggio and Powell, 1983; Cook, 1997; Alam, Musa and Hassan, 2009; Aliyu and Tasmin, 2012) because they have the power to put pressure on an organisation to constantly innovate to satisfy their changing needs.

It has also been suggested that government is an important factor to be taken into account in this type of investigation, as it can either discourage or encourage the adoption of new technologies by implementing reforms in favour of this innovation (Sajjad, 2014; Zhu et al., 2006b), setting up the regulation to ensure its continuous improvement (Zhu and Kraemer 2005) and establishing norms to ensure transparency and efficiency in its implementation (Bertot, Jaeger and Grimes, 20110). Banks are a good example of organisations that depend on government plans, policies and

regulations. In this particular context, it was noted that even though the country under study has created institutions to manage and develop e-banking in general and e-payment in particular, it has not fully integrated it into its primary concerns since they have not set up the legal framework, and implemented the reforms in favour of this technology. In addition to that, an important underground economy was identified by some local economists (Mebtoul, 2016) for its inhibiting role on e-banking development by banks and acceptance by customers who have not been accustomed to use any other means of payment than cash. This was supported by another economist, who claimed that the non-acceptance of e-banking solutions was due to a national cash culture, which makes people reluctant to adopt these solutions and, in turn, affects negatively the banks' development and improvement of their offers (Mekideche, 2010).

As it has already been explained in Chapters 1 and 2, institutional theory was adopted in this study and inserted in the environment context of the TOE framework for its significant effects on organisational structures and actions (Scott, 2001; Scott and Christensen, 1995 cited by Gibbs and Kraemer, 2004) and also to help in investigating the interactions of political and financial interests and their impact on banks' behaviour toward e-banking adoption and development. The three types of pressures that determine technology adoption by individuals and firms suggested by DiMaggio and Powell (1983) were identified and formed based on their definitions and elements that were extracted from the literature and contextual analysis as suggested by Björck (2004). These pressures, namely *coercive*, *normative* and *mimetic*, have been tested in various industries in relation to the adoption of new technology (Björck, 2004)

As formerly defined in Chapter 2, coercive pressures are exerted by dominant actors and are the formal and informal forces of an organisation's external environment (DiMaggio and Powell, 1983). Normative pressures result from the frequent contact between firms and other adopters (DiMaggio and Powell, 1983). Finally, mimetic pressures are exerted by leading firms to push other firms to imitate them (DiMaggio and Powell, 1983).

Built on the above definitions and for the purpose of this study, coercive pressures include the government, central bank, customers, parent corporations (as the main actors) and the underground economy, national cash culture, legal framework and

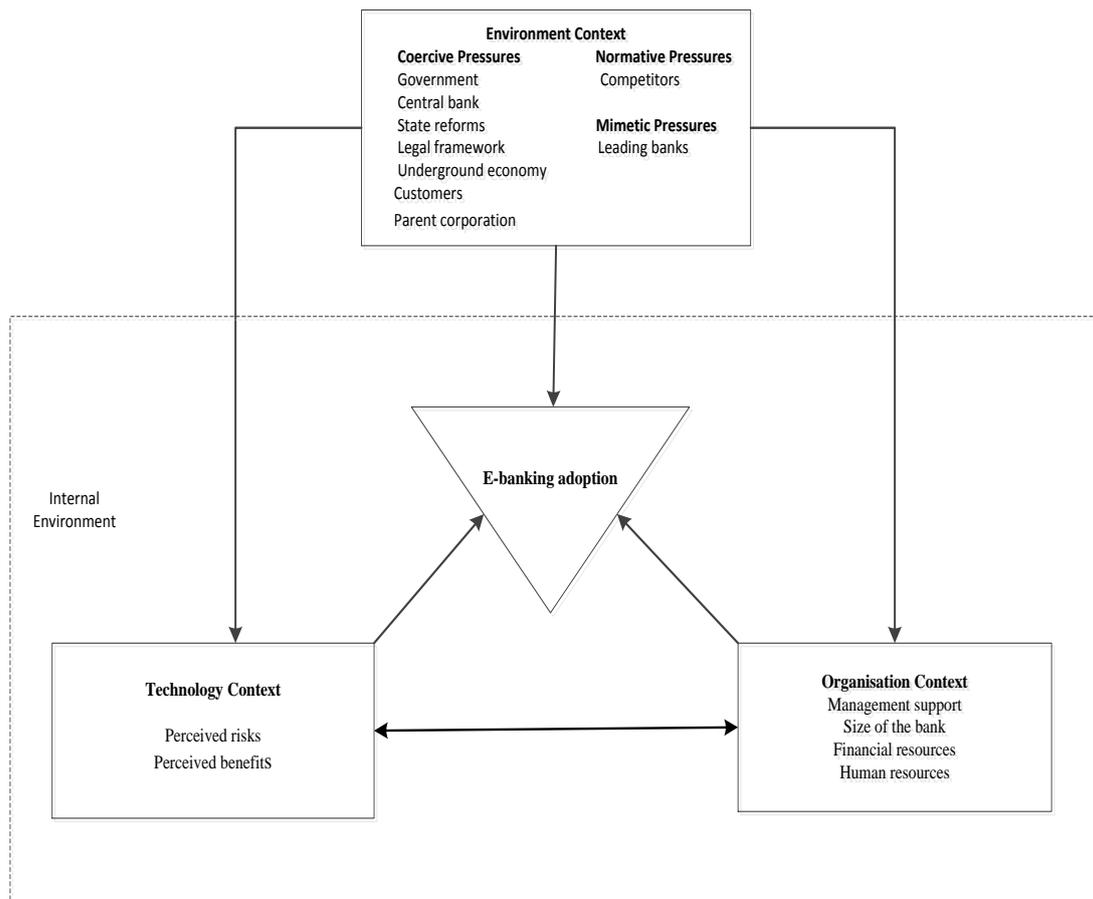
political and economic reforms for their potential negative impact on banks' adoption and development of e-banking. Normative pressures include all the competitors regardless of their size, origin or resources. Finally, mimetic pressures emphasised the role of leading banks in terms of e-banking offers, and level of development.

It is important to note that the government, central bank, underground economy, national cash culture, legal framework and political and economic reforms were linked to political interests whereas the parent corporations and the banks' themselves represented the financial interests.

**Assumption 3:** *Coercive pressures exerted by government, central bank, underground economy, national cash culture, legal framework and political and economic reforms have a negative impact on banks' adoption of electronic solutions while banks' parent corporations and customers positively influence their behaviour toward e-banking. Furthermore, normative and mimetic pressures applied by competitors and leading banks can positively affect banks to adopt.*

Banks will be more likely to invest in e-banking adoption and development if the government and central bank put in place the legal structure and reforms that allow them to innovate in safe manner. Moreover, both banks' customers and parent corporations have the power to positively influence banks to adopt electronic banking if they see the need for it.

Figure 3.1 illustrates the initial conceptual framework developed by the researcher as a guide for this research.



**Figure 3.1: Initial Conceptual Framework**

### 3.3 Chapter Summary

This chapter presents the initial conceptual framework developed from the combination of the TOE framework and institutional theory in order to investigate the interactions between political and financial interests and their impact on banks' innovation by uncovering the contextual and institutional factors influencing them to adopt and develop e-banking solutions.

The rationale for including different contexts and institutional pressures originated from the lack of studies explaining the interactions of political and financial interests and their effect on organisational behaviour in general, and particularly on the contextual and institutional factors and forces affecting banks' adoption of e-banking.

The next chapter presents the methodology adopted to address the research questions and achieve the aim of this study.

## **Chapter 4 Research Methodology**

### **4.1 Introduction**

This chapter provides clarifications and justifications of the research process design, including research paradigm, methodology, data gathering and analysis methods chosen to achieve the aim of this study and to contribute to the body of knowledge on e-banking, with a strong focus for on the environmental context in the Technology, Organisation and Environment framework.

It also addresses the following research questions:

- What forms do the interactions take between political and financial interests and the banks?
- How do these political and financial interests interact with each other?

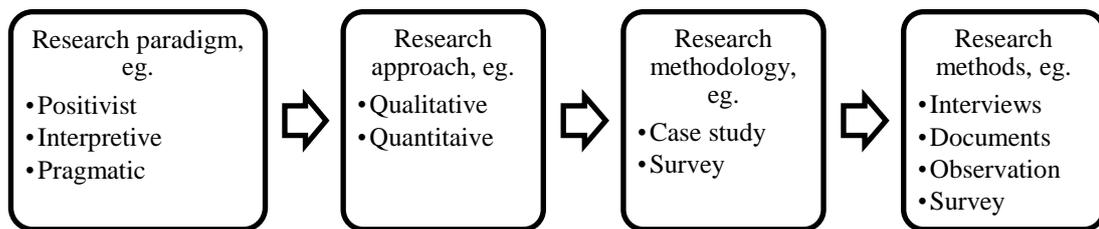
By doing so, it aims to achieve the following objectives:

- Establish the relative influence of political interests in organisational financial decision making.
- Develop a descriptive model for the specific context of e-banking adoption.

### **4.2 Research Design**

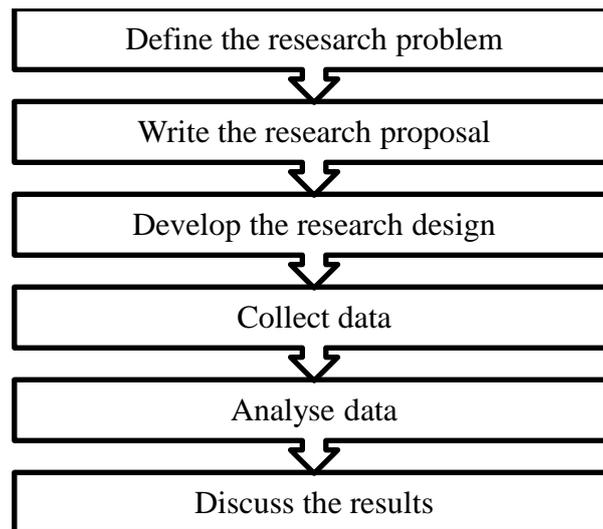
The research design is defined as the logical development of phases or tasks through which the research passes, starting from the formulation of a problem to the generation of models or theory, which are important for conducting a study (Creswell, 2003; Marshal and Rossman, 1991). The research design's function is to "ensure that the evidence obtained enables us to answer the initial question as unambiguously as possible" (De Vaus, 2001, p.9). In other words, the research design is a detailed plan that helps and guides the researcher to achieve his research objectives (Wilson, 2014). The research design's role is to ensure that the evidence or data collected enable us to answer questions with the aim to eliminate drawing incorrect causal conclusions from the data. Hence, it is crucial to determine what kind of answers we are looking for, the methods to find those answers, techniques to collect data, time needed to complete the research, and the costs for its achievement (Blumberg, Cooper and Schindler, 2011).

Furthermore, Crotty (1998), cited in Creswell (2003), identified 4 stages in the research design: choosing the research paradigm, selecting the research approach, identifying a suitable research methodology and finally choosing the method to collect and analyse data in order to meet the research objectives. Therefore, this study follows a similar plan: (1) selecting a suitable research paradigm, (2) defining research approach, (3) determining research methodology and, finally, 4) choosing a method for data collection and analysis. Nevertheless, in this study, some terms such as ‘approach’ and ‘method’ will be used interchangeably as suggested by Creswell (2003). Whereas the term ‘methodology’ will refer to the research process, including the theoretical and philosophical assumptions on which the study is based, and not to the term ‘method’ or ‘approach’. The term 'method' refers to the procedures and techniques employed to collect and analyse data (Saunders, Lewis and Thornhill, 2007). The four basic steps are represented in Figure 4.1 and will be explained in detail in the next sections of this chapter.



**Figure 4.1: Research Design Process**

In this study, the researcher started by defining the research problem and seeking a better understanding of the problem through reviewing the related literature, as described in Chapter 2. These led to the generation of research questions, defined in Chapter 1 and the development of the theoretical framework, which represent the pillars of this empirical study and show the main theories of this study, as described in Chapter 2. Nevertheless, the important step of the research process is the research methodology, which includes: the strategy, methods of data gathering, and unit of analysis of these data, as showed in this chapter. More details are to be given in the following sections and subsections of this chapter. Figure 4.2 illustrates the research methodology process, followed by the researcher in this study.



**Figure 4.2: The Research Process of this Study**

### 4.3 Research Philosophy

Among the important stages in the process of research design is the selection of the research philosophy, which includes assumptions about how the researcher perceives the world (Saunders, Lewis and Thornhill, 2009), and strengthened by those around him through the community of experts (Denzin and Lincoln, 2005). In other words, the research philosophy can be defined as the creation of background and knowledge in a particular field of research (Saunders, Lewis and Thornhill, 2007). It is important to make these assumptions clear before the selection of research methods because of their impact on the way in which the study is designed and undertaken, data are collected and analysed and the findings are presented (Elsheikh, 2011). While doing this, we are developing the research paradigm. This concept was first introduced by Kuhn (1970) in his book, “The structure of Scientific Revolutions” (1962) in which the concept of *paradigm* was defined as “the entire constellation of beliefs, values, and techniques, and so on shared by the members of a community” (1970, p.175). Other scholars such as Creswell (2009) have also described it as a way of thinking in order to conduct the research.

Therefore, the research philosophy is defined by the research paradigm. The paradigm depends on the ontological (theory of reality), epistemological (theory of knowledge) and methodological positions of the research (Guba, 1990; Easterby-Smith, Thorpe and Lowe, 2006). Thus, it is important to clarify the research philosophy as it enables

the study to select the required tools to tackle the research problem, and create the strategy to gather, analyse and interpret data (Saunders, Lewis and Thornhill, 2012).

#### ***4.3.1 Ontology***

Ontology assesses how we look at the social world, or what we think the world is (Wilson, 2010). Ontology mainly considers two positions, objectivism and subjectivism (Saunders, Lewis and Thornhill, 2007). Objectivism assumes the existence of a world independent of social actors and subjectivism perceives the world as a socially constructed reality (ibid). Ontology allows a comprehension of the studied phenomenon (Easterby-Smith, Thorpe and Lowe, 2006).

#### ***4.3.2 Epistemology***

Epistemology refers to suppositions or assumptions about knowledge and how it is gained (Bryman, 2001; DePoy and Gitlin, 2011). In other words, it is concerned with the ways of knowledge acquisition and perception to achieve the research's objectives (Bryman, 2012; Crotty, 1998). Orlikowski and Baroudi (1991) and Myers (2013) distinguished between three types of epistemology: positivism, interpretivism, and pragmatism.

#### ***4.3.3 Positivism***

This paradigm is a very popular type of research in business studies with which most of the business and management scholars are familiar (Myers, 2013). Positivist researchers assume that social reality is objectively given and can be measured by scientific methods to test a theory in order to establish a predictive understanding of the phenomenon (Blumberg, Cooper and Schindler, 2011; Myers, 2013). Positivist researchers tend to create a frame that shows the studied phenomenon in terms of dependent and independent variables and their relationships (Myers, 2013). This paradigm often utilizes quantitative methods to collect data (Blumberg, Cooper and Schindler, 2011). It may also use qualitative methods, depending on the philosophical assumptions of the researcher as suggested by Bensabat et al. (1987), Yin (1994), and Myers (2013). Orlikowski and Baroudi (1991, p.5) claim that any information systems research follows a positivist paradigm if “there is evidence of formal propositions,

quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from the sample to a stated population”.

#### ***4.3.4 Interpretivism***

This paradigm is not as common as the positivist’s in business studies, but it has gained some popularity over recent decades and has become accepted among scholars (Myers, 2013). It states that organisations are the result of social constructions such as shared customs and languages (Saunders, Lewis and Thornhill, 2007). In other words, it is the result of continuous changes in social actors’ actions and perceptions that form social entities. This paradigm aims to “to understand the intersubjective meanings embedded in social life . . . [and hence] to explain why people act the way they do” as claimed by Gibbons (1987: p. 3 cited by Elsheikh, 2011). Interpretive researchers do not predefine variables but focus instead on human complexity as the situation emerges (Kaplan and Maxwell, 1994 cited by Myers, 2013), and seek to understand the phenomenon through answers given by the investigated people (Orlikowski and Baroudi, 1991). It uses qualitative methods to collect data and develop an understanding of the phenomenon (Creswell, 2003). In accordance with this principle, the interpretive paradigm is applied in information systems research to gain in-depth analysis of the context of the information system as well as the process by which the information technology affects and is affected by the context (Walsham, 1993).

Its acceptance and application in information systems studies has grown over recent decades due to a shift in research direction from technological to behavioural studies (Serafeimidis and Smithson, 2000; Elsheikh, 2011). Its suitability was argued for information system evaluation by Symon (1993, p.74) who claimed that “interpretive methodologies of evaluation actively analyse the experience of organisational reality, focusing on stakeholder interests and perspectives. They increase the effectiveness of organisational activity by ensuring a match between elements of organisational change and the dynamics of organisational culture and politics.” Therefore, studies in information systems or information technology adoption and usage behaviour need to apply new methodologies that provide in-depth understanding of the relationship

between an information system and its context, as suggested by Walsham (1993) and Smithson and Hirschheim (1998).

#### ***4.3.4 Pragmatism***

This paradigm combines both positivist and interpretive views in order to answer the research questions and benefits from their strengths and reduces the weaknesses associated with these paradigms. In recent years, pragmatism has gained considerable popularity among mixed methods researchers (Darke, Shanks and Broadbent, 1998; Hall, 2013; Morgan, 2007; Maxcy, 2003, Bryman and Bell, 2007; Onwuegbuzie and Leech, 2005; Johnson and Onwuegbuzie, 2004) and also among Information System researchers (Mkansi and Acheampong, 2012; Baskerville and Myers, 2004; Agerfalk, 2010), due to its orientation towards “solving practical problems in the “real world” rather than beliefs about the nature of knowledge” (Feilzer, 2010, p8), which makes it appropriate for studies that intervene in the world and not only observe the world.

Tashakkori and Teddlie (1998, p 5) claim that pragmatism is the use of “whatever philosophical and/or methodological approach (that) works best for the particular research program under study”. On the other hand, as the most dominant determinant of this research philosophy are the research questions (Saunders, Lewis and Thornhill, 2007), pragmatists believe that adopting a specific philosophical view does not necessarily help in answering all questions emerging from the research (Morgan, 2007); they suggest adopting a pluralist attitude while investigating a phenomenon (Goldhul, 2012). Hence they recommend selecting a suitable research philosophy and integrating different methods within a single study (Creswell, 1997) to answer the research questions and achieve research purposes (Johnson and Onwuegbuzie, 2004). It is however, important to indicate that pragmatism signifies pluralism, but not every pluralist study is pragmatic (Goldhul, 2012). Pluralism suggests adopting more than one theory to explain the phenomenon and even using more than one method to investigate it (Pathirage, Amaratunga and Haigh, 2008). Moreover, pragmatism gives more flexibility to researchers who are developing theories (Goldhul, 2012), allows integrating both positivism and interpretivism (Lin, 1998) as it is also known as the middle position between these views (Lee, 1991; Goles and Hirschheim, 2000).

#### **4.4 Selection and Justification of Research Paradigm**

For the purpose of this study, a pragmatic approach seems to be the most appropriate one to investigate the interactions between political and financial interest and their impact on banks' adoption of e-banking in Algeria. Although it is noted that there have been few studies employing pluralism and pragmatism in the information system literature (Kaplan and Duchon 1988; Mingers 2001, 2003 and cited in Venkatesh, Brown and Bala 2013), this study adopts the pragmatic paradigm, in which positivist and interpretive paradigms are adopted and simultaneously combined in to address the aims of this research.

This method provides alternative views to those based purely on positivist or interpretive ones since it focuses on the problem of the research and its consequences (Feilzer, 2010). The pragmatic approach is most suitable to answering "what", "why", and "how" research questions (Saunders, Lewis and Thornhill, 2009).

Furthermore, this paradigm has been adopted to generate practical solutions to the problem and suggest recommendations while benefiting from more flexibility throughout the research. Pragmatism eradicates three types of conflicts: deductive vs. inductive; objectivity vs. subjectivity; and context and generalisability as suggested by Morgan (2007). First of all, it is adopted to develop a greater insight into the phenomenon through abductive reasoning that allows shifting between deductive and inductive reasoning. As this research is categorised in the information systems area, a multi-disciplinary review of the literature encompassing the banking, customer and organisational behaviour and IS disciplines, was undertaken to help in developing an in-depth understanding of the phenomenon under study. This review led to a specific research topic and ultimately identified a research need. The initial finding from this review was the need to fill gaps in knowledge and develop a theoretical model describing the interaction between the political and financial interest and their impacts on banks' innovation in general and banks' adoption of e-banking in particular. Thereafter, a conceptual framework was developed based on the combination of the TOE framework and institutional theory in addition to the variables generated from the contextual analysis to guide the future empirical research and to explore any emerging factors that would appear during the study.

As it is explained above, pragmatism gives more freedom to move back and forth during research, which does not restrict it to being strictly theory-driven (based on deductive reasoning) or a data-driven (based on inductive reasoning) as suggested by Morgan (2007). The second benefit of pragmatism is linked to the research process to which pragmatism offers inter-subjectivity as a solution to the conflict between objectivity and subjectivity (Cameron, 2011). In this sense, pragmatism affirms that there is a single real world and that every individual will have his own interpretation of that world. Pragmatism allows the researcher to seek a better understanding of the phenomenon and verifying whether or not the assumptions held at the beginning of the research were valid. Pragmatism also provides the flexibility needed throughout the investigation to gain a better understanding of the phenomenon under study and answer the research questions as suggested by Patton (1987, p.64) “in practice, human reasoning is sufficiently complex and flexible that it is possible to research predetermined questions and test hypotheses about certain aspects of a program while being quite open and naturalistic in pursuing other aspects of a program”. Another contribution of pragmatism to this research is to exclude the problem linked to its outputs, whether it is context-bound or generalizable, by providing the possibility of transferability of knowledge as a solution, which refers to the usage of the findings of this research as a problematic to another one in a another similar context (Lincoln and Guba, 1985 cited in Morgan, 2007). Therefore, transferability is aimed at suggesting the final model to be tested in other countries with similar sociocultural infrastructural, technological, institutional and environmental features resembling Algeria.

Pragmatism is also the most suitable approach built on the principle of the relevance to practice as the researcher intends to understand how bank managers manage e-banking solutions, how bank adoption and development occur, how macro politics operate, how political and financial interests are shaped and how they interact. In order to gain a greater understanding of the phenomenon, this study is designed to be confirmatory, as it seeks to confirm relationships between banks’ adoption and development of e-banking and the variables identified in the literature review in order to provide an insight into the phenomenon.

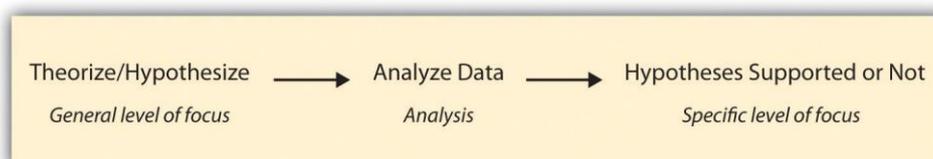
#### 4.5 Methodology

The research methodology is a general plan, established by the researcher, as a guide for answering the research questions (Saunders, Lewis and Thornhill, 2009). This general plan usually comprises the methods for collecting data and their sources, and ethics related to it. In this research, the methodology is based on a pragmatic paradigm and uses a qualitative case study research method.

#### 4.6 Research Approach

There are two main approaches for conducting a study namely inductive and deductive (Creswell, 2009). If a study is based on an existing theory and tests a hypothesis, it follows a deductive approach (Bryman and Bell, 2007; Sekaran and Bougie, 2010). On the other hand, if a study starts by collecting data then analyses them to build up a theory, it is following an inductive approach (ibid). As previously described, this present study adopts the pragmatic paradigm and as such, applies both deductive and inductive approaches.

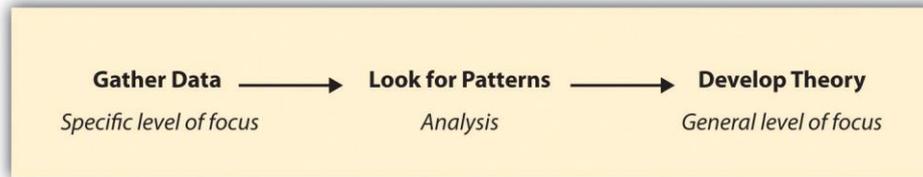
In the first phase, a positivist approach is followed in which two prevalent theories, namely institutional theory and the TOE framework, are combined to investigate the interactions between political and financial interests and their impact on the Algerian banking industry. Qualitative data were collected through a series of ten semi-structured interviews with e-banking managers and senior bankers in both public and private banks, who are believed to be able to explain the studied phenomenon. This research was designed to be confirmatory and follows a deductive reasoning process, which is described in Figure 4.3.



**Figure 4.3: Deductive Approach**

However, in the second phase an inductive approach is adopted to help the author to gain a close understanding of the phenomenon in relation to its research context. In

practice, while collecting data, the author sought to discover the participants' interpretations of the phenomenon and to develop an understanding of the context and process by which the e-banking affects, and is affected by, its environment, as suggested by Walsham (1993). This reasoning process is described in Figure 4.4.



**Figure 4.4 Inductive Approach**

Table 4.1 shows the main differences between the inductive and deductive approaches, as described by Saunders, Lewis and Thornhill (2009, p.127).

<b>Deduction emphasises</b>	<b>Induction emphasises</b>
<ul style="list-style-type: none"> <li>• Scientific principles</li> <li>• Moving from theory to data</li> <li>• The need to explain causal relationships between variables</li> <li>• The collection of quantitative data</li> <li>• The application of controls to ensure validity of data</li> <li>• The operationalisation of concepts to ensure clarity of definition</li> <li>• A highly structured approach</li> <li>• Researcher independence of what is being researched</li> <li>• The necessity to select samples of sufficient size in order to generalise conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• Gaining an understanding of the meanings humans attach to events</li> <li>• A close understanding of the research context</li> <li>• The collection of qualitative data</li> <li>• A more flexible structure to permit changes of research emphasis as the research progresses</li> <li>• A realisation that the researcher is part of the research process</li> <li>• Less concern with the need to generalise</li> </ul>

**Table 4.1: Deductive and Inductive Approaches' Differences (Source: Saunders, Lewis and Thornhill, 2009, p. 127)**

Since this research is built on a pragmatic research philosophy, it was suggested that both approaches can be utilised under the *abductive* approach, which was initially defined as the usage of all available evidence in order to explain the phenomenon (Patokorpi, 2009; Haig, 2005) and was developed to help social research in making new discoveries through assembling or discovering new features surrounding a phenomenon, based on the interpretation of collected data (Reichert, 2009).

For this study, using abductive reasoning seems to be an advantageous method according to Dubois and Gadde (2002), Saunders, Lewis and Thornhill (2007) and Venkatesh, Brown and Bala (2013), and is also considered to be a suitable research approach in the pragmatic paradigm. Abductive reasoning allows the researcher to move back and forth between deductive and inductive approaches (Morgan, 2007, 2014) as formerly explained. Moreover, Dubois and Gadde (2002) stated that the abductive approach is more than a mixture of deductive and inductive approaches since one of the major differences between them relies on the role of the framework, which is continually changed through the development of the research either based on the research or the gained knowledge and insight during the investigation. They added that this approach could be fruitful if the study's objective is to identify new relationships and variables, which is the case for this study (ibid). This method enables bridging the data generated from this combination of approaches and benefits from data triangulation to effectively tackle the research questions (Morgan, 2014). On the other hand, abductive reasoning allows having conversion mixed methods design that refers to analysing data quantitatively and qualitatively based on the pragmatic paradigm (Teddlie and Tashakkori, 2009). This method allows collecting and interpreting data from a multidimensional perspective (Morgan, 2014) in order to reframe the underlying theory or model. Finally, this reasoning is suitable when little is known about a phenomenon in a complex field of knowledge (Patokorpi, 2009)

#### **4.7 Research Methods**

There are two terms often applied to describe research methods in business studies, qualitative and quantitative (Wilson, 2010, 2014). It is important to choose a strategy that will enable the researcher to collect the right data to understand the studied phenomenon.

#### ***4.7.1 Quantitative Research***

This method was originally created in the natural sciences to study natural phenomena, while the qualitative method was developed to examine cultural and social phenomena (Myers, 2013). The quantitative method can be described as means of explaining phenomena by collecting quantitative data, which are analysed by using statistics to explain a single phenomenon. Quantitative research aims to explain phenomena by collecting numerical data that are analysed using mathematically based methods and presented in graphs, tables and charts (Cooper, Schindler and Sun, 2003). Positivist and objectivist views are the pillar for researchers who adopt such an approach (Makrakis and Kostoulas-Makrakis, 2016). This method is appropriate for research that aims to answer questions like ‘how many’, ‘how much’, ‘how often’ and ‘to what extent’ (Blumberg, Cooper and Schindler, 2014), and also to identify frequencies and numbers of responses to those questions (Bryman and Bell, 2015). Such an approach requires a sample large enough to represent the whole population, in order to enable replication, generalisation and comparison of the research results (Blumberg, Cooper and Schindler, 2014). This method aims to provide quantitative descriptions of the study variables and explanations and their relationships, after formulating and testing hypotheses emerging from theories, which can either be accepted or rejected based on statistical and comparative analyses (Bryman and Bell, 2015).

#### ***4.7.2 Qualitative Research***

Qualitative research means examining a phenomenon in its ordinary setting since different elements surrounding it such as people, culture, and environmental forces are constantly affecting it (Bryman, 1984). This method is associated with generating theories rather than testing them (Creswell, 1997; Bryman and Bell, 2011; Alvesson and Kärreman, 2011). This matches the inductive approach when an in-depth understanding of the studied phenomenon is required (Bell, 2005; Bryman and Bell, 2007; Flick, 2009; Flick, 2014). Furthermore, qualitative research is an empirical research method where the data are textual and not numerical, based on an interpretive paradigm, which assesses data by studying facts within a context (Silverman, 2010; Bryman, 2012). In the same way Creswell describes it as “an

inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds “a complex, holistic picture, analyses words, reports detailed views of information, and conducts the study in a natural setting” (1997, p.15), to uncover emerging themes, patterns, insights, concepts and understandings (Patton, 2002).

The qualitative method has been used in different disciplines (Wodak and Meyer, 2009); and has gained the attention of information systems researchers (Myers and Newman, 2007) as they have switched their focus from technological to managerial and organisational issues (ibid). IS research requires the use of flexible methods to investigate phenomena. This method has thus become acknowledged for information system researchers, either as a method to analyse data or as a complementary approach to quantitative methods (Lacity and Janson, 1994). Despite its benefits, the qualitative approach has some limitations. For instance, Miles and Huberman (1994) point out the fact that qualitative research is textual, which may reduce its value and may lead the researcher to confusion and biased interpretation of the data (Cornford and Smithson, 2006). It is usually not possible to generalise qualitative results and this is also considered to be a limitation, as pointed out by Lincoln and Guba (1985, p. 110) “the trouble with generalizations is that they don’t apply to particulars”.

Considering the above definitions, there are some clear differences between the qualitative and quantitative research methods. Accordingly, these differences are summarised as shown in Kumar’s (2005) study, in Table 4.2 below.

Difference with respect to	Qualitative research	Quantitative research
<b>Underpinning philosophy</b>	Empiricism: The only knowledge that human beings acquire is from sensory experiences	Rationalism: That human beings achieve knowledge because of their capacity to reason
<b>Approach to</b>	Unstructured/flexible/open	Structured/rigid/predetermined

<b>inquiry</b>	methodology	methodology
<b>Main purpose of investigation</b>	To describe variation in a phenomenon, situation, issues etc.	To quantify extent of variation in a phenomenon, situation, issues etc.
<b>Measurement of variables</b>	Emphasis on description of variables	Emphasis on some form of either measurement or classification of variables
<b>Sample size</b>	Fewer cases	Emphasis on greater sample size
<b>Focus of inquiry</b>	Covers multiple issues but assembles required information from fewer respondents	Narrows focus in terms of extent of inquiry, but assembles required information from a greater number of respondents
<b>Dominant research value</b>	Authenticity but does not claim to be value-free	Reliability and objectivity (value-free)
<b>Dominant research topic</b>	Explores experiences, meanings, perceptions and feelings	Explains prevalence, incidence, extent, nature of issues, opinions and attitude; discovers regularities and formulates theories
<b>Analysis of data</b>	Subjects responses, narratives, or observation data to identification of	Subjects variables to frequency distributions, cross-tabulation or other statistical procedures

	themes and describes these	
<b>Communication of findings</b>	Organisation more descriptive and narrative in nature	Organisation more analytical in nature, drawing inferences and conclusions, and testing magnitude and strength of a relationship

**Table 4.2: Differences between Quantitative and Qualitative Research Methods  
Kumar (2005)**

Phenomena related to information systems like e-banking adoption and development by banks within the banking industry of a developing country require the use of a research method that can provide a holistic picture of the phenomenon. Thus the qualitative approach is believed to be the best approach to investigate such IS phenomena (Venkatesh, Brown and Bala, 2013). Moreover, based on the complexity of the context and the context-driven nature of the research problems, as well as the pragmatic philosophical view of the research, a qualitative method would offer some flexibility to address emergent factors, which cannot be achieved by the use of a quantitative method (Morgan, 2014). As this study investigates the adoption of a new technology or information system from social and organisational perspectives, instead of focusing mainly on the technical aspects, it does not study how that new technology works but focuses on how, why and what makes organisations adopt it. Information Systems studies follow social science principles, which aim to achieve many goals (Hirschheim, 1992), the most common being: exploring, explaining and describing the studied phenomenon (Blumberg, Cooper and Schindler, 2014). Consequently, it aims to explore a specific phenomenon, in order to gain understanding, test it, and create methods for future investigations, particularly while studying complex phenomena. It also aims to describe in a detailed manner a social situation and the variables linked to it. And finally, it aims to explain a specific social phenomenon.

The complex and conflictual nature of the problem under study, as well as the lack of research on banks' adoption and development of e-banking in the context of developing countries such as Algeria, require the use of qualitative methods in order to seek insight into the situation from people within the industry to answer the research questions and fill this gap. Besides, there are almost no studies based on multiple perspectives to explore and confirm factors affecting banks while adopting and developing e-banking (Bultum, 2014). Consequently, the aim of this research is to provide a conceptual model that would explore the factors and their interrelationships that affect banks' adoption and development of e-banking from multiple perspectives in the context of Algeria.

Table 4.3 compares qualitative, quantitative methods and mixed methods as shown by (Creswell, 2009).

Quantitative method	Mixed Methods	Qualitative method
• Pre-determined	• Both pre-determined and emerging methods	• Emerging methods
• Instrument based questions	• Both open and closed ended questions	• Open-ended questions
• Performance data, attitude data, observational data, and census	• Multiple forms of data drawing on all possibilities •	• Interview data, observation data, document data and audio visual data
• Statistical analysis	• Statistical and text analysis	• Text and image analysis
• Statistical interpretation	• Across databases interpretation	• Themes, patterns interpretation

**Table 4.3: Comparison between Quantitative, Qualitative and Mixed Methods, source: Creswell (2009, p. 15)**

#### **4.8 Research Strategy**

Most of the theories explaining phenomena related to information systems adoption and development have been generated in the context of developed countries. These theories have not taken into account the differences between developed and developing countries, which may have a direct or indirect effect on the phenomenon (Whetten, 2009). In other words, these theories may not be directly applicable to the situation of many developing and emerging countries for the adoption and development of information technology. Therefore, this study seeks to explore the phenomenon within the context of a developing country, Algeria, and collect data from a variety of sources in order to develop a greater understanding of it, and to generate hypotheses that may become the bases of a new theory (Pinsonnault and Kraemer, 1993).

Since this research is confirmatory in nature, based on the combination of institutional theory and the Technology, Organisation, Environment (TOE) framework, which lend themselves to qualitative investigation, a qualitative method was chosen for data collection from different sources on the phenomenon. This method is the most appropriate one to fill the gap in knowledge about cross-cultural studies of information technology adoption and development in general and e-banking in particular.

The recent emergence of e-banking services in most developing countries has led to a need for a deeper understanding of the process of e-banking adoption by banks, why these banks do not necessarily develop their e-banking solutions to the full extent and how they are affected by the contextual and institutional factors and actors surrounding them in this particular research context. Therefore, data were gathered through direct contact with bankers, e-banking managers and their trading partners at different levels in the process of implementation, management, and regulation of e-banking services. This approach provided the prospect of investigating this phenomenon in detail and to recommend new paths of studies for other researchers in the field.

Yin (1994) claims that the selection of research strategy is made upon three conditions: a) the type of research questions; b) the level of control the researcher has over the study; and c) the degree of the importance of present events as opposed to old ones. A case study approach was applied for data collection and analysis procedures.

#### ***4.8.1 Case Study***

The case study approach was defined by Myers (2013, p78) as follows: “case study research in business uses evidence from one or more organisations where an attempt is made to study the subject matter in context”. However, Yin (p13, 2003) defined a case study in two parts: “a case study is an empirical inquiry that (1) investigates a contemporary phenomenon within its real life context, especially when (2) the boundaries between phenomenon and the context are not clear”. Myers (2013) claims that Yin’s definition (p13, 2003) of a case study approach is not appropriate to all qualitative business studies and this is why he proposed the above definition. The case study approach is applied when “How” or “Why” questions are being posed, and when the researcher has limited control over changes within a real-life context (Blumberg, Cooper and Schindler, 2011). Using a case study is considered to be one of the most challenging ways of doing social science research; nevertheless, it is a research design often used by business researchers (Eisenhardt and Graebner, 2007; Myers, 2013).

A case study enables the researcher to interpret views, attitudes, and actions of people who participate in the studied phenomenon (Myers, 2013). It can be used in quantitative research, although it is more suitable to match it with qualitative method to develop a better understanding of the problem under investigation (Bryman and Bell, 2015). Other researchers have added that the case study approach enables the analysis of a complex situation from different angles and provides an in-depth understanding of the phenomenon (Stake, 1995; Yin and Davis, 2007; Baryman and Bell, 2015). This method allows using different tools to collect data, such as interviews, documentation and observations, which give a greater insight of the problem (Yin, 2009; Baryman and Bell, 2015).

Although the case study is a unique type of research inquiry, it is not without its limitations. Humphrey (2001, p. 97) claimed that “there is no such thing as a truly

'correct' and 'balanced' case study - that two researchers are likely to produce two different case studies from visits to the same organisation". This means that there are some limitations in interpreting case study reports and, as the researchers cannot control every variable, this may limit the validity of the findings. Moreover, the risk of bias is also a common criticism of case studies (Yin, 2009). The potential bias is bypassed as much as possible through data triangulation, which refers to the use of different data collections methods to ensure the reliability of the data (Saunders, Lewis, Thornhill, 2009) and cross-checking data in addition; building good relationship with the interviewees to establish cooperation and trust and to diminish tendencies to misreport events in ways that would favour either their organisation or themselves.

The main limitation of the case study strategy is that the data collected are linked only to the case under investigation. Besides, case studies can establish relationships between variables but cannot show the direction of causation (Cavaye, 1996). Moreover, the data collected through this strategy lack external validity, which makes it difficult statistically to justify the findings (Smith, 2003); nevertheless, the generalisations made from case study results are for theory and not for populations (Yin, 2009). Some verifications are done in order to assure the reliability and credibility (internal validity), the transferability (external validity) and to reduce the risk of bias when coding, by categorising and confirming results with participants. This is further explained in the upcoming sections of this chapter. Despite the case study limitations, the data collected through the adoption of this strategy are rich in insights and detail (Smith, 2003). Thus, the case study strategy was selected as appropriate for this study and the unavoidable limitations related to it are accepted.

There are many studies that have adopted the case study strategy in information systems (Yin, 1994; Orlikowski and Baroudi, 1991; Walsham, 1993; Lee, 1991). As mentioned in Chapter 1, the research questions of this study seek to identify the forms that the political and financial interests take and the way they interact and affect banks' innovation, by understanding why banks do not adopt and develop their e-banking platforms and offers and which factors within the technological, organisational, and environmental/institutional contexts may affect e-banking adoption and development in an emerging economy, the case of Algeria. Moreover,

this study attempts to evaluate and compare the data from different participants' views belonging to e-banking and retail or corporate banking departments of well-established banks in Algiers (Capital of Algeria). Case study strategy is adaptable and can explore single or multiple cases, depending upon the underlying philosophical assumptions of the research (Myers and Avison, 2002).

The selection of a case study type depends on the overall study purpose, whether it attempts to describe, explore or explain phenomena. Yin (1994) claims that the selection of research strategy is made upon three conditions: the type of research questions, the level of control the researcher has over the study and the degree of the importance of present events as opposed to old ones. Selecting a single case may help testing a well-established theory, and may also allow the researcher gaining an in-depth understanding of the studied phenomenon since the chosen case may be considered as a unique case (Yin, 2009). However, opting for a single case may require lot of information and potentially several units of analysis (Wilson, 2014). Therefore, based on its characteristics, a single case study is not suitable for this research. By dismissing a single-case study approach, multiple-cases were proven more suitable for the research proposed in this thesis.

Investigating multiple cases is viewed as multiple experiments and enables the establishment of a logical chain of evidence (Miles and Huberman, 1994). Having numerous cases would generate robust and compelling results better than a single case (Yin, 2009; Benbasat, Goldstein and Mead, 1987), help create or contest a theory, and generate strong outcomes (Yin, 2009). A multiple-cases study allows comparisons, which can demonstrate that the research results are not distinctive to a single case but are consistently replicated by several cases (Eisenhardt, 1991). Moreover, causes and effects can be more precisely explained through a multiple cases strategy (Eisenhardt and Graebner, 2007).

No definite rule or principle has been proposed to identify the number of cases that should be conducted in a multiple case study. It has been suggested that determining the right number of cases should be left to the researcher (Romano, 1989). Moreover, the minimum number of cases that should be used for a multiple-cases study has not been identified either (Eriksson and Kovalainen, 2008). It was suggested by

Eisenhardt (1989) and Eisenhardt and Graebner (2007) that the number of cases should be between four and ten, whereas Gable (1994) did not propose any limits as long as they start from five cases. However, Creswell (1998) contradicts this proposition and claims that a researcher should take no more than four cases in order to tackle the context where the phenomenon happens in sufficient detail. As such, the research in this thesis employs the use of a multiple-cases study within the limits suggested by (Eisenhardt 1989; Creswell, 2009).

Moreover, investigating multiple cases allows the assessment of the conceptual framework described in Chapter 4, through the analysis of the literal replications (similar factors affecting e-banking adoption and development in the different cases) and the theoretical replications (dissimilar factors affecting e-banking adoption in the different cases) among different banks. As explained in Chapter 3, the conceptual framework is built on two well-known theories (TOE framework and the institutional theory) to explore the factors influencing e-banking adoption and development within the Algerian banking sector; then as a result it extends the theories.

Because of the advantages offered by the multiple case study method, it is suitable for this study given the complexity of the Algerian banking industry, the access to organisations and the period of investigation (Yin, 2003; Bryman and Bell, 2015). In Algeria 15 out of 21 banks have adopted and offered e-banking (Bank of Algeria, 2015; KPMG, 2014) making these the population of banks from which to select those for the case studies. Due to limited access to data the number of banks has been limited to four of these. The researcher has chosen leading banks including an Algerian public bank, a French private bank, an Arab private bank and a private Anglo-Saxon bank. Moreover, the Economic Interest Group (GIE) and the central bank are also selected as cases for their regulatory role in this context.

#### **4.9 Sampling**

Sampling is of great importance to researchers, since it is impossible and impractical to collect data from the entire population. However, the significance of any sample depends on how representative it is of the population. This means that the researcher may take a small group of people who are representative of a larger group and the results could be generalised accurately for a larger group of the population (Neuman,

2003). Lind et al. (2012) and Cortinhas and Black (2012) claim that sampling is necessary due to the facts that contacting the whole population would be physically impossible, time consuming and prohibitive.

#### **4.9.1 Probability vs. Non-probability sampling**

Sampling can be made using probability-based methods, involving lists of random numbers, or the equivalent. Alternatively, it can be made through other methods, requiring some element of judgement. These methods refer usually to purposive selection, judgement selection, or non-probability selection (Doherty, 1994). Probability sampling is also known as *random sampling* whereas non-probability sampling is called *non-random sampling* (Cortinhas and Black, 2012). The difference between probability and non-probability sampling is related to the nature of the population under study. In probability sampling, every element of the population has a chance of being chosen. In non-probability sampling, there is an even distribution of features within the population, which makes the researcher believe that any sample would be representative and because of that, results will be reliable and accurate. However, for probability sampling, randomization is a characteristic of the selection process, rather than an assumption about the structure of the population.

The probability or random sampling is conducted through a series of steps (Doherty, 1994). The first step is to select the population of interest, that is, the population under study. The second step is to establish a frame for all the elements of that population. It is essential that every unit in the frame has a known chance of being selected so that we can measure the probability of choosing each element in the sample. This method offers four basic techniques: simple sampling, cluster sampling, systematic sampling and stratified sampling. Each technique has its own advantages and disadvantages (Cortinhas and Black, 2012). On the other hand, non-random sampling does not involve any random selection method and comprises four techniques: convenience sampling, quota sampling, judgement sampling and snowball sampling (Cortinhas and Black, 2012).

Convenience sampling is also known as *accidental* or *haphazard* sampling. This method is not usually representative of the target population because sample elements are only selected if they can be easily and conveniently accessible (Cortinhas and Black, 2012). The clear advantage of this method is its ease of use; however, this

advantage gives rise to a risk of bias. Despite the limitations of this technique, it can deliver reliable and accurate results when the population is homogeneous as in this case (Statistics Canada, 2013).

Snowball sampling is made through referral of each participant. In brief, after selecting a person that would help with the investigated study, after that the researcher asks that person to suggest him other people. This method offers a cheap and efficient way to select survey subjects especially when they are difficult to locate (Cortinhas and Black, 2012).

Purposeful sampling is a method widely used in qualitative research for the identification and selection of information-rich cases for the most effective and efficient use of limited resources (Patton, 2002). This involves seeking and selecting individuals or groups of individuals that are well-informed about, or experienced with, a phenomenon of interest (Clark and Creswell, 2011). Bernard (2002) added to this individuals' availability and willingness to participate and the ability to describe experiences and opinions in a clear, reflective, and expressive manner.

For this study, the selection of the case was purpose-oriented as the aim was to investigate organisations with the characteristics of: being well-established banks with the financial and human capacity to manage an e-banking platform, and having implemented e-banking systems within the last 5 years. As noted above, this was done to apply the theoretical replication and literal replication suggested by Yin (2009). Consequently, purposive sampling was chosen as the most suitable method to conduct this investigation.

In this study, accessing organisations and the willingness to cooperate were gained through personal contacts and SATIM. For each organisation, a main individual was identified and contacted by telephone to discuss the research problems and objectives and to request its participation, as suggested by Lewis (2003) who recommends having a single main contact to avoid repetitious communication. The main contact was senior enough to facilitate the access and to suggest the best and most suitable interviewees to provide the needed data. After that, those individuals were separately contacted to discuss their willingness to participate in this study and then were given a

consent form to sign if they agreed on participating in the study. When examining an organisation-level phenomenon, the site selection depends on the organisation's characteristics. These comprise the industry, geographic location and coverage and the specific technologies in which the researchers are interested in (Benbasat, Goldstein and Mead, 1987).

Table 4.4 shows the positions of the participants in the interviews for the five case studies. The strategy for selecting these participants was to interview an e-banking manager first to understand the process of e-banking implementation and then to explore the drivers and barriers of its implementation. Then, it was also important to interview the relationship managers as they are in charge of selling or promoting e-banking solutions to their clients. Finally, interviewing the general manager of the Economic Interest Group (GIE) and the e-payment solutions manager at the central bank was also important for their e-banking diffusion in Algeria.

Type of bank	Participant's job title	Number of participants
Bank 1: French private	Payment Solutions Manager  Senior Relationship Manager	2
Bank 2: Algerian public	Payment System Manager  Senior Relationship Manager	2
Bank 3: Anglo Saxon private	E-banking Department Manager  Senior Relationship Manager	2
Bank 4: Arab private	Head of e-banking Department	2

	Senior Relationship Manager	
Central bank	Payment Solutions Manager	1
Economic Interest Group (GIE)	General Manager	1
Total		10

**Table 4.4: Participants' Positions in the Case Studies**

#### 4.10 Data Collection

Yin (2003) lists 6 different sources from which data could be collected:

- Interviews
- Direct observations
- Documentation
- Archival records
- Participant observation
- Physical artefacts

Yin (2003, 2009) also suggests combining more than one source of data in order to enhance and support the quality and credibility of the collected data. As previously defined, this approach is known as *triangulation* (Yin, 2003; Bryman and Bell, 2015). The aim is to obtain a rich and solid set of data and to cover the contextual complexity. Table 4.5 shows (Yin, 2003, p86) the comparative strengths and weaknesses of the six main sources of evidence and provides an example of the chosen sources in this study.

Sources of evidence	Strengths (Yin, 2003)	Weakness (Yin, 2003)	Chosen sources in this study
Documentation	<p>Stable: can be reviewed repeatedly</p> <p>Unobtrusive: not created as a result of the case study.</p> <p>Exact: contains exact names, references and details of the events. Broad coverage—long span of time, many events and settings.</p>	<p>Retrievability: can be low biased selectivity, if collection is incomplete</p> <p>Reporting bias: reflects (unknown) bias of author.</p> <p>Access: may be deliberately blocked.</p>	<p>SATIM reports</p> <p>Business and financial reports on Algeria</p> <p>Algerian Central bank reports</p> <p>Specialised magazines in business, banking and management in Africa and Algeria</p> <p>Websites of SATIM, GIE, KPMG, etc.</p> <p>Mass media: newspapers</p> <p>Company documents</p>
Archival records	[Same strengths as above for documentation]	[Same weaknesses as above for documentation]	Internal documents of the investigated banks when

	Precise and quantitative	Accessibility for privacy reasons	given
Interviews	Targeted-focuses directly on case study topic.  Insightful-provides perceived casual inferences.	Bias due to poorly constructed questions.  Response bias.  Inaccuracies due to poor recall.  Reflexivity-interviewee gives what interviewer wants to hear.	Semi-structured interview
Direct observation	Reality-covers events in real-time.  Contextual-covers context of events.	Time consuming.  Selectivity-unless broad coverage.  Reflexivity-event may proceed differently because it is being observed.  Cost-hours needed by human observers.	Direct observation during the visits to case organisations:  E-banking department  Bank premises
Participant observation	[Same strengths as above for direct observation].  Insights into	[Same weaknesses as direct observation].  Bias due to	Participant's observation through face-to-face interview

	interpersonal behaviour and motives.	investigator's manipulation of events.	meetings.
Physical artefacts	Insights into cultural features.  Insights into technical operations.	Selectivity  Availability	Electronic files

**Table 4.5: Source of Evidence: Weaknesses and Strengths, and the Usage in this Research (Yin, 2003, p86).**

In interpretive studies, it is argued that both documents and interviews have been popular data collection methods, and have been frequently employed by researchers (Lee, 1991; Myers, 1994a; Myers, 1997; Walsham, 1995; DiCicco-Bloom and Crabtree, 2006; Silverman, 2013). Documentary data are likely to be appropriate for every case study research (Yin, 2003), since they are mostly accessible and cheap (Payne and Payne, 2004). They include published and non-published reports, memoranda, public records, journal and magazine articles, text web pages and other types of document (Yin, 2003; Yin, 2009; Saunders, Lewis and Thornhill, 2012). The collection of documents or archival records should depend on the research questions of the study (Yin, 2009). Nevertheless, this study mainly relies on interviews for collecting data and uses other types of source such as documents, websites and participant observation. The interview method is believed to provide a greater understanding of a phenomenon, especially when little is known about it (Gill et al., 2008). This method is compared with “night-goggle permitting us to see that which is not ordinarily on view and examine that which is looked at but seldom seen” (Rubin and Rubin, p12, 2005 cited by Myers, 2013). In other words, it allows the researcher to not only widely explore the phenomenon, but also discover new factors, which were not expected when formulating the questions (Myers and Avison, 2002; Yin, 2003; Yin, 2009; Wilson, 2014). It allows discovering how the participant feels or thinks about the studied phenomenon (Saunders, Lewis and Thornhill, 2012;

Silverman, 2013). In addition to being suitable for investigating sensitive and complex topics, where participants may not want to discuss such issues in a group (Gill et al., 2008), interviews allow bypassing these situations.

Moreover, Yin (2003) compared interviews to guided conversations instead of a set of structured questions, which allow interviewee(s) to talk about their experiences and beliefs in a formal or informal or casual way (Silverman, 2010; Saunders, Lewis and Thornhill, 2012; Myers, 2013; Seidman, 2013; Gray, 2014). This approach allows collecting data from the participant’s environment and also permits the researcher to observe and gain a better understanding of the context. Interviews may be conducted face-to-face, by telephone or screen-to-screen (Hussey and Hussey, 1997; Collis and Hussey, 2009; Saunders, Lewis and Thornhill, 2012).

For the purpose of this study, face-to-face interviews were conducted after creating a plan to organise and guide data collection from each bank. Since bankers, like other professionals have limited time the plan was created to prevent a situation where one of them had to postpone or cancel the interview, for which other people who have similar roles were identified and contacted to take their place and participate in the study. This situation happened on one occasion in which the selected senior relationship manager was unavailable; the researcher contacted his colleague and set another meeting. The diary helped the researcher to keep a record of who took part in the study and to decide whether the data collected were enough or whether additional interviews should have been added. Interviews lasted between 45min to 2 hours, where most of them took 1h15.

**4.10.1 Types of Interview**

There are three types of interviews: structured, unstructured and semi-structured (Saunders, Lewis and Thornhill, 2012; Myers, 2013), which can be summarised in Table 4.6.

<b>Structured interviews</b>	The use of pre-formulated questions, strictly regulated with regard to the order of the questions, and sometimes regulated with regard to the time available.
------------------------------	---

<b>Semi-structured interviews</b>	The use of some pre-formulated questions, but not strict adherence to them. New questions might emerge during the conversation.
<b>Unstructured interviews</b>	Few if any pre-formulated questions. In effect, interviewees have free rein to say what they want. Often no set time limit.

**Table 4.6: Types of Interviews (Myers, 2013, p.121)**

Semi-structured interviews were used to allow the participants to freely discuss the studied subject. This method allows the researcher to be less strict about the plan of the interview and offers him more autonomy (Myers, 2013; Gray, 2014). The semi-structured interview is the most frequently applied method in qualitative research in the field of information systems (Myers and Newman, 2007). It is also considered to be one of the most important methods that provides a deeper understanding of people and their social worlds (Hermanowicz, 2002). It allows participants to express their views without being influenced by those of the interviewer (Doolin, 1996) and, according to Eriksson and Kovalainen (2008), semi-structured interviews are suitable for answering *how*, *why* and *what* open-ended questions.

Accordingly, open-ended questions were designed to be aligned with the components of the study's framework, and then posed to all participants from each case to generate data covering the contextual and institutional level surrounding e-banking implementation drivers and barriers. Open-ended questions give the interviewer control over the interview; although other questions may emerge as the interview progresses (Gill et al., 2008). The design of the interview questions was built on the conceptual framework in Chapter 3 and the interview questions are listed in Appendix 3.

The interviews followed the following themes:

- General background: overview about the bank and the banking sector, its size, their management style with respect to e-banking development, marketing views on e-banking solutions, and their views on the institutional environment.

- Technical information: type of information technology structure, amount of the investment they were ready to make, their technical and human capacity.
- Business information: e-banking strategy

At the beginning of the meeting, each participant was invited to sign a consent form (see Appendix 1) and read the participant information sheet (see Appendix 2), in which a list of approvals were requested before starting the interview. Then, the purpose of the interview and what was envisaged to be achieved were explained and interviewees were reassured that their identity as well as the organisation name would remain anonymous. The interviews were directed to the aim of the study, while avoiding leading questions as far as possible. Interviews were conducted in the interviewee's office, which facilitated access to some relevant documents. All the interviewees answered in a mixture of Arabic and French, with the dominance of French. Only one interviewee answered in both English and French. As suggested by Hermanowicz, (2002), the interviews were recorded and then transcribed. These recordings facilitate the extraction of direct quotations to support arguments. As for the translation process from French to English, it was undertaken after transcribing all the interviews into French. The translation was made by the researcher after manually coding each transcripts and selecting the main sections or sentences found to be relevant to this research. In order to ensure the quality of the translation and reduce the risks of misinterpretation, the researcher listened to each interview 3 times and then each translated section was translated back to French to verify the accuracy of the translation as suggested by Bernard (2002, 2013). After that, the original, in the French language and the translated documents, were sent to another person who is native in both English and French, in order to verify the quality of the translation.

#### ***4.10.2 Documentation***

Yin (2009, p.103) claims that “because of their overall value, documents play an explicit role in any data collection in doing case studies. Systematic searches for relevant documents are important in any data collection plan”. Collecting documents is regarded as an important task in qualitative research. Accordingly, for the purpose of this study various types of documents were collected. The documents reviewed include published interviews with key participants, specialised magazine and

newspaper articles in addition to academic and business journal articles. Some internal documents of some organisations were also collected and analysed. As previously shown in Table 4.5, sources included:

- SATIM internal reports
- Business and financial reports on Algeria
- Algerian Central bank internal reports
- Specialised magazines in business, banking and management
- Data from organisation's websites including: SATIM, GIE, KPMG, Bank of Algeria, Oxford Business Group, etc.
- Mass media newspapers and magazines
- Company internal documents

#### ***4.10.3 Observation***

In addition to the interviews and documents, data was also collected through the observation of a number of banks in their offering of e-banking services. To some extent, observation of the marketing campaigns and sales of e-banking can demonstrate practically how much importance the banks under investigation give to e-banking.

Observation is applied to collected data and was motivated by the need to explore the working environment, the communication between the banks and their clients and the means of promotion of e-banking solutions. The researcher visited the banks equipped with a voice recorder, a camera and a notebook, to record the working environment. Observation was unstructured, as recommended by Bryman and Bell (2007). Some observations were made by the researcher, for example, in the Algerian public bank; the researcher observed that the e-banking department was located in a different building than the retail or commercial banking activities, while they were located in the same building in one of the international banks. This suggests that there was more collaboration between those departments within the multinational bank. Additionally, in another bank, the researcher saw different posters promoting e-banking offers and their benefits of that bank. This method was used to maximise the triangulation in this study, which resulted in improving the quality of the collected data and strengthening the data reliability and validity.

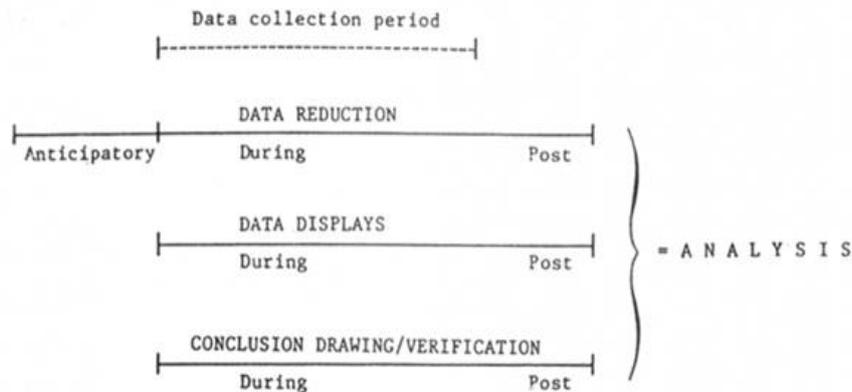
#### ***4.10.4 Pre-Testing Interview***

Prior to the main data collection, one pilot interview was conducted to provide an initial insight into the field and examine whether the interview questions would elicit useful responses or not. The pilot informant was a senior banker and cash management expert who has been involved in various projects including the first e-banking platform implementation in Algeria. Moreover, the pilot interviews helped in improving the data collection plans and the questions were revisited. Since the pilot interviewee was invited to make comments and give suggestions about the interview questions. The questions were tested before moving ahead with the research, as suggested by (Hermanowicz, 2002) to check whether the questions targeted the right information; covered the research problem; and whether or not these questions were organised and asked in such a way that enabled the respondents to answer them. By doing so, the order of the questions was changed and some of the suggestions on the style of the questions were given to the researcher. Furthermore, this pilot study proved to be helpful in gaining feedback from an experienced practitioner prior conducting more interviews and provide also the opportunity to practice how to conduct an interview and improve interviewing techniques.

#### **4.11 Data Analysis**

Miles and Huberman (1994) stated that the process of data analysis consists in three concurrent steps: data reduction, data display and drawing and verifying conclusions, as shown in Figure 4.5. This study employs Miles and Huberman's data analysis strategy to generate results and conducts cross-case analysis as suggested by Yin (2009) to synthesise the collected data.

## Components of Data Analysis: Flow Model



**Figure 4.5: Flow Model of Data Analysis by Miles and Huberman (1994)**

### 4.12 Data Reduction

Data reduction is a continuous process that starts from the literature review and continues until the data are actually collected. In other words, it refers to a process whereby the collected data is summarised, reduced and simplified throughout the study (Saunders, Lewis and Thornhill, 2012). Miles and Huberman (1994, p.10) defined it as “the process for selecting, focusing, simplifying, abstracting, and transforming the data that appears in written up field notes or transcription”. Data reduction is done by coding, generating themes from the data collection and discarding irrelevant data (Saunders, Lewis and Thornhill, 2012; Myers, 2013).

In this research, the researcher has opted to use a coding approach built on the conceptual framework; which consists of retrieving and organising raw data to simplify and accelerate the analysis (Miles and Huberman, 1994; Myers, 2013, Gray, 2014). Miles and Huberman (1994, p.56) state that “codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during the study. Codes are attached to ‘chunks’ or varying size – words, phrases, sentences, or whole paragraphs, connected or unconnected to a specific setting”. Using a conceptual framework that lists the main themes to reduce data complies with Yin (2009) who suggested that using a theory and a well-structured design support data collection and analysis. Thus, this study has formed research questions and a

conceptual framework to generate themes for data reduction, which can be a complex task; and also to avoid any loss or misinterpretation of data, as suggested by Miles and Huberman (1994, p.55) “conceptual framework and research questions are the best against overload” referring to time wasting seeking evidences, which might not be appropriate for tackling the research problem (Miles, Huberman and Saldana, 2014) May (1997, p. 111) added, this thematic structure allows "... for people to answer more on their own terms than the standardised interview permits, but still provide a greater structure for comparability over that of the focused interview".

In other words, data reduction was undertaken by following a directed content analysis based on abductive reasoning by which pre-selected themes were verified while new emerging factors were explored. Since this research has been primarily directed by the conceptual framework generated from the review of the literature, which helped in identifying the primary/pre-determined themes and the relationships between those codes, this refers to deductive reasoning (Mayring, 2000). Thus opting for direct content analysis aims to validate and eventually extend the initial conceptual framework. Then, if the data could not be categorised based on the initial themes, they would therefore be attributed a new code and explored further for their role in extending theories. This refers to inductive reasoning (Hsieh and Shannon, 2005).

After completing the translation and coding of each interview the researcher linked the initial codes together for their importance to the study and added to their categories or contexts. New codes were highlighted and attached to their categories, while non-relevant codes were rejected. After that, the researcher identified the relationship between some codes and then grouped them into themes. These themes describe the knowledge acquired from the participants in this study as recommended by Miles and Hubermann (1994).

#### ***4.12.1 Data Display***

Data display is the second step of data analysis. It involves summarising and gathering data in tables and networks (Saunders, Lewis and Thornhill, 2012). It allows the reader to have a clear idea about what the main themes are, and simplifies the analysis for the investigator. Miles and Huberman (1994) suggest two main ways

of data display: matrices and networks. Matrices are commonly tabular with columns and rows, whereas networks are in the form of boxes or nodes linked by lines or arrows (Saunders, Lewis and Thornhill, 2012). This stage is similar to the previous one, although in this stage, data display must follow the research questions. In this study, the findings are thematically and conceptually displayed using matrices within cross-cases synthesis for the conceptual and institutional factors. Furthermore, a continuous process of data display and analysis was undertaken to identify relations, make comparisons and eventually re-analyse the findings as suggested by (Miles and Huberman, 1994) with relevant data being retained and irrelevant data being discarded.

#### ***4.12.2 Verifying***

From the beginning of the data collection the researcher is gathering various data to generate patterns, relations, explanations and appropriate solutions. “Competent researcher holds these conclusions lightly, maintaining openness and scepticism but the conclusions are still there, inchoate and vague at first, then increasingly explicit and grounded” (Miles and Huberman, 1994, p.11). In this study, where data analysis is based on the theoretical framework, which assumes relations and tends to generate explanations, the pattern matching technique is adopted to make conclusions, as suggested by (Yin, 2009; Saunders, Lewis and Thornhill, 2012). The pattern matching technique is one of the most suitable for case studies (Yin, 2009); and is built on the comparison of theoretical propositions and empirical findings (Yin, 2009; Saunders, Lewis and Thornhill, 2012).

The researcher organised the data after coding them, to create a summary of the data in the form of matrices and networks, as presented in Chapter 5 of this study. The researcher interpreted data using the conceptual framework and the combination of the TOE framework and institutional theory, as noted in Chapters 2 and 3.

#### ***4.12.3 Cross Case Synthesis***

It is specifically employed to analyse data from multiple cases (Yin, 2009), and it was chosen by the researcher to strengthen the analysis, discover similarities among the cases, and generate a robust and solid understanding of the phenomenon through cross

comparison (Miles and Huberman, 1994; Yin, 2009). Cross case analysis was carried out using questions mentioned in the case study protocol; then the findings led to comparison with theoretical propositions sustaining this study and discussions to draw conclusions and finally establish a basis to create a new conceptual model as the key empirical finding of this research.

#### ***4.12.4 Triangulation***

As noted above, this method is employed by the researcher to increase the study accuracy, quality of data and improve the strength of the results, as claimed by Myers (2009). It was initially used in social science for validating the research results (Campbell and Fiske, 1959). Since then, triangulation has become frequently used despite all the different views on its use in research (Denzin, 1978; Smith and Kleine, 1986; Golafshani, 2003). Triangulation is defined as “a validity procedure where researchers look for convergence among multiple and different sources of information to form themes or categories in a study” (Creswell and Miller, 2000). Yin (2003) distinguished between four types of triangulation methods based on Patton’s (1987) work: data triangulation, methodological triangulation, investigator triangulation and theoretical triangulations. The first approach refers to using different sets of data (Denzin, 1978). The second one refers to the use of more than one method to investigate the same phenomenon (Mitchell, 1986; Yin, 2003). The third suggests making use of various investigators to conduct the study and the final one refers to the use of more than one theory to support or refute the findings (Denzin, 1978; Banik, 1993; Yin, 2003). Janesick (2000) added a fifth approach, namely interdisciplinary triangulation, which refers to the use of more than one discipline in a single study.

This study adopts data, interdisciplinary, theoretical and methodological triangulations. The methods implemented to apply triangulation are: using a multiple-cases study strategy with multiple-participants; from which data were collected via semi-structured interviews, observations, archival record reviews and documentations. The use of multiple data collection methods facilitates data triangulation (Eisenhardt, 1989). This study is built on the combination of institutional theory and the TOE framework to investigate information technology adoption within a social context.

#### **4.13 Ethical Considerations**

Ethical issues are very important in social science research (Myers, 2009). As it is important to maintain ethical standards while interviewing individuals, some approvals were required prior starting the investigation: firstly, obtaining ethical approval from the Brunel Business School Ethics Committee; secondly, obtaining permission from the interviewees; thirdly, respecting them and their time, knowledge and position while keeping their identity anonymous and, finally, keeping records and transcripts confidential and safe in addition to providing feedback to organisations or subjects upon request as suggested by Myers and Newman (2007). Moreover, before the data collection, all the participants were invited to sign a consent form (see Appendix 1). Additionally, to ensure confidentiality, the participants were informed that the tape-recording would be destroyed after transcribing and translating the data. Furthermore, in order to facilitate access to the organisations, promises of confidentiality were given to the organisations under investigation as an assurance to the organisations and individuals involved of total anonymity and confidentiality of their identity as well as careful use and control of the data obtained from them.

#### **4.14 Summary**

This chapter has defined and explained the research design and the method applied in the study. The study is designed under a pragmatic paradigm, and took the form of a multiple-case study. This allowed the researcher to explore the phenomenon under study with numerous participants and to develop an in-depth understanding of contextual related problems.

## **Chapter 5 Findings: Case to Case Analysis**

### **5.1 Introduction**

The previous chapters recognised the need to explore the contextual and institutional factors affecting banks in adopting and developing e-banking solutions. To achieve this aim, a conceptual framework was presented in Chapter 3 that comprises technological, organisational, environmental and institutional factors to be investigated in multiple case studies. A multiple cases study approach was found most appropriate to investigate the contextual and institutional factors identified in that framework.

This chapter presents and discusses the analysis of the empirical data collected mainly through interviews and documents, from six organisations. The objective of this analysis is to investigate the phenomenon within each case study and present the findings in order to revise the conceptual framework developed in Chapter 3.

### **5.2 Case Studies Analysis**

This research adopts a ‘within-case study’ analysis method in order to present a descriptive analysis of the results from individual cases (Miles and Huberman, 1994; Yin, 2009). This method enables the researcher to analyse thoroughly each case study one at a time to improve understanding of the phenomenon (Miles and Huberman, 1994).

As noted above, each case was analysed based on the Miles and Huberman (1994) strategy of data reduction, data display, and conclusions. Thus, for each case study, data were firstly tagged using the codes extracted from the conceptual framework and open coding technique to further organise the data into specific categories. Quotations from the interviews were taken and used in this analysis.

As previously mentioned, the identities of the participants and their organisations have been kept confidential to maintain anonymity. However, for the purpose of this study, each organisation is categorised as: public, French, Arab, Anglo-Saxon, or regulatory organisation. The structure of the analysis of each case study is as follows:

1. Background of the category
2. Contextual and institutional factors analysis

### 3. Summary of the findings

#### **5.3. Public Bank Case Study A**

##### ***5.3.1. Brief Overview of the Category***

There are six public banks in Algeria that represented 86 percent of the sector's assets by the end of 2012 (Imam, 2014). The main role of these banks is to finance the country's public projects and companies that comprise a large part of the economy (Frewer, Betz and Stolting, 2013). These banks are: Banque Nationale d'Algérie (BNA), Banque Extérieure d'Algérie (BEA), Crédit Populaire d'Algérie (CPA), Banque de l'Agriculture et du Développement Rural (BADR), Banque de Développement Local (BDL), and Caisse Nationale d'Épargne et de Prévoyance (CNEP-Banque). The chosen bank is well positioned among other public banks particularly in terms of ICT investment and development and also provides a similar level of variety and reliability of e-banking services compared to the others.

It was difficult to gain access to managers within this public bank case study but, eventually, two interviews took place with the Payment System Manager, and with a Senior Relationship Manager. The website of this bank was also used for additional evidence and information in order to gather richer data and develop a better understanding of the phenomenon under investigation.

##### ***5.3.2. Contextual and Institutional Factor Analysis***

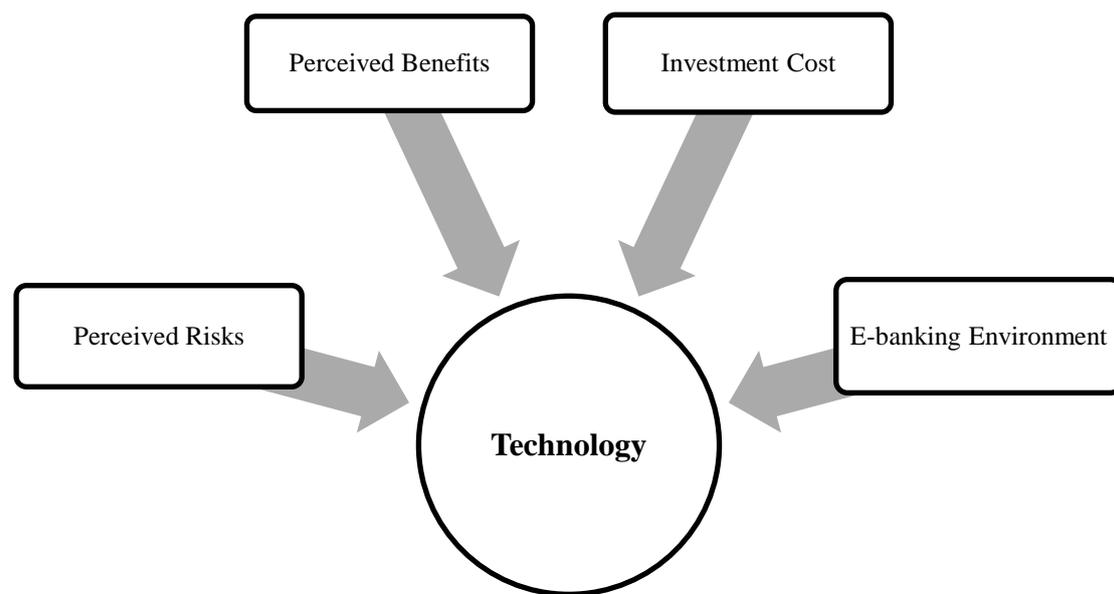
The interviews conducted within the public bank, in addition to the information collected from its website and other reports obtained from other sources, were used for triangulation purposes, and helped to reveal some contextual and institutional factors that have helped e-banking to flourish considerably within this bank. The next section will present the factors generated in each of the technological, organisational and environmental context.

On the current situation of e-banking in Algeria, both the interviewees agreed that e-banking is still in the infancy stage. Both claimed that this situation is due to different and complex reasons including culture, as it is was pointed out by one of the interviewees:

*“Electronic banking is not living up to our expectations at all; for example, e-payments whether through cards or lines are always forbidden or very limited until today. It is always the starting phase, and it still did not take-off. We have companies that make billions in turnover but still use manual systems. This is not because they do not have the means, but rather the culture to do so.” [Payment System Manager]*

### **5.3.2.1 Technological Factors**

Technological factors have effects on new technology adoption (Collins, Hage and Hull, 1988) as the overall response to this can be seen through the interviews which revealed that some of these factors have considerable impact on the adoption and development of e-banking. Some of the factors from the technological context, which were selected from the literature and have been confirmed through interviews along with others, emerged during the collection of data, as shown in Figure 5.1.



**Figure 5.1. The technological factors affecting e-banking adoption and development within the public bank**

#### *5.3.2.1.1 Perceived Risks*

The analysis revealed that the participants and their banks are aware of the risks linked to e-banking adoption, which can have an impact on its adoption by customers and development by their banks. Both the interviewees stated that their e-banking solution does not present any risk, as they have invested a sufficient amount of money

in security before launching their e-banking solution. Even though the risks of online fraud through this new technology have grown worldwide, both interviewees claimed that their e-banking platform remains safe since they have implemented advanced online security measures to protect their users from those risks. One of the interviewees argued:

*"The risks are none. We have made sure to develop secure solutions to simplify the lives of our customers by reducing the risk of fraud, signatures imitation and theft of checks. Each customer will be provided with a calculator enabling them to verify their account. In addition, they will have everything to gain by saving time, travel, and worries. Basically, we are technologically ready to offer and diversify our products in the long-term. We have the technical means to do so, but we remain blocked."*

[Payment System Manager]

The same interviewee added that investing in e-banking and diversifying their electronic services offers have been very profitable for his bank. However, he divided their e-banking offers into two types: local and foreign e-banking, which refers to automated banking (usage of local and international cards), and claims that the foreign e-banking is more profitable, as he further explains:

*"We have equipped all major hotels with ATM and EPT [electronic payment terminal] accepting CIB, Visa, and MasterCard; and our customers can choose between classic and gold cards, and this is very profitable. Locally speaking, it's not very profitable."*

[Payment System Manager]

#### *5.3.2.1.2 Perceived benefits*

Both interviewees confirmed that the advantages obtained from adopting and offering e-banking solutions were key drivers to its adoption. As previously mentioned, it was claimed that implementing and developing e-banking solutions may contribute to reducing the national amount of cash circulating within the underground economy, saving time for both the bank and its clients and facilitating customers' daily life.

#### *5.3.2.1.3 Cost of investment*

It was revealed through these two interviews that e-banking, as a product and solution, is of a great importance and the benefits that are obtained through it are investment drivers. Despite the high costs linked to e-banking implementation,

maintenance and development, which are to be taken into account, both interviewees claim that their bank will not hesitate to invest more to improve, diversify and secure their offers once some barriers are removed.

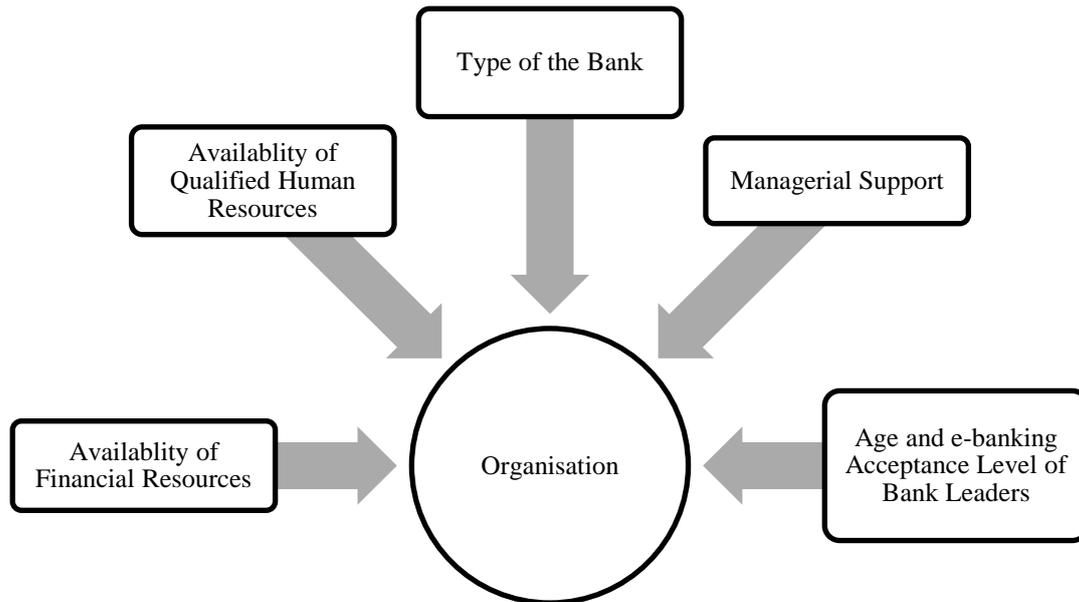
#### *5.3.2.1.4 Current e-banking Environment*

The current e-banking level of development was found to constitute another limitation for the progress of e-banking. Despite all potential benefits that banks may obtain from cash solutions management in reducing the cash in circulation in the country one of the interviewees stated that there would be no further investment from their bank until they see what the GIE (the company in charge of e-banking development in Algeria) will do to improve the situation.

*"Much remains to be done, knowing that the current banking environment does not encourage the development of electronic banking. Although some efforts were made, for example: the creation of GIE to cope with the issues and delays made by SATIM, the situation has not evolved. Therefore, we will continue to invest the minimum in these products until we see the contribution of the GIE [...] Maybe there are things that are beyond me, but I think banks can help reducing the presence of cash by forcing customers to use cheques and cards."* [Senior Relationship Manager]

#### *5.3.2.2 Organisational Factors*

Examination of the participants' views shows that organisational factors play a significant role in e-banking adoption and development by banks. Managerial support, bank leaders' age and e-banking level of acceptance, availability of qualified human resources, slack resources (availability of financial resources in particular) as well as the type of bank have shown significant impact on advancing e-banking. The figure below shows the relationships between these factors and the organisational context.



**Figure 5.2. Demonstrating the organisational factors affecting e-banking adoption and development within the public bank**

#### *5.3.2.2.1 Managerial Support*

Well-established organisation and supervised security are central to managerial support and the interviews have demonstrated that they offer major sustainability to e-banking adoption. They are certainly key factors that both participants identified as critical elements for enacting e-banking adoption. Nevertheless, the Payment System Manager insisted that the delay in development is due to other factors, mainly external in this case coming from the lack of clarity of the central bank in relation to e-banking development.

*"The management support, of course we have it. I will even say that it is our major asset and they even recognise e-banking development as a strategic activity. And they (our top managers) spend their time encouraging us to do studies and draft investment projects that remain pending until the Bank of Algeria gives us more clarifications and agreements, which will guarantee that the environment changes."*

[Payment System Manager]

This shows the critical role of supportive management in the adoption and development of e-banking solutions.

#### 5.3.2.2.2 *Qualified Human Resources*

Another key factor highlighted by the same interviewee was the availability of qualified human resources in order to perform efficient and effective sales activities. To explain his arguments, this participant shared with me the results of a recent internal investigation conducted with their clients, which revealed that a large number of their customers were not familiar with their banking services in general and their e-banking solutions in particular. While investigating the reasons why their sales employees have not been performing well, they found that their sales force lacked training and motivation to efficiently promote their e-banking products in particular. These factors were believed by the Payment System Manager to be an important inhibitor to e-banking development.

*"Our marketing team recently completed a study and we were shocked by the number of customers that were unaware of our electronic banking products. Our sales staff are trained to sell at the counter. Unfortunately we do not have a sales force dedicated to different customers, such as other banks have. We are still in the concept of I go to my bank and not to my banker; in our view the customer talks to the counter not the person in charge. As I said earlier, it is our weaknesses compared to foreign/private Banks that bring with them concepts of their banking groups"* [Payment System Manager]

#### 5.3.2.2.3 *Type of Bank*

While trying to understand the reasons why this bank has not created training centres, for example to train and prepare their own employees to complete their banks' objectives in general and further develop their e-banking platform and solutions, both interviewees claimed that it being a public bank, in this case, plays a major role in affecting all of these since a public bank does not have to obey to the same pressures as a private, local or foreign bank. Its decision process is centralised and linked to their Chief Executive Officer who reports to the government and, in this case, as they do not have the authority to further invest, they remain blocked despite all the encouragements from their top managers to draft investments propositions.

Thus, the bank's type may have an impact on their top managers' choices to adopt and develop e-banking platforms and solutions.

#### 5.3.2.2.4 Slack Resources (Financial)

As for the availability of resources to adopt and further invest in e-banking to develop it, the System Payment Manager claimed that it is vital for a bank to have a budget to expand their e-banking offers. He added that they have all the necessary financial resources to launch various e-banking products that would satisfy their clients and meet the local needs.

#### 5.3.2.2.5 Age of bank leaders and their e-banking Acceptance Level

Other factors within the organisational context were pointed out by the interviewees namely the age of bank leaders and their level of acceptance of the e-banking solution. These factors were found to have an important effect on banks' adoption and development of e-banking products, as one of the participants highlighted these two factors are significant:

*“There are also the age, the educational level, and the visions of our leaders who are to be considered but not as much as their cash culture. That kind of stuff does not grow smoothly and genuinely towards banks in general to innovate.”* [Senior Relationship Manager]

The Payment System Manager spoke about the same variables; however, he did not speak about their bank's leaders in general but rather those who are at the top of the regulatory organisations, as he argues:

*“It is true that we are from two different generations, I am young and I want to be up to date with the new technologies and they are of the old school generation (...) however, in a meeting I was asked by a top Manager in one of the regulatory organisations how much money will we make out of e-banking investment and what will it cost us to equip people with cards that fit into PCs for online payments. I could not tell him anything as it was obvious that he did not understand how things work”*

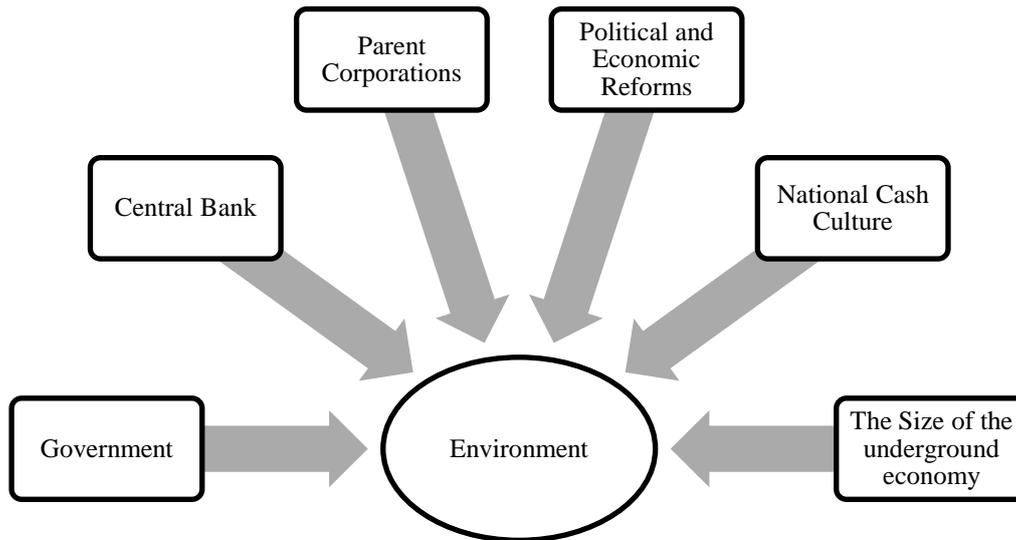
This comment shows how misunderstandings arise from the people in charge of regulating the banking sector so in another sense their beliefs reflect the situation of e-banking within the Algerian banking context.

### **5.3.2.3 Environmental Factors**

The environment context comprises all the factors such as the political, social or even technical as well as various other elements that surround banks; however for the purpose of this study, some factors were identified then tested and explored for their potential impact on banks' adoption and development of e-banking.

It is known that some internal changes may occur within organisations, due to some institutional pressures (DiMaggio and Powell, 1991). Banks are not exempted from those changes and are thus subject to regulations and rules, which they must obey in order to maintain their legitimacy. This study mainly focuses on some key actors and factors within the environmental context namely the central bank, government, competitors, parent corporations, customers, national culture, rules and policies, underground economy, and the political and economic reforms for their potential roles in influencing banks that are in the process of adopting and developing electronic banking.

Data collected from the public bank indicated that competition, customers, and leading banks have no effect on their banks' adoption and development of electronic solutions. However, the government, Central Bank, national cash culture, underground economy's size, parent corporation and political and economic reforms were found to be extremely important for shaping up the e-banking environment and also influencing banks' adoption and development of electronic banking. These factors were associated with the coercive forces for their roles within the environmental context, as defined by institutional theory.



**Figure 5.3. Demonstrating the environmental factors affecting e-banking adoption and development within the public bank**

#### 5.3.2.3.1 Coercive Pressures

These pressures arise from the existence of informal standards and the legal environment (DiMaggio and Powell, 1991). Though particularly in relation to e-banking in Algeria, coercive pressures consist of formal and informal forces from dominant actors that play major roles in improving the e-banking situation (DiMaggio and Powell, 1983). Through an in-depth review and analysis of the interviews, it was revealed that all of the above institutions in addition to other factors have an effect on e-banking adoption and development by banks, as pointed out by both of the interviewees in this case.

#### **Government**

The data collected from the interviews confirmed that the government, as a factor and actor, plays a major role in e-banking adoption and development. Although it seems that the government has not fully put pressure on all banks to enhance their offering and improve the situation in this particular context. Thus, the impact of government pressure is significantly negative on e-banking take-off, as was pointed out by both participants.

*“I believe that our Government should pressure all banks in the market and even the Central Bank as it is exposed to the risk associated with traditional manual banking.*

*And they also do not want that, so I think that the government should put pressure on people and convince them to use this kind of tools; just as it did with mobile phones. Should they change attitudes and that people understand that this is the future and we cannot escape it.” [Payment System Manager]*

*“It is the role of the state to do all this (improve and develop e-banking offering), and also the role of certain organizations such as finance Ministry, Trade, etc. to get up-to-date services.” [Senior Relationship Manager]*

The interviewees agreed that the government has the power to improve e-banking diffusion even though at the present it plays an inhibiting role that prevents banks from investing more on e-banking solutions. .

### **Central Bank**

It was also pointed out by the interviewees that having a strong central bank will also have a vital impact on the constant progress of the banking sector in general and e-banking in particular, as it is the third most powerful institution after the Finance Ministry; however, in this context it does not really push the banks toward e-banking adoption and development. The lack of engaging and supportive efforts by the central bank has negatively affected e-banking development and positively affected the growth of the cash culture in Algeria, as stated by the Senior Relationship Manager of this bank.

*“This situation is also due to the lack of effort from Central Bank in doing something about that. Do you find it normal that Algerians still pay all in cash; their cars, their houses, their groceries and their taxes? Well, it is true that the Central Bank slows the launch of e-banking, but they know that this is not yet the right time to release it [e-banking] and modernize the sector. And in my opinion we should not only blame the Central Bank for that, because I believe that Algeria is not yet ready for wide range of e-banking services.” [Senior Relationship Manager]*

Additionally, the System Payment Manager argued that all the rules and procedures imposed by the central bank have the effect of slowing down banks’ willingness to improve their services and thus discourage them from developing their electronic services.

*“Our bank had reached an agreement with a major customer, and with the help of the SATIM we set up a system to facilitate transactions. The project was only officially completed a few months ago; unfortunately, in this case, the Bank of Algeria [Central Bank], delayed and blocked the road (...) at first we did not understand their reason. Especially since there was a law that said any bank wishing to introduce a new product must necessarily have the endorsement of the Bank of Algeria; it is already a restriction (...) instead of pushing banks to the creation and innovation in their offerings; No, the Central Bank does the opposite! So every time we wanted to introduce a product, we had to prepare a dossier (an application), which complicates the investment.” [Payment System Manager]*

Therefore, it is worth noting that the central bank has a negative impact on e-banking adoption and development by banks as highlighted by the interviewees who claim that the central bank has been reluctant to let banks further develop their e-banking by imposing a number of procedures that would prevent banks from investing in e-banking.

### **Parent Corporations**

To reinforce and again highlight the role played by the type of the bank within the organisational context and its effect on e-banking development, parent corporations were also found to be strongly linked to the type of the bank, as one of the interviewees claimed. To clarify his point, the System Payment Manager compared his bank with a foreign Arab bank that has the full financial and managerial support from its parent corporations in order to invest in this sector while his bank remains dependent on the government and their policies.

*“Arab Gulf Bank ‘AGB’ for example is a private institution; and our bank is a public institution so we do not have the same managerial habits; for anything that is not regulated, we do not take risks (...) Accordingly then, they themselves decided to go for it; by providing the means and without forgetting the media stunts. However, for us, we cannot afford that, but in the meantime the ministry is responsive to the development of electronic banking.” [Payment System Manager]*

It was revealed that a public bank would be limited to what local regulating institutions want and need; however, being part of a foreign banking group was found

to be an important driver to banks' innovation as it was highlighted by the system manager

### **Political and Economic Reforms**

The political and economic reforms have been mentioned similarly as a valuable factor that significantly affects e-banking development in this context.

*“Our banking sector has been a victim of our political-economic decisions and choices. One is always in a state controlled capitalism. The Government has power over all aspects, and banks have always been manipulated to serve the purposes of the State; our Central Bank should be an independent entity yet it is not. We cannot talk about banks in Algeria over time since until mid-90s we had no private banks. Since then Algerians have preferred to keep their money at home; and with that people hoarding money has increased, it has been a growing underground economy.”*

[Payment System Manager]

*“I prefer saying that the reforms that we have known so far were not as great and effective as we expected, and have not enacted modernization but rather delayed it.”*

[Senior Relationship Manager]

From the above comments it is revealed that political and economic reforms affect e-banking adoption and development in general and the banking sector in particular. Since these reforms are believed to be implemented not to improve the banking development and e-banking diffusion but rather to delay it as they do not offer any freedom to banks to innovate.

### **The Size of the Underground Economy**

Another influential factor emerging from the analysis was the black market. It was explained that people are not accustomed to transparency and prefer using their cash instead of cards or cheques as pointed out by one of the interviewees:

*“It is clear, the mass of money circulating outside the banking system is very important. These people do not want our solutions because they are not profitable for them. They prefer to remain illegal, and to avoid transparency. All this actually affects the banks and it blocks us.”* [Senior Relationship Manager]

The Payment System Manager, by contrast, distinguished between the local and foreign black market, and their effect on e-banking development.

*“I do not think the black market can affect the foreign electronic banking, since even when we inject money into our foreign currency accounts, it is usually never required for us to bring supporting documents. How in our current environment both sides find a way to benefit from it, you see, it's still unclear (...) For me it is not an obstacle. However, in terms of national or domestic electronic payments, the parallel market is directly affecting the economy. There I think the parallel market affects the banking sector's development given that these people refuse to work transparently but it is not a problem linked only to electronic payments. I like looking at it from the opposite side. Forgetting those who are not having access to the services of banks, statistics say that we are at a banking rate of 40% and what happens if one is interested more than the 40% bank rate, what have we done to them?”* [Payment System Manager]

The differentiation made between the local and foreign e-banking can lead us to understand that having a black market, from which foreign currencies can be obtained, can lead people to making deposits with his bank, which is very profitable. However, from the local perspective it does not help them at all since Algerians are reluctant to use their local debit card and prefer to use cash.

### **Customers**

The participants from the public bank in this context claimed that customers do not influence banks' choices or decisions to invest or diversify products as they have not asked for more electronic solutions, which explains their lack of investment in customer service in relation electronic banking service as formerly noted. This factor can also be linked to the type of the bank and its objectives which is, in this case, profit-oriented rather than customer-oriented.

### **National Cash Culture**

National cash culture was cited on different occasions by both interviewees who claimed that using mainly cash to make all types of transactions slows down e-banking development and usage in Algeria.

*“The sluggish development of e-banking is not due to the lack of means, but rather to the Algerian cash culture. It has affected of all of us.”* [Senior Relationship Manager]

Hence, being cash based economy can negatively affect banks in adopting and developing e-banking solutions.

#### 5.3.2.3.2 Normative Pressures

##### **Competitors**

These pressures are the result of inter-organisational networks and standards (DiMaggio and Powell, 1991) that include all the banks present in the market. However, in the case of public banks, the effect of competitors in their adoption and development of e-banking is not perceivable due to the type of management and their business objectives, as reported by both participants.

*“Despite all the support we may have, we still have not reached the level of supply of some private banks which can refer to groups and parent companies. In their case, it was imposed on them unlike us, we need to make sure to follow the instructions and especially avoid infringement.”* [Senior Relationship Manager]

*“A change is certainly required in public banks' visions and enhances this component, as this is our weakness compared to foreign and private banks that bring with them concepts of their banking groups.”* [Payment System Manager]

#### 5.3.2.3.3 Mimetic Pressures

##### **Leading Banks**

These pressures are usually applied through leading firms that push the others to imitate them (DiMaggio and Powell, 1983). In this context, these mimetic pressures may take place when a bank tries to copy the market leader and invest in an e-banking platform. However, in the context of Algeria, public banks are leading the country particularly in terms of profits and assets, yet they do not obey this logic and their impact remains insignificant.

Both the interviewees suggested that the banks should review their strategies in order to modernise the sector and reach the level that is more desirable for the community.

*“Banks should start making a sustained pressure on clients to begin to use our offers. And once again avoid situations like what happened with bank cards, which died at birth ‘if you know what I mean’ because we limit them to withdrawals, and virtually no payments with or without our money in it. (...) I will say that Algeria Post ‘AP’ is*

*courageous and it is a very good initiative. Unfortunately, I find it ridiculous to produce more than 5 million cards and do not make use of bank networks. It proves that the vision, or strategy is not well studied or they may be constraints. But hey! AP remains the only one which made a good decision in terms of staffing of equipment compared to the rest of the public bank CPA, BDL, etc.” [Payment System Manager]*

For this reason, the second interviewee suggested that more pressure should be put on the clients to encourage them toward e-banking usage in order to reduce the amount of cash in the banking circuit.

*"Banks should start making a sustained pressure on clients to begin to use our offers. And once again avoid situations like what happened with bank cards, which died at birth if you know what I mean, because we are limited to withdrawals, and virtually no payments with or without our money in it." [Senior Relationship Manager]*

### **5.3.3 Summarising the Findings of the Public Bank Case Study**

Exploring factors that influence the adoption of e-banking adoption and development within a public (state-owned) bank showed that most of the factors selected from the literature were confirmed in practice, others did not have any significant effect while new factors emerged from the empirical data.

Analysis of the technological factors showed that the perceived risks and benefits from e-banking, cost of investment as well as the current level of development of e-banking are the most significant technological factors for the public bank. The data also showed factors such as the bank's slack resources, qualifications of the human resources, type of the bank, and managerial support as well the age and e-banking acceptance levels of bank leaders were the most significant factors in the organisational construction of the TOE framework. As for the environmental/institutional pressures, both normative and mimetic factors were shown to be non-significant factors in this case; however, coercive pressures applied by the government, central bank, national cash culture, the underground economy along with the political and economic reforms were found to be the most important factors that affect a public bank's adoption and development e-banking technology. Table 5.1 summarises all the factors found in context of the public bank.

Factors		Algerian public Bank
F	Perceived risks	Include risks of fraud, forgery of signatures, and theft of checks.
	Perceived benefits	Include reducing cash level, saving time and facilitating customers' daily life.
	Investment cost	Importance of these products and benefits are investment drivers that exceed its costs.
	E-banking environment	Underdevelopment of e-banking environment perceived as a barrier to its development
O	Slack resources	Greater the resources of the bank, the better it is as driver to e-banking development
	Type of the bank	Being a public bank makes investment in e-banking difficult due to constraints imposed by the government
	Qualified human resources	Training people to sell e-banking a priority for its success
	Managerial support	Management supports e-banking development by granting freedom of decision to those in charge of its development
	Age of bank leaders	Age is linked with vision and perception of e-banking having a negative impact on e-banking development as stated by interviewees
	Technology acceptance of bank leaders	Technology acceptance is affected by the age of leaders and perception of e-banking benefits
	Size of the bank	Not applicable in this case

<b>E</b>	Government	Government has not encouraged banks to acquire and offer these solutions.
	Central bank	Central bank slows the process of acquisition
	Parent corporation	Being part of multinational corporation might help in facilitating adoption of this technology
	Political and economic reforms	Reforms play a negative role in changing the environment and making it ready for e-banking
	National cash culture	Cash culture a major barrier to e-banking usage by customers and also to investment by banks
	Underground economy	Traders Refusing to be transparent also to the large amount of money circulating out of banking circuit are key inhibitors to e-banking acceptance
	Legal framework	Regulations and policies of e-banking usage are crucial for its take off

**Table 5.1. Summary of findings and their explanations: the local/ public bank**

## **5.4 French Bank Case Study B**

### ***5.4.1 Brief Overview of the Category***

This category consists of BNP Paribas El Djazair, Société Général Algérie, Natixis and Calyon (previously known as Credit Agricole CIB Algérie). The majority of these banks have been present in Algeria for more than 10 years and have been offering corporate, retail and electronic banking services to their customers.

The anonymous bank selected for this study has been present in Algeria since early 2000, and is also one of the first foreign banks to be established in Algeria. Since its establishment, the bank has been enhancing the quality of its services, increasing its branch numbers, and diversifying its electronic offers.

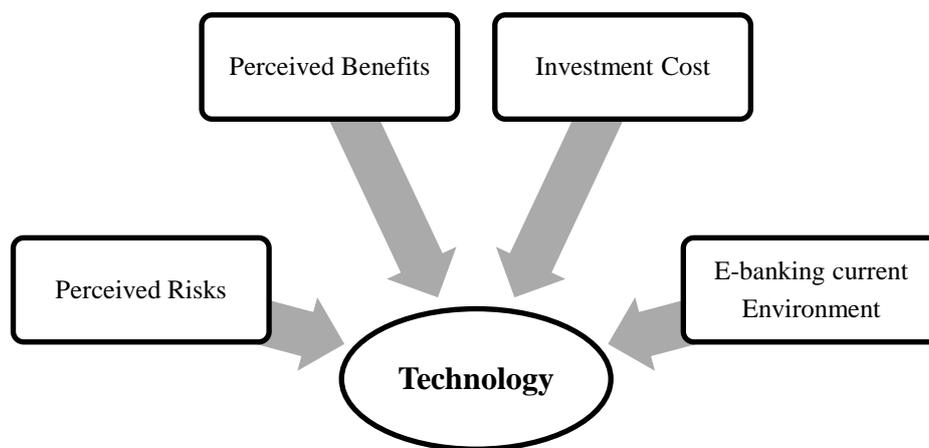
Data was collected from this bank through interviews, documents and observations; for example, two participants were interviewed, and some documents (internal reports and products' presentations) were given by the participants to further support this study.

#### **5.4.2. Contextual and Institutional Factors Analysis**

The interviews enabled the researcher to further understand how technology, organisation, environment and institutional factors influence e-banking adoption and development and also confirm, or not, the proposed conceptual framework and extend it based on the findings.

##### **5.4.2.1 Technological Factors:**

The results from the data collected from the French bank confirm the association between perceived risks and benefits and show current e-banking environment and cost of investment to be more influencing factors for e-banking take-off, as shown in the Figure 5.4.



**Figure 5.4. Demonstrating the technological factors affecting e-banking adoption and development within the French bank**

##### *5.4.2.1.1 Perceived Benefits and Risks*

It was confirmed by both the interviewees that their bank has been motivated to invest in e-banking for its potential benefits. They asserted that their bank was fully aware of all the benefits and risks that they may obtain from e-banking implementation.

However, they claimed that the benefits of e-banking usage have not been understood by all their trading partners. Yet, they maintained that their technology is without risk as they have invested a significant amount of money to make it reliable and more marketable.

*“I believe that our products are 100% reliable; otherwise we would never have marketed them. Besides, before moving to the offer, we do market research, surveys at our marketing department, doing tests for piloting phases to offer a product more adapted to our customers and when we are sure of the quality of the products we launch them on the market (...) Again, even if these products are expected to offer many advantages to customers, these benefits are not yet perceived ... When you give a EPT (Electronic Payment Terminal) to a trader, he will not have to pay big bucks [Dollars] to come to the bank, he need only two or three clicks and it's all good. Moreover, it reduces the risk of loss of money through cheques, and theft.” [E-Payment Solutions Manager]*

The second interviewee spoke about security features:

*“In terms of risk, I do not really see any since all means are secured and previously studied; in addition, we provide a small calculator that generates a dynamic password to be able to identify the user; the signature of the selected customer matrix is applied as part of the tool; so only those authorized to use this tool are to make operations.” [Senior Relationship manager]*

This evidence confirms that both of the potential advantages and risks associated with e-banking are known and constitute key factors for the bank when it adopts and develops electronic banking solutions.

#### *5.4.2.1.2 The Current e-Banking Environment*

It was also highlighted by one of the interviewees that e-banking adoption and development is not a question of infrastructure or environmental readiness but more a question of national culture.

*“Our bank is equipped to meet current demands. It provides our customers all the means to encourage the use of those products. However, despite all our efforts the Algerian [customer] still prefers cash to cards, thus it is difficult for us to change his*

*habits, knowing the customer does everything by cash and this slows the electronic banking boom.” [Senior Relationship manager]*

The role of the current e-banking environment is again underline for its impact banks adoption and development of e-banking.

#### 5.4.2.1.3 The Cost of Investment

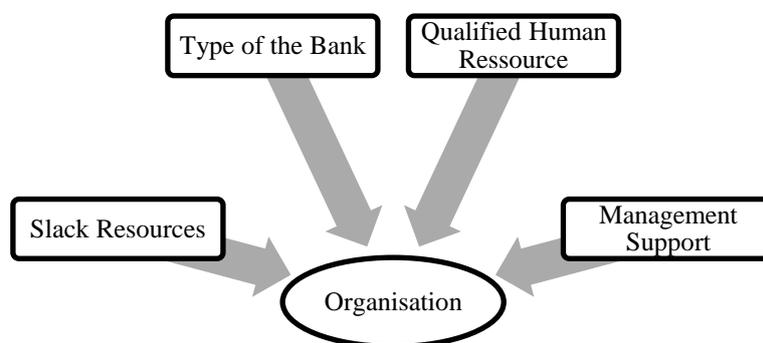
It was claimed that, in some cases, if the investment is costly, it might have a negative impact on e-banking acceptance among the bank’s clients since those services will be provided to them at a high price.

*“Some products remain expensive, so it is costly to the bank and our customers. For example there is a security protocol that works with a key which costs 99 EUR to the user, it's huge. I do not think that customers are willing to pay that much. And on the other side, I do not know if the group is ready to revise the price downwards.” [Senior Relationship manager]*

However, despite the high costs of acquiring e-banking technology, the cost of investment in electronic banking solutions remains perceived as a factor of low influence in its development.

#### 5.4.2.2 Organisational Factors

After exploring the organisational factors in the case of the French bank, it was discovered that slack resources, qualified human resources, managerial support and the type of bank have important effects on e-banking adoption and development.



**Figure 5.5. Demonstrating the organisational factors affecting e-banking adoption and development within the French bank**

#### 5.4.2.2.1 Management Support

The interviews confirmed that managerial support plays a major role in e-banking development. In the case of the French bank, top managers do not only give their support to their teams, but also train them and encourage them to seek better opportunities for investment, as pointed by one of the interviewees:

*“We have the full support of our management in terms of financial resources, they provide us an important budget for this purpose. In addition, we did not have to go canvass new customers, which saved us time and money as well. Management monitors the development of things and instructed us to offer freebies to incentivise our customers and encourage them to use our services. Moreover, Management has made sure to train more people who can also help us accomplish our missions in time.” [E-Payment Solutions Manager]*

The second participant confirmed that managerial support plays a crucial role in e-banking usage and take-off by comparing the views and strategies of his current employer with his former one.

*“I must admit that the initiative of our bank remains quite shy if I were to compare it to my previous employer which was in preparation for automating all with the obligation to automate all transactions and to go through a very specific process of MIFT Policy "Initiated Money Fund Transfer," a fairly complex procedure that made the task rather difficult and encouraged the use of electronic banking product. At our level, we frequently make use of non-electronic tools, and try to encourage our customers to use the few products we have on offer.” [Senior Relationship manager]*

This evidence confirms the positive effect that management support has on e-banking adoption and development.

#### 5.4.2.2.2 Slack Resources

The availability of financial resources was found to have a significant impact on banks' adoption and development of e-banking.

#### 5.4.2.2.3 Qualified Human Resources

Having qualified human resources to deal with any query related to technology usage is a significant factor that may affect e-banking proliferation in general and

customers' usage of e-banking offers in particular. This point is demonstrated in both participants' statements, shown below:

*“Management has made sure to train more people who can also help us accomplish our missions in time.” [E-Payment Solutions Manager]*

And

*“We made sure to properly train our sales team so they know how to handle all possible queries; while the client awaits us to dispatch a team to resolve his problem. The latter can always call our telephone service through a HOT-LINE and a call centre to ask any question about the account or its package.” [E-Payment Solutions Manager]*

On the other hand, the second interviewee added:

*“We have people who are responsible for monitoring the use of the product, even if I think it is not mature enough. At our level also we do what we know, as we know our customers work with whom and what business they do. It allows us to better understand our clients and their expectations, and see if we should offer better solutions or just align ourselves with our customers.” [Senior Relationship Manager]*

Thus, having qualified human resources to promote, run and deal with customers' queries on e-banking can have a positive impact on banks' adoption and development of this technology.

#### *5.4.2.2.4 Type of the Bank*

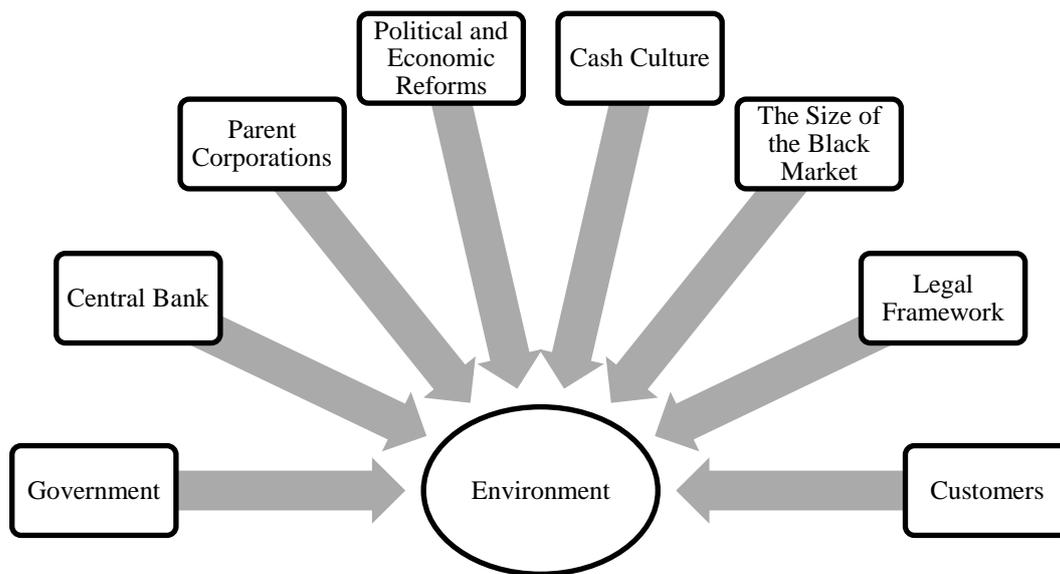
As being part of a private group, the Senior Relationship Manager claimed that they could not make any decision concerning e-banking development or improvement unless they had approval from their group, as he clearly explains:

*“We must think or rather see things from a banking group and subsidiary perspective; the tools provided by our banking group remain very limited, since the subsidiary does not develop these tools too.” [Senior Relationship Manager]*

This evidence shows the important role played by the type of the bank on their decision process and innovation.

### 5.4.2.3 Environmental Context

Studying the environmental factors affecting e-banking adoption and development in the case of the French bank revealed that coercive pressure made by some institutions (actors) such as central bank, government, parent corporations and customers in addition to other coercive factors such as legal framework, black market size, and political and economic reforms play a significant role in e-banking development. However, neither mimetic nor normative factors have any impact in this case.



**Figure 5.6. Demonstrating the environmental factors affecting e-banking adoption and development within the French bank**

As a general view about the current level of e-banking development in Algeria, both interviewees demonstrated that it remains low despite all the work they have done recently compared to neighbouring countries. However, they believed that the current level of development meets the country's needs.

*"It is below standard if you compare it to neighbouring countries; but I find that we have greatly improved what is available in only three years (...) Electronic banking is starting to pick up, and I believe that its use remains limited although I think it meets the demand of the majority of our customers" [E-Payment Solutions Manager]*

#### 5.4.2.3.1 Coercive Pressures

Investigating the coercive pressures revealed that the central bank, government, political and economic reforms, black market size, legal framework, parent corporations, and the cash culture have played a valuable and rather significant role in e-banking development for the French Bank. However, the customers' effect on e-banking development in this case remains less significant than in the other cases.

#### **Central Bank**

Analysis revealed that the central bank plays a significant role in e-banking general development. It was agreed by both participants that the central bank has a negative impact on e-banking development for the French bank. As one of the interviewees argued:

*"La Banque d'Algerie [the Central Bank] holds us back tremendously. We have products on stand-by simply waiting for the approval of the central bank and diminish our will to improve services."*

He continued:

*"Since the Central Bank is still blocking the online payments. But what is certain there are people who are preparing to launch their businesses online but since the Central Bank does not clarify the matter, these people will remain blocked. I do not think that the Central Bank is making efforts to improve the service. They already accept electronic signatures and this is a good start; however, I do not think the Central Bank has taken any special initiatives or intends to use electronic tools." [E-Payment Solutions Manager]*

This situation can be explained by arguing that despite the creation of GIE to regulate the electronic banking environment, the central bank remains the core authority. However, this does not remove the negative impact that the central bank has on e-banking adoption.

#### **Government**

It was confirmed from both interviewees that the government has an influence on the e-banking situation. However, it has also been pointed out that the state remains hesitant to force the banks to enhance their services.

*“The government has not yet taken any concrete action, they want us to believe they are trying to improve things in the long term but do nothing to prove it.” [Senior Relationship Manager]*

The second interviewee stated that the government does not seem to have enough desire to launch electronic banking solutions properly that would reduce the cash in the market. For example, a law forcing people to use checks for amounts above a certain level was abandoned officially due to its non-rationality according to the government, or possibly due to some lobbyists from the black market, as claimed by the interviewee.

*“The State does not actually want to develop these products, perhaps due to a lack of understanding of its benefits. When Mr Ouyahia was Prime Minister, the Government wanted to implement a law obliging customers to use cheques for amounts exceeding 50.000,00 DZD, but that was quickly abandoned, I guess they were under pressure from lobbyists. Well, we know how the Algerian economy operates. Besides, if you read it, you will see the latest statistics like the losses of tax revenue are due to the black market.” [E-Payment Solutions Manager]*

From these interviews, it can be concluded that the government has been blocking e-banking development despite their several attempts to show the opposite. This situation was explained by the presence of potential lobbyists that might affect the government changes.

### **Underground Economy**

The interviewed bankers mentioned important number of transactions made by some of their customers in cash, admitting that those clients may hoard or accumulate more money at home than in their bank perhaps because of black market activity. This shows how the black market plays a major part in slowing down e-banking advancement.

*“We have customers who pay in billions at the bank within a few transactions and we know that these customers hold much more at home. To give you an example, we once went to a client to offer him a solution to get paid by his customers via bank transfer or cheques; he said clearly he did not want traceability. Nothing we could do to*

*convince him; he prefers to pay someone to protect these assets than deposit them with banks.” [E-Payment Solutions Manager]*

The second interviewee emphatically pointed out that there is a strong negative relationship between the black market size and e-banking development, as he puts it:

*“The correlation is very strong between the size of the black economy and the slow development of e-banking. Nevertheless, it is hard to quantify; and you would need solid and reliable data; but I do not think the ONS (office Nationale de Statistiques) will give you access to this kind of data.” [Senior Relationship Manager]*

*Thus, we can argue that the underground economy has an effect on e-banking development.*

### **Customers**

The interviewees claimed that their clients are satisfied overall with the banks’ current services because they mainly use cash for their payments. This demonstrates the small effect customers have on e-banking development within this case, as was pointed out by both participants:

*“Algerians love cash and are used to it paying for everything in cash. Even if the other manual transfer means, such as cheques, are used timidly; cash remains the main method of payment. Indeed to this day we have large customers who work exclusively in cash for payments to their suppliers. Whereas if they used the resources we offer them, they would facilitate our work and allow us to track their transactions faster.” [E-Payment Solutions Manager]*

The interviewee added that although this bank tries to adapt their services to their clients’ needs, the customers remain attached to cash usage and do not demand more e-banking services.

*“Despite all our efforts the Algerians [customers] still prefers cash to cards, thus it is difficult for us to change the habits, knowing the customer does everything by cash and this slows the electronic banking boom.” [Senior Relationship Manager]*

Hence, we can conclude from this case that customers’ preference for cash transaction is influencing the bank to not implement e-banking since it will not bring them a good return on investment.

## **National Cash Culture**

This last quotation acknowledges the significant impact that the cash culture plays in terms of slowing down e-banking usage since in this context people are accustomed to cash usage. Thus, the national cash culture plays an inhibiting role in e-banking adoption and development.

## **Parent Corporations**

As previously mentioned in the organisational factors analysis, parent corporations are linked to the type of the bank and have an important effect in e-banking's general development, as was stated by the e-Payment Solutions Manager:

*“What the banking group provides us with is not really suited to what is expected of us here; we made some complaints and a few weeks ago someone from the group came down here to show us how the next online solution works, it was clear, however, I don't see it as a strong will to push this from the banking group.” [E-Payment Solutions Manager]*

Therefore, parent corporations can play either a driving or inhibiting role in banks' adoption and development of e-banking.

## **Legal Framework**

The analysis revealed that having no clear legal framework has reduced the desire of all banks to invest in e-banking technology, which has slowed down their implementation of better services to their clients.

*“What prevents us from being like our neighbours such as Morocco or Tunisia; is the lack of existing regulations. No text has been introduced that is clear on the subject (...) there is reluctance on the part of banks in the market when there is a legal vacuum and this is not covered; everyone is afraid to act. For example, we do everything within the current rules and regulations and are still afraid of getting fined.” [E-Payment Solutions Manager]*

Thus, having no legal framework plays a negative role in banks' adoption and development of e-banking solutions.

## **Political and Economic Reforms**

Both interviewees claimed that political and economic reforms have slowed down the banking sector in general and e-banking development in particular.

*“Everything depends on economic policy since there is a direct correlation on the issue. If we had an open economy, with the possible development of financing markets with direct fixed rate investments we could have thrive further; but having a good choice of politico economic is not that attainable. Algeria does not necessarily encourage the use of these new means of payments.” [Senior Relationship Manager]*

The second interviewee linked the reforms with the growing size of the parallel market and explained that both of these variables have an impact on e-banking expansion.

*“Regarding the informal market, I think there has been too much laissez-faire by the State; and I feel that the State has done nothing about it. There should also follow the example of Moroccans and implement general economic amnesty to boost and modernise our economy. And I think if the government really wanted to work things out, they would.” [E-Payment Solutions Manager]*

Thus, political and economic reforms play an important role in shaping the banking industry in general and allowing banks to adopt and develop e-banking solutions in particular. In this context, the fact that the political and economic reforms are not adapted to the banking situation has enabled the establishment of an underground economy which affect business transparency and e-banking adoption by both banks and clients.

#### *5.4.2.3.2 Normative Pressure*

Investigating the French bank revealed that competitors do not seem to have any impact on the bank’s investment in e-banking. One interviewee claimed that his bank is not motivated to do better than its competitors in this case, as he argued:

*“We cannot be compared to banks such as Citibank or HSBC; on this issue, we are slightly behind. But we can compare ourselves to public banks with whom our bank shares some similarities; however, the case is different with private banks.” [E-Payment Solutions Manager]*

He also added:

*“We should offer better solutions or just align ourselves with our customers; we do not offer what our competitors offer; however, we have a range of products which vary depending on the size of the client and his demand. Nevertheless, we remain confident as we are currently waiting for our product.” [E-Payment Solutions Manager]*

Thus, competitors have no impact the bank’s decision to adopt or develop electronic banking

#### *5.4.2.3.3 Mimetic Pressures*

It seems that in this particular context banks are not affected by each other as they do not compete in relation to e-banking solutions.

#### **5.4.3. Summarising the Findings of the French Bank Case Study**

Exploring factors influencing the adoption of e-banking adoption and development within a French bank showed that most of the factors selected from the literature, built on the TOE framework, were confirmed in practice; however, some others did not have any significant effect while other factors emerged from the empirical data.

The analysis of the technological context showed that the perceived risks and benefits of e-banking, investment cost and the current e-banking environment are the most significant factors for the French bank.

On the other hand, the data also showed that factors like the bank’s slack resources, qualifications of the human resources, type of the bank, managerial support and the availability of qualified human resources have the most significant effect on the French bank’s adoption and development of e-banking from the organisational perspective.

As for the environmental/ institutional pressures, both normative and mimetic factors were shown to be non-significant factors; however, coercive pressures applied by the government, central bank, national culture, the black market, the underground economy with the political and economic reforms and parent corporations, to name a few, along with the legal framework were found to be the most important factors that affect this bank’s development of its e-banking offering. Table 5.2 summarises and explained the factors identified in the French private bank.

<b>Factors</b>		<b>French bank</b>
<b>T</b>	Perceived risks	Avoid loss of money and checks incentive to launch and use e-banking services
	Perceived benefits	E-banking benefits used to justify its investment
	Investment cost	Despite high cost of acquiring e-banking technology remains low influential factor
	E-banking environment	Environment remains a barrier to e-banking take-off.
	Client readiness	Customers may want banks to implement and develop various e-banking services
<b>O</b>	Slack resources	Availability of financial resources has significant impact
	Type of the bank	Being part of a banking group affects e-banking take-off
	Qualified human resources	Training enables handling customers' queries and sorting their problems
	Managerial support	Top management of this bank has provided necessary budget to successfully promote these solutions by offering incentives to the customers and bankers who sell it
<b>E</b>	Government	The government influences e-banking situation
	Central bank	Central bank plays significant negative role in e-banking take-off.
	Parent corporation	This banking group gives directives to subsidiaries includes investments on various products

Political and economic reforms	Direct correlation between this variable and e-banking take-off
National cash culture	Cash culture affects e-banking usage.
Underground economy	High number of transactions made by cash in addition to high amount of money hoarded by customers are affecting e-banking proliferation
Legal framework	Having no clear legal framework has blocked the studied bank to invest in e-banking technology
Customers	Do not push banks to offer them a wider range of e-banking services

**Table 5.2 Summary of findings and their explanations: the French/ private bank**

## **5.5 Arab Bank Case Study C**

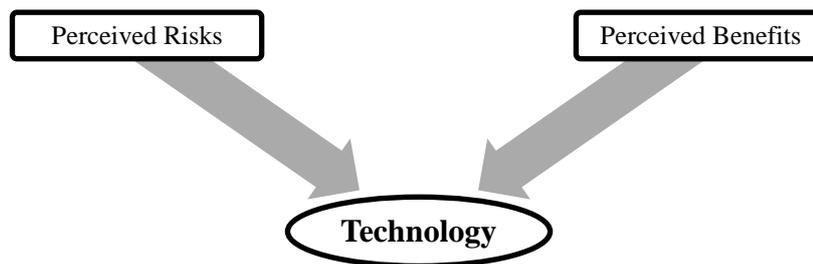
### ***5.5.1. Brief Overview of the Category***

This category contains two Islamic banks namely: Al-Baraka Bank Algeria, and As-Salam Bank Algeria; along with three conventional banks known as Arab Bank Algeria, Arab Banking Corporation and Gulf bank Algeria. These banks have been primarily established to support Arab (Middle Eastern) investors in their business ventures in Algeria. The selected bank for this investigation has been present in Algeria since 2004, and holds one of the highest numbers of branches in the country. It also offers a variety of e-banking products for retail and corporate clients. Collecting data from this bank was mainly through interviews; however, some documents were provided to supplement the analysis.

## 5.5.2. Contextual and Institutional Factors Analyses

### 5.5.2.1 Technological Factors

Analysis of the collected data from the case of the Arab bank confirmed that the perceived benefits and risks of e-banking are the most significant variables in the technological factors that influence e-banking take-off. Figure 5.7 shows how these factors affect the technological construct in this case.



**Figure 5.7. Demonstrating the technological factors affecting e-banking adoption and development within the Arab bank**

#### 5.5.2.1.1 Perceived Benefits

Both participants were aware of the benefits offered by e-banking technology to their bank and its clients and both also agreed that advantages offered by e-banking have positively influenced their bank in investing in this technology:

*“It is worth investing in e-banking for the sake of economic development. It is important! It will also, once again, curb the spread of informality that has reached an alarming rate. And also to facilitate the daily payments of citizens, so I think it is important to consider e-banking more seriously.” [Senior Relationship Manager]*

#### 5.5.2.1.2 Perceived Risks

Findings showed that risks are known by the Arab bank; however, both interviewees claimed that their bank had been offering state-of-the-art e-banking products to their clients superior to the other banks present in the market. This diminished any potential risks and confirmed the bank’s full willingness to develop such a platform.

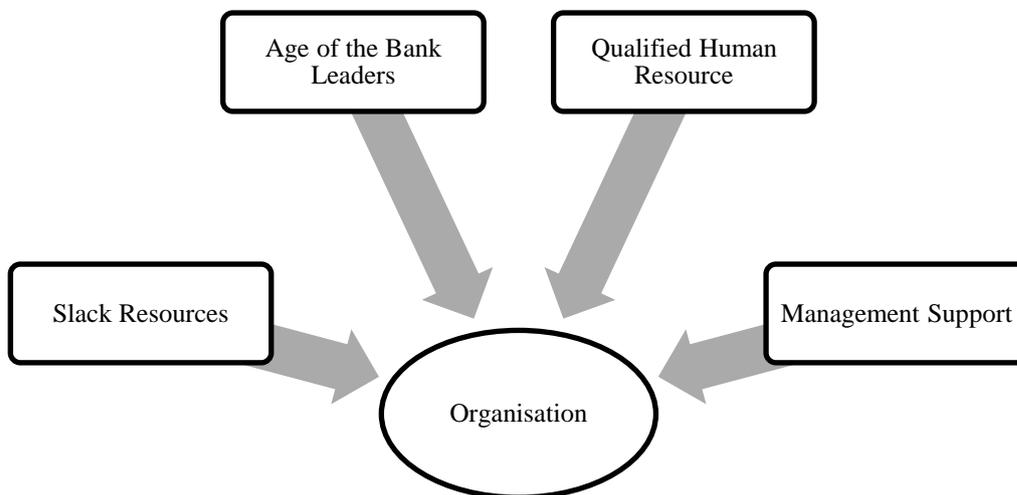
*“Electronic banking is a double- edged sword, since it facilitates people's lives, but it would only take a small problem for the bank's image to be ruined and to lose customer confidence. Besides, that's why I gave priority to the 3D secure system, which is the most powerful security on the international market, and allows you to make secure purchases online. Other banks do not offer this which is an asset for our bank.” [Head of E-banking Department]*

*“As for the risks, they are diminished because our bank has invested a lot of money in reliable security systems, but hacking / cyber-crime can cause problems, as everywhere in the world, a computer system that is flawless does not exist.” [Senior Relationship Manager]*

Thus, being aware of the risks can lead banks to adopt and develop e-banking regardless of their costs.

#### **5.5.2.2 Organisational Factors**

Analysis of the data collected from this bank identifies managerial support, financial and qualified human resources, and the age of the banks' leaders, as important organisational factors that affect e-banking take-off.



**Figure 5.8 Demonstrating the organisational factors affecting e-banking adoption and development within the Arab bank**

#### 5.5.2.2.1 Management Support

In this case, the interviewees revealed that having managerial support plays a significant role as an organisational factor for e-banking development. Both interviewees highlighted that without their management support nothing would have been done to launch their e-banking solutions since it is an expensive investment that requires financial and human resources, as was pointed out by the head of e-banking department of this bank:

*“This is an expensive investment; a new technology for the country that requires deployment of human resources (trained and qualified), organizational and material resources to provide reliable and secure solutions and I do not think all banks are ready to embark on this challenge.” [Head of E-banking Department]*

Thus, supporting managers might grant the resources and allow the changes needed for e-banking development.

#### 5.5.2.2.2 Age of Bank Leaders

It was highlighted by the Head of E-banking Department that there was a generational conflict due to the age of some bank leaders, who do not belong to his\her generation and may not understand the necessity of adopting e-banking solutions. This constitutes a significant factor affecting e-banking acceptance and thus its development.

*“I also believe that there are some generational conflicts, meaning that in some cases investment in new technologies and especially when executives do not belong to the generation of the primary users, they do not see the potential of the new investment which can delay its launch until they understand its usefulness. In our bank, we do not have this problem; even if we are not of the same generation; our leaders understood the utility of such investments and gave us the resources to provide the best and always try to improve it according to the opportunities offered by the economic situation.” [Head of E-banking Department]*

In addition, the interviewed Senior Relationship Manager also asserted that in their case the fact that their top management is relatively young made the decision making process faster and more likely to be in favour of e-banking development.

*“The decision process is very fast, and our management is young, dynamic, and effective. They are listening, and give all the support that we need, in fact I was only 24 years old when they gave me that position.” [Senior Relationship Manager]*

Thus, the age of bank leaders can have an effect on banks’ adoption and development of e-banking platforms.

#### *5.5.2.2.3 Qualified Human Resources*

In this case, qualified human resources have a great impact on positioning e-banking take-off and development. According to both interviewees in this research, the success of their e-banking depends on the quality of training of those who implement it.

*“Our sales staff is trained because if the representatives do not know and understand their products, we will not be able to sell our packages. In this sense our bank developed a bubble or box in which our representatives send us information requests if they have difficulty with a product.” [Head of E-banking Department]*

Thus, having qualified human resources plays a major role in influencing customers to adopt and use e-banking solutions in general and in e-banking development and growth in particular.

#### *5.5.2.2.4 Slack Resources*

As already mentioned, significant and available financial resources are needed for investing in e-banking. Therefore, slack resources were considered important factors in influencing e-banking development in this case.

#### *5.5.2.3 Environmental Factors*

Investigating the environmental factors for e-banking adoption and development within the Arab bank confirmed that coercive pressures have a significant impact on boosting e-banking take-off. However, both mimetic and normative pressures are found to be non-significant in this context.

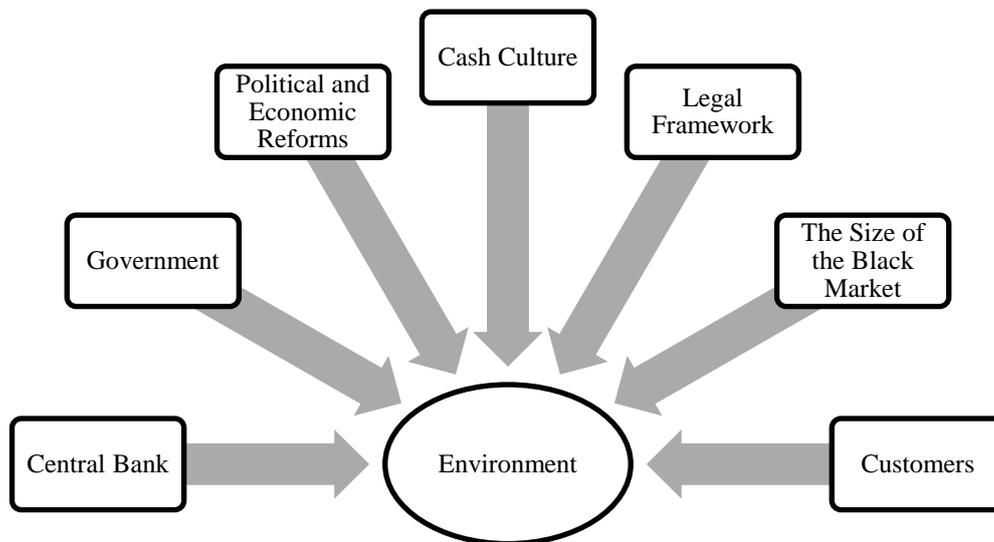
The overall e-banking level in Algeria remains embryonic as stated by both the interviewees.

*“In Algeria, and by this definition, electronic banking is virtually non-existent; few banks offer these services. As for us, I am proud to say that people say we are a modern bank through the image that we project.” [Head of E-banking Department]*

*“Electronic banking in Algeria is still at the embryonic level, and how you want us to talk about it while the banking rate remains very low in Algeria, not only in relation to the West but also compared to our Tunisian and Moroccan neighbours. Therefore, electronic banking is only at the starting point.” [Senior Relationship Manager]*

#### 5.5.2.3.1 Coercive Pressures

Investigating the coercive pressures disclosed that the central bank, government, political and economic reforms, black market size, legal framework, and the cash culture perform a major part in influencing e-banking development.



**Figure 5.9. Demonstrating the environmental factors affecting e-banking adoption and development within the Arab bank**

#### **The Central Bank and Government**

In this bank, both the central bank and government were identified as institutions that influence e-banking adoption. As more precisely claimed by the Head of the E-banking Department, this bank was one of the first ones to diversify, invest and

launch their e-banking offers without first obtaining the approval from the central bank.

*“Neither the government nor the Central Bank (CB) play their role. Because I think CB is led by people who do not have the same vision as us, an older generation and which remain conservative and are afraid to venture into this field, simply. If our bank chose to wait for these people to approve what we did, we would have done nothing since they told us neither YES or NO. Our bank took the risk not to wait, knowing that we were ready in 2010 and we waited over 3 years to launch our package without their agreement.” [Head of E-banking Department]*

On the other hand, the Senior Relationship Manager claimed that their support has been limited despite the creation of companies such as SATIM and GIE (companies in charge the technical and legal aspect of e-banking in Algeria) to develop this sector. It seemed to him that there is no real intention to enhance the quality of the platform.

*“I think the government's contribution in terms of electronic banking is limited. Besides, the authorization of the 1995 interbank project, for the creation of an automation Society of Interbank Transactions, Electronic Payments (the SATIM), the government and the Central Bank, have not really proven their willingness to develop the electronic payment market with the complete absence of developing E-Commerce and the scarcity of electronic payment terminals in Algerian businesses., We cannot consider the electronic card as a means of payment but rather a means for withdrawals only. I think they must really prove their goodwill in providing the means for modernization of banking policy, since previously they have not yet shown any real will to do this.” [Senior Relationship Manager]*

Thus, in this context, both the central bank and the government have played a negative role in influencing banks adoption and development of e-banking.

### **Political and Economic Reforms**

It was confirmed that the political and economic reforms that have been faced by the country have widely shaped the e-banking environment and negatively affected e-banking development, as it was pointed out by both interviewees:

*“Algeria has always been an unstable country politically and economically; laws change randomly and in some cases are contradictory. In that sense, I do not know if we can really talk about reform; and I would also say that there is no real will from the State to develop this sector. Besides, in 10 years we have not seen reforms designed to develop this market. Personally I blame the authorities but also SATIM and some banks including the State-owned banks, their passivity in terms of communication and extension. This could also mean payment to compensate for the backwardness of electronic banking culture in Algeria. As for the GIE, we still have not seen any notable achievements. What is lacking is primarily a clear regulation and strong will from all banks to launch electronic banking that will allow us to create trust or security between the client and his bank.”[Senior Relationship Manager]*

*“The development of e-banking is very slow with all these reforms that leave the total control to the state. I once again want to reiterate that we launched our bank cards on the market without authorization.”[Head of e-Banking Department]*

Thus, political and economic reforms should encourage such services to increase the chances of its adoption and development.

### **National Cash Culture**

As for this variable, it was revealed that the cash culture affects e-banking take-off in Algeria.

*“No I do not think it is due to a culture but rather the lack of customer confidence in their banks and also for the economy of the country and its instability. The Algerians prefer to keep their money at home, or close to it to avoid any worries. And by force of circumstance, Algerians got used to paying everything in cash instead of using checks or cards.” [Head of e-banking Department]*

Thus, using primarily cash to make payments can negatively affect banks’ willingness to adopt and develop e-banking solutions.

### **Customers**

In this particular case, it was found that customers are considered to be one of the main drivers to develop e-banking. This bank gives a lot of importance to their customers' satisfaction and puts their needs at the top of its priorities.

Thus, customers in this context play a positive role in influencing banks' adoption and development of electronic banking solutions.

### **Legal Framework**

Analysis of these two interviews also revealed that the absence of a clear and complete legal framework has considerably affected e-banking progress, as was mentioned by both interviewees:

*"I would also like to mention the regulation which I believe is still one of the most important factors affecting the electronic banking, as without those rules, banks cannot invest in the field as they feel they need to be in a better position in the market, and introduce it into their strategies; customers will not necessarily want to use the card to pay bills if it is not controlled."* [Head of e-banking Department]

*"There are no clear regulations for the e-business sector in general and the e-banking sector in particular."*[Senior Relationship Manager]

Thus, having a well-defined and clear legal framework can positively affect e-banking adoption and development by banks.

### **Underground Economy**

The interviews also implied that the black market negatively affects e-banking prosperity and success.

*"Locally speaking, I believe that the underground economy as a whole has an impact on e-banking development, since people have this reluctance vis-a-vis electronic means of payment. It has not been explained to them how this works to create confidence, and motivate them to use it. I also added the lack of good faith of the traders who prefer to reduce traceability. As for the international market; I don't think so, since the informal market for currency, for example, allow people to obtain currency so that they can supply their accounts, as the official travel allowance is too low."* [Head of e-banking Department]

Once again, the differentiation between the foreign and local black market was made to underline the differences between these two types of underground economy and their effect on the type of automated banking. Thus, the existing of an important black market can negatively affect banks adoption and development of electronic banking.

#### *5.5.2.3.2 Normative Pressures*

##### **Competitors**

According to the interviewees, the effect of competition cannot really be assessed in this context, since this bank is not really affected by its competition when it comes to e-banking products.

#### *5.5.2.3.3 Mimetic Pressures*

As for the mimetic pressures and the impact on e-banking development for this bank, it seems that in this particular context banks have not started to compete with each other on e-banking products. For both interviewees, their bank has been one of the top leading retail e-banking solutions providers in the country.

*“We were the first ones to offer MasterCard, but I will not deny that we have made no business case; knowing that it will not be profitable in the first year because of implementation costs and consultants. I am also proud to say that the other banks do not offer this which is an asset for our bank.” [Head of e-banking Department]*

### **5.5.3. Summarising the Findings of the Arab Bank**

Exploring factors influencing the adoption of e-banking take-off in the Arab bank enabled this research to confirm that some of the variables selected from the literature were also found in practice.

Analysing the factors of the technology construction revealed that the perceived risks and benefits are vital factors for the Arab bank.

On the other hand, the data also showed factors such as the bank’s slack resources, qualifications of the human resources, managerial support and the qualified human resources that have the most valuable control on this bank’s organisational factors.

As for the environmental/ institutional pressures, both normative and mimetic factors were found to be non-significant factors. However, coercive pressures applied by the government, central bank, national culture, the black market, the underground

economy, political and economic reforms, and the legal framework were all discovered to be very crucial influences that affect this bank in developing its e-banking offering. Table 4.3 highlights the key findings from the Arab private bank case.

<b>Factors</b>		<b>Arab bank</b>
<b>F</b>	Perceived risks	Risks related to cyber-crimes taken into account for the threat they represent for e-banking usage
	Perceived benefits	Benefits include helping the economy and reducing the size of the informal market
	Investment cost	N\A
	E-banking environment	N\A
	Client readiness	N\A
<b>O</b>	Slack resources	Resources considered an important factor
	Type of the bank	N\A
	Qualified human resources	Trained staff a contributor to e-banking usage, to encourage clients to use more frequently
	Managerial support	Managerial support is crucial for the success
	Age of bank leaders	Older leaders may not appreciate benefits of e-banking development
	Technology	N\A

	acceptance of bank leaders	
	Size of the bank	N\A
<b>E</b>	Government	Government is main influence for e-banking take-off
	Central bank	Central bank is responsible for authorisation for investment (major actor)
	Parent corporation	N\A
	Political and economic reforms	Instability of the country affects negatively banking sector reforms in general and e-banking development in particular
	National cash culture	People like to use cash because of lack of trust in banks
	Underground economy	For the local e-banking, black market is a barrier; however for the foreign e-banking, it is a driver to its adoption
	Legal framework	Absence of clear policies and regulations about e-banking negatively affect e-banking take-off
	Customers	Customers perceived to be key contributor to e-banking development

**Table 4.3 Summary of the findings and their explanations: the Arab/ private bank**

## **5.6 Anglo-Saxon Bank Case Study D**

### **5.6.1. Brief Overview of the Category**

This category comprises of only two private banks: HSBC Algeria and Citibank Algeria. Citibank Algeria was the first private bank to be established in Algeria and

started its activities in the early 1990s; however, HSBC Algeria was established in 2008.

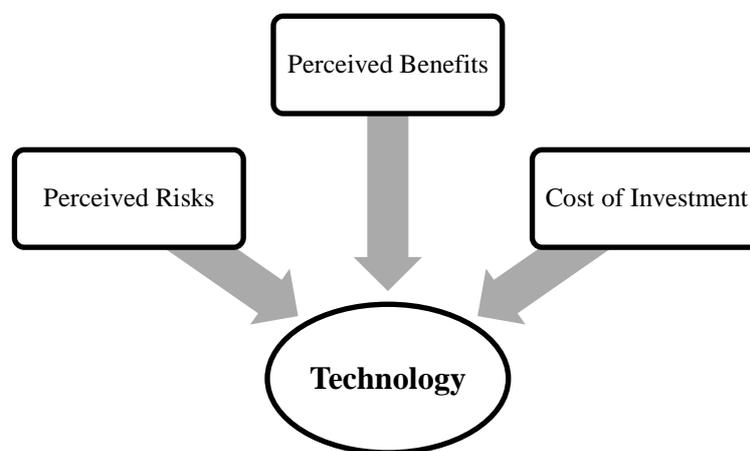
The selected bank has been offering a wide range of cash management solutions for its corporate clients and is the first to implement and offer substantial e-banking services in Algeria. In addition to the interviews that were undertaken, some documents on the Algerian economy (internal reports) were thoroughly examined for this research and used to undertake the contextual analysis.

### ***5.6.2. Contextual and Institutional Factor Analysis***

To study this bank for the contextual and institutional factors influencing adoption and development of e-banking, several factors were explored from technology, organisation, and environmental perspectives.

#### ***5.6.2.1 Technological Factors***

Analysing the data revealed risks and beneficial perception in addition to cost of investments as technological factors that influence decisions to adopt and develop e-banking. These factors are displayed in Figure 5.10.



**Figure 5.10. Demonstrating the technological factors affecting e-banking adoption and development within the Anglo-Saxon bank**

#### 5.6.2.1.1 Perceived Benefits and Risks

The analysis of the data confirmed that perceived benefits and risks are factors that influence e-banking adoption and development by banks. According to the interviewees, their bank has recognised e-banking benefits and it has therefore included e-banking in their services to reduce manual transactions and paper work. At the same time, it has been stated that it is risk free at this level of development in Algeria, as they have invested in different security features.

*“Like I said before, e-banking is a very good solution for our clients. We’ve been pushing our clients to use the e-banking platforms because it is a policy now to force clients to not use MIFTS (manual initiated fund transfer); it is basically when you have the form, I’ll send you manually the account number, the beneficiary and all this (...) I am proud to say that our bank is at the forefront of technology innovations; they came up with ATMs in 1980s; we’ve been investing in this new technology and developed a range of ideas. Some banks are still doing this manually. This is in some market like South Africa was done 20 years ago.” [E-banking Department Manager]*

*“Our e-banking is mandatory, since it was imposed on us by the parent group, but in our policy regardless of the size of the client we prefer to give priority to this package because it costs us less and helps reduces fraud transactions” [Senior Relationship Manager]*

These interviewees are likely to be conscious of the advantages that e-banking offers, as it gives a lot of opportunities to their clients, and that is why they view it as an investment, as pointed out by one of them:

*“Again, solutions like ours are things that I offer to all my clients since there are no disadvantages but only advantages for them, but the problem is that our culture is complex, people are afraid of change. But I think with the right style of marketing, and approach you can explain to them the advantages and disadvantages of this offer, and that they can protect their data if they follow these steps, the solution is guaranteed.” [E-banking Department Manager]*

These quotes confirm the critical role played by the banks’ perception of the relative risks and advantages of e-banking for their adoption and development of this service.

#### 5.6.2.1.2 Cost of Investment

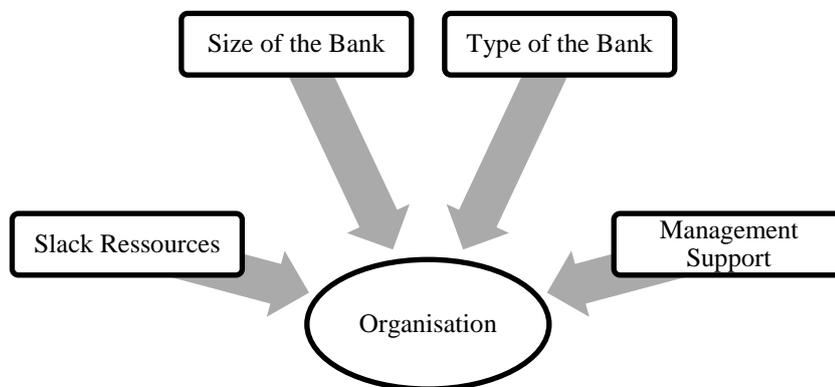
As for the cost of investment, the analysis revealed that the cost of investment is considered as a foundation factor that has major impact on e-banking development. As one can see from one of the interviewee's subjective experience:

*“With our system we saw the size of the investment as very important. Besides, we even offer discounts to encourage its use. We consider it as a product of appeal like many others here, as it facilitates transmissions for customers” [E-banking Department Manager]*

Thus, cost investment is to be taken into account. However, in this context, despite the high investment costs, the Anglo-Saxon bank lowers prices for their customers in order to encourage use.

#### 5.6.2.2. Organisational Factors

The analysis revealed that managerial support, size and type of the bank and its resources are crucial organisational factors that stimulate e-banking.



**Figure 5.11. Demonstrating the organisational factors affecting e-banking adoption and development within the Anglo-Saxon bank**

#### 5.6.2.2.1 Managerial Support

Managerial support plays a crucial role as an organisational factor affecting e-banking development but also as a driver for additional improvement of the associated services. For example, one of the interviewees emphasises that:

*“Our management has been supportive of any improvements with rolling out the solution to the clients. I give you another example; our bank is the first one to offer fair opportunities within the Algerian market, our solution can be accessed via mobiles. So the clients can access their accounts through smartphones and tablets. It makes them feel like in Europe.” [Senior Relationship Manager]*

#### *5.6.2.2.2 Size and Type of the Bank*

It was also shown that the size of the bank and its type has an impact on the bank’s strategy and thus on their e-banking development plan:

*“Of course the fact that we belong to a large group and experienced in over 170 countries helps us enormously and facilitates our work with other multinationals present in the local market” [Senior Relationship Manager]*

He added: *“With us it is mandatory, since it was imposed on us by the parent group, but in our policy regardless of the size of the client we prefer to give priority to any package because it costs us less and helps reduce fraud transactions.”[Senior Relationship Manager]*

Thus, being part of a large and private/ foreign bank can positively influence the bank to adopt and develop electronic banking services.

#### *5.6.2.2.3 Slack Resources*

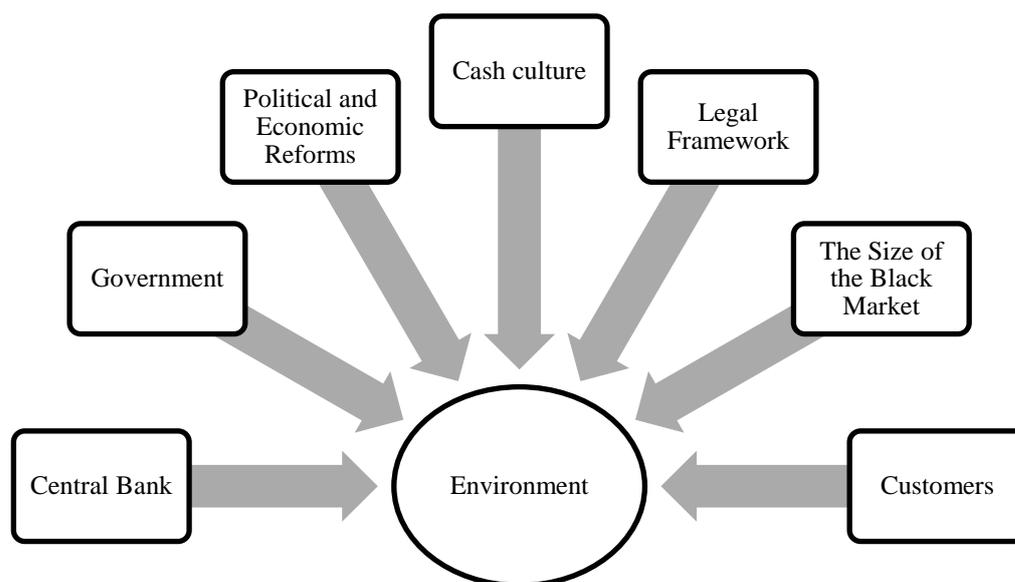
The analysis showed that bank available financial resources play a major role in improving the electronic banking packages:

*“These tools are essential for the proper conduct of business” [E-banking Department Manager]*

Thus, having available financial resources may positively influence the bank to adopt and develop their e-banking offers.

#### **5.6.2.3 Environmental Factors**

Exploring the environmental factors for e-banking adoption and development in this case study confirmed that coercive pressures maintain an important effect in e-banking take-off. Moreover, it was discovered that in this context, normative pressures made by the competitors are negatively affecting this bank’s development of e-banking while mimetic pressures are found to be non-significant in this context.



**Figure 5.12. Demonstrating the environmental factors affecting e-banking adoption and development within the Anglo-Saxon bank**

Overall, the level of e-banking in Algeria was believed by both participants to be non-existent, but it has the potential to grow in the near future, which might help the country’s economy:

*“For now, although electronic banking started 5 years ago, we really thought it was going to develop faster and had the ambition for the SATIM’s work at the time, but the electronic payment market is at a standstill.” [E-banking Department Manager]*

The second participant added:

*“I think the e-banking market in Algeria is going to be a promising and the next thing in the country, because if you look at the general environment in Algeria, we’re still a cash intensive society, right? Solutions such as ATM, pre-payment cards, sorry payment cards because pre-payment card do not even exist yet, have been recently introduced... I think it is going to help the country reach the international standards; modernize our economy as it is a well-needed step that we need to take. We’re far behind, we’re lagging; behind all the neighbouring countries.” [Senior Relationship Manager]*

#### 5.6.2.3.1 Coercive Pressures

Investigating the coercive pressures in this case study showed that the central bank, government, political and economic reforms, black market size, parent corporations, legal framework, and the cash culture influenced the gains from e-banking development.

#### **Central Bank**

According to another interpretation of the interviews conducted in this research, the central bank is not playing an active role in developing e-banking, which discourages its take-off. One of the interviewees claimed that there is the lack of good will from the authorities:

*“If the regulator decides to really develop the sector, it will push banks to move forward. It is not just encouraging the banks but things need to be imposed. At the time, we set up the transfers by RTGS. The pressure had been put by the Central Bank on other banks that are allowed to exceed a record that has been hailed by a Korean who claimed that in Korea it had taken over a year and a half to do the same extent.”*  
[E-banking Department Manager]

The second participant, on the other hand, agreed that such a system would have a negative impact on e-banking development. So he suggested following examples of developing countries like Nigeria that managed to launch a cash free society program.

*“The role of the Central Bank is to do what? It's to design policies with visions, they're the ones designing, how can I say it; in a state you are given instructions from higher up (by the authorities) in theory.....though the CB is supposed to be independent but it works in coordination with the country's government's vision, as it has to go somewhere, we need a heading/target. For example look at Nigeria or Kenya as an example, the proposed Lagos free cash society, and in the case of mobile payment implementation, what did the Central Bank do there? It took the government's guidelines; who wanted it absorbs all the cash in circulation. Thus, the Central Bank has changed some laws precisely to break this. In Algeria, unfortunately it's still limits itself to audits, fines banks left, right and centre, banks are troubled to make a step. The CB should regulate, open the way for solutions (knowing what exists) to emerge in the field.”*[Senior Relationship Manager]

Thus, the central bank was confirmed to have a major role in affecting the whole banking environment and also influencing banks to adopt and develop electronic solutions.

### **Government and its Reforms**

This research has demonstrated that both government reforms primarily have a major influence on the e-banking take-off phase since nothing can be done without the state's approval.

*"I do not know if the state sees the importance of this product. You know as well as I the Algerian market, and we all know the scale and size of the informal sector. In addition, they all know the impact of that much of the Algerian economy and its influence on social balance. They have only reduced the presence of cashiers at the counters, while their main purpose was to reduce cash in circulation in the country (...)." [E-banking Department Manager]*

The interviewee added:

*"From 1962 to date, we started with a socialist regime, whether this was right or wrong we do not know. We had to choose a side and we did. In 1990s there was a chaotic opening, we had to open up and let people do things and that's where the black market has exploded in the country. Since 1999, there have been some reforms but it was not until 2004 or 2005, it starts to take shape particularly in terms of checks clearing." [E-banking Department Manager]*

Furthermore, the Senior Relationship Manager validated this point and stated that:

*"Yes, the reforms did not allow the bank to be fully liberalized for customers. There's another problem, because the Central Bank lacks independence since in principle the Central Bank is an entity that should be independent." [Senior Relationship Manager]*

Thus, political and economic reforms made by the government play a fundamental role in e-banking development.

### **Legal Framework**

It was revealed in this case that the absence of a clear legal framework has slowed the diversification in e-banking offers and thus its proliferation. As it was reported by both the interviewees:

*“No, there is none! You see, the banks cannot go beyond a certain limit with the CB. I think we could do the same for e-banking here, however I do not think it's one of the main priorities of the banks; which are more concentrated in the foreign exchange market, of loans; knowing that in Algeria, we can't do credit.” [E-banking Department Manager]*

*“It is very strange that in speaking of EDI, electronic data interchange, there is no legal structure. Our bank initially had asked for too much, others said No. And they lowered the standards given the size of investments. It's starting to become more democratic, yet the electronic signature still has no legal framework. Procedures really need to be simplified for the country's economy to get going again.” [Senior Relationship Manager]*

Thus, having a clear and complete legal framework can positively contribute to e-banking adoption and development by banks.

### **National Cash Culture**

*The analysis showed that the cash culture plays a significant negative role in influencing e-banking acceptance and thus its proliferation, as was mentioned by both interviewees:*

*“I do not know if it's just the local culture that is not ready to take the leap or a lack of will from the regulator.” [E-banking Department Manager]*

*“The problem with our culture is that people are afraid of change. But I think with the right type of marketing and approach, you can explain to them the advantages and disadvantages of this offer” [Senior Relationship Manager]*

### **Size of the Black Market**

As for the size of the black market, it was stated that in this context, the black market has two different effects: it can be a driver and a barrier to electronic banking take-off as was previously explained by the participants from the other banks.

*“We will say that this shadow economy facilitates the development of international electronic banking and slows down the local one.” [E-banking Department Manager]*

*“I find that this black market is absolutely blocking us all. Why not put that money into the banking system view that there is a lot to earn fees and commissions; There's a huge missed chance to catch up and even for e-banking and all this; these people refuse their money to be put in banking because there is transparency that will be standard and these people have more interest in keeping the current state of affairs.” [Senior Relationship Manager]*

### **Customers**

This factor was reported to have a significant impact on the adoption of e-banking by this bank since it obeys the parent bank's rules and must satisfy their customers wherever they are.

#### *5.6.2.3.2 Normative Pressures*

In this context the competitors seem to have an important impact on the development of the whole e-banking national platform. One of the interviewees believed that the public banks were slowing down e-banking development.

### **Competitors**

It was claimed that if banks were to compete in the e-banking niche, this variable could have an impact on e-banking development since banks would be motivated by competition to improve their own services. However, in this case, this bank is not influenced by its customers to enhance its e-banking products.

#### *5.6.2.3.3 Mimetic Pressures*

As for the mimetic pressures effect on e-banking development on this bank, it seems that in this particular context and with respect to e-banking products, banks do not compete with each other.

### 5.6.3. Summarising the Findings of the Anglo-Saxon Bank

Exploring factors influencing the adoption of e-banking take-off in this bank showed that most of the factors selected from the literature were confirmed in practice; however, some others did not have any significant effect and other factors emerged from the empirical data.

Analysing the factors of the technology construct showed that the perceived risks and advantages and the cost of the technology, are the most significant factors for the Anglo-Saxon bank.

On the other hand, the data also showed factors such as the bank's slack resources, type and size of the bank and managerial support, have the most significant impact on this bank among the organisational factors.

As for the environmental/ institutional pressures, mimetic factors were shown to be non-significant factors. However, coercive pressures applied by the government, central bank, national culture, the black market, the underground economy and the political and economic reforms, parent corporations, and the legal framework were all found to be supreme factors that affect negatively the e-banking offers by these banks.

Table 5.4 summarises the key TOE findings within the Anglo-Saxon private bank.

Factors		Anglo-Saxon bank
<b>T</b>	Perceived risks	Risk free solutions are main priority of this banking group
	Perceived benefits	Seen as a reliable product that offers various advantages, and is worth investing in
	Investment cost	Costs of e-banking adoption are minimal compared with the profits the bank may derive from its usage
	E-banking environment	N\A
	Client readiness	N\A

O	Slack resources	The bigger is the group, the bigger would be the support with various resources
	Type of the bank	Belonging to a large group, keen to invest in developing product is key contributor to e-banking adoption and development
	Qualified human resources	N\A
	Managerial support	Management is supportive - important to the success of e-banking development
	Age of bank leaders	N\A
	Technology acceptance of bank leaders	N\A
	Size of the bank	Size of bank is also a crucial contributor to e-banking take-off in this case
E	Government	Government plays a negative role in affecting e-banking development
	Central bank	The central bank slows down the process of e-banking development by delaying approval
	Parent corporation	Being part of a large multinational corporation helped this bank to acquire the best and most suitable technology to satisfy its clients
	Political and economic	Development of banking services perceived to be good for the country's economy

	reforms	
	National cash culture	Fear of change and habit of using cash slows down the e-banking services development
	Underground economy	Lack of transparency is one reason for slow e-banking development
	Legal framework	Absence of legal framework considered a key barrier to e-banking development
	Customers	It was found that customers in this case have a significant impact on the adoption of e-banking by this bank

**Table 5.4 Summary of the findings and their explanations: the Anglo-Saxon/private bank**

## **5.7 The Regulatory Organisations Case Study E**

### ***5.7.1. Brief Overview of the Category***

This case study includes one participant from each of the central bank and the Groupe d'Interet Economic 'GIE'. The Bank of Algeria (Central Bank) plays the role of regulator in the Algerian banking sector. In contrast, the GIE has created a for itself the role of regulator including publishing legal texts and regulating all electronic payments including fraud management. The choice of these organisations as objects of study was central for the researcher as they are the most important actors in e-banking in the country, which give them a very weighty position for helping e-banking take-off.

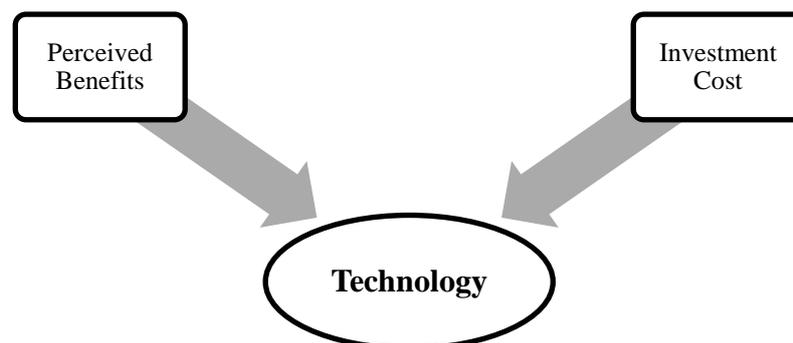
The two participants informed the researcher that several investigations have been done by their services to understand the barriers affecting e-banking proliferation in Algeria and some documents were given by one of them to further explain the situation.

### 5.7.2. Contextual and Institutional Factors Analysis

The analysis of the interviews in addition to the information collected from the GIE's website and some reports gathered from the central bank allowed triangulation of data and revealed some contextual and institutional factors influencing e-banking take-off in this context of the study. Following are the results of analysis in the categories of technology, organisation, environment and institutional pressures.

#### 5.7.2.1 Technology Factors

Technological factors have been recognized as being factors affecting new technology adoption; and this case through the interviews was revealed that some of these factors have impacts on the adoption and development of e-banking as well. Some of the dynamics from the technological perspective, which were selected from the literature and that have been confirmed through interviews, and others further emerged during the collection of data, as shown in figure



**Figure 5.13. Demonstrating the technological factors affecting e-banking adoption and development within the Regulatory institutions**

##### 5.7.2.1.1 Perceived Benefits

It was discovered through the analysis that the perceived benefits of e-banking have been understood by all banks. The advantages of e-banking are considered to be a driving force for its implementation, as pointed out:

*“There are banks that have understood the benefits and began to launch e-banking; others are a little more timid in their actions.”* [CB representative]

*“We can benefit from using the Internet payment to get there more quickly, and give us traceability of our transactions.” [GIE representative]*

Thus, knowing the advantages that might be obtained through electronic banking may influence banks to adopt and develop it.

#### *5.7.2.1.2 Cost of Investment*

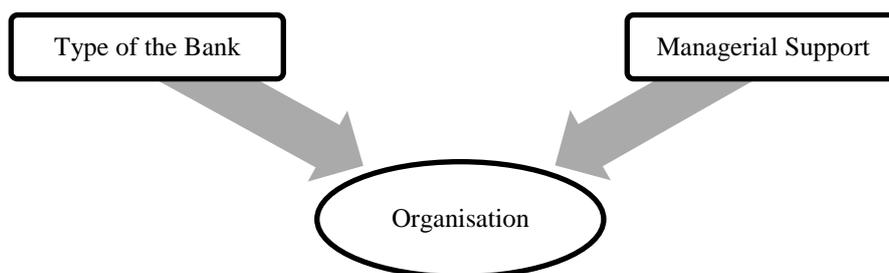
The analysis showed that despite the high cost of the e-banking system, the banks do not hesitate to invest in it, and always acquire the best technologies.

*“At the time, when I was at the head of the electronic clearing system which is one of the best in the regions, it was operated only at 15% of its capacity. What is certain is that when we invest, we invest massively in Algeria.” [CB representative]*

Thus, cost of investment in e-banking is considered to be an important factor that affects banks’ adoption and development of e-banking.

#### *5.7.2.2 Organisational Factors*

Interviews have enabled the researcher to confirm that organisational factors play a significant role for e-banking adoption. Managerial support and type of the bank have shown a weighty effect on e-banking progress. More evidence and details about the organisational factors are presented in Figure 5.14.



**Figure 5.14. Demonstrating the organisational factors affecting e-banking adoption and development within the regulatory institutions**

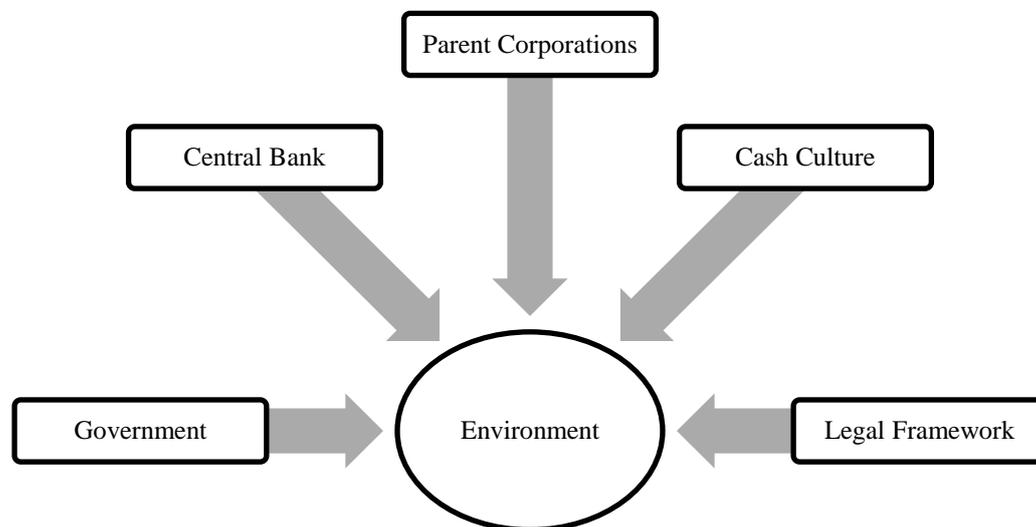
#### 5.7.2.2.1 Management Support and Type of the Bank

The analysis showed that banks, especially the private ones, have proven their good will in terms of improvement, in which they grant all the support to their team members although their priority is not e-banking but trade, as it was reported:

*“What we have in Algeria, foreign banks that follow international standards are controlled from the outside. So electronic banking is a secondary objective. Often, their leaders support their colleagues in these kinds of initiatives.”* [CB representative]

#### 5.7.2.3 Environmental Context

Exploring the environmental factors affecting e-banking adoption and development revealed that coercive pressure made by some institutions / actors such as the central bank, government, parent corporations, and legal framework, in addition to other coercive factors such as the black market, customers, and political and economic reforms that affect e-banking development. However, both mimetic and normative factors have no impact in this case.



**Figure 5.15. Demonstrating the environmental factors affecting e-banking adoption and development within the regulatory institutions**

#### 5.7.2.3.1 Coercive Pressures

Investigating the coercive pressures pointed out that the central bank, government, political and economic reforms, legal framework, parent corporations, and cash culture, all determine e-banking development. However, customers' effect on e-banking development in this case remains less significant than in the other cases.

#### **Central Bank**

Analysis disclosed that the Central Bank plays an important part in developing a successful e-banking network. Although its effect on e-banking has diminished since the establishment of GIE, who was set up to regulate the e-banking platform, as one of the interviewees claimed:

*“The Bank of Algeria (Central Bank) plays the role of regulator, and all the commercial aspect is not within its competence especially since the creation of the GIE. It is for them to do this; to find a way to attract customers to claim their bankcards, use them for payment and withdrawal. GIE was created for that, because that's the real obstacle in the field. I also know that at present they are actively investigating the problems delaying electronic banking with us; so it's a good step forward.”* [CB representative]

#### **The Government**

It was highlighted by both participants that the government is in favour of e-banking and has given the full control to GIE in order to sort out the e-banking situation. However, it has been claimed that the state remains hesitant to force the banks to enhance their services.

*“The Government in principle is in favour of electronic banking, and moreover without its endorsement the GIE would never have been created. Well then, the GIE has existed for less than a year so we are waiting to see what it will do. Anyway I repeat that it is up to the banks to take initiative and make efforts in this regard because it is their products at the end.”* [CB representative]

*“The Government encourages payment by internet but first for large billers that are not recoverable and volatile, pending the enactment of legislation for distance selling.”* [GIE representative]

Thus, the government is a dominant actor in e-banking development.

### **Legal Framework**

With respect to the legal framework, one of the participants explained that there are no clear and solid regulations protecting e-banking users; however, for the second interviewee, the policies and regulations were there, although more is to be added to avoid the risk of fraud.

*“As long as there is no legal framework, we cannot actually talk about spreading the service, before the electronic payment is to be part of our life. Thus, we first must put in place a sound of legal basis to regulate payments.”* [CB representative]

*“I think there is no country in the world which has no legal framework that encompasses its electronic banking, taking 20 years to create a regulatory entity that is shameful. So I do not think there was a lobby that could have delayed the launch of electronic banking. On the other hand, the legal framework regarding the local payment is functional and supported now and yet it still does not work. Finally, regulation is fully established right now except for payment via Internet there. But I know that the regulation is finished, complete and ready to be put in place. But we will open when the banks are ready.”* [GIE representative]

Both of the GIE and CB representatives agree on the importance of having a clear legal framework to enable the banks and any investor in this sector to propose electronic banking solutions.

### **National Cash Culture**

The analysis has showed contradictory opinions about this variable; one of the interviewees claimed that it has affected e-banking take-off in many ways whereas the other one asserted that it is not a cultural issue but more a trust problem.

*“It could possibly be a cultural problem but before discussing electronic banking culture, we should address the overall banking culture, which is the degree of interaction of the public with the banking sector. We must therefore understand how the citizen interacts with the bank, prepare them or rather create culture, to better engage in the field. And encourage traders to use terminal of payments (card machines) although there are some that are hesitant.”* [CB representative]

*“The problem is not cultural; believe me, saying that is an insult. People who failed to develop electronic banking in Algeria, did believe that it was a problem of tax evasion and culture when this is not the case at all. I'll give you examples, the GSM everyone has appropriated such, 3G social networks and etc. The Algerians are open to technology. So these arguments are false. Because to say that it is a cultural problem, it requires a study or survey to measure the impact. The development of the electronic banking, in my opinion, is based on the establishment of confidence/trust.”*  
[CB representative]

National cash culture has been the subject of controversies in these two organisations, since one of the interviewees believed that cash culture has an impact on e-banking development; however, he suggested an assessment of customers' needs in order to maximise the chance of e-banking proliferation. On the other hand, the second interviewee argued that cash habits can easily be changed and people can easily be encouraged to use electronic solutions.

### **Underground Economy**

The analysis showed that in this case the black market has not impacted e-banking usage and thus its development, as pointed out by one of the participants:

*“As I have said the tax evasion problem does not arise, although some businesses do not declare their turnovers, but I insist on the point that tax evasion is not the cause of this refusal to use electronic banking because look in supermarkets, the terminal of payments are more popular in corner shops.”* [CB representative]

The result of this interview has ignored the effect of the underground economy on e-banking development.

### **Parent Corporations**

Parent corporations have been shown to have an important effect on business development, as they dictate all the strategies to their branches in this context. It was explained in some of the above quotations by both of the GIE and CB representatives that foreign and private banks belonging to worldwide groups have more chances to adopt and develop their e-banking solutions.

## **Political and Economic Reforms**

With respect to political and economic reforms implemented in the country and their impact on e-banking development, both the interviewees rejected the assumptions and claimed the reforms have nothing to do with e-banking development.

*“No, I do not think the reforms are affecting e-banking proliferation because there is a purely commercial aspect in the field, it is the marketing of the card that causes the problem and it is the bank’s job to do this.”* [CB representative]

It was claimed that the banks are allowed to promote their electronic offers; however, they have failed so far to do so effectively.

## **Customers**

While assessing the impact of customers on banks adoption and development of e-banking, both interviewees have claimed, based on their internal research, that customers do not influence e-banking take-off as they have not been asking for more from the banks.

### *5.7.2.3.2 Normative Pressure*

As for the effect of competitors, the regulatory institutions’ representatives claimed, based on their knowledge of the market, that competitors do not have any impact on bank’s investment in e-banking because of all the restrictions faced due to other factors, which slow down the bank.

### *5.7.2.3.3 Mimetic Pressures*

As for the mimetic pressures’ effect on e-banking development on this bank, it seems that in this particular context and with respect to e-banking products banks do not compete with each other.

## **5.7.3. Summarising the Findings of the Regulatory Organisations**

Exploring factors influencing the adoption of e-banking adoption and development by banks through interviews with representatives of regulatory organisations showed that most of the factors selected from the literature were confirmed in practice.

Analysing the factors of the technology context showed that the perceived benefits and cost of the investment are the most momentous factors according to the interviewees.

On the other hand, the data also showed features such as the type of bank and managerial support that have the most significant influence on these institutions (or regulatory bodies), as in the organisational factors.

As for the environmental/ institutional pressures, both normative and mimetic elements were shown to be non-significant ones; however, coercive pressures applied by the central bank, government, political and economic reforms, legal framework, parent corporations, and the cash culture affect e-banking growth in today's market. Table 5.5 shows the key contextual factors revealed from the regulatory organisations.

Factors		Regulatory bank
T	Perceived risks	N/A
	Perceived benefits	Gaining time and providing tractability of the money are key contributor to e-banking development
	Investment cost	No matter how expensive the cost of investment, banks should still make it
	E-banking environment	N/A
	Client readiness	N/A
O	Slack resources	N/A
	Type of the bank	Following standards imposed by groups would help developing e-banking
	Qualified human resources	N/A
	Managerial	Management support is necessary to develop e-banking

	support	services
	Age of bank leaders	N/A
	Technology acceptance of bank leaders	N/A
	Size of the bank	N/A
<b>E</b>	Government	The government is in favour of electronic banking development as it has allowed the creation of company to manage such as SATIM and GIE
	Central bank	The Bank of Algeria plays the role of regulator, so plays an important role in e-banking development
	Parent corporation	Parent corporations were identified to have an impact on business development of their subsidiaries
	Political and economic reforms	N/A
	Cash culture	Lack of trust is one of the influential factors for the cash culture and thus to lack of usage of e-banking
	Underground economy	N/A
	Legal framework	The completion of the legal framework would give a push to e-banking take-off
	Customers	N/A

**Table 5.5 Summary of the findings and their explanations: regulatory organisations**

## 5.8 Chapter Summary

The number of cases was limited to six and each case included two interviews with participants from each bank, or one from each regulatory organisation as already explained in Chapter 4. The six cases have provided the relevant and required data to analyse to support or reject selected factors from the literature for e-banking adoption by banks.

Most of the factors included in the conceptual framework have been empirically confirmed to have an impact on banks' adoption and development of e-banking. Moreover, the data has generated some variables that affect e-banking growth; however, other factors were rejected as they are believed to not affect e-banking development by the majority of participants. The following section of this chapter will use factors from the findings to revise the theoretical model proposed in Chapter 3 and make a cross-case analysis in order to create a validated new conceptual model, which describes e-banking adoption by banks.

The principal conclusions from the collected data and banks are as follows:

- E-banking development is affected by contextual factors that include technological, organisational and environmental variables. On the other hand, it was found that e-banking development is also influenced by institutional factors, which are mainly coercive.
- Some factors that emerged from the collected data showed an effect on e-banking growth such as costs of investment, types of the bank, availability of qualified human resources, situation of the current environment of e-banking, age of the bank leaders and their level of acceptance of new technologies. These variables are specific to e-banking adoption in this particular context. The results also proved that competitors and leading banks do not affect any bank's adoption or development of any service in general or e-banking in particular.
- Assessing the proposed conceptual framework enabled the researcher to better understand how banks operate in the country in terms of e-banking development. It was discovered that due to the complexity and restrictions in

the banking sector of Algeria, some factors selected from the literature had either a little or no impact on e-banking development. As such, the results from the empirical study have enabled this research to contribute several findings that sheds new light on problems found in the literature. They will be discussed in the concluding chapter.

- Evidence collected from the five case studies confirmed that the initial theoretical model was appropriate, suitable for the assessment and investigation of barriers or drivers to e-banking development by banks. This analysis has also enabled the creation of a new theoretical model that will describe the complex contextual and institutional environment for e-banking take-off in Algeria, and allow suggestions for future investors in the field of e-banking.

## **Chapter 6 Cross Case Synthesis and Discussion**

### **6.1 Introduction**

This chapter presents the results of the cross-case analysis and a discussion in order to develop a deeper understanding of the interactions between political and financial interests and their impact on organisational behaviour.

Applying cross case analysis was suggested by Miles and Huberman (1994), and later by Yin (2009), to identify the similarities and differences between views on the phenomenon. For this purpose, a comparative analysis is undertaken built on the proposed conceptual framework developed from the combination of institutional theory and the TOE framework as explained in Chapter 3. All the emergent factors and themes are identified and discussed.

The aim of this discussion is to define and discuss the major differences and similarities among the studied organisations. Investigating multiple cases in this study aims to compare findings across cases in order to link up emerging factors with theoretical assumptions, and provide a thorough explanation of the phenomenon.

### **6.2 Factors Affecting Banks' Adoption and Development of e-Banking Services**

Operating within the same financial and banking environment makes the five case studies predisposed to be affected by the same contextual and institutional factors and actors; however, some differences between public and private banks were identified through this study.

Analysis was carried out to identify the key interactions between political and financial interests and their impact on organisations' innovation in general, by uncovering the key contextual and institutional factors discouraging banks from adopting and developing electronic solutions, in order to answer the research questions and propose a conceptual model that would demonstrate these interactions and describe their behaviour.

As mentioned in the literature review, this study is primarily motivated by the lack of a theoretical model for attempting to explain empirically what discourages banks from adopting and developing e-banking services. The literature weighs heavily towards

studying the adoption of e-banking by customers (Rotchanakitumnuai and Speece, 2003; Pikkarainen et al., 2004; Gerrard, Cunningham and Devlin, 2006; Alem and Alem, 2009); or investigating the characteristics of e-banking adopters (Azouzi, 2009; Seargeant, 2002), or assessing benefits of e-banking for both banks and clients (Kiang, Raghu and Shang, 2000; Howcroft and Becket, 1996), or exploring the challenges of e-banking implementation including security risks, customers' trust and legal security (Yang, 1997; Mihalcescu et al., 2008; Kumar, Sareen and Barquissau, 2012). However, the organisational adoption of e-banking has been less studied as pointed out by Boyce and Stone (2003), Wenninger (2000) and later confirmed by Hanafizadah et al. (2014) who suggested this type of study should be conducted in less developed regions and to incorporate a new set of variables such as political or socio-cultural ones as they may have an impact on e-banking adoption. Due to the scarcity of relevant knowledge on the adoption of the e-banking process by banks within a developing economy, the purpose of this study is to address the gap in the literature by combining both the TOE framework of Tornatzky and Fleischer (1990) with the institutional theory of DiMaggio and Powell (1983).

The factors selected for the technology construct are perceived risks and perceived benefits. To assess the organisational context, managerial support, size of the bank, human resources and slack resources were selected. Finally, the environmental factors that were selected from the literature and contextual analysis were divided and included in three types of categories that represent the institutional pressures. Firstly, coercive pressures which are the central bank, government, customers, parent corporations, legal framework, national cash culture, political and economic reforms and the underground economy. Secondly, the normative pressures include competitors. Finally, the leading bank (top competitor) was selected for its potential mimetic pressures, as formerly described in Chapter 3.

The combination of these two theories aims to create a model that enables the investigation of the interactions between political and financial interests and their impact on banks' adoption and development of e-banking. The proposed framework was tested in five case studies of organisations operating in the Algerian financial and banking market, as previously described in Chapter 4. After that, data were collected from each organisation then analysed case by case in order to identify the level of

importance of the resulting factors. The tables below summarise the important technological, organisational and environmental findings emerging from the analysis of the data from each case study.

*Algeria public bank findings*

Analysis of the technological factors showed that the perceived risks and benefits of e-banking, its national level of development and its costs are the most significant technological factors for the public bank. The data also showed factors such as banks' slack resources, availability of qualified human resources, type of bank, and managerial support, as well the age and e-banking acceptance levels of bank leaders, were found to be the most significant factors within the organisational context of the TOE framework. As for the environmental/ institutional pressures, both normative and mimetic factors were shown to be non-significant factors in this case; however, coercive pressures applied by the government, central bank, national cash culture, the underground economy along with the political and economic reforms are found to be the most important factors that affect a public bank adoption and development e-banking technology. Table 6.1 summarises the key contextual factors.

**Table 6.1 TOE Factors for local/ public bank**

<b>Technology Factors</b>	<b>Organisation Factors</b>	<b>Environmental Factors</b>
Perceived risks	Slack resources	Government
Perceived benefits	Type of the bank	Central bank
Investment cost	Qualified human resources	Parent corporation
E-banking environment	Managerial support	Political and economic reforms
	Age of bank leaders	Cash culture
	Technology acceptance of bank leaders	Black market size

### *French private bank findings*

The analysis of the technological context showed that the perceived risks and benefits of e-banking, investment cost and the current e-banking environment are the most significant technological factors influencing the French bank.

On the other hand, the data also showed that factors such as the bank's slack resources, qualifications of the human resources, type of bank, managerial support and the availability of qualified human resources have had the most significant effect on the French bank's adoption and development of e-banking from the organisational context.

As for the environmental/ institutional factors, both normative and mimetic factors were shown to be non-significant factors; however, coercive pressures applied by the government, central bank, national culture, the underground economy with the political and economic reforms and parent corporations among other factors, in addition to the legal framework were found to be the most important factors that affect this bank to develop its e-banking offering.

The main factors of this contextual category can be summarised in Table 6.2

**Table 6. 2 TOE factors for French private bank**

<b>Technological Factors</b>	<b>Organisational Factors</b>	<b>Environmental Factors</b>
Perceived risks	Slack resources	Government
Perceived benefits	Type of the bank	Central bank
Investment cost	Qualified human resources	Parent corporation
E-banking environment	Managerial support	Political and economic reforms
Clients' readiness		Cash culture
		Black market size
		Legal framework

*Arab private bank*

In this case, analysing the technological factors revealed that the perceived risks and benefits are the main drivers for this particular Arab bank to invest in this technology. On the other hand, the data also highlight the main organisational factors, which are bank's slack resources, qualified human resources, and managerial support as the most important internal factors.

As for the environmental/ institutional pressures, both normative and mimetic factors were found to be non-significant factors. However, coercive pressures applied by the government, central bank, national culture, the underground economy, including the political and economic reforms, and the legal framework were all discovered to be crucial influences that affect this bank in developing its e-banking offering. These contextual findings are summarised in Table 6.3.

**Table 6. 3 TOE factors for the Arab private bank**

<b>Technological Factors</b>	<b>Organisational Factors</b>	<b>Environmental Factors</b>
Perceived risks	Slack resources	Government
Perceived benefits	Age of bank leaders	Central bank
	Qualified human resources	Customers
	Managerial support	Political and economic reforms
		Cash culture
		Black market size
		Legal framework

*Anglo-Saxon private bank*

It was revealed from this case, that the perceived risks and benefits of e-banking, as well as the costs associated with its adoption, are the most significant factors for the Anglo-Saxon bank.

On the other hand, the data also showed factors such as the bank's slack resources, type and size of the bank and managerial support have the most significant impact on this bank among the organisational factors.

As for the environmental/ institutional pressures, mimetic factors were shown to be non-significant in this context. However, coercive pressures applied by the government, central bank, national culture, the black market, the underground economy and the political and economic reforms, parent corporations, and the legal framework were all found to be significant factors that negatively affect e-banking offers by this bank. These results are summarised in Table 6.4.

**Table 6. 4 TOE factors for Anglo-Saxon private bank**

<b>Technological Factors</b>	<b>Organisational Factors</b>	<b>Environmental Factors</b>
Perceived risks	Slack resources	Government
Perceived benefits	Type of the bank	Central bank
Cost of the investment	Size of the bank	Customers
	Managerial support	Political and economic reforms
		Cash culture
		Black market size
		Legal framework
		Competitors

*Regulatory organisations*

Regulatory cases analysis, perceived benefits and cost of the investment are the most momentous factors according to the interviewees.

On the other hand, the data also showed the main organisational features including type of bank and managerial support that have significant influence on these institutions (or regulatory bodies).

As for the environmental/ institutional pressures, both normative and mimetic elements were shown to be non-significant ones; however, coercive pressures applied by the central bank, government, political and economic reforms, legal framework, parent corporations, and the national cash culture affect e-banking growth in today's market see Table 6. 5.

**Table 6.5 TOE factors for regulatory organisations**

<b>Technological Factors</b>	<b>Organisational Factors</b>	<b>Environmental Factors</b>
Cost of the investment	Slack resources	Government
Perceived benefits	Type of the bank	Central bank
		Legal framework
		Parent Corporations
		National cash culture

The following sections present the key factors in each of technological, organisational and environmental contexts.

### **6.2.1 Technology Factors**

Data analysis confirmed that technological factors (perceived benefits, perceived risks, investment cost, e-banking environment, and clients' readiness) affect e-banking take-off in Algeria. Banks' perception of e-banking benefits was found to have a significant impact on banks' adoption and development of e-banking since it offers various benefits to both clients and banks as suggested by (Tan and Teo, 2000; Baldock, 1997). All the participants believed that adopting and offering e-banking services would facilitate customers' lives, reduce their usage of cash, reduce the risks of fraud and theft, and remove time and place barriers linked to traditional banking,

which explain why banks are keen to invest in e-banking technology and is consistent with (Musjim and Ramadhan, 2011; Kiang, Raghu and Shang, 2000; Chandio, 2012). Despite the high investment costs linked to acquisition of this technology, which might have a significant impact on its adoption; the advantages that banks may obtain from its implementation are major contributors to its adoption. Nevertheless, risks are taken into account before investing in e-banking, as it was suggested by the participants, in order to successfully launch it. Al Hajiri (2008) mentioned some risks associated with the use of e-banking such as: problems related to internet security, fear of hackers and fraud, which have been also highlighted by the participants. This confirms that risk perception is a key factor for e-banking adoption and development, and explains why banks invest a significant amount of money in security aiming to avoid problems related to it.

Furthermore, the environment readiness for e-banking development was found to play a critical role in shaping banks' willingness to adopt and develop e-banking services. Most of the interviewees stated that environmental readiness includes customers' readiness, infrastructure stability and legal framework availability. Therefore, it can be argued that e-banking adoption by banks is linked to the industry situation and customers' needs for this technology and, in addition, can offer benefits for the bank and its clients as well as the country's economy.

### ***6.2.2 Organisational Factors***

Organisational factors are the second type of contextual factor that were found to have an impact on e-banking take-off. The findings from these five cases revealed that managerial support, type and size of the bank, age and technology acceptance level of the bank's leaders, and the bank's financial and human resources play a crucial role in e-banking adoption and development. Supportive management was found to be one of the main drivers to e-banking development, which is consistent with previous findings (Manross and Rice, 1986; Liao et al., 1999). Additionally, as claimed by Shahand and Siddiqui (2006), having a supportive management would positively influence the implementation of e-banking. Since top management has the power to support innovation adoption by building a more suitable context through indicating the role of innovation within the firm's strategy and by training the staff to ensure that they share the same vision as the firm (Tushman and Nadler, 1986).

Secondly the financial resources and firm's size were also mentioned by the participants for their effect on e-banking adoption and development; these two variables are the most frequently studied variables within the organisational context because of their contribution to technology adoption (March and Simon, 1958; Rogers, 1995). This is consistent with Tornatzky and Fleischer's (1990) findings in which they argue that having resources enable firms to acquire technologies.

Regarding the size of organisation, it was proven that larger firms are more likely to adopt new technologies (Cyert and March, 1963; Kamien and Schwartz, 1982; Scherer, 1980). This is also consistent with what Zhu and Kraemer (2005) found which was that the firm's size, as well as its technological capacities and financial resources, play an important role in technology implementation. E-banking acceptance by bank leaders was also cited by some participants for its impact on e-banking adoption and development by those banks. However, even though the technology acceptance level of e-banking acceptance among banking leaders were mentioned by some participants for their role in affecting banks' adoption of e-banking, were beyond the scope of this study and, therefore, not explored further.

Nevertheless, the age of bank leaders was mentioned as another factor affecting e-banking adoption and development by banks as claimed by the participants who also stated that age differences among top and middle/ junior management may generate a conflict between the two categories. This is along with what Azouzi's (2009) findings, which revealed that socio demographic factors such as age, education level and gender affect e-banking adoption by customers. In this case, leading bankers are the ones to be convinced by the benefits of e-banking as suggested by Poon (2008). Furthermore, it has been shown in previous studies that lack of staff training to promote and sell e-banking services has been another reason why e-banking adoption has not been successful in various cases (Manross and Rice, 1986; Liao et al., 1999). These studies confirm the importance of the role that training staff plays for e-banking development.

Moreover, previous studies have revealed that the type of bank (local private, local public or private foreign bank) investing in e-banking should be taken into account but the participants in this study asserted that multinational banks do not obey to the same rules as those who are locally linked to the state or private investors as

suggested by Hasan, Maccario and Zazzara (2002). Consequently, the type of bank is also considered to be an important factor for e-banking adoption and development.

### ***6.2.3 Environmental Factors***

Since the main focus of this study has been the environmental factors, the TOE framework has been combined with institutional theory. Three types of pressure, namely coercive, mimetic and normative, were tested to confirm whether e-banking adoption and development in the context of Algeria is affected by any of those factors. The findings revealed that e-banking adoption and development is primarily affected by coercive pressures made by the state agencies or dominant actors on banks as suggested by DiMaggio and Powell (1983; 1991).

The central bank, government, parent corporations, legal framework, customers, size of the black market, cash culture and political and economic reforms were found to be the most influential factors and actors affecting e-banking take-off in this study. All these variables represent barriers restricting e-banking development due to the negative impact they have on it. The central bank seems to block bank investments in this technology by delaying the process of authorisation. On the other hand, the government is considered to be one of the most important factors in this category because of its impact on the whole banking sector. It was stated by the participants that the government should apply coercive pressures by encouraging banks to adopt and develop their electronic banking services in order to guarantee its success as suggested by Elbardan (2014).

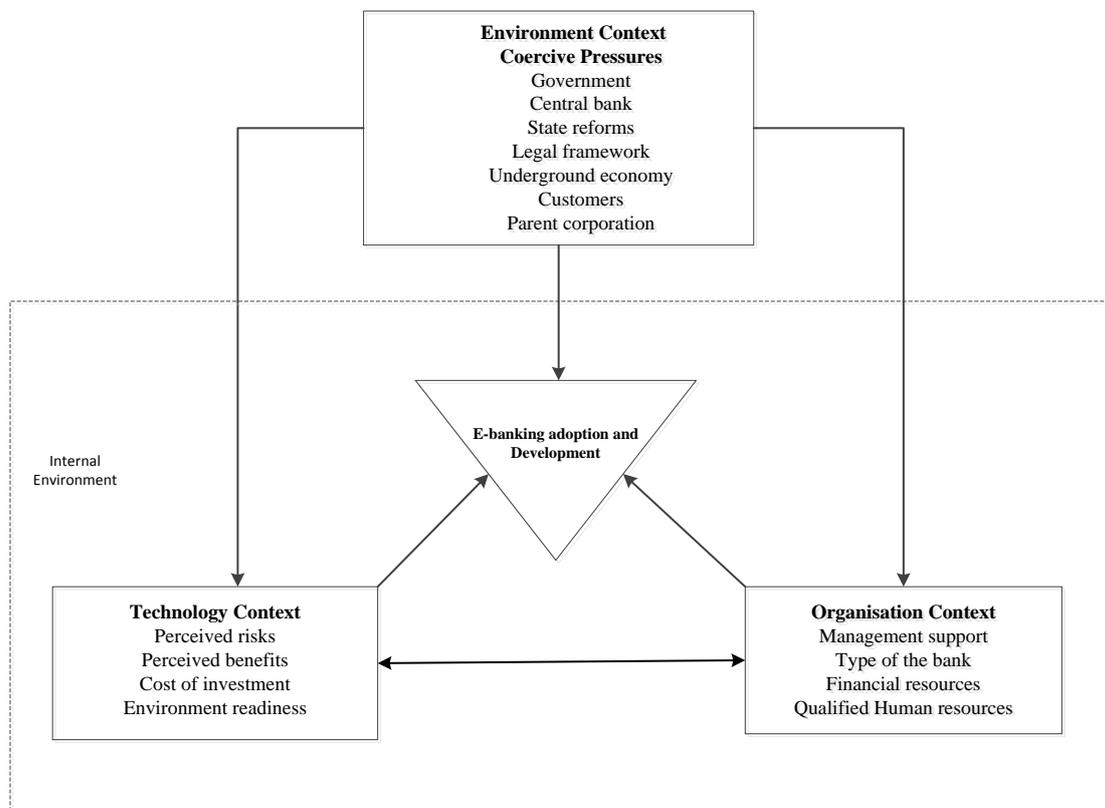
The absence of a clear legal framework is considered to be an important factor affecting e-banking development. The studied banks and various analysts see the regulatory framework as a brake on e-banking take-off since the bank cannot increase its investment in a product which is not fully regulated. Political and economic reforms of the country were also found to play a role in e-banking development since they have not been amended to allow the electronic banking to take-off. On the other hand, the local cash culture through the high number of customers who prefer using cash was found to have a significant negative effect on electronic banking acceptance, which affects its take-off and also increases the black market size and thus reduces e-banking services usage. Finally, parent corporations were stated by the interviewed bankers to influence their banks in investing in e-banking since parent corporations

impose e-banking on their subsidiaries. This is not the case for the local private or public banks, as explained by Hasan, Maccario and Zazzara (2002).

This study argues that a competitive market does not yet exist in this context and also that banks are not imitating or affected by each other in terms of e-banking investment as they do not consider it to be a profitable niche for the present. The findings contradict the literature asserting that adoption of new technologies by organisations in general, and e-banking adoption by banks in particular, are affected by normative pressures from leading competitors in the market and mimetic pressures from all competitors. Therefore, it can be concluded that banks are more likely to adopt, develop and invest in e-banking because of the influence of either inter-organisational pressures or strong coercive pressures.

### 6.3 Revised Conceptual Framework

This chapter modifies the original conceptual model based on the cross case analysis findings and their discussion. The conceptual framework proposed in Chapter 3 has been revised and is presented in Figure 6.1.



**Figure 6. 1: Revised conceptual model**

The revised conceptual model provides the final view of e-banking adoption and development by the five studied banks. It highlights the contextual and institutional factors affecting e-banking take-off in this context. The above figure suggests that bank's adoption and development of electronic banking services is influenced by technological, organisational and environmental factors as well as coercive institutional pressures. The revised model does not include either normative nor mimetic pressures, which were not confirmed by the empirical data to have an impact on e-banking adoption and development. Nevertheless, the new model contains new variables, which were found to influence banks' adoption and development of e-banking.

**A. *Technological context*** includes perception of risks and benefits, cost of investment and environment readiness for e-banking solutions. Benefits gained from either investing in e-banking or offering it, are considered to be the main drivers for its adoption. On the other hand, risks related to e-banking are perceived to be a barrier to its adoption that is why banks tend to invest large amounts of money in security in order to offer a reliable e-banking product. Environmental readiness for e-banking plays a major role in influencing a bank to enhance their e-banking services.

It can be concluded that the greater readiness and benefits, the less the risks and costs will encourage banks to adopt and develop electronic banking services.

**B. *The Organisational context*** factor was also revised after the cross case analysis. It appears that the size of the bank has no effect on the bank's willingness to adopt and develop e-banking services. It was also revealed that banks are more likely to invest in e-banking services when they have sufficient resources to cover the investment costs and training required for their staff to run this new technology. Moreover, it was agreed by all the participants that supportive management is the main factor influencing e-banking adoption and development, which is consistent with previous studies. Furthermore, it was discovered that banks belonging to worldwide groups were more likely to invest in this technology to support their customers in Algeria and facilitate their means of business.

It can be concluded that having supportive management, high financial resources, trained staff within international and local banks would positively influence banks to adopt and develop electronic services.

C. **The Environment context**, on which this research focused, was combined with the three types of pressures suggested by institutional theory: coercive, normative and mimetic pressures. It was revealed that e-banking adoption and development in this context is mostly affected by coercive factors made by the government, the central bank, the legal framework, the cash culture, political and economic reforms, the parent corporations and the size of the black market. It was agreed by the participants that the central bank and the government, which constitute the main authorities in this sector, play a negative role in influencing banks to adopt or develop electronic services. Despite all their efforts to encourage banks to acquire and offer this technology, it was claimed that the reforms are not introduced to modernise the sector in general or made in favour of electronic banking. This explains the absence of a clear legal framework regulating the electronic banking sector, which negatively affects banks and blocks them from investing in this technology.

Moreover, it was confirmed that the cash culture of Algerians also affects e-banking acceptance and usage since according to the participants Algerians prefer using cash in their daily transactions and also hoarding their money at home to prevent themselves from having problem with their banks, which is consistent with what various economists have claimed about the slow adoption of e-banking in Algeria. The cash culture is also affected by the large size of the underground economy in Algeria, which makes people reluctant to use electronic means of payment to avoid transparency and discourage banks from innovating or investing in e-banking services. Finally, parent corporations affect their subsidiaries in investing in e-banking services as it was stated by the interviewees.

It can be concluded that coercive factors negatively affect electronic banking adoption and development by banks.

## **6.4 Conclusion**

This chapter presents the findings from the cross case analysis and discussion. Six cases were investigated to confirm and explore the factors influencing e-banking adoption and development. Technological, organisational and environmental (TOE) theory was combined with institutional theory, which was included in the environmental construct of TOE. The three contextual factors were revealed to have

an impact on e-banking take-up in this context. Moreover, the revised framework presented in this chapter is novel because:

- As discussed in the literature review chapter and Chapter 3, there is a lack of studies on banks adoption of electronic banking services. On the other hand, the combination of TOE framework and institutional theory were used mainly to assess electronic business adoption by organisations. Hence, the conceptual model presented in this chapter fills the gap by revising the first theoretical framework presented in Chapter 3 and, through the cross case analysis of the data collected from the five cases, a holistic understanding of this phenomenon was gained.
- Some factors such as competitors, size of the banks, and leading banks were rejected whereas others emerged from the data analysis. Therefore, reviewing the factors contributes to the literature and enables the emergence of a framework that explains banks' adoption and development of e-banking.
- The literature suggested that organisations are affected by three types of institutional pressures while adopting new technologies; however, in this context it was revealed that in terms of electronic banking coercive institutional pressures are the main influential factors for its take-off.

## **Chapter 7 Conclusion**

### **7.1 Introduction**

This chapter summarises the research chapters and the key findings of this study. Then, it discusses the theoretical, methodological and practical contributions. At the end, it presents the limitations of this study and offers some recommendations for future research.

### **7.2 Thesis Overview and Summary**

This thesis investigates the interactions between political and financial interests and their impact on organisational behaviour, which play a crucial role in affecting e-banking adoption and development by banks in Algeria. To do so, a conceptual framework was developed using a combination of institutional theory and the Technology, Organisation and Environment (TOE) framework and answers the research questions. This thesis can be summarised as follows:

Chapter 1 provides an overview of the research problem and its contextual background. Then, it explains the importance of this research to both science and practice by highlighting the lack of studies of this particular phenomenon, which constitutes a clear gap to be filled. Finally, it identifies the aim and objectives of the study along with its research questions.

The second chapter presents the literature review undertaken to better tackle the research problem. This chapter reviews the main information systems theories related to technology adoption in addition to the existing literature on electronic banking adoption. It also discusses various concepts and factors with the aim of developing a framework to guide this investigation and helps to understand the phenomenon in its context. This chapter lists the main advantages of e-banking, defines concepts and variables used in this study and reviews several studies on the adoption of e-banking by customers and banks, particularly in developing countries. Moreover, it gives an overview of the literature of the level of development of electronic banking in Algeria from which the main gaps are revealed and the research questions are formulated. Finally, it justifies the use of institutional theory and the Technology, Organisation and Environment (TOE) framework to achieve the aim of this research.

The third chapter discusses a list of assumptions held by the researcher and presents the initial conceptual framework, which was developed using the TOE framework and institutional theory and used to collect and analyse data. The role of this proposed framework is to form the basis of the investigation.

The fourth chapter presents the research methodology and the data collection and analysis methods adopted in this study. It begins by defining each concept, method and approach then justifies the choice. It discusses the need for a pragmatic paradigm to fulfil the aim of this research and answer its questions, as well as the adoption of the qualitative research method to develop a deeper understanding of the studied phenomenon.

The fifth chapter presents the results of each case study separately based on similar codes and themes as identified in Chapter 3.

The sixth chapter presents the results of the comparative analysis made to uncover the main similarities and differences among the studied institutions. It also presents the final conceptual model resulting from this study.

The last chapter presents the key research findings, contributions, limitations and offers a list of recommendations for future research and also for the banks active in the Algerian banking sector, the government as well as the companies in charge of e-banking, to improve the level of e-banking development in Algeria.

### **7.3 Research Findings**

The key findings generated from this investigation were used to generate a conceptual model that highlights the main contextual and institutional factors affecting banks' adoption and development of e-banking.

The results of this research are consistent with the literature, even though a new set of factors emerged from this investigation. The technological factors found to have an impact on banks' behaviour toward e-banking adoption and development were their readiness to adopt it, their perception of both the risks and benefits associated with it, as well as its costs of investment.

On the other hand, having supportive management, high financial resources, and trained staff within international and local banks constitutes the main organisational factors that would positively influence banks to adopt and develop electronic services.

Finally, the environmental context was found to be predominantly affected by the coercive actors and factors emerging from institutional theory and excluded the effect of normative and mimetic factors as electronic banking is not recognised as a competitive tool yet. The government, central bank, political and economic reforms, legal framework, underground economy, national cash culture and parent corporations were found to be the main features of the environmental context.

Nevertheless, as the main role of these findings is to answer the research questions:

- What forms do the interactions take between political and financial interests and the banks?
- How do these political and financial interests interact with each other?

This study suggests that the political interests were represented through the role of the main political/ institutional authorities and other elements linked to it. These authorities are the government and the central bank. In addition to these, the political and economic reforms, legal framework, underground economy and the national cash culture are other elements of this political frame to be taken into account for their role played in shaping banks' behaviour and influencing their adoption and development of e-banking in particular. On the other hand, the financial interest was formed by the technological and organisational context of the banks and their parent corporation's strategy.

As for the way they interact, it was revealed through this study that the main actors in the political context play a negative role in affecting the financial context, which is in turn affected internally by its organisational factors and externally by its parent's corporate strategy. In this context, it was found that the government have not established political and economic reforms in order to grant more freedom or incentives for banks to carry out their investment in this niche without obstacles. The central bank was also found to be slowing down the banks' process of investments by creating a number of procedures aiming to delay their investments and control them rather maintaining equilibrium within the banking sector. Furthermore, their laissez

faire has allowed the emergence of an important underground economy, which controls the local economy and has led to the creation and establishment of a national cash culture, which was found to be another key inhibitor to the e-banking usage by customers and to e-banking development by banks. Moreover, the absence of a legal framework was identified as another inhibitor for a financial institution to invest in this particular segment.

In this study, the financial interest is linked to both the internal and the external environmental factors of the banks. Internally, the role of the management, the financial resources and qualified human resources, were identified as being key drivers to banks' changes in behaviour in general and their development of electronic banking solutions in particular. The type of the bank was also found to have an important effect on organisational behaviour, and has also been associated with the parent corporation (the external/ environmental actor). It was identified that having a supportive management is a key driver to changes in general and to e-banking adoption and development in particular. On the other hand, it was found that it is critical to have significant financial resources and qualified human resources to keep up with investment in this niche and ensure its success. However, it is also crucial to take into account the type of bank whether it is private or public since it was found that each bank has to report to its mother company. Thus, for the local public bank, which reports to the government, it was found that this type of bank cannot implement any changes without the government's consent. As for those banks belonging to private banking groups, they also have to obey to their group's strategy, which was generally in favour of investing in e-banking solutions to satisfy their clients' needs.

It can be concluded that the main political interest is to control the path of the financial and banking sector's development in general and discourage banks' adoption and development of electronic banking solutions in particular. However, the financial interest also has to lead positive changes, to improve the country's image and display a modern and up-to-date image of themselves.

#### **7.4 Key Contributions of this Research**

This research offers three main types of contributions, namely: theoretical, methodological and practical.

#### ***7.4.1 Theoretical Contribution***

This research contributes to the literature by providing a conceptual model that shows the institutional and contextual factors affecting banks' adoption and development of e-banking. This study extends the literature by combining the Technology, Organisation and Environment framework and institutional theories to investigate the interactions with political and financial interests and their impact on organisational behaviour in general and explores the effect of these factors on e-banking adoption and development in particular within the Algerian banking context.

On one hand, this research contributes to the TOE framework by applying it to investigating the contextual factors affecting banks' adoption and development of e-banking in particular and to assess the interactions with political and financial interests and their impact on organisational behaviour in general. A new set of factors emerged from the collection and analysis of data as previously explained, which enabled the extension of this theory and redefining each of its constructs as predicted by Baker (2012).

On the other hand, these studies also contribute to institutional theory by implementing its three main types of pressures within the environmental context, to assess how the interest the political and financial interest interact with each other in general and determine particularly which are the coercive, normative and mimetic factors affecting banks' adoption and development of e-banking. Even though, the literature suggests that organisations are affected by the former institutional pressures while adopting new technologies, in this particular context, it was revealed that coercive institutional pressures are the main influential factors in its development by banks.

In addition to these, another contribution was made to the body of knowledge on e-banking. Since the literature highlights the need for empirical studies investigating organisational adoption of new technologies in general and banks' adoption of e-banking particular, this research attempts to fulfil this need.

### ***7.4.2 Practical Contribution***

The findings of this research provide a contextual originality since this study is one of the first studies on the Algerian context that tries to highlight the interactions with political and financial interests and their impact on organisational behaviour in general and explain the contextual and institutional factors' impact on banks' adoption and development of e-banking in particular.

This study provides an insight into the phenomenon for potential investor in this sector, since data were gathered from experienced bankers and e-banking managers who work for the leading banks and regulatory institutions within this industry. Hence, banks that have not adopted or developed their e-banking platform can use this model to assess the political and financial interactions prior to investing in this niche. Moreover, the resulting model can be applied and tested in other countries with similar sociocultural, infrastructural, technological, institutional and environmental features to Algeria.

Finally, this study provides a set of recommendations (that can be found in the next section) for the government, banks, and the institutions in charge of e-banking development in Algeria as another practical contribution.

### **7.5 Limitations**

This study has some limitations that are worth mentioning for the opportunities they offer for future investigations. These limitations are mainly linked to the research methodology.

Developing a conceptual framework was intended to guide the researcher through his data collection and analysis; however, it may have limited the study to assess the pre-selected factors, which was bypassed by applying the abductive reasoning approach that enables the research to explore any emerging factors in order to gather and represent participants' views on the phenomenon.

Another limitation is related the use of a pragmatic philosophy from which the outcome reliability is not necessarily absolute, as the researcher is granted unlimited freedom in order to choose appropriate methods to answer the research question.

Adopting a qualitative research method to achieve the aim and objectives of this study can lead to a better understanding of the phenomenon under study; however, it is associated with the risk of bias in interpretation of data. Nevertheless, the author of this study has adopted a multidimensional perspective in an attempt to minimise data bias and produce more robust findings.

Using a multiple case studies strategy may cause a generalisability limitation even though, in this research, five case studies were investigated to develop and generate a greater understanding of the phenomenon and seek replication of results from those cases.

Collecting data on the banks and the regulatory organisations separately could cause a limitation or conflict of interests, which may lead to a bias in behaviour from the participants toward their own companies since more of the participants were reluctant to objectively describe their company's mechanisms. The researcher has tried to tackle this potential issue with caution by asking the participants to compare their bank to the competition.

Although this investigation has some limitations, some conclusions can be drawn about the phenomenon under study, which may be considered as the starting point for further studies in this area.

## **7.6 Recommendations and Conclusion**

This research has adopted the Technology, Organisation and Environment framework and institutional theory by combining them to investigate the political and financial interactions and their impact on organisational behaviour as previously explained. The data collected to complete the aim of this research were gathered at a specific period of time and from one bank within each of the categories and from either the central bank or the GIE. Future research could take another bank from those categories and even other institutional entities that have a relationship with e-banking development such as the finance ministry or the post and information and communication technologies ministry, into account in order to gather a larger number of views of the phenomenon and widen the findings' comparisons between types of organisation. Moreover, future research could study the phenomenon over a longer period of time in order to enhance the quality of understanding since the participants' responses, e-

banking structure and offered solutions within the studied banks might change over time.

The qualitative approach of this study offers the possibility for future investigation to be based on quantitative methods through the use of questionnaires aimed at bankers in order to increase the reliability and validity of these findings. It might also be productive to test the conceptual model resulting from this study either qualitatively or quantitatively in similar countries, where e-banking is still at its infancy stage.

The process of gathering data for this study has enabled the researcher to make observations which are beyond the scope of this thesis. For instance, the most striking issue with automated banking in Algeria is the large number of card holders and their lack of trust in e-banking solutions. This situation can be bypassed by doing marketing campaigns to inform card holders of e-banking benefits in particular and establishing their confidence and trust in the banking system in general. Since, card holders need to be assured that their funds are not only safe and secure but also accessible at any time.

It was also noted that bank employees were not fully informed nor do they effectively inform their customers of the benefits of their electronic solutions. This situation can be improved by training cardholders as well as bank staff on the uses of cards and other payment solutions. In addition to that, each bank should create support departments to respond to customers' queries in real time. Other recommendations could be given to the banks, such as increasing the strategic level of electronic banking, creating a diversified range of card products in order to reach more customers, promoting more aggressively electronic payment tools through the relationship managers. Finally, banks should cooperate with Algeria Post in order to benefit from their large number of customers by offering them joint-solutions.

As for the government; it should support the banks in their actions and establish the legal context needed to facilitate their actions and protect e-banking users. The government should also force utility companies, which have recently accepted e-payment such as Sonelgaz, Air Algerie etc., to promote card payments for all bills and offer incentives to their customers using e-payments. Finally, support should be given to the GIE and SATIM in their mission to improve e-banking acceptance.

Furthermore, to both the GIE and SATIM, the researcher suggests firstly to combine their efforts to establish a robust and clear legal framework. Secondly, the interbank electronic payment infrastructure should be enhanced or renewed. Thirdly, an interbank call centre should be created that will cover all banks in order to deal with all types of users' queries. Fourthly, the banks should be persuaded to offer incentives to those using electronic solutions.

Nevertheless, the above recommendations will not be efficient unless there is the full participation of, firstly, the banks, inter-banking companies, and the major institutions i.e. Ministry of Commerce, Ministry of Finance and the Ministry of Post and ICTs; since they are all essential for the realization of these recommendations.

## References

- Abdulrasheed, A. and Etudaiye-muntar, F. (2009) 'An Evaluation of Products Innovation among Nigerian Commercial Banks', *Advances in Management*, 8(1), pp. 94-101.
- Abeka, S.O., Abeka, E.O. and Omondi, O.C. (2012) 'Determinants of Adoption of Internet Banking by Trade Finance Customers in East Africa', *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 2(2), pp. 110-120.
- Abrahamson, E. (1991) 'Managerial fads and fashions: The diffusion and rejection of innovations', *Academy of Management Review*, 16(3), pp. 586-612.
- Abukhzam, M. and Lee, A. (2010) 'Factors affecting bank staff attitude towards e-banking adoption in Libya', *The Electronic Journal on Information Systems in Developing Countries*, 42(2), pp. 1-15.
- AbuShanab, E., Pearson, J.M. and Setterstrom, A.J. (2010) 'Internet Banking and Customers' Acceptance in Jordan: The Unified Model's Perspective', *Communications of the Association for Information Systems*, 26, Article 23, pp. 493-524.
- acharya, R.N., Kagan, A. and Linam, S.R. (2008) 'Online banking applications and community bank performance', *the international journal of bank marketing*, 26(6), pp. 418-439.
- Adesina, A.A. and Ayo, C.K. (2010) 'An empirical investigation of the level of users' acceptance of e-banking in Nigeria', *Journal of Internet Banking and Commerce*, 15(1), pp. 1-13.
- Aduda, J. and Kingoo, N. (2012) 'The relationship between electronic banking and financial performance among commercial banks in Kenya', *Journal of Finance and investment analysis*, 1(3), pp. 99-118.
- Agerfalk, P.J. (2010) 'Getting pragmatic', *European Journal of Information Systems*, 19(3), pp. 251-256.
- Ahmad, R. and Buttle, F. (2002) 'Retaining telephone banking customers at Frontier Bank', *International Journal of Bank Marketing*, 20(1), pp. 5-16.
- Ahmed, A., Rezaul, K.M. and Rahman, M.A. (2010) 'E-Banking and its impact on banks' performance and consumers' behaviour', *Fourth International Conference on Digital Society*, , pp. 238-242.
- Ajzen, I. (1985) *From intentions to actions: A theory of planned behavior*. Berlin: Springer.

- Akacem, K. (2004) 'Economic reforms in Algeria: an overview and assessment', *The Journal of North African Studies*, 9(2), pp. 115-125.
- Akinci, S., Aksoy, S. and Eda, A. (2004) 'Adoption of Internet banking among sophisticated consumer segments in an advanced developing country', *International Journal of Bank Marketing*, 22(3), pp. 212-232.
- Al Nahian, R., Akter, S. and Islam, N. (2009) 'The Adoption of E-banking in Developing Countries: A Theoretical Model for SMEs', *International Review of Business Research Papers*, 5(6), pp. 212-230.
- Aladwani, A.M. (2001) 'Online banking: a field study of drivers, development, challenges and expectations', *International Journal of Information Management*, 21, pp. 213-225.
- Alam, S.S., Musa, R. and Hassan, F. (2009) 'Corporate Customers' Adoption of Internet Banking: Case of Klang Valley Business Firm in Malaysia', *International Journal of Business and Management*, 4(4), pp. 13-21.
- Alawneh, A. and Hattab, E. (2009) 'E-Banking Diffusion in the Jordanian Banking Services Sector: An Empirical Analysis of Key Factors', *International Journal of Actor-Network Theory and Technological Innovation*, 1(2), pp. 50-66.
- Alfansi, L. and Sargeant, A. (2000) 'Market segmentation in the Indonesian banking sector: the relationship between demographics and desired customer benefits', *International Journal of Bank Marketing*, 18(2), pp. 64-74.
- Al-Hajri, S. (2008) 'The adoption of e-banking: The case of omani banks', *International Review of Business Research Papers*, 4(5), pp. 120-128.
- Al-Hajri, S. (2008) 'The Adoption of e-Banking: The Case of Omani Banks', *International Review of Business Research Papers*, 4(5), pp. 120-128.
- Aliyu, A.A. and Tasmin, R. (2012) 'The impact of information and communication technology on banks' performance and customer service delivery in the banking industry', *International journal of latest trends in finance and economic sciences*, 2(1), pp. 80-90.
- Aliyu, A.A., Younus, S. and Tasmin, R. (2012) 'An Exploratory Study on Adoption of Electronic Banking: Underlying Consumer Behaviour and Critical Success Factors. Case of Nigeria', *Business and management Review*, 2(1), pp. 01-06.
- Al-Qeisi, K.I. (2009) *Analyzing the Use of UTAUT Model in Explaining an Online Behaviour: Internet Banking Adoption* Doctor of Philosophy. Brunel University.
- Al-Qeisi, K.I. (2009) *Analyzing the Use of UTAUT Model in Explaining an Online Behaviour: Internet Banking Adoption* Doctor of Philosophy. Brunel University.

- Alsajjan, B. and Dennis, C. (2006) 'The Impact of Trust on Acceptance of Online Banking', European Association of Education and Research in Commercial Distribution. West London, United Kingdom, 27-30 June 2006. West London, United Kingdom: Brunel University, 1-19.
- Alsajjan, B. and Dennis, C. (2010) 'Internet banking acceptance model: a cross-market examination', *Journal of Business Research*, 63(9-10), pp. 957-963.
- Al-Smadi, M.O. (2012) 'Factors Affecting Adoption of Electronic Banking: An Analysis of the Perspectives of Banks' Customers', *International Journal of Business and Social Science*, 17(3), pp. 294-309.
- Al-Smadi, M.O. and Al-Wabel, S.A. (2011) 'The impact of E- Banking on the performance of Jordanian banks', *Journal of Internet Banking and Commerce*, 16(2), pp. 1-10.
- Al-Somali, S.A., Gholami, R. and Clegg, B. (2009) 'An investigation into the acceptance of online banking in Saudi Arabia', *Technovation*, 29(2), pp. 130-141.
- Alsomali, Z. (2015) Facilitating adoption of e-banking in Saudi Arabia through reduction of perceived risk in e-banking Doctor of Philosophy. Brunel University London.
- Alvesson, M. and Kärreman, D. (2011) *Qualitative research and theory development: Mystery as method*. 1st edn. London: Sage publications LTD.
- Ameyar, H. (2012) 'Paiement électronique en Algérie: Vers une instance indépendante de supervision?', *Liberte*, 03/11/2012.
- Angelakopoulos, G. and Mihiotis, A. (2011) 'E-banking: challenges and opportunities in the Greek banking sector', *Electronic Commerce Research*, 11, pp. 297-319.
- Angst, C.M., Agarwal, R., Sambamurthy, V. and Kelley, K. (2010) 'Social contagion and information technology diffusion: The adoption of electronic medical records in us hospitals.', *Management Science*, 56(8), pp. 1219-1241.
- Arrami, S. (2015) Combien d'internautes en Algérie en 2015 ?. Available at: <https://www.kabyle.com/articles/combien-dinternautes-algerie-2015-24418-15052015> (Accessed: 04/21 2016).
- Avery, A.E., Baradwaj, B.G. and Singer, D.D. (2008) 'An Examination of Hofstede's Cultural Factors in Explanation of Differences in Citibank International Retail Banking Web Sites', *Journal of Business and economics studies*, 14(2), pp. 73-118.
- Awa, H.O., Ukoha, O. and Emecheta, B.C. (2012) 'Intergrating TAM and TOE frameworks and expanding their characteristics constructs for E-Commerce for

- SMEs', *Journal of Science & Technology Policy Management*, 6(1), pp. 15/12/2013-76-94. doi: dx.doi.org/10.1108/JSTPM-04-2014-0012.
- Axson, D.A. (1992) 'A return to managing customer relationships', *International Journal of Bank Marketing*, 10(1), pp. 30-35.
- Azizi, M.J. (2013) 'The study of barriers and challenges of core banking implementation in banking system of Iran and India (E-Banking predisposing)', *International Journal of Management Sciences and Business Research*, 2(8), pp. 41-48.
- Azouzi, D. (2009) 'The adoption of electronic banking in Tunisia: An exploratory study', *Journal of Internet Banking and Commerce*, 14(3), pp. 1-11.
- Bahl, S. (2012) 'E-Banking: Challenges & Policy Implications', *International Journal of Computing & Business Research*, , pp. 229-6166.
- Baker, J. (2012) 'The Technology–Organization–Environment Framework', in Dived, Y., Wade, M. and Schneberger, S. (eds.) *Information Systems Theory*. New York: Springer, pp. 231-245.
- Baldock, R. (1997) 'The virtual bank: four marketing scenarios for the future', *Journal of Financial Service Marketing*, 1(3), pp. 260-268.
- Banik, B.J. (1993) 'Applying triangulation in nursing research', *Applied Nursing Research*, 6(1), pp. 47-52.
- Baron, S., Warnaby, G. and Hunter-Jones, P. (2014) 'Service (s) marketing research: Developments and directions', *International Journal of Management Reviews*, 16(2), pp. 150-171.
- Basel Committee on Banking Supervision (1997) *E-Money and E-Banking Developments in G-10 Countries*. Belgium: Basel Committee on Banking Supervision.
- Baskerville, R. and Myers, M.D. (2004) 'Special issue on action research in information systems: Making IS research relevant to practice: Foreword', *Mis Quarterly*, 28(3), pp. 329-335.
- Bauer, W., (2012) *Algeria's Necessary Black Market Economy*. Available at: [http://www.yourmiddleeast.com/columns/article/algerias-necessary-black-market-economy\\_5751](http://www.yourmiddleeast.com/columns/article/algerias-necessary-black-market-economy_5751) (Accessed: 07/17 2016).
- Baxter, P. and Jack, S. (2008) 'Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers', *The Qualitative Report*, 13(4), pp. 544-559.
- Belkhamza, Z. and Wafa, S.A. (2009) 'Cultural interpretation of e-commerce acceptance in developing countries: Empirical evidence from Malaysia and

- Algeria', in *Emerging markets and e-commerce in developing economies*. New York: Information Science Reference, pp. 193-209.
- Bell, J. (2005) *Doing your research project*. 4th edn. Buckingham, UK: Open University Press.
- Bellal, S. (2008) 'Changement institutionnel et économie parallèle en Algérie : quelques enseignements.', *Revue du Chercheur*, 6, pp. 1-9.
- Benamraoui, A. (2003) *The effects of globalisation of financial services on banking industry and stock market: an Algerian case study* Doctor of Philosophy. University of Greenwich Business School.
- Benbasat, I., Goldstein, D.K. and Mead, M. (1987) 'The Case Research Strategy in Studies of Information Systems', *MIS Quarterly*, 11(3), pp. 369-386.
- Bendiabdellah, A., Dahou, K.B. and Hacini, I. (2012) 'Determinants of the Intention to Use Internet Banking', *Mediterranean Journal of Social Sciences*, 3(5), pp. 33-41.
- Bendjaber, B. (2007) 10 milliards de dollars échappent au contrôle des impôts. Available at: <http://www.algerie-dz.com/forums/showthread.php?t=60760> (Accessed: 07/17 2016).
- Berger, P. and Luckmann, T. (1966) *The social construction of knowledge: A treatise in the sociology of knowledge*. New York: Open Road Media.
- Bernard, H.R. (2002) *Research methods in anthropology: Qualitative and quantitative approaches*. 3rd edn. Walnut Creek, CA: Alta Mira Press.
- Bernard, H.R. (2013) *Social research methods: qualitative and quantitative approaches*. 2nd edn. Thousand Oaks, CA: Sage.
- Berry, L.L. (1995) 'Relationship marketing of services: growing interest, emerging perspectives', *Journal of the Academy of Marketing Science*, 23(4), pp. 236-245.
- Bertot, J.C., Jaeger, P.T. and Grimes, J.M. (2010) 'Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies', *Government Information Quarterly*, 27(3), pp. 264-271.
- Bhattacharjee, A. (2001a) 'An empirical analysis of the antecedents of electronic commerce service continuance', *Decision Support Systems*, 32(2), pp. 201-214.
- Bhattacharjee, A. (2001b) 'Understanding information systems continuance: an expectation-confirmation model', *MIS quarterly*, 25(3), pp. 351-370.
- Björck, F. (2004) 'Institutional theory: A new perspective for research into IS/IT security in organisations', *Proceeding of the 37th Hawaii International Conference on System Science*, , 1-10.

- Blumberg, B., Cooper, D.R. and Schindler, P.S. (2011) *Business research methods*. 3rd edn. US: McGraw Hill Higher Education.
- Blumberg, B.F., Cooper, D.R. and Schindler, P.S. (2014) *Business research methods*. 4th edn. UK: McGraw-Hill Education.
- Bojan, D., Mutu, S. and Paun, D. (2013) 'Electronic Banking—Advantages for Financial Services Delivery', , pp. 672-677.
- Bose, N., Capasso, S. and Wurm, M. (2008) 'The impact of banking development on the size of the shadow economy', *Journal of Economic Studies*, 207(5), pp. 1-28.
- Bose, N., Capasso, S. and Wurm, M. (2008) 'The Impact of Banking Development on the Size of the Shadow Economy', *Journal of Economic Studies*, 39(6), pp. 620-638.
- Bouchelit, R. (2015) *Les perspective d'e-banking dans la strategie e-Algerie 2013* Doctorate. Abou Bakr Belkaid University of Tlemcen, Algeria.
- Boudellal, A. (2009) 'Economie souterraine Et crise financière en Algerie: Essai d'évaluation', Colloque international portant sur le thème : Crise financière internationale ; ralentissement économique mondial et effets sur les économies euromaghrébines. Bejaia University, Algeria, 12 Oct. , 1-14.
- Boumazza, A. (2012) 'En 2013, l'ouverture d'un compte bancaire sera simplifiée pour les Algériens', *Algerie Focus*, 27/12/2012.
- Brubakk, B. and Wilkinson, A. (1996) 'Agents of change?: Bank branch managers and the management of corporate culture change', *International Journal of Service Industry Management*, 7(2), pp. 21-43.
- Bryman, A. (1984) 'The debate about quantitative and qualitative research: a question of method or epistemology?', *British Journal of Sociology*, 35(1), pp. 75-92.
- Bryman, A. (2001) *Social Research Methods*. Oxford: Oxford University Press.
- Bryman, A. (2012) *Social research methods*. 4th edn. UK: Oxford university press.
- Bryman, A. and Bell, E. (2007) *Business research methods*. 2nd edn. UK: Oxford University Press.
- Bryman, A. and Bell, E. (2011) *Business research methods*. 3rd edn. UK: Oxford university press.
- Bryman, A. and Bell, E. (2015) *Business research methods* 4th edn. UK: Oxford press.

- Bultum, A.G. (2014) 'Factors affecting adoption of electronic banking in Ethiopian banking industry', *Journal of Management Information system and e-commerce*, 1(1), pp. 1-17.
- Burns, T. and Stalker, G.M. (1962) *The management of innovation*. Chicago: Quadrangle Books.
- Buzzacchi, L., Colombo, M.G. and Mariotti, S. (1995) 'Technological regimes and innovation in services: the case of the Italian banking industry', *Research Policy*, 24, pp. 68-151.
- Cameron, R. (2011) 'Mixed methods research: The five Ps framework', *The electronic journal of business research methods*, 9(2), pp. 96-108.
- Campbell, D.T. and Fiske, D.W. (1959) 'Convergent and discriminant validation by the multitrait- multimethod matrix', *Psychological Bulletin*, 56, pp. 81-105.
- Casu, B., Girardone, C. and Molyneux, P. (2006) *Introduction to banking*. 10th edn. USA: Pearson.
- Cavaye, A.L.M. (1996) 'Case study research: a multi-facted research approach', *Information Systems Journal*, 6(3), pp. 227-242.
- Centeno, C. (2004) 'Adoption of Internet services in the Acceding and Candidate Countries, lessons from the Internet banking case', *Telematics and Informatics*, 21(4), pp. 293-315.
- Chandio, J.A. (2012) 'Use of Debit Card: An Important Component of Financial Literacy in E-Banking', *Journal of Business Strategies (Karachi)*, 6(1), pp. 57-64.
- Chatterjee, D., Grewal, R. and Sambamurthy, V. (2002) 'Shaping up for e-commerce: Institutional enablers of the organizational assimilation of web technologies', *MIS Quarterly*, 26(2), pp. 65-89.
- Chau, P.Y.K. and Tam, K.Y. (1997) 'Factors Affecting the Adoption of Open Systems: An Exploratory Study', *MIS Quarterly*, 21(1), pp. 1-24.
- Cherchem, M. (2012) 'The impact of the imitation and innovation marketing in services the case of the banks and insurance', *Technology and Investment*, 3(2), pp. 57-62.
- Chong, A.Y., Lin, B., OOI, K. and Raman, M. (2009) 'Factors affecting the adoption level of C-Commerce: an empirical study', *Journal of Computer Information Systems*, 50(2), pp. 13-22. doi: dx.doi.org/10.1080/08874417.2009.11645380.
- Clark, P.V. and Cresswell, J.W. (2011) *Designing and conducting mixed method research*. 2nd edn. Thousand Oaks: Sage publication.

- Collins, P.D., Hage, J. and Hull, F.M. (1988) 'Organizational and technological predictors of change in automaticity.', *Academy of Management Journal*, 31(3), pp. 512-543.
- Collis, J. and Hussey, R. (2009) *Business Research*. 3rd edn. UK: Palgrave Macmillan.
- Cooper, D.R., Schindler, P.S. and Sun, J. (2003) *Business research methods*. New York, NY: McGraw-Hill.
- Cooper, R.B. and Zmud, R.W. (1990) 'Information technology implementation research: a technological diffusion approach', *Management science*, 36(2), pp. 123-139.
- Cornford, T. and Smithson, S. (2006) *Project research in information systems: a student's guide*. Basingstoke: Palgrave Macmillan.
- Cortinhas, C. and Black, K., (2012) *Statistics for business and economics*. 1st edn. UK: Wiley.
- Creswel, J.W. (1997) *Qualitative inquiry and research design: choosing among five traditions*. Thousand Oaks, CA: Sage publication.
- Creswel, J.W. (2003) *Research design: qualitative, quantitative and mixed methods approaches*. 2nd edn. London: Sage publication.
- Creswell, J.W. (1998) *Qualitative inquiry and research design: Choosing among five designs*. Thousand Oaks, CA: Sage.
- Creswell, J.W. (2009) *Research design: qualitative, quantitative, and mixed methods approaches*. 3rd edn. LA, USA: Sage Publications.
- Creswell, J.W. and Miller, D.L. (2000) 'Determining validity in qualitative inquiry', *Theory into Practice*, 39(3), pp. 1-130.
- Crispin, S.W., Tasker, R., Goad, G.P. and Dolven, B. (2000) 'Banking on change', *Far Eastern Economic Review*, 163(14), pp. 10-12.
- Crotty, M. (1998) *The foundations of social research: meaning and perspective in the research process*. London: Sage publication.
- Currie, W. (2009) 'Contextualising the IT artefact: towards a wider research agenda for IS using institutional theory', *Information technology & people*, 22(1), pp. 63-77.
- Cyert, R.M. and March, J.G. (1963) *A behavioral theory of the firm*. NJ: Prentice-Hall.: Englewood Cliffs.

- Dabholkar, P. (1996) 'Consumer evaluations of new technology-based self-service options: an investigation of alternative models of service quality', *International Journal of research in Marketing*, 13(1), pp. 29-51.
- Daft, R.L. and Becker, S.W. (1978) *The innovative organization: Innovation adoption in school organizations*. New York: Elsevier.
- Daghfous, N. and Toufaily, E. (2007) 'The Adoption of "E-banking" by Lebanese banks: success and critical factors', *International Journal of E-Services and Mobile Applications*, 1(1), pp. 67-93.
- 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.
- Darke, P., Shanks, G. and Broadbent, M. (1998) 'Successfully completing case study research: combining rigour, relevance and pragmatism', *Information Systems Journal*, 8, pp. 273-289.
- Davis, F.D. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *MIS Quarterly*, 13(3), pp. 319-340.
- De Vaus, D. (2001) *Research design in social research*. London: Sage publication.
- Denzin, N.K. (1978) *The research act: A theoretical introduction to sociological methods*. New York: McGraw-Hill.
- Denzin, N.K. and Lincoln, N.S. (2005) *Paradigms and perspectives in contention, In the Sage Handbook of Qualitative Research*. 3rd edn. Thousand Oaks, CA: Sage publication.
- DePoy, E. and Gitlin, L.N. (2011) *Introduction to research: understanding and applying multiple strategies*. St. Louis, Mo: Mosby.
- DiCicco-Bloom, B. and Crabtree, B. (2006) 'The qualitative research interview', *Medical education*, 40(4), pp. 314-321.
- Dillman, D.A., Smyth, J.D. and Christian, L.M. (2014) *Internet, phone, mail, and mixed-mode surveys: the tailored design method*. Canada: John Wiley & Sons.
- DiMaggio, P.J. and Powell, W.W. (1983) 'The iron cage revisited - institutional isomorphism and collective rationality in organizational fields', *American Sociological Review*, 48(2), pp. 147-160.
- DiMaggio, P.J. and Powell, W.W. (1991) *The new institutionalism in organizational analysis*. USA: University of Chicago Press Chicago.
- Djouadi, F. (2012) 'Algérie Poste songe à créer une filiale de téléphonie mobile virtuelle (MVNO)', *Maghreb Emergent*, 15/02/2012.

- Doherty, M. (1994) 'Probability versus Non-Probability Sampling in Sample Surveys', *The New Zealand Statistics Review*, (March), pp. 21-28.
- Doolin, B. (1996) 'Alternative views of case research in information systems', *Australian Journal of Information Systems*, 3, pp. 21-29., 3, pp. 21-29.
- Dubois, A. and Gadde, L. (2002) 'Systematic combining: an abductive approach to case research', *Journal of Business Research*, 55(7), pp. 553-560.
- Durkin, M. (2004) 'In search of the Internet-banking customer: exploring the use of decision styles', *International Journal of Bank Marketing*, 22(7), pp. 484-503.
- Durkin, M.G. and Howcroft, B. (2003) 'Relationship marketing in the banking sector: the impact of new technologies', *Marketing Intelligence and Planning*, 21(1), pp. 61-71.
- Dwyer, S., Mesak, H. and Hsu, M. (2005) 'An exploratory examination of the influence of national culture on cross-national product diffusion', *Journal of International Marketing*, 13(2), pp. 1-27.
- Easterby-Smith, M., Thorpe, R. and Lowe, A. (2006) *Management Research: an introduction*. 2nd edn. London: Sage publication.
- Eisenhardt, K.M. (1989) 'Building theories from case study research', *Academy of Management Review*, 14, pp. 532-550.
- Eisenhardt, K.M. (1991) 'Better stories and better constructs: the case for rigor and comparative logic', *Academy of Management review*, 16(3), pp. 620-627.
- Eisenhardt, K.M. and Graebner, M.E. (2007) 'Theory Building from Cases: Opportunities and Challenges', *The Academy of Management Journal*, 50(1), pp. 25-32.
- Elbardan, H. (2014) *Enterprise Resource Planning Systems Implementation and the Implications for the Internal Audit Function* Doctor of philosophy. Brunel University London.
- Elgin, C. (2013) 'Internet Usage and the Shadow Economy: evidence from Panel Data', *Economic Systems*, 37(1), pp. 111-121.
- El-Haddadeh, R., Weerakkody, V. and Al-Shafi, S. (2013) 'The complexities of electronic services implementation and institutionalisation in the public sector', *Information & Management*, 50, pp. 135-143.
- Elhennawy, M.A. (2014) *Payments and Transactions*. Social Protection and Learning Forum.
- Elsheikh, Y.M. (2011) *A model for the adoption and implementation of Web based government services and applications: a study based in Grounded theory*

Validated by structural equation modelling analysis in a Jordanian context  
Doctor of Philosophy in Information technology. University of Bradford.

- Enders, A., König, A., Jelassi, T. and Hungenberg, H. (2006) 'The relativity of disruption: e-banking as a sustaining innovation in the banking industry', *Journal of Electronic Commerce Research*, 7(2), pp. 67-77.
- Eriksson, K., Kerem, K. and Nilsson, D. (2005) 'Customer Acceptance of Internet Banking in Estonia', *International Journal of Bank Marketing*, 23(2), pp. 200-216.
- Eriksson, P. and Kovalainen, A. (2008) *Qualitative methods in business research*. London: Sage.
- Ettlie, J.E., Bridges, W.P. and O'Keefe, R.D. (1984) 'Organization strategy and structural differences for radical versus incremental innovation', *Management Science*, 30(6), pp. 682-695.
- Faradji, M. (2012) 'Paiements électroniques en Algérie: Nawel Benkritily reconnaît les insuffisances', *Chiffre d'Affaire*, 30/07/2012, p. 13.
- Farsoun, K. (1975) 'State Capitalism in Algeria', *Middle East Research and Information Project*, 35, pp. 3-30.
- Farzianpour, F., Pishdar, M., Shakib, M.D. and Toloun, M.R.S.H. (2014) 'Consumers' perceived risk and its effect on adoption of online banking services.', *American Journal of Applied Sciences*, 11(1), pp. 47-56.
- Feige, E.L. (1990) 'Defining and estimating underground and informal economies: The new institutional economics approach', *World Development*, 18(7), pp. 989-1002.
- Feige, E.L. (2007) *The underground economies: Tax evasion and information distortion*. UK: Cambridge University Press.
- Feilzer, M. (2010) 'Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm', *Journal of mixed methods research*, 4(1), pp. 6-16.
- Fichman, R.G. and Kemerer, C.F. (1999) 'The illusory diffusion of innovation: An examination of assimilation gaps', *Information systems research*, 10(3), pp. 255-275.
- Fishbein, M. (1967) *Readings in attitude theory and measurement*. New York: Wiley.
- Flavian, C., Guinaliu, M. and Torres, E. (2006) 'How bricks-and-mortar attributes affect online banking adoption', *International Journal of Bank Marketing*, 24(6), pp. 406-423.

- Flick, U. (2009) *An Introduction to Qualitative Research*. 4th edn. London: Sage Publication.
- Flick, U. (2014) *An introduction to qualitative research*. 5th edn. London: Sage publications.
- Franklin, D. (2004) 'Making Multipiles', *Credit Union Maagement*, 27(8), pp. 42-46.
- Frewer, G., Betz, F. and Stölting, S. (2013) *Banking in the Mediterranean: Financing Needs and Opportunities in Turbulent Times*. Luxembourg: European Investment Bank.
- Friedman, E., Johnson, S., Kaufmann, D. and Zoido-Lobaton, P. (2000) 'Dodging the grabbing hand: the determinants of unofficial activity in 69 countries', *Journal of Public Economics*, 76(3), pp. 459-493.
- Furst, K., Lang, W.W. and Nolle, D.E. (2002) 'Internet banking', *Journal of Financial Services Research*, 22(1-2), pp. 95-117.
- Gable, G.G. (1994) 'Integrating case study and survey research methods: an example in information system', *European Journal of Information Systems*, 3(2), pp. 112-126.
- Gereffi, G. (2001) 'Beyond the Producer-driven/Buyer-driven Dichotomy The Evolution of Global Value Chains in the Internet Era', *IDS bulletin*, 32(3), pp. 30-40.
- Gerrard, P. and Cunningham, B.J. (2003) 'The diffusion of internet banking among Singapore consumers', *International journal of bank marketing*, 21(1), pp. 16-28.
- Gerrard, P., Cunningham, J.B. and Devlin, J.F. (2006) 'Why consumers are not using internet banking: a qualitative study', *Journal of Services Marketing*, 20(3), pp. 160-168.
- Gibbons, M.T. (1987) 'Introduction: the Politics of Interpretation', in *Interpreting Politics*. New York: New York University Press, pp. 1-31.
- Gibbs, J.L. and Kraemer, K.L. (2004) 'A cross country investigation of the determinants of scope of e-commerce use: An institutional approach', *Electronic Markets*, 14(2), pp. 124-137.
- Gill, P., Stewart, K., Treasure, E. and Chadwick, B. (2008) 'Methods of data collection in qualitative research: interviews and focus groups', *British Dental Journal*, 204, pp. 291-295.

- Gobbi, G. and Zizza, R. (2012) 'Does the underground economy hold back financial deepening? Evidence from the Italian credit market', *Economia Marche Journal of Applied Economics*, 31(1), pp. 1-29.
- Golafshani, N. (2003) 'Understanding reliability and validity in qualitative Research', *The Qualitative Report*, 8(4), pp. 597-607.
- Goldkuhl, G. (2012) 'Pragmatism vs interpretivism in qualitative information systems research', *European Journal of Information Systems*, 21(2), pp. 135-146.
- Goles, T. and Hirschheim, R. (2000) 'The paradigm is dead, the paradigm is dead... long live the paradigm: the legacy of Burrell and Morgan', *Omega*, 28(3), pp. 249-268.
- Gounaris, S. and Korito, C. (2008) 'Investigating the drivers of internet banking adoption decision: A comparison of three alternative frameworks', *International Journal of Bank Marketing*, 26(5), pp. 282-304.
- Gray, D.E. (2014) *Doing research in the real world*. UK: Sage.
- Griffith, D.A., Hu, M.Y. and Ryans, J.K. (2000) 'Process standardization across intra-and inter-cultural relationships', *Journal of International Business Studies*, 31(2), pp. 303-324.
- Grover, V. (1993) 'An empirically derived model for the adoption of customer-based interorganizational systems.', *Decision Sciences*, 24(3), pp. 603-640.
- Guba, E.G. (1990) *The Paradigm Dialog*. Newbury, CA: Sage publication.
- Guba, E.G. and Lincoln, Y.S. (1994) 'Competing paradigms in qualitative research', *Handbook of qualitative research*, 2(163-194).
- Gurau, C. (2002) 'Online banking in transition economies: the implementation and development of online banking systems in Romania', *International Journal of Bank Marketing*, 20(6), pp. 285-296.
- Hachemaoui, M. (2009) 'Permanences du jeu politique en Algérie', *Politique étrangère*, 2(3), pp. 309-321.
- Haig, B.D. (2005) 'An abductive theory of scientific method ', *Psychological Methods*, 10(4), pp. 371-388.
- Hall, B.H. and Khan, B. (2003) 'Adoption of new technology', *National bureau of economic research*, (9730), pp. 08/11/2016. doi: 10.3386/w9730.
- Hall, J.N. (2013) 'Pragmatism, evidence, and mixed methods evaluation', *New Directions for Evaluation*, 13(138), pp. 15-26.

- Hamzi, K. (2012) DG d'Algerie Poste "Seules 3 des 6 millions de cartes attribuees sont utilisees". Available at: <https://www.djazairss.com/fr/maghrebemergent/10746> (Accessed: 06/01 2012).
- Hanafizadeh, P., Keating, B.W. and Khedmatgozar, H.R. (2014) 'A systematic review of Internet banking adoption', *Telematics and Informatics*, 31(3), pp. 492-510.
- Harrison, T., Waite, K. and Hunter, G.L. (2006) 'The internet, information and empowerment', *European Journal of Marketing*, 40(9/10), pp. 972-993.
- Harrold, D. (1995) 'The Menace and Appeal of Algeria's Parallel Economy', *Middle East Report*, 192, pp. 18-22.
- Hasan, I. and Marton, K. (2003) 'Development and efficiency of the banking sector in a transitional economy: Hungarian experience', *Journal of Banking & Finance*, 27(12), pp. 2249-2271.
- Hasan, I., Maccario, A. & Zazzara, C. (2002) Federal Reserve Bank of Atlanta, New York University.
- Hermanowicz, J.C. (2002) 'The great interview: 25 strategies for studying people in bed ', *Qualitative Sociology*, 25(4), pp. 479-499.
- Hirschheim, R.A. (1992) 'Information systems epistemology:an historical perspective', in Waller, A. (ed.) *Information systems research: issues methods and practical guidelines*. Henley-on-Thames, pp. 61-68.
- Hoehle, H., Scornavacca, E. and Huff, S. (2012) 'Three decades of research on consumer adoption and utilization of electronic banking channels: A literature analysis', *Decision Support Systems*, 54(1), pp. 122-132.
- Hofstede, G.H. (1980) 'Motivation, leadership, and organization: do American theories apply abroad?', *Organizational dynamics*, 9(1), pp. 42-63.
- Hofstede, G.H. (2001) *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage.
- Howcroft, B. and Beckett, A. (1996) 'Branch networks and the retailing of high credence products', *International Journal of Bank Marketing*, 14(4), pp. 3-11.
- Howcroft, J.B. (1998) 'The new revolution in banking', *Journal of the Association of Professional Bankers*, 8(4), pp. 46-55.
- Hsieh, H.F. and Shannon, S.E. (2005) 'Three approaches to qualitative content analysis', *Qualitative health research*, 15(9), pp. 1277-1288.

- Hsu, P.F., Kraemer, K.L. and Dunkle, D. (2006) 'Determinants of e-business use in us firms', *International Journal of Electronic Commerce*, 10(4), pp. 9-45.
- Humphrey, C. (2001) 'Paper Prophets and the Continuing Case for Thinking Differently About Accounting Research', *British Accounting Review*, 33(1), pp. 91-103.
- Hussey, J. and Hussey, R. (1997) *Business research: a practical guide for undergraduate and postgraduate students*. London: Macmillan Press.
- Hussien, M.I. and El Aziz, R.A. (2013) 'Investigating e-banking service quality in one of Egypt's banks: a stakeholder analysis', *The TQM Journal*, 25(5), pp. 557-576.
- Iacovou, C.L., Benbasat, I. and Dexter, A.S. (1995) 'Electronic data interchange and small organizations: Adoption and impact of technology', *MIS Quarterly*, 19(4), pp. 465-485.
- Imam, P. (2014) *Algeria: Financial system stability assessment*. Washington, D.C.: International Monetary Fund 'IMF'.
- Isern, J. (2008) *A cross-country analysis of the effects of e-banking and financial infrastructure on financial sector competition: a schumpeterian shift?* Unpublished Doctorate of Business Administration. Nova Southeastern University.
- Jagero, N. and Abeka, S.O. (2011) 'Corporate Customers Usage of Internet Banking in East Africa', *International Journal of Computer Science*, 8(5), pp. 394-402.
- Janesick, V.A. (2000) *The choreography of qualitative reseach design*. 2nd edn. Thousand Oaks: Sage publication.
- Jayawardhena, C. and Foley, P. (2000) 'Changes in the Internet banking sector: the case of internet banking in UK', *Electronic Networking Applications and Policy*, 10(1), pp. 19-30.
- Jbili, M.A. (1997) *Financial sector reforms in Algeria, Morocco, and Tunisia: A preliminary assessment*. International Monetary Fund.
- Johnson, R.B. and Onwuegbuzie, A.J. (2004) 'Mixed methods research: A research paradigm whose time has come', *Educational researcher*, 33(7), pp. 14-26.
- kamath, R. and Liker, J. (1994) 'A Second Look at Japanese Product Development', *Harvard Business Review*., 72(6), pp. 154-170.
- Kamien, M. and Schwartz, N. (1982) *Market structure and innovation*. Cambridge, UK: Cambridge University Press.

- Kamrul, H. (2009) E-Banking in Bangladesh: The Future of Banking PhD. MA thesis, State University of Bangladesh.
- Kaplan, B. and Duchon, D. (1988) 'Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study', *MIS Quarterly*, 12(4), pp. 571-586.
- Kaplan, B. and Maxwell, J.A. (1994) 'Qualitative Research Methods for Evaluating Computer Information Systems', in Anderson, J.G., Aydin, C.E. and Jay, S.J. (eds.) *Evaluating Health Care Information Systems: Methods and Applications*. Thousand Oaks, CA: Sage publication, pp. 45-68.
- Kerem, K. (2003) *Adoption of electronic banking: underlying consumer behaviour and critical success factors, case of Estonia*. Estonia: PRAXIS Center for Policy Studies.
- Kettinger, W., Grover, V., Guha, S. and Segars, A. (1994) 'Strategic information systems revisited: A study in sustainability and performance', *MIS Quarterly*, 18(1), pp. 31-58.
- Khalfan, A.M. and Alshawaf, A. (2004) 'Adoption and Implementation Problems of E-Banking: A Study of the Managerial Perspective of the Banking Industry in Oman', *Journal of Global Information Technology Management*, 7(1), pp. 47-64.
- Kiang, M.Y., Raghu, T.S. and Shang, K.H. (2000) 'Marketing on the Internet; Who Can Benefit From an Online Marketing Approach?', *Decision Support Systems*, 27(4), pp. 383-393.
- Kimberly, J.R. (1976) 'Organizational size and the structuralist perspective.', *Administrative Science Quarterly*, 21, pp. 571-579.
- KPMG Algeria (2012) *Guide des banques et des etablissement financier en Algerie*. Algeria: KPMG.
- KPMG Algeria (2014) *Guide des banques et des etablissement financier en Algerie*. Algeria: KPMG.
- Kramer, W.J., Jenkins, B. and Katz, R.S. (2007) 'The role of the information and communications technology sector in expanding economic opportunity', Cambridge, MA: Kennedy School of Government, Harvard University, 22, pp. 1-45.
- Kuan, K.K. and Chau, P.Y. (2001) 'A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework', *Information and Management*, 38(8), pp. 507-521.

- Kuhn, T.S. (1970) 'Reflections on my Critics<sup>1</sup>', *Criticism and the Growth of Knowledge: Volume 4: Proceedings of the International Colloquium in the Philosophy of Science*, London, 1965. Cambridge University Press, 231.
- Kumar, M., Sareen, M. and Barquissau, E. (2012) 'Relationship between types of trust and level of adoption of Internet banking', *Problems and Perspectives in Management*, 10(1), pp. 82-92.
- Kumar, R. (2005) *Research Methodology A Step-by-step Guide for Beginners*. 2nd edn. Australia: Pearson Education.
- Kundi, G.M. and Shah, B. (2009) 'IT in Pakistan: Threats & Opportunities for Ebusiness', *The Electronic Journal on Information Systems in Developing Countries*, 8(6), pp. 1-31.
- Kurnia, S., Peng, F. and Liu, Y.R. (2010) 'Understanding the Adoption of Electronic Banking in China', *Proceedings of the 43rd Hawaii International Conference on System Sciences*. Hawaii, , 1-10.
- Lacity, M.C. and Janson, M.A. (1994) 'Understanding qualitative data: A framework of text analysis methods', *Journal of Management Information Systems*, 11(2), pp. 137-155.
- Landes, D. (2000) 'Culture makes almost all the difference', *Culture matters: how values shape human progress*, , pp. 2-13.
- Lassar, W.M., Manolis, C. and Lassar, S.S. (2005) 'The relationship between consumer innovativeness, personal characteristics, and online banking adoption', *International Journal of Bank Marketing*, 23(2), pp. 176-199.
- Laukkanen, T. and Lauronen, J. (2005) 'Consumer value creation in mobile banking services', *International journal of mobile Communications*, 3(4), pp. 325-338.
- Lazreg, M. (2015) *Developpement de la monétique en Algérie: réalité et perspectives*. Doctorate. Abou Bakr Belkaid University of Tlemcen, Algeria.
- Lee, A.S. (1991) 'Integrating Positivist and Interpretive Approaches to Organizational Research', *Organization Science*, 2, pp. 342-365.
- Lee, C.P. and Shim, J.P. (2007) 'An exploratory study of radio frequency identification (RFID) adoption in the healthcare industry', *European Journal of Information Systems*, 16(6), pp. 712-724.
- Lee, S. and Kim, K. (2007) 'Factors Affecting the Implementation Success of Internet-Based Information Systems.', *Computer Human Behavior*, 23(4), pp. 1853-1880.

- Lee, S.G., Trimi, S. and Kim, C. (2013) 'The impact of cultural differences on technology adoption', *Journal of World Business*, 48(1), pp. 20-29.
- Lewis, J. (2003) 'Design issues', in Ritchie, J. and Lewis, J. (eds.) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage Publications, pp. 47-76.
- Li, Y.H. (2008) 'An empirical investigation on the determinants of e-procurement adoption in chinese manufacturing enterprises', *International Conference on Management Science & Engineering (15th), California, USA, Vols I and II, Conference Proceedings.* , 32-37.
- Li, Y.H. (2008) 'An empirical investigation on the determinants of e-procurement adoption in chinese manufacturing enterprises', *International Conference on Management Science & Engineering (15th)*. California, USA, 32-37.
- Liao, S., Shao, Y.P., Wang, H. and Chen, A. (1999) 'The adoption of virtual banking: an empirical study', *International Journal of Information Management*, 19, pp. 63-74.
- Liao, Z. and Cheung, M.T. (2002) 'Internet-Based E-Banking and Consumer Attitudes: An Empirical Study', *Information and Management*, 39, pp. 283-295.
- Lin, A.C. (1998) 'Bridging positivist and interpretivist approaches to qualitative methods', *Policy Studies Journal*, 26(1), pp. 162-180.
- Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic inquiry*. Sage.
- Lind, D.A., Marchal, W.G. and Whaten, S.A. (2012) *Basic statistics for business and economics*. 8th edn. NY: Mc Graw-Hill.
- Liu, M. (2008) 'Determinants of e-commerce development: An empirical study by firms in shaanxi, china', 4th International Conference on Wireless Communications, Networking and Mobile Computing, Dalian, China, October. , 9177-9180.
- Loayza, N.V. (1996) 'The economics of the informal sector: a simple model and some empirical evidence from Latin America.', *In Carnegie-Rochester conference series on public policy*. December. North-Holland.: , 129-162.
- Lu, J., Yao, J.E. and Yu, C.S. (2005) 'Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology', *The Journal of Strategic Information Systems*, 14(3), pp. 245-268.
- Makrakis, V. and Kostoulas-Makrakis, N. (2016) 'Bridging the qualitative-quantitative divide: Experiences from conducting a mixed methods evaluation in the RUCAS programme', *Evaluation and program planning*, 54, pp. 144-151.

- Malak, J. (2007) Readiness of the Palestinian banking sector in adopting the electronic banking system: exploratory study MA thesis. The Islamic University of Palestine.
- Malhotra, P. and Singh, B. (2007) 'Determinants of internet banking adoption by banks in India', *Internet Research*, 17(3), pp. 323-339.
- Manross, G.G. and Rice, R.E. (1986) 'Don't hang up: organizational diffusion of the intelligent telephone', *Information & Management*, 10(3), pp. 161-175.
- Mansfield, E. (1968) 'Industrial research and technological innovation; an econometric analysis', *The Economic Journal*, 78(311), pp. 676-679.
- Mansfield, E. (1968) *Industrial research and technological innovation*. New York, USA: Norton.
- Mansfield, E., John, R., Anthony, R., Edmond, V., Samuel, W. and Frank, H. (1977) *The Production and Application of New Industrial Technology*. New York: Norton & Company Inc.
- Mansfield, E., Rapoport, J., Romeo, A., Villani, E., Wagner, S. and Husic, F. (1977) *The production and applicaiton of new industrial technology*. New York, USA: Norton.
- Manyika, J. and Roxburgh, C. (2011) *The great transformer: The impact of the Internet on economic growth and prosperity*. Available at: <http://www.mckinsey.com/industries/high-tech/our-insights/the-great-transformer> (Accessed: 07/17 2016).
- March, J.G. and Simon, H.A. (1958) *Organizations*. New York, USA: Wiley.
- Marshal, C. and Rossman, G.B. (1991) *Designing qualitative research*. Thousand Oaks, CA: Sage publication.
- Maxcy, S.J. (2003) 'Pragmatic threads in mixed methods research in the social sciences: The search for multiple modes of inquiry and the end of the philosophy of formalism', in *Handbook of mixed methods in social and behavioral research*. , pp. 51-89.
- May, T. (1997) *Social research: issues, methods and process*. 2nd edn. Buckingham: Open University Press.
- Mayring, P. (2000) 'Qualitative content analysis', *Qualitative Social Research*, 1(2).
- McCown, J.A., Fischer, D., Page, R. and Homant, M. (2001) 'Internet relationships: People who meet people', *CyberPsychology & Behavior*, 4(5), pp. 593-596.

- McMahon, L. (1996) 'Dominance and survival in retail financial services: use of electronic delivery channels to optimize distribution strategy', *Journal of Financial Services Marketing*, 1(1), pp. 35-47.
- Meadows, M. and Dibb, S. (1998) 'Implementing market segmentation strategies in UK personal financial services: problems and progress', *Service Industries Journal*, 18(2), pp. 45-63.
- Mebtoul, A. (2014) *Pourquoi le dinar se cote sur le marché parallèle à 155 dinars un euro ?*. Available at: <http://www.lematindz.net/news/13906-pourquoi-le-dinar-se-cote-sur-marche-parallele-a-155-dinars-un-euro.html> (Accessed: 01/13 2015).
- Mebtoul, A. (2016) 'Les dix solutions du Pr Mebtoul', Infos-Premieres, 05/09/2016.
- Mebtoul, A. and Goumiri, L. (2016) 'Politique économique de l'Algérie 2016/2030 : propositions au gouvernement d'un nouveau Ré-Engineering', *Maghreb Emergent*, 26/06/2016.
- Mebtoul, A., (2012) *Une vision de l'évolution politique et économique de l'Algérie, de 1963 à 2012*. Algeria: LeJMed.
- Mekideche, M. (2010) 'Sphere bancaire et monetaire: les lignes bougent', *Liberte Supplement Economique*, 01/06/2012, p. 9.
- Mihalcescu, C., Ciolacu, B., Pavel, F. and Titrade, C. (2008) 'Risk And Inovation In E-Banking', *Romanian Economic and Business Review*, 3(2), pp. 86-91.
- Miles, B.M., Huberman, M.A. and Saldana, J. (2014) *Qualitative data analysis: a method source book*. 3rd edn. London, UK: Sage.
- Miles, M. and Huberman, A. (1994) *Qualitative Data Analysis*. Thousand Oaks, CA.: Sage.
- Milutinovic, V. and Patricelli, F. (2002) *E-Business and E-Challenges*. 4th edn. Emerging Communication: Studies on New Technologies and Practices in Communication.
- Mingers, J. (2001) 'Combining IS Research Methods: Towards a Pluralist Methodology', *Information Systems Research*, 12(3), pp. 240-259.
- Mingers, J. (2003) 'The Paucity of Multi-method Research: A Review of the Information Systems Literature', *Information Systems Journal*, 13(3), pp. 233-249.
- Mitchell, E.S. (1986) 'Multiple triangulation: A methodology for nursing science', *Advances in Nursing Science*, 8(3), pp. 18-26.

- Mkansi, M. and Acheampong, E.A. (2012) 'Research philosophy debates and classifications: students' dilemma', *Electronic Journal of Business Research Methods*, 10(2), pp. 132-140.
- Mols, N.P. (1998) 'The behavioural consequences of PC banking', *International Journal of Bank Marketing*, 16(5), pp. 195-201.
- Morgan, D.L. (2007) 'Paradigms lost and pragmatism regained methodological implications of combining qualitative and quantitative methods', *Journal of mixed methods research*, 1(1), pp. 48-76.
- Morgan, D.L. (2014) 'Pragmatism as a paradigm for social research', *Qualitative Inquiry*, (3), pp. 1-2.
- Morris, M. and Ogan, C. (1996) 'The Internet as mass medium', *Journal of Computer-Mediated Communication*, 1(4), pp. 0-0.
- Mouzaoui, W.L. (2016) Algerian banks readying new electronic payment processing systems. Available at: <https://giemonetique.dz/?p=481> (Accessed: 08/11/2016 2016).
- Muwando, S. and Webb, M. (2014) 'Managers and employees' perception of the impact of electronic banking on bank operational efficiency. a case of commercial banks in Zimbabwe', *Mediterranean Journal of Social Sciences*, 5(23), pp. 85-90.
- Myers, M.D. (1994a) 'A disaster for everyone to see: an interpretive analysis of a failed IS project', *Accounting, Management and Information Technologies*, 4(4), pp. 185-201.
- Myers, M.D. (1997) 'Qualitative research in information systems', *Management Information Systems Quarterly*, 21, pp. 241-242.
- Myers, M.D. (2009) *Qualitative Research in Business & Management*. London: Sage.
- Myers, M.D. (2013) *Qualitative research in business and management*. 2nd edn. London: Sage publication.
- Myers, M.D. and Avison, D. (2002) *Qualitative research in information systems*. London: Sage publication.
- Myers, M.D. and Newman, M. (2007) 'The qualitative interview in IS research: examining the craft', *Information and Organization*, 17, pp. 2-26., 17, pp. 2-26.
- Nazarian, A. and Atkinson, P.M. (2012) 'The relationship between national culture and organisational effectiveness: The case iranian private sector organisations', *International Journal of Management Marketing Academy*, 1(1), pp. 73-81.

- Neuman, W. (2003) *Social Research Methods: Qualitative and Quantitative Approaches*. London: Pearson Education.
- Noknoi, C., Ngowsiri, S. and Boripunt, W. (2009) 'Have Debit Cards Changed Thai Consumer Shopping Behavior?', *International Journal of Marketing Studies*, 1(2), pp. 151-157.
- Nunes, P.F. and Cespedes, F.V. (2003) 'The customer has escaped', *Harvard Business Review*, 81(11), pp. 96-105.
- Nwankwo, O. and Eze, O.R. (2013) 'Electronic Payment in cashless economy of Nigeria: Problems and prospect', *Journal of Management Research*, 5(1), pp. 138-151.
- Nye, D.E. (2006) 'Why Technology Matters', *Historically Speaking*, 7(6), pp. 14-16.
- Obisi, C. and Anyim, F.C. (2012) 'Developing the human capital for entrepreneurship challenges and successes', *International Journal of Academic Research in Business and Social Sciences*, 2(3), pp. 128-134.
- Oliveira, T. and Martins, M., F. (2011) 'Literature Review of Information Technology Adoption Models at Firm Level', *The Electronic Journal Information Systems Evaluation*, 14(1), pp. 110-121.
- Oliveira, T. and Martins, M.F. (2010a) 'Firms patterns of e-business adoption: evidence for the European Union-27', *The Electronic Journal Information Systems Evaluation*, 13(1), pp. 47-56.
- Oliveira, T. and Martins, M.F. (2010b) 'Understanding e-business adoption across industries in European countries', *Industrial Management & Data Systems*, 110(9), pp. 1337-1354.
- Onwuegbuzie, A.J. and Leech, N.L. (2005) 'On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies', *International journal of social research methodology*, 8(5), pp. 375-387.
- Orlikowski, W. and Baroudi, J. (1991) 'Studying information technology in organisations: research approaches and assumptions', *Information Systems Research*, 2(1), pp. 1-28.
- Ovia, J. (2002) 'Payments System and Financial Innovation', *The CBN Organised Annual Monetary Policy Conference*. Abuja, 25-26, Nov., 2002. Abuja: , 1-12.
- Ozdemir, S. and Trott, P. (2009) 'Exploring the adoption of a service innovation: A study of Internet banking adopters and non-adopters', *Journal of Financial Services Marketing*, 13(4), pp. 284-299.

- Pan, M.J. and Jang, W.Y. (2008) 'Determinants of the adoption of enterprise resource planning within the technology-organization-environment framework: Taiwan's communications', *Journal of Computer Information Systems*, 48(3), pp. 94-102.
- Pathirage, C.P., Amaratunga, R.D. and Haigh, R.P. (2008) 'The role of philosophical context in the development of research methodology and theory', *The Built and Human Environment Review*, 1(1), pp. 1-10.
- Patokorpi, E., (2009) 'What could abductive reasoning contribute to human computer interaction? A technology domestication view', *PsychNology Journal*, 7(1), pp. 113-131.
- Patton, M.Q. (1987) *How to use qualitative methods in evaluation*. Newbury Park, CA: Sage.
- Patton, M.Q. (2002) *Qualitative research and evaluation methods*. 3rd edn. Thousand Oaks, C: Sage publications.
- Paul, P., Roy, A. and Mukhopadhyay, K. (2006) 'The impact of cultural values on marketing ethical norms: A study in India and the United States', *Journal of International Marketing*, 14(4), pp. 28-56.
- Payne, G. and Payne, J. (2004) *Key concepts on social research*. London: Sage Publication.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H. and Pahnla, S. (2004) 'Consumer acceptance of online banking: an extension of the technology acceptance model', *Internet Research*, 14(3), pp. 224-235.
- Pinsonneault, A. and Kraemer, K. (1993) 'Survey research methodology in management information systems: an assessment', *Journal of Management Information systems*, 10(2), pp. 75-110.
- Poon, W. (2008) 'Users' adoption of e-banking services: the Malaysian perspective', *Journal of Business & Industrial Marketing*, 23(1), pp. 59-69.
- Powell, T., C. and Dent-Micallef, A. (1997) 'Information Technology as Competitive Advantage: The Role of Human, Business, and Technology Resources', *Strategic Management Journal*, 18(5), pp. 375-405.
- Purvis, R.L., Sambamurthy, V. and Zmud, R.W. (2001) 'The assimilation of knowledge platforms in organizations: an empirical investigation', *Organization Science*, 12(2), pp. 117-135.
- Railton, J. (1985) 'Automated teller machines', *Computer Law & Security Review*, 1(4), pp. 12.

- Rees, J., Briggs, R. and Oakey, R. (1984) 'The Adoption of New Technology in the American Machinery Industry', *Regional Studies*, 18(6), pp. 489-504.
- Reichertz, J. (2009) 'Abduction: The Logic of Discovery of Grounded Theory', *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 11(1).
- Roberts, H. (2002) *Moral Economy or Moral Polity? The political anthropology of Algerian riots*. London, United Kingdom: Crisis States Research Centre (CSRC).
- Rogers, E., M. (ed.)(1995) *Diffusion of innovations*. 4th edn. New York: Free Press.
- Rogers, E.M. (ed.)(2003) *Diffusion of Innovations*. 5th edition edn. New York, NY: Free Press.
- Romano, C. (1989) 'Research strategies for small business: a case study', *International Small Business Journal*, 7(4), pp. 35-43.
- Rondeleux, N. (2014) L'arrêt de la réforme bancaire en 2010 a freiné l'essor de la monétique en Algérie, selon Abderahmane Benkhalfa. Available at: <https://www.djazairiss.com/fr/maghrebemergent/33637> (Accessed: 04/21 2016).
- Rotchanakitumnuai, S. and Speece, M. (2003) 'Barriers to Internet banking adoption: a qualitative study among corporate customers in Thailand', *International Journal of Bank Marketing*, 21(6), pp. 312-323.
- Rubin, H.J. and Rubin, I.S. (2005) *Qualitative interviewing: the art of hearing data*. 2nd edn. London: Sage publication.
- Safeena, R., Date, H. and Kammani, A. (2011) 'Internet Banking Adoption in an Emerging Economy: Indian Consumer's Perspective', *International Arab Journal of e-Technology*, 2(1), pp. 56-64.
- Sajjad, F. (2014) *An analytical framework for workflow technology adoption in local government authorities* Doctor of Philosophy. Brunel University.
- Sanusi, L. (2012) 'Banking reform and its impact on the Nigerian economy', *CBN Journal of Applied Statistics*, 2(2), pp. 115-122.
- Sathye, M. (1999) 'Adoption of Internet banking by Australian consumers: an empirical investigation.', *International Journal of Bank Marketing*, 17(7), pp. 324-334.
- SATIM. (2013) *Market Analysis on Algeria.*, Business Report edn. SATIM.
- Saunders, M., Lewis, P. and Thornhill, A. (2007) *Research methods for business students*. US: Pearson Limited.

- Saunders, M., Lewis, P. and Thornhill, A. (2012) *Research methods for business students*. 6th edn. UK: Pearson Education Limited.
- Saunders, M., Thornhill, A. and Lewis, P. (2009) *Research methods for business students*. 5th edn. UK: Pearson Education Limited.
- Scherer, F.M. (1980) *Industrial market structure and economic performance*. Chicago: Rand McNally College Publishing Company.
- Scherer, F.M. (1980) *Industrial market structure and economic performance*. Chicago, USA: Rand McNally College Publishing Company.
- Schneider, F. (1994) 'Measuring the size and development of the shadow economy. Can the causes be found and the obstacles be overcome?', in *Essays on Economic Psychology*. Berlin: Springer, pp. 193-212.
- Schneider, F. (2011) *Handbook on the shadow economy*. Edward Elgar Publishing.
- Schumpeter, J. (1942) *Capitalism, socialism and democracy*. New York, USA: Harper & Row.
- Scott, W.R. (2001) *Institutions and organizations*. 2nd edn. Thousand Oaks, CA: Sage Publications.
- Scott, W.R. and Christensen, S. (1995) *The institutional construction of organizations: International and longitudinal studies*. Thousand Oaks, CA: Sage Publications.
- Seidman, I. (2013) *Interviewing as qualitative research: a guide for researchers in education and the social sciences*. New York: Teachers college press.
- Sekaran, U. and Bougie, R. (2010) *Research Methods for business: a skill-building approach*. 5th edn. UK: John Wiley and Sons Ltd.
- Serafeimidis, V. and Smithson, S. (2000) 'Information systems evaluation in practice: A case study of organizational change', *Journal of Information Technology*, 15(2), pp. 93-105.
- Sergeant, C. (2000) *E Banking: Risks And Responses*, London.: Financial Services Authority.
- Shah, M. and Clarke, S. (2009) *E-Banking management: issues, solutions, and strategies: Issues, solutions, and strategies*. London, UK: Information Science Reference.
- Shah, M.H. and Siddiqui, F.A. (2006) 'Organisational success factors in adoption of e-banking at the Woolwich bank', *International Journal of Information Management*, 26(6), pp. 442-456.

- Shah, M.H., Mohsin, M., Mohmood, Z. and Aziz, R. (2009) 'Organisational Barriers in Offering E-Banking', *Journal of Electronic Commerce in Organizations*, 7(2), pp. 67-82.
- Sherif, M.H. and Serhrouchni, A. (1999) *La monnaie électronique: systèmes de paiement sécurisé*. France: Eyrolles.
- Shi, W., Shambare, N. and Wang, J. (2008) 'The adoption of internet banking: An institutional theory perspective', *Journal of Financial Services Marketing*, 12(4), pp. 272-286.
- Shih, Y.Y. and Fang, K. (2004) 'The use of a decomposed theory of planned behavior to study Internet banking in Taiwan', *Internet Research*, 14(3), pp. 213-223.
- Silver, C. and Lewins, A. (2014) *Using software in qualitative research*. 2nd edn. London: Sage publication.
- Silverman, D. (2010) *Qualitative research*. 3rd edn. London: Sage publication.
- Silverman, D. (2013) *Doing qualitative research*. 4th edn. London: Sage publication.
- Singer, D., Avery, A.E. and Baradwaj, B. (2008) 'Management innovation and cultural adaptivity in international online banking', *Management research news*, 31(4), pp. 258-272.
- Smith, B. (2004) 'Getting motivated', *Marketing Business*, , pp. 1-27.
- Smith, L.R. and Kleine, P.F. (1986) 'Qualitative Research and Evaluation: Triangulation and Multimethods Reconsidered', *New Directions for Program Evaluation*, (30), pp. 55.
- Smith, M. (2003) *Research Methods in Accounting*. London: Sage Publications.
- Smithson, S. and Hirschheim, R.A. (1998) 'Analysing information systems evaluation: another look at an old problem', *European Journal of Information Systems*, 7(3), pp. 158-174.
- Soares-Aguiar, A. and Palma-Dos-Reis, A. (2008) 'Why do firms adopt e-procurement systems? Using logistic regression to empirically test a conceptual model', *IEEE transactions on engineering management*, 55(1), pp. 120-133.
- Sohail, M.S. and Shanmugham, B. (2003) 'E-banking and customer preferences in Malaysia: An empirical investigation', *Information Sciences*, 150(3), pp. 207-217.
- Speed, R. and Smith, G. (1992) 'Retail financial services segmentation', *Service Industries Journal*, 12(3), pp. 368-383.

- Stake, R.E. (1995) *The art of case study research*. Thousand Oaks, CA: Sage publication.
- Steers, R., Meyer, A. and Sanchez-Runde, C. (2008) 'National Culture and the Adoption of New Technologies', *Journal of World Business*, 43, pp. 255-260.
- Sundarraaj, R.P. and Wu, J. (2006) 'Using information-systems constructs to study online-and telephone-banking technologies', *Electronic Commerce Research and Applications*, 4(4), pp. 427-443.
- Swanson, E.B. and Beath, C.M. (1990) 'Departmentalization in software development and maintenance', *Communications of the ACM*, 33(6), pp. 658-667.
- Symons, V.J. (1993) 'Evaluation and the failure of control: information systems development in the processing company', *Accounting, Management and Information Technology*, (3), pp. 51-76.
- Tashakkori, A. and Teddlie, C. (1998) *Mixed methodology: Combining qualitative and quantitative approaches*. Sage.
- Tazerout, I. (2011) Une batterie de mesures pour réduire le paiement cash: des cartes magnétiques contre la «ch'kara». Available at: <http://www.lexpressiondz.com/actualite/136489-des-cartes-magn%C3%A9tiques-contre-la-%C2%ABch'kara%C2%BB.html> (Accessed: 04/2016 2016).
- Tebbib, H. (2014) «La monétique et le e-citoyen en Algérie « durant la période 2005-2013 » : la contrainte culturelle Cas des clients de la banque extérieure d'Algérie et la banque de l'Agriculture et du Développement Rural.', *Revue des Sciences Humaines*, 34, pp. 91-105.
- Teddlie, C. and Tashakkori, A. (eds.) (2009) *Foundations of mixed methods research*. Thousand Oaks, CA: Sage.
- Teo, H.H., Wei, K.K. and Benbasat, I. (2003) 'Predicting intention to adopt interorganizational linkages: An institutional perspective', *MIS Quarterly*, 27(1), pp. 19-49.
- Teo, T.S., Ranganathan, C. and Dhaliwal, J. (2006) 'Key dimensions of inhibitors for the deployment of web-based Business-to-Business electronic commerce', *Engineering Management, IEEE Transactions on*, 53(3), pp. 395-411.
- TES (1996) *Model Law on Electronic Commerce with Guide to Enactment 1996 with additional article 5 bis as adopted in 1998*. Geneva Switzerland: UNCITRAL.
- TES (2001) *World Investment Report 2001 Promoting Linkages*. Geneva, Switzerland: United Nations Conference on Trade and Development.

- TES (2013) Non-probability sampling. Available at: <http://www.statcan.gc.ca/edu/power-pouvoir/ch13/nonprob/5214898-eng.htm> (Accessed: 12/18 2015).
- TES (2016) Banking and ICT. Available at: [http://www.teach-ict.com/gcse\\_new/organisations/banking/miniweb/pg10.htm](http://www.teach-ict.com/gcse_new/organisations/banking/miniweb/pg10.htm) (Accessed: 06/30 2016).
- TES. (2002) World Investment Report 2002 Transnational Corporations and Export Competitiveness. Geneva, Switzerland: UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD).
- TES. (2012) *Country Report: Algeria*. USA: Global Insight.
- TES. (2013) *Yacine Ould Moussa fait le diagnostic des banques algériennes*. Available at: <http://www.financialafrik.com/2013/06/27/diagnostic-des-banques-algeriennes-avec-yacine-ould-moussa-linvite-special-de-financial-afrik/#.WCsVii2LS70> (Accessed: 07/12 2013).
- TES. (2015) *Bank of Algeria report: banking inclusion in Algeria*, Business report edn. Algiers: Bank of Algeria.
- TES. (2015) Banking and Finance services: Algerian banks readying new electronic payment processing systems. London, UK: Oxford Business Group.
- TES. (2016) Online banking penetration in Norway from 2005 to 2015. Available at: <https://www.statista.com/statistics/380892/online-banking-penetration-in-norway/> (Accessed: 03/15 2016).
- Thong, J.Y. (1999) 'An integrated model of Information systems adoption in small businesses', *Journal of Management Information systems*, 15(4), pp. 187-214.
- Titrade, C., Ciolacu, P. and Pavel, F. (2008) *E-banking- Impact, Risks, Security*, Universitatea Romano Americana.
- Tornatzky, L. and Fleischer, M. (1990) *The process of technology innovation*. Lexington, MA: Lexington Books.
- Tornatzky, L.G., Eveland, J.D., Boylan, M.G., Hetzner, E.C., Johnson, D. and Roitman, D. (1983) *The process of technological innovation: Reviewing the literature* Washington, DC: National Science Foundation, Productivity Improvement Research Section: Division of Industrial Science and Technological Innovation.
- Tushman, M. and Anderson, P. (1986) 'Technological discontinuities and organizational environments', *Administrative science quarterly*, , pp. 439-465.
- Tushman, M. and Nadler, D. (1986) 'Organizing for innovation.', *California Management Review*, 28(3), pp. 74-94.

- Venkatesh, V., Brown, A. and Bala, H. (2013) 'Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems', *MIS quarterly*, 37(1), pp. 21-54.
- Wade, M. (2009) *Resource-based view of the firm*. Available at: [http://www.fsc.yorku.ca/york/istheory/wiki/index.php/Resource-based\\_view\\_of\\_the\\_firm](http://www.fsc.yorku.ca/york/istheory/wiki/index.php/Resource-based_view_of_the_firm).
- Walsham, G. (1993) *Interpreting Information Systems in Organisations*. Chichester: Wiley.
- Walsham, G. (1995) 'Interpretive case study in IS research: nature and method', *European Journal of Information Systems*, 4(2), pp. 74-81.
- wells, J.D. (1993) 'Everyone is seeing red!', *Bank Marketing*, 25(1), pp. 32-33.
- Wenninger, J. (2000) 'The emerging role of banks in e-commerce', *Current Issues in Economics and Finance*, 6(3), pp. 1-6.
- Whetten, D.A. (2009) 'An examination of the interface between context and theory applied to the study of Chinese organizations', *Management and Organization Review*, 5(1), pp. 29-55.
- Wilson, J. (2010) *Essentials of business research: A guide to doing your research project*. London: Sage publication.
- Wilson, J. (2014) *Essentials of business research : A guide to doing your research project 2nd edn*. London: Sage publication.
- Wodak, R. and Meyer, M. (2009) *Methods for critical discourse analysis*. Sage.
- Yang, Y. (1997) 'The Security of Electronic Banking', 20th national information system security conference. Baltimore, Maryland, .
- Yeh, C.H., Lee, G.G. and Pai, J.C. (2014) 'Using a technology-organization-environment framework to investigate the factors influencing e-business information technology capabilities', *Information Development*, 30(1), pp. 1-16.
- Yin, R.K. (1994) *Case study research: design and methods*. 2nd edn. London: Sage publication.
- Yin, R.K. (2003) *Case study rsearch: design and methods*. 3rd edn. London: Sage publication.
- Yin, R.K. (2009) *Case study research: design and methods*. 4th edn. London: Sage publication.

- Yin, R.K. and Davis, D. (2007) 'Adding new dimensions to case study evaluations: the case of evaluating comprehensive reforms', *New Directions for Evaluation*, 2007(113), pp. 75-93.
- Yuen, Y.Y., Yeow, P.H., Lim, N. and Saylani, N. (2010) 'Internet banking adoption: Comparing developed and developing countries', *Journal of Computer Information Systems*, 51(1), pp. 52-61.
- Zaltman, G., Duncan, R. and Holbeck, J. (1973) *Innovations and organizations*. New York, USA: Wiley.
- Zarmeene, S. (2006) 'Phone Crazy: The ubiquitous cellphone can do so much more than just make a phone call', *Spider*, 8(89), pp. 40-43.
- Zeithaml, V.A. (1988) 'Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence', *The Journal of marketing*, 64(1), pp. 2-22.
- Zhu, K. (2004) 'The complementarity of information technology infrastructure and e-commerce capability: A resource-based assessment of their business value', *Journal of Management Information Systems*, 21(1), pp. 167-202.
- Zhu, K. and Kraemer, K.L. (2005) 'Post-adoption variations in usage and value of e-business by organizations: Cross-country evidence from the retail industry', *Information Systems Research*, 16(1), pp. 61-84.
- Zhu, K., Dong, S., Xu, S.X. and Kraemer, K.L. (2006) 'Innovation diffusion in global contexts: determinants of post-adoption digital transformation of European companies', *European Journal of Information Systems*, 15, pp. 601-616.
- Zhu, K., Kraemer, K.L. and Dedrick, J. (2004) 'Information technology payoff in e-business environments: An international perspective on value creation of e-business in the financial services industry', *Journal of Management Information Systems*, 21(1), pp. 17-54.
- Zhu, K., Kraemer, K.L. and Xu, S. (2003) 'Electronic Business Adoption by European Firms: A Cross- country Assessment of the Facilitators and Inhibitors', *European Journal of Information Systems*, 12, pp. 251-268.
- Zhu, K., Kraemer, K.L. and Xu, S. (2006) 'The process of innovation assimilation by firms in different countries: a technology diffusion perspective on e-business', *Management Science*, 52(10), pp. 1557-1576.
- Zimmerman, C. (2000) 'Banking on a Culture Change -- Harrison Tempest 'Webified' ABN Amro before creating Internet links with partners', *InternetWeek*, (835), pp. 179-180.

## Appendices

### Appendix 1: Participant Consent Form



**Title of the Research:** “Barriers restricting e-banking adoption and development in a developing country, the case of Algeria.”

I freely and voluntarily consent to be a participant in the research project on the topic discussing the interaction between the political and financial interest and their impact on banks adoption and development of electronic banking, to be conducted by Anas B. Zerhouni as principal investigator, who is a PhD student at Brunel Business School, Brunel University London. I have been asked to take part in a semi-structured interview, which will take approximately 30 - 40 minutes to complete.

I have been told that my responses will be kept strictly confidential. I also understand that if at any time during the interview I feel unable or unwilling to continue, I am free to leave and I may withdraw from it at any time without negative consequences. My name will not be linked with the research materials, and I will not be identified or identifiable in any report subsequently produced by the researcher.

I have been given the opportunity to ask questions regarding the interview and my questions have been answered to my satisfaction. I have been informed that if I have any general questions about this project, I should feel free to contact: Mr. Anas Zerhouni at: [anas.zerhouni@brunel.ac.uk](mailto:anas.zerhouni@brunel.ac.uk)

I have read and understood the above and consent to participate in this study. My signature is not a waiver of any legal rights. Furthermore, I understand that I will be able to keep a copy of the informed consent form for my records.

---

Participant's Signature

---

Date

I have explained the research procedure in which the respondent has consented to participate. Furthermore, I will retain one copy of the informed consent form for my records.

---

Principal Investigator Signature

---

Date

## **Appendix 2: Participant Information Leaflet**

**Study title:** Investigation on the interaction between the political and financial interest and their impact on banks' innovation.

I would like to invite you to take part in this research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Ask questions if anything you read is not clear or would like more information. Take time to decide whether or not to take part.

### **What is the purpose of the study?**

This study aims to uncover the key factors influencing the implementation and development of e-banking in Algeria.

### **Why have I been invited to participate?**

Being in charge of the implementation and sale of e-banking to your clients make you aware of the process, drivers, and barriers of adoption and development of this solution by your bank, which makes you the go-to person for this research.

### **Do I have to take part?**

Your participation should be entirely voluntary and your identity will remain anonymous for the purposes of this study. Therefore, you are allowed to withdraw from this study at any time and to refrain from answering any questions asked to you.

### **What will happen to me if I take part?**

You will be taking part in a semi-structured interview. The topics discussed in the interviews will include: the process of the implementation of your e-banking platform, the institutional and contextual forces, which have affected your bank while implementing its e-banking solution. The interview will be recorded and transcribed, ready for analysis and conclusion. The duration of each interview will be 20 to 30 minutes.

**What do I have to do?**

Answering some questions related to the process of your e-banking implementation, the procedures of its development and the factors that have affected your bank while offering its e-banking solutions.

**What are the possible disadvantages and risks of taking part?**

There will be no risks or disadvantages of any sort from your participation in the study. Although, you have to be aware that some of the questions might be considered sensitive as they discuss the role and impact of the central bank, the political and economic reforms and the black market in the process of e-banking implementation.

**What if something goes wrong?**

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do his best to answer your questions (contact number and email are written below).

**Will my taking part in this study be kept confidential?**

The identity of your bank and yours will be kept confidential, and your participation will remain anonymous.

**What will happen to the results of the research study?**

The result of this study will be analysed in order to help the researcher achieving his aims, then eventually published in scientific and specialised journals.

**Who has reviewed the study?**

The study has been reviewed and guided by an expert panel in order to generate answers to the researchers' questions.

**Contact for further information**

Mr Anas B. Zerhouni

Doctorate Researcher at Brunel University London

Email: [anas.zerhouni@brunel.ac.uk](mailto:anas.zerhouni@brunel.ac.uk)

## Appendix 3: Interview Questions

### 1\ Questions on the Technological Context

- How have you been influenced by benefits of e-banking while adopting it?
- How have you been influenced by risks of e-banking while adopting it?
- What other technological factors have affected your bank while adopting e-banking?

### 2\ Questions on the Organisation Context

- How supportive have your managers been towards e-banking adoption and development?
- How has the size of your bank influenced your adoption and development of e-banking?
- How have you been influenced by your financial resources while adopting e-banking?
- How have you been influenced by your human resources while adopting e-banking?
- What other organisational factors have affected your bank while adopting e-banking?

### 3\ Questions on the Environmental Context

- How have you been affected by the government while adopting e-banking?
- How have you been affected by the central bank while adopting e-banking?
- How have the political and economic reforms affected your bank while adopting e-banking?
- How has the underground economy affected your bank while adopting e-banking?
- How has the legal framework affected your bank while adopting e-banking?
- How have your customers influenced you to adopt and develop e-banking?
- How have you been affected your parent corporations while adopting e-banking?
- How have you been affected by the competition?
- What other environmental factors have affected your bank while adopting e-banking?