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Factors influencing banks' adoption and development of e-Banking: case of Algeria

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Abstract: Electronic banking solutions have gained extensive adoption across the world. The case, however, is different in less developed countries such as Algeria. Several studies in both developed and developing countries have revealed the importance, benefits and issues related to e-banking adoption for both banks and their clients, and have extensively investigated customers' attitudes toward e-banking in general and internet banking in particular. Nevertheless, it has been noted that there is a lack of studies on banks' adoption of e-banking.

Therefore, this study aims to address this gap and uncover the key factors influencing the adoption and development of e-banking by banks, based on the combination of the Technology, Organization, and Environment "TOE" framework and Institutional theory, to examine and explore the relationship between these factors, identify their role in e-banking adoption and present them in a conceptual framework summarising their relationships.
This study adopts a pragmatic paradigm to answer the research questions and uses a mixed data gathering approach in a way that the quantitative method and analysis was in the second phase to reinforce and validate the findings of the main qualitative case study approach in order to gain a better understanding of the studied phenomenon.

Evidence collected in this study confirmed that some factors selected from the literature were found to have either little or no impact on e-banking take up in this context. Moreover, it was revealed that electronic banking adoption and development by banks is affected by contextual factors that include technological, organisational and environmental variables. Furthermore, the literature suggests that organisations are affected by three types of institutional pressures while adopting new technologies: coercive, normative, and mimetic pressures; however, in this context it was revealed that in terms of electronic banking adoption; coercive forces including pressures made by Central bank, Government, legal framework, underground economy, political reforms are the main influential factors to e-banking take up.

Keywords: Electronic banking (e-banking), TOE framework, Institutional theory, Coercive Pressures, Normative Pressures, Mimetic Pressures, Mixed Method, Pragmatism.

Introduction

Banks and financial institutions play a crucial role in every economy (Hasan and Marton, 2003) and nowadays diversification of financial services has become crucial. The proliferation of the Internet has made innovations in terms of services; vital for its survival (Rust and Kannan, 2002) and introducing electronic products in the list of services has become inevitable, for all the benefits it offers to the banks, in addition to enabling them to compete more efficiently beyond space and time restrictions (Bultum, 2014). Algerian banks could not remain the exception in utilizing the assets of electronic banking "e-Banking", this is why some banks have tried to diversify their services by implementing and offering electronic solutions to their clients. E-Banking services include any banking service or feature that is computer-based and accessible using electronic devices. This technology has transformed traditional banking businesses into an e-business through electronic channels, such as: WAP based mobile networks, ATMs, SMSs and Fax messaging (Milutinovic and Patricelli, 2002).

Despite all the benefits that can be offered to both clients and banks, e-Banking services are still in their mushrooming phase in Algeria. The automated banking (usage of payment cards) remains the most popular and used mean for conducting transactions whereas internet banking is limited to balance viewing and money transfer from current to saving accounts. Moreover, according to (KPMG Algeria, 2014) report the electronic banking network in Algeria is composed of: 3000 Electronic Payment Terminals (EPT), 1300 Automated Teller Machines (ATM) nationwide, which records an average daily activity of 6000 transaction on normal days and 10,000 transactions on average on public holidays.

The electronic banking in Algeria depends mainly on three organisations: Association des Banques et Etablissements Financirs "ABEF", Societé des Transactions Bancaires et Monetiques "SATIM", and finally the Group d'Interet Economique "GIE". The role of these companies has been recently redefined in order to modernise the national electronic banking platform. GIE's creation, for instance, has aimed to establish a legal framework and develop the electronic banking sector and services in Algeria with the objectives of generalizing the use of modern means of payment, including payment by cards and through the Internet. As a regulator of e-Banking in Algeria, it defines the technical features and must certify, approve and choose all hardware and software that would be applied for e-banking purposes in Algeria.

The current Finance Minister and former head of "ABEF" argued that the sluggish development of e-Banking in Algeria is due to the lack of collaboration between banks in this matter, inefficient marketing strategies to commercialise it, in addition to the absence of a legal framework to regulate the whole e-business activity within the country (Rondeleux, 2014). However, there was no research conducted to verify the accuracy of these assumptions.

Furthermore, despite the importance of e-Banking adoption by banks, limited studies are available to explain empirically why active banks within a developing country have not adopted or developed e-Banking services. Considering the fact that most of the studies

undertaken in this environmental context and with respect to this topic, were either assessing customers' barriers to adopt this new service (Rotchanakitumnuai and Speece, 2003; Pikkarainen et al., 2004; Gerrard et al., 2006); investigating the characteristics of e-Banking adopters(Azouzi, 2009; Sergeant, 2000), assessing the benefits of e-Banking on both banks and clients (Kiang et al., 2000; Howcroft and Beckett, 1996), or exploring the challenges of e-Banking implementation including security risks, customers faith and legal security (Yang, 1997; Titrade et al., 2008; Kumar et al., 2012) etc. However, the organisational adoption of e-banking was less studied as claimed by (Wenninger, 2000) and later confirmed by (Hanafizadeh et al., 2014) and Bultum (2014), who suggested to conduct this type of study in less developed regions and include new sets of variables such as political or socio-cultural, as they have an impact on e-Banking adoption.

In order to encourage e-Banking investment and adoption in developing countries its is of crucial importance to develop a better understanding of the barriers and drivers to its adoption (Bultum, 2014). Therefore, this study aims to develop an in-depth and holistic understanding of the conditions and factors that affect developing countries to fully adopt this new technology.

The remaining parts of this paper are organised as follows. The following section presents a brief review of the literature. The third section describes the aims and objectives. The fourth explains research methods used to conduct this study while the fifth presents the findings of this research. Finally the last section includes the conclusion and provides a set of recommendations.

Literature Review

This study applies the Technology, Organisation and Environment "TOE" framework, which was developed by (Tornatzky and Fleischer, 1990) to assess organisation adoption of new technology and is combined with (DiMaggio and Powell, 1983) Institutional theory, as recommended by (Abrahamson, 1991) who suggested building technology adoption research on multiple perspectives, since the combination of more than two theories helps in developing knowledge of technology adoption (Wolfe, 1994).

The TOE framework has showed solid theoretical basis, consistent empirical support and the possibility of application in various domains of information systems (Baker, 2012). This theory was also described as a rationalistic goal oriented theory (Al Nahian et al., 2009), hence, being a generic theory, TOE can be applied for examining any technology adoption (Zhu et al., 2003) including electronic banking (Liao et al., 1999). The TOE framework was therefore chosen as the main theory in this study, given that three major constructs are included and examined by TOE and theorized to affect technological innovation.

A. Technological construct:

This construct comprises all of the technologies that are important to an organisation. It includes existing technologies (available and already in use) and those that are available in the marketplace and not yet acquired and used by the firm.

Thus, firms have to carefully consider the types of changes that will occur by adopting a new technology, as innovations can have a dramatic impact on their growth (Tushman and Anderson, 1986). Therefore, the author assesses the technology readiness to implementing e-Banking systems and investigates how banks perceive risks and benefits of e-Banking.

B. Organisational construct:

This construct refers to the characteristics and resources of the organisation including, its slack (available) resources, internal communication process within the managerial structure, size, and the linking structure between employees. This context can affect in different manners the innovation adoption and implementation process by affecting mechanisms that link internal groups within an organisation (Galbraith, 1973; Tushman and Nadler, 1986).

Consequently, the author measures the interactions between the organisational context and the implementation and development of e-Banking services.

C. Environmental construct:

This construct 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.

The structure of the industry has been studied and has showed that intense competition stimulates the adoption of new technologies (Mansfield, 1968; Mansfield et al., 1977); and that a dominant company can influence others to innovate (kamath and Liker, 1994). Also, the availability of skilled labour, technology providers and consultants also foster innovation (Rees et al., 1984). Furthermore, government regulations can either encourage or discourage the adoption of new technologies (Bultum, 2014).

Therefore, as every organisation is affected by its top managements decisions, which are influenced by the surrounding environment, the author has given high importance to the environmental elements surrounding banks, as it includes the main external pressures that affect the banks development in order to assess its impact on the implementation and development of e-Banking.

Furthermore, the institutional theory has proven that institutional environments are crucial in shaping organisational structures, as it suggests that organisations decisions are driven by rational goals of efficiency, social and cultural factors and concerns of legitimacy (Scott, 2001). The institutional theory was therefore applied in this study as an-open system theory that focuses on the environment and its impact on organisations (Björck, 2004). This environment includes social and cultural forces surrounding organisations, such as suppliers, partners, customers, competitors, and the government, which plays an important role in the process of adoption and use.

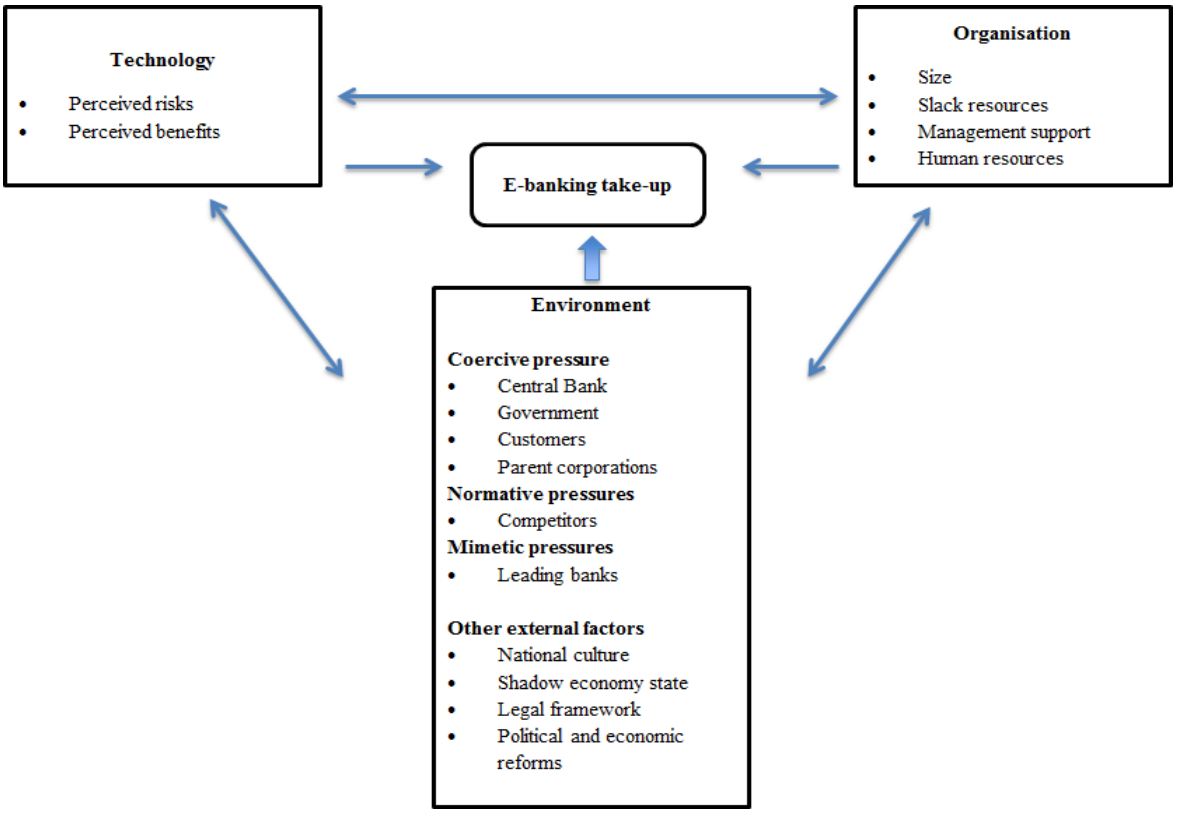
This study uses institutional theory to determine which elements of the environment affects the implementation and development of e-Banking, as previously examined in numerous researches (Purvis et al., 2001; Chatterjee et al., 2002; Teo et al., 2003) cited by (Gibbs and Kraemer, 2004; Soares-Aguiar and Palma-Dos-Reis, 2008; Oliveira and Martins, 2010). It also supports the argument that applying Institutional theory might facilitate understanding complex managerial issues related to information systems (Currie, 2009).

Institutional theory aims to highlight the significance of the institutional environment, in affecting organisational structures and actions (Scott, 2001; Scott and Christensen, 1995) cited by (Gibbs and Kraemer, 2004). It also explains how coercive, normative and mimetic pressures affect banks adoption of electronic banking, which is defined by DiMaggio and Powell (1983) as follow: Coercive pressures, are exerted by formal and informal forces from dominant actors such as suppliers, customers and parent corporations (DiMaggio and Powell, 1983). Normative pressures come from frequent contact with other adopters in dyadic relationship (DiMaggio and Powell, 1983). In fact,

(Shi et al., 2008) found that normative pressure is crucial when it comes to Internet banking adoption.
Mimetic pressures are the results of the pressure leading firms' cause to drive other firms to imitate them (DiMaggio and Powell, 1983) in order to strengthen their image(Teo, et al., 2003). The combination of these two theories was formerly employed by (Gibbs and Kraemer, 2004; Li, 2008; Soares-Aguiar and Palma-Dos-Reis, 2008) in order to examine how the technological, organisational, and environmental contexts' surrounding an organisation influences its adoption of a new technology. Therefore, this study aims to answer the following questions:

- What are the contextual (technological, organisational, environmental) factors affecting banks attitude towards e-Banking adoption and development?
- What are the institutional forces influencing banks adoption and development of e-Banking?
- How are these variable linked to each other and affecting the implementation and development of e-Banking?

As mentioned above, this study attempts to identify the key factors influencing the development of e-Banking adoption with respect to Algeria, by combining and analysing different components that potentially affect the banking sector and consequently the development of e-Banking as an integral part of banking products.
The figure bellow illustrates how this might occur:
Figure (1): Proposed conceptual framework



Methodology

In order to reach the objective of the study and answer the research questions; the researcher adopts a pragmatic paradigm using both qualitative and quantitative (mixed) research methods. The rationale for using mixed methods is to collect data that cannot be obtained by using a single method and to undertake triangulation. The tools used for data collection consist of interviews, questionnaires and documentations.

This study was conducted in two phases. For the first phase, a multiple case study strategy was adopted and data were collected from four banks (French, Arab, state-owned and an Anglo-Saxon bank) and two regulatory organisations including, Bank of Algeria (Central Bank) and Groupe d'Intérêt Economique de Monétique 'GIE' (GIE, is the company in charge of implementing technical standards and regulations, compliance certifications and public promotional campaigns with respect to e-Banking in Algeria). In total ten interviews were conducted including one with an e-Banking department manager and a senior relationship manager of the purposely chosen banks established in Algiers, another one with the payments' systems director at Bank of Algeria, in addition to one with the General Manager of 'GIE'.

For the second phase, a total of 110 questionnaires were distributed to employees of the four banks to empirically test the proposed research model resulting from the qualitative analysis. 104 questionnaires were accepted and used for the data analysis, for which descriptive and statistical analysis was undertaken. Furthermore, the data collected from the interviews and questionnaires were supported by industry reports in specialised and scientific journals.

Results and Discussion

As formerly stated, the factors selected for the technology construct are: perceived risks and perceived benefits. However, to assess the organisational factors, managerial support, size of the bank, human resources and slack resources were selected. Environmental factors that were selected from the literature and contextual analysis were divided and included in three types of categories that represent institutional pressures. In the coercive pressures, we have: the central bank, the government, the customers, parent corporations, legal frameworks, cash culture and the black market size. As for the normative pressures, competitors were chosen as the main factors. Finally, leading banks were selected for mimetic pressures.

Some of those factors were rejected whereas others emerged from the data analysis of the first phase. Risks and benefits perception cost of investment and environment readiness for e-Banking solutions, were revealed to be the most influential factors affecting the technological construct in e-Banking adoption. In other words, the greater readiness and benefits, with less risks and costs will affect banks positively to adopt and development electronic banking services.

The organisational factors were also revised after the cross case analysis. It appears that the size of the bank does not have any effect on its 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 the 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 influential factor to e-Banking take off, which is consistent with the literature. Furthermore, it was discovered that banks belonging to

worldwide groups were more likely to invest in this technology to support their customers in this studied country and facilitate their means of business.
As for the environment construct on which this research focused, the set of factors were combined with the 3 types of pressures emerging from the Institutional theory, namely: coercive, normative and mimetic pressures. It was revealed that e-Banking take off 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 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 or made in favour to 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 is also affecting 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 any problem with their banks, which is consistent with what various economists claimed with respect to non-success of e-Banking in Algeria. This 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. Moreover, parent corporations affect their subsidiaries in investing in e-Banking services, as it was asserted by the interviewees.
On the other hand, as it was mentioned in section 4, 104 questionnaires were considered for the analysis in phase 2. From which most of the generated factors of phase 1 were validated by the survey participants. The results of this phase indicate that the banking sector's adoption and development of electronic banking has been affected by contextual factors that include technological, organisational and environmental factors. It was also found that institutional pressures, which are mainly coercive in this case, affect e-Banking adoption and development. The literature suggests that the adoption of any technology by an organisation is affected by three types of institutional pressures: coercive, normative, and mimetic pressures; however, in this study it was revealed that coercive forces (including pressures made by the central bank, the government, the legal framework, the underground economy and political reforms) are the main factors influencing e-Banking take up.

Conclusion

This study aims to investigate the main drivers and barriers to the adoption of e-Banking by Algerian banks. To achieve the proposed objectives, TOE framework was combined with institutional theory and both qualitative and quantitative research methods (mixed) were employed to gather a holistic understanding of the phenomenon.
In general, the findings of this research offer some insights into the e-Banking situation and its growth level in Algeria as an example of a developing country. Moreover, discovering the factors affecting e-Banking adoption by banks may help identify the most appropriate solutions to promote its development in Algeria and may also be helpful and

valuable to the Algerian economy. Furthermore, it may improve the awareness and understanding of its benefits and risks.

This study also suggests a number of measures and actions that can be taken by the GIE and the government to address the identified challenges. These measures include: establishing a clear and complete legal framework on the use of this technology and supporting the banking industry by providing them the tools to invest in new technologies in order to modernise the banking sector. Finally, encourage the banks to focus more on technological innovation rather than traditional banking services.

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