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# A National Perspective on the Factors Involved in the Lack of E-commerce in Algeria

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**Abstract:** The major goal of this work is to identify the key factors that affect e-commerce adoption in Algeria from macro perspective. In order to do so, four main infrastructures extracted from literature review have been used to determine the nature of the barriers that have prevented e-commerce from taking off as expected and to explain why Algeria lags behind other countries with similar economic conditions. The results of this investigation demonstrate that, although most of the infrastructures are still growing, but the country still lags behind in terms of its capabilities for providing the required infrastructure for e-commerce.

Keywords: Algeria , e-commerce, telecommunications infrastructure, payment systems.

## 1. INTRODUCTION

The last few years have seen a rise in the volume of electronic commerce around the world as a result of the spread use of information and communication technologies (ICT). E-commerce can be defined as any economic or business activity that uses ICT based applications to enable the buying and selling of products and services and to facilitate the transaction of business activities between and among businesses, individuals, governments or other organizations <sup>[1]</sup>. This provides considerable impetus for the development of society and success in this area is likely to be very necessary for participation in the global economy in the future.

The Algerian economy primarily relies on hydrocarbon exports and a potential drop in oil prices could pose significant risks to the country's growth <sup>[2]</sup>. Thus, it is important for the government to implement real reforms and boost the non-hydrocarbon sectors such as ICT and e-commerce sectors to avoid the risk of any potential crisis. The country has missed out on the major benefits of the e-commerce revolution in the last few decades as a result of the inherent problems it faces in implementation and use of ICTs in general and e-commerce solutions in particular.

E-commerce has been widely discussed in the academic and practitioner literature. There has been an increasing amount of literature examining the factors that affect the adoption of e-commerce in many developed and developing countries. However, more theoretical work needs to be pursued in order to identify the factors that influence e-commerce adoption in Algeria, to explain why it has not taken off there as expected, and what the barriers are that have caused the country to lag behind many others which exist under similar economic conditions. Therefore, the main objective of this research is to conceptualize a framework that identifies the main constraints that may be responsible for the lack of success in e-commerce in Algeria from a macro perspective. The proposed model is extracted from e-commerce literature reviews. For a safe diffusion of e-commerce in the country, at least four basic forms of infrastructure should be considered, which are telecommunications infrastructure, legal infrastructure, supported services infrastructure, and user infrastructure.

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## 2. LITERATURE REVIEW AND RESEARCH FRAMEWORK

There is a lack of literature that investigates the diffusion of e-commerce in Algeria and defines the most significant constraints that prevent the development of e-commerce in the country. Said Brika (2011) focuses on the role of e-commerce in the growth of the Algerian economy<sup>[3]</sup>. Another study, conducted by Medjedel (2013), surveyed local SMEs' managers' perceptions and attitudes towards e-commerce in Ghardaia province in Algeria<sup>[4]</sup>. However, neither of these studies investigated the e-commerce situation in Algeria or defined the main factors related to lack of e-commerce. A qualitative approach was conducted in order to identify the basic reasons that hinder e-commerce growth in the country from macro perspective. The data used for the analysis was collected from secondary sources, and was taken from different time periods. The proposed framework categorized possible barriers into four main subgroups of infrastructure extracted from the e-commerce literature. Based on the literature review, these forms of infrastructures are: telecommunications infrastructure, legal infrastructure, supported services infrastructure, and user infrastructure.

Telecommunication infrastructure refers to the ICT infrastructure (telephone density, mobile phones, wireless communication, nationwide IP backbone and so on), and the cost and affordability of ICT services<sup>[5-11]</sup>. Legal infrastructure refers to the government regulations that encourage, support, and organize the development of e-commerce and break down barriers and boost consumer confidence by clarifying the rights and obligations of businesses and consumers<sup>[6-11]</sup>. Supported services infrastructure includes the services supporting e-commerce such as payment and delivery services<sup>[5-7, 9-11]</sup>. Finally, user infrastructure refers to the Internet access availability, end-user access devices required to access the net such as PCs, smart phones, and also end user culture that refers to the cultural and social aspects that prevent individuals from using the net for commercial activities<sup>[5, 7, 9, 12, 11]</sup>.

## 3. FACTORS INFLUENCING E-COMMERCE DEVELOPMENT IN ALGERIA

### 3.1 Telecommunication Infrastructure

Telecommunication infrastructure is regarded as a vital sector for Internet access and e-commerce growth. Telecommunication networks need to be accessible, reliable, and fast in order to participate effectively in e-commerce development. Furthermore, the cost and affordability of ICT services will influence and in some cases determine whether or not people will be able to accept e-commerce and use it. In Algeria, factors such as telephone density, mobile phones, wireless communication, and nationwide IP backbone structures must be seriously considered in order to bring about the successful adoption of e-commerce. The telecommunications infrastructure is growing but still lags behind in terms of being capable of providing the required infrastructure for the Internet and e-commerce. The last ten years have seen a significant development in the ICT sector in Algeria and have been particularly characterized by strong growth in the area of mobile telephony. The telecom market has been opened up to new public and private operators since the passing of the new Telecom Law No.2000-03 which broke down the state's monopoly in that sector. The mobile-cellular market was fully liberalized in 2001, and there are now three GSM operators competing in the market (Djezzy, Mobilis and Nedjma), one of which is a state owned operator. By the end of June 2011, Algeria's total number of mobile-cellular subscriptions stood at an estimated 33.737 million lines, translating into a penetration rate of 94%, while mobile-broadband services are not available<sup>[13]</sup>. As for fixed-telephone markets, these are still owned by the state owned operator Algeria Telecom (AT). By the end of 2010, there were almost 3 million fixed-telephone subscriptions, with a penetration rate of 8.2%<sup>[13]</sup>. Despite this, there is a high level of competition for the provision of fixed Internet services in the country, with more than 70 Internet service providers (ISPs) have been licensed in the ensuing ten years. By 2007, there were 71 licensed ISPs, but only 39 were actively operating<sup>[14]</sup>. Almost half of the country's ISPs lost their licenses in 2011 due to unpaid license

fees<sup>[15]</sup>.

The number of Internet users in Algeria has greatly increased, from 50,000 users in 2000 to approximately 5,230,000 in 2012<sup>[16]</sup>. At the same time, the broadband penetration rate is low, at 14% of the population at the end of 2010<sup>[16]</sup>. Currently there are a total of three commercial broadband access technologies in the market: DSL, FTTx and WiMAX<sup>[13]</sup>, but DSL remains dominant. AT is the sole provider of DSL and FTTx services. As for WiMAX, there are four operators providing the service: AT, Anwar Net/ Max Net, Icosnet, and Smart Link Com<sup>[13]</sup>. Mobile-broadband services have not yet been launched in the country, since the regulator has not awarded 3G licenses to mobile operators, which has prevented the country from benefiting from the high penetration rate of mobile users, and has prohibited the spread of m-commerce, particularly in rural and remote areas.

In order to improve the information and communications technology penetration rate as the first step in spreading the use of e-commerce, there are two main broadband access network projects “e-Algeria” and “FTTH project”. These projects are intended to enhance the telecommunication infrastructure, increase the number of subscriptions and upgrade the national legal framework. Despite initiatives being taken to invest heavily in the building up of the IT infrastructure, the growth of e-commerce is not commensurate with the investment. At the same time, Internet usage, and in particular broadband Internet access, is still limited due to the high costs of computers and Internet connectivity and a lack of interesting web content. Also, the present communication infrastructures are more concentrated in urban cities. The unbalanced distribution of telecommunication construction across the country’s immense territory presents a key challenge for the state to encourage the private investment and promote the widespread installation of wireless technologies where a wired infrastructure is difficult to place (such as rural areas, mountains and desert). These technologies can increase the teledensity ratio and ultimately set up a platform for e-commerce.

Thus, in spite of the significant progress made in the technical infrastructure in Algeria, the lack of Internet access, and its current speed and cost, still restraint e-commerce development.

### **3.2 Legal Infrastructure**

The rapid progress of technology poses new challenges for the legal and regulatory framework of Algeria. The legal problems that emerge from e-commerce activities have their uniqueness compared with the problems that arise from traditional commerce activities. The successful implementation of e-commerce will therefore require a specific legal framework that will cover and settle potential disputes in this area. Such legal problems may arise in areas such as e-contracts, e-payment, e-commerce security, intellectual property, consumer rights and privacy protection and legal liability. Some of these problems have not been given sufficient attention by the Algerian state, while initial solutions to others have been provided.

Encryption is considered as an important element in conducting e-commerce<sup>[17]</sup>. In Algeria, the ARPT (Post and Telecommunications Regulatory Authority) is the organization responsible for authorizing and controlling the import, sale and use of encryption software and hardware. The Algerian legal framework for encryption is still lacking in clear regulation that defines encryption products and monitors their domestic use.

Although Internet access in Algeria is not restricted by technical filtering, the state controls the Internet infrastructure and regulates content by other means. Internet users and Internet service providers (ISPs) can face criminal penalties for posting or allowing the posting of material deemed contrary to public order or morality. In May 2008, the state introduced a new cybercrime bill after reports that government websites had received about 4,000 hacking attempts per month. Also, financial institutions have suffered

from many online criminal activities such as blackmailing, hacking, copyright infringement, stealing personal data, promoting terrorism and online crimes [13]. In May 2009, the bill was followed by the creation of a new national security service which focused on cybercrime. The Cybercrime Bill established special rules for the prevention of crimes related to media technologies and communication. Articles 3, 4 and 7 gave the state powers to censor Internet content and stipulate the kind of cases where this would be required. Articles 10 and 11 required Internet providers to store all communications and related information for a minimum of one year. Articles 13 and 14 introduced a new body for fighting cybercrime, and enforcing censorship. Article 14 of the decree made ISP's responsible for the sites they host, and requires them to take all steps necessary to ensure constant surveillance of content to block access to material conflicting with public order and morality [13, 18].

Developing a strong e-commerce platform relies heavily on issuing legal privacy policies in order to protect consumer privacy and security. Basically, there is no legal guarantee of privacy on the Internet in Algeria. In addition, there is a lack in legislation that guarantees consumer protection in e-commerce (misuse of personal information, bank account or credit card fraud). Also, the laws that ensure the protection of the intellectual property rights of the authors and producers are ineffective. Therefore, the country needs to develop more awareness of these issues in order to achieve a strong platform for e-commerce.

### **3.3 Supported Services Infrastructure**

#### **3.3.1 Banking and Payment Systems**

The existence of a strong and well developed bank and payment systems is an important part of e-commerce development. There are 20 banks in Algeria, including six public-sector banks and fourteen private sector banks, all of which are subsidiaries of large international banking groups. The banking sector is dominated by the public banks, which account for around 85% of all assets. These banks has suffered and incurred losses on high levels of non-performing loans to inefficient state-owned companies. The collapse of the largest private sector bank Al- Khalifa Bank (one of the biggest financial scandals in the country) and BCIA in 2003 has undermined public confidence in private sector banks, which makes the country remains under banked and essentially a cash based economy. Acceleration of banking reforms will provide opportunities for e-commerce to flourish and grow quickly. The government has undertaken initiatives to modernize the banking sector and to make it more efficient. Progress has been achieved in terms of increased efficiency and modernization of the payment system. In 2009, Algeria tested its new e-payment platform using the CIB card (Algeria's national Interbank Card) [19] which allowed the consumers to pay monthly bills online for the first time. By the first quarter of 2010, there were a total of 656,833 CIB cards in circulation nationally, and more than 621 ATMs in operation and 2,750 points of sale [20].

Nevertheless, Algeria's population has limited access to and/or a lack of desire to use its banking services, the acceptance of debit and credit cards is very limited, and ATMs are not widely available. The biggest challenges for the banking system are regenerating consumer confidence and creating the culture of e-payment for the sustainable growth of the banking sector in general, and the growth of e-commerce in particular.

#### **3.3.2 Logistics**

The logistics system in Algeria suffers from inefficiency and unreliability as a result of an underdeveloped transportation infrastructure, fragmented distribution systems, limited use of technology in the distribution and logistics sector, regulatory restrictions and local protectionism. The Algerian postal system is inefficient and lacks staff with the skills required for an e-commerce environment, while the costs imposed by the foreign

competitors are excessively high for ordinary online shoppers or enterprises. The logistics sector thus still needs more time to develop in order to meet the requirements of e-commerce.

### 3.3.3 User Infrastructure

In the user infrastructure three main components affect e-commerce diffusion in Algeria: computer availability, Internet access cost, and users' culture.

The cost of a computer is high in proportion to the average income in Algeria, and no more than 1.07%<sup>[21]</sup> of the people have computers to access the Internet by the end of 2010. Furthermore, lower-paid workers often cannot afford the cost of an Internet subscription, where the fixed Internet subscriptions is 0.58 per 100 inhabitants<sup>[22]</sup>, fixed broadband is 2.54 per 100 inhabit<sup>[22]</sup>, and the ADSL prices range from 1,028 DZD (12.77) for 256 Kbs to 2,019 DZD (USD 25.08) for 1 Mbs per month, and it acceded 10,600 DZD (USD 131.71) per month for 8 Mbs<sup>[23]</sup>. When the majority of people do not have computers and Internet access, e-commerce becomes difficult. In order to increase the number of PCs and Internet access across the country the state re-launched the OUSRATIC initiative in 2012 with the aim of equipping every household in Algeria with a PC or laptop and financing arrangements for three-year payment contracts, after the first OUSRATIC initiative (2005-2010)<sup>[14]</sup>.

In addition to the technological, business and legal infrastructures discussed above, it is important to recognize the social and psychological barriers that influence e-commerce diffusion in the region. Algerian users still prefer traditional channels for purchasing products and services because of the lack of credit cards and trust in banking sector, the lack of awareness of their rights and responsibilities as consumers, the lack of awareness of e-commerce benefits, security risks, and the lack of interesting web content in the local language Arabic. In addition, the level of consumer knowledge of IT and educational levels also plays a considerable role in influencing purchasing behavior over the Internet and the acceptance of e-commerce. Therefore, it is important to continue promoting and enhancing consumer's awareness and knowledge of their rights and responsibilities, government policies, and IT uses in order to encourage and drive potential users to accept and use e-commerce.

## 4. CONCLUSION

There is no specific or effective initiative, policy, or strategic plan from the Algerian state to encourage e-commerce development in the country. There are a number of challenges that face the growth of e-commerce in Algeria. From a telecommunications infrastructure perspective, there is a lack of a reliable and secured backbone, in terms of a widely accessible and fully interconnected high-speed network that will guarantee the availability of bandwidth sufficient for the requirements of e-commerce. Furthermore, it is important to formulate an ICT plan or strategy and set concrete targets which can help evaluate policies, track progress, and identify shortcomings in the implementation of e-commerce. Also, it is important to deploy different and competing broadband access networks and technologies, and take the advantage of mobile broadband technologies in particular in order to increase the affordability, reliability and speed of broadband Internet. The state must also support the diffusion of 3G and 4G services in order to make Internet access less costly and more reliable and to support the growth of m-commerce. In addition, e-commerce will be unable to take off as expected in Algeria without substantial state support. Thus, generating a comprehensive regulatory framework that supports and controls the adoption of e-commerce in the country and clearly defines and protects the rights of all parties is important for the viability and growth of e-commerce. From a supported services perspective which refers to financial and logistic services, the use of credit cards is still limited due to the lack of an existing culture and awareness of the usage of credit cards, as well as a lack of trust in electronic means, coupled with an insecure financial platform, in addition to the unreliability and inefficiency of logistics systems. Therefore, it is crucial to modernize payment systems to ensure an efficient, fair, safe, and competitive payments system in

order to boost confidence in the banking services, change customers' attitudes on payment, and push online banking applications in people's lives. In addition, improving the efficiency of the logistics service using IT is crucial, so as to make the delivery service visible and increase confidence in online transactions. Finally, from a user's perspective, the main barriers are the limited diffusion of PCs, the high cost of Internet access accompanied by low income levels, a lack of trust, and a lack of interesting content, as well as digital illiteracy. Therefore, it is important to reduce the mass of administrative procedures that Internet service providers impose on users who want to obtain access to the net and minimize the time required to get access, promote free access and ensure a fee structure that enables easy access to low-income users, so encouraging the individuals to create more and more relevant content in the local language (Arabic) in order to break down the language barrier and attract users to conduct transactions over the Internet, as well as working to improve ICT skills and reduce levels of digital illiteracy.

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