

Factors and Barriers to Adoption of E-Commerce: The Case of Developing Countries

Li Zhi Wen and Harold Akouatcha Guy*

School of Management, Jiangsu University, Zhenjiang, 01 Xuefu Road, Jiangsu Province, P.O. Box: 212013, China

Abstract

The Internet has revolutionized the world of business, reducing time and distance. This new tool gives access to a wealth of information and facilitates communication across the globe. It opened the door to a new aspect of trade practice called "electronic commerce", which refers to the exchange of goods and services between two entities via computer networks. This kind of transaction are been adopted by many at a sulfurous rate, affecting important sectors of the economy, such as distribution sector, the banking sector and many more. However, due to the lack of basic infrastructure, inadequate socio-economic conditions and the lack of national strategies by governments in developing countries, e-commerce lags behind. This situation is depriving these developing countries from the benefits and contributions of e-commerce on their economy. The study shows that to understand the adoption and diffusion of e-commerce in developing countries, cultural issues must be considered. In this article, we present and discuss these issues that impede the adoption of e-commerce in developing countries.

Keywords: Developing countries; E-commerce; Mobile telephony; Middle class; Obstacles

Introduction

The countries of the South (term which qualifies developing countries and emergent) knew a large number of transformations during the last three decades: urbanization, emergence of a middle class, reduction of the poverty, rise in the range of the services, the establishment of many e-commerce companies giant, the knowledge economy etc.

At the same time that their environment was transformed, the consumers of these regions develop new wants, desires and needs; their behavior changes, in particular with regards to ICTs.

The take-off of the e-commerce constitutes a following stage in this process of economic development and catching up with developed countries.

The countries of the South are confronted indeed today with a double shock. On one hand, that of technological innovations which affect various sectors, of which the business and on the other hand, there is a shock of demand triggered by new practices of the clientele (in particular the youngest), regarding consumption of goods and services via their smartphone.

Trade becomes at the moment a part of the high-tech industry, anchored in the digitalization of savings (what we are named the digital revolution or the fourth industrial revolution [1]¹. This is manifested in particular through technological innovations in ICT (internet, mobile telephony), but also more recent ones like, digital platforms, connectivity, automation, algorithm technology, big data (big data collected to better understand the customer), artificial intelligence, and block chain. In such a context, it results from it low production costs compared to traditional production system of companies and it makes entrances easy for new start-ups in markets. Besides, the constraints in terms of distance, cost or asymmetry of information (market failure) disappear for the benefit of the consumer.

At the same time, this digital transformation of economies comes along with a change of consumer behavior via the accessibility of the

smartphone. The customer thus has more buying power and no longer hesitates to compare the information he collects as well as the prices of various goods and services. He becomes very demanding, consuming when he wants and where he wants. This consumers' behavior reflects the evolution of the society, what we can name an "ubérisation" of the economy² marked by a domination of the consumer, the development of an economy in the demand (request) where the latter decides by opposition to a supply-side economics characterized by a mass production. Besides, this power increased aimed at the customers is translated by a lesser cost of goods and services, thanks to the increase of the competition (competitors) led (inferred) by the entrance (entry) of new actors (start-up) to the side of the traditional companies.

This digital revolution is in particular initiated and dominated by the Giants of the American Net, which we call the GAFA (acronym for Google, Amazon, Facebook and Apple) and which are present in various sectors (telecom-ICT, health, trade, energy, media, travel-leisure, banking, insurance). By their side and at a lower level, we find the NATU (for Netflix, Airbnb, Tesla, Uber) which is growing very fast. Finally, China is not left out with its own Giants of the web, identified through BATX for Baidu (search engine³), Alibaba (specialized in

²This concept is a neologism, a antonomasia, used for the first time in December 2014 by Maurice Lévy during an interview with the Financial Times [20], which then aired in the current language. It translates the questioning of an economic model following a new digital entrant. Uber in the taxi business. The actors of the Uber-economy are platforms that facilitate the exchange, the transaction between individuals (providers and applicants) through shared relationships (Peer-to-peer) in a global and accelerated market.

³It is the fourth most visited website in the world behind Facebook, You Tube and Google.

*Corresponding author: Harold Akouatcha Guy, School of Management, Jiangsu University, Zhenjiang, 01 Xuefu Road, Jiangsu Province, P.O. Box: 212013, China, Tel: +8618651403739; E-mail: akouatchaharold@gmail.com

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¹Schwab K (2017) La quatrième révolution industrielle, Dunod.

e-commerce), Tencent (which offers Internet and mobile services, online advertising) and Xiaomi (mobile, electronic).

In these conditions, the development of e-commerce is a new area that the African continent must take advantage of, in order not to lag behind other developing countries.

First of all, we study the key factors leading to the take-off of online sales in this region, namely the emergence of a middle class, the expansion of the smartphone market and the growth of local players in the sector of e-commerce. In addition, we analyze the obstacles, barriers that hinder the development of e-commerce in this region. In a final section, we alight the challenges to be met in the near future to lead to a trade revolution in this region.

Key Factors in the Development of E-Commerce in Africa

Electronic commerce started in the first place in developed countries, characterized inter alia by:

- i. Mature markets with heavily banked consumers with high purchasing power,
- ii. Internet access by the population, giving rise to a mass of connected consumers,
- iii. The presence of new players who, through their strategy, have enabled the development of online sales, and
- iv. A network of quality infrastructure, technology and logistics networks to supply and deliver these new customers.

In Europe, competition is strong with key players such as Amazon, Cdiscount, mass-market retailers (Carrefour, Casino, Auchan, Leclerc) and Zalando. It accounts for 15% of retail sales in the United States, despite a dense store network. However, it already reaches 20% in China and Africa with a potential of 50% given the delay in infrastructure (see Section 5). According to a study by McKinsey [2]⁴, e-commerce could represent \$75 billion in 2025 in this region.

E-commerce thus has a high potential in Nigeria. Indeed, it is the largest market in Africa, both in size of GDP and population. In addition, according to a study conducted on Nigeria by Ipsos on behalf of PayPal, 2/3 of Internet users in Nigeria bought online at least once, there is an e-client base of almost 60 million Nigerians (out of a total population of 180 million).

Among the key factors conducive to the development of e-commerce in Africa, we can identify the emergence of a middle class characterized by:

- The increase of the purchasing power of personal computer equipment and access the Internet to consume online,
- The expansion of the smartphone market and
- The growth of local operators in the e-commerce sector.

The emergence of a middle class in Africa

According to the report of the African Development Bank (ADB) [3], the middle class, called “The middle of the pyramid” was estimated at 34% of the population in Africa, which constitute 370 million people

(BAD, 2011⁵-2017⁶) and is a decisive step in the development of the private sector in this region.

Indeed, former vice president of the AfDB, the African middle class would reach 1.1 billion people in the year 2060, equivalent to 42% of the continent's population and would consume \$2.2 trillion in goods and services, or 3% of global consumption in 2030.

This category, however, remains fragmented since it is concentrated in urban areas and 60% of it has a purchasing power of between \$2 and \$20 (in purchasing power parity for the reference year 2005). It is specifically important to distinguish within the middle class in Africa, three subgroups, identified in Table 1.

A lower range (called floating class) which lies between 2 (the poverty line) and 4 dollars a day, as defined by Ravallion [4]⁷ and which represented in 2010, 204 million inhabitants. This class has emerged from poverty but remains precarious and vulnerable in the event of life threatening events or negative shocks (unemployment, recession, natural disasters) in the future.

An intermediate class (lower middle), which consumes certain goods, in accordance with the law of Engel (1857)⁸ and upper middle which has more comfortable living conditions.

The last two categories thus represent an estimate of the potential demand for consumer goods. They work in education, health, public service or the private sector. Not to mention the “new rich” who earn more than \$100 a day and whose lifestyle is characterized by the “4 V” “Voiture, Ville, Voyage, Virement bancaire” that means (car, city, travel, bank transfer), to use the terminology of Jacquemot [5]⁹.

In other words, these are consumer targets for businesses and therefore for e-commerce that implement growth strategies for this clientele. These middle classes are banked (and therefore solvent) and also have durable capital goods such as computers, internet access and smartphones, which are essential supports for Internet consumption. According to the Annexed Graph and the study by Lufumpa and Aissa [6]¹⁰, it turned out that in the year 2014, North Africa occupied the first position regarding the emergence of this middle class since it concentrated 77% of the total middle class in Africa. Specifically, Tunisia had the highest concentration of the middle class, followed by Morocco, Egypt and Algeria. However, this growth of the middle class in this region is strongly correlated with the use of ICT as we now specify it (Table 1).

Explosion of smartphone use in Africa

The penetration rate (or coverage rate) of mobile telephony has increased from 15 million in 2000 to 850 million people in 2018 in

⁵Banque Africaine du Développement (2011) The Middle of the Pyramid: Dynamics of the Middle Class in Africa.

⁶Banque Africaine du Développement (2017) Perspectives Economiques en Afrique, Paris, OCDE.

⁷Ravallion M (2009) The Developing World's Bulging (but Vulnerable) Middle Class. Policy Research Working Paper No. 4816.

⁸It stipulates that the proportion of income earmarked for food expenditure is lower when income is important.

⁹Jacquemot P (2012) Les classes moyennes changent-elles la donne en Afrique? Réalité, enjeux et perspectives. *Afrique Contemporaine* 244(4): 17-31.

¹⁰Lufumpa CL, Mubila M, Aïssa, B (2015) The dynamics of the middle class in Africa. In Ncube M, Lufumpa, CL (ed), *The Emerging Middle Class in Africa*, Routledge, African Development Bank.

⁴McKinsey Global Institute (2013), *Lions go digital: The Internet's transformative potential in Africa*.

Slice of the middle class	Income per day (\$)	Population size in Africa in 2010 (millions of inhabitants)
Lower	2-4	204
Intermediate	4-10	150
Superior	10-20	16
Total	2-20	370

Table 1: Distribution of the middle class in Africa by income and by size of population in 2010.

Countries	Access to mobile broadband (% of population)	Internet access at home (% of the population)
Africa	29	15
America	79	64
Asia Pacific	43	46
Europe	77	84

Table 2: Comparison of internet access between different regions of the world in 2016.

Africa and is characterized by the booming of smartphone market. Indeed, according to the study by Deloitte [7]¹¹, Africa will have more than 660 million smartphone users by the year 2020 against 320 million in 2018, more than double in the space of only two years.

In addition, according to the same study, the adoption of smartphones in Africa would reach 54% in 2020 (compared to 28% in 2016). Finally, according to the World Bank [8]¹², the proportion of individual Internet users has increased from 7 to 20% of the population in Africa between 2010 and 2016, and 460 million Africans will have Internet access via smartphones in 2020 (compared to 340 million in 2016), with a penetration rate of almost 55% [7]. This expansion of the Internet therefore offers opportunities in domestic e-commerce, that is to say the e-commerce of goods and services of all types, whether between businesses (B2B-Business to Business), between consumers (C2C-Consumer to Consumer), business to consumer (B2C-Business to Consumer) or consumer to business (C2B-Consumer to Business).

The mobile phone usage in Africa's increased to 344% from 2007 to 2016. However, while mobile connectivity is well advanced in Africa, as we have just shown, access to the Internet at home remains late (Table 2). Actually, less than 30% of the African population has access to mobile broadband (compared to 43% in Asia) and only 15% have internet at home. This can be explained in particular by two factors noted by Ninot and Peyroux [9]¹³: High rates of broadband and the latest broadcast of smartphones, facilitated in particular by the emergence of a second-hand market as well as by the launching of devices (low cost) made in China (Table 2).

Emergence of Local Actors in the E-Commerce Sector in Africa

The disruptive innovation and digital revolution undergoing in Africa are transforming the continent's economic potential by creating new market and consumer targets. This leads groups in the e-commerce sector to rethink their strategies [10]. However, exporting the existing e-commerce model, the Amazon type, Alibaba, is not possible because according to Weigert [11]¹⁴, it is unsuited to constraints specific to

Africa. In fact, the African model of e-commerce is characterized by door-to-door delivery and by payment in cash on delivery [10]¹⁵. These two specificities about the e-commerce in Africa aren't good catalyst for the expansion of the sector, hence the need for enabling infrastructure development from of local and foreign actors. In addition, the breakthrough with the original model of e-commerce to penetrate these specific markets also involves the internationalization of off-line activities. Weigert [11] notes for example the after-sales service (through the development of call centers and then follow orders), the logistics (purchase of vehicles to route and ensure the payment) or the customer acquisition (via the exhibition of items on stands that will then be sold online). In these conditions, new private actors have reacted and are entering the booming e-commerce sector in Africa, attracted by the explosion in the rate of mobile phone equipment and the increase in the purchasing power of households. According to the report published by Disrupt Africa [12]¹⁶, 264 companies operate in e-commerce in 23 African countries and provide various services (taxi, travel, capital goods, and clothing). Some countries (South Africa, Kenya and Nigeria) are the most dynamic. In addition, the players are heterogeneous with the coexistence of both large international groups and startups. In terms of business strategy, some firms are specialized in online commerce from the start, while others have diversified their activities, such as Safaricom, an expert in mobile payments in Kenya, which has developed a digital platform Masoko. Among these local players, we can mention Afrimallin, the main e-commerce platform in French-speaking sub-Saharan Africa but also la licorne¹⁷ *African Internet Group*, nicknamed "the African Alibaba" [13]¹⁸, which shows promising future. It is born in effect 2012 in Nigeria through the Jumia platform and is present in twenty-three African countries, including Ivory Coast, Algeria, Egypt and Morocco. Among the shareholders of Jumia, we can list the German Rocket Internet (propeller of several e-commerce sites, including Zalando in Europe), the South African telecom operator MTN, Orange Goldman Sachs, or the insurer Axa. Moreover, unlike Western e-commerce platforms that focus on a single sector (textile, household appliances, food), the range of products and services offered on African e-commerce is much larger. Proposed offers must indeed consider the specificities of each country. The services covered are various as well as the marketing of many goods and services, such as job offers, real estate, food delivery. It should be noted, however, that although the African Internet Group has been increasing its income since its birth in 2012, it has still not breaking even and achieved returned on investments (ROI). Jumia aims in fact for a strategy of anchoring, and of conquest based on the long term strategy, allowing itself to adapt to the modes of consumption specific to each African country. Also Jumia is confronted to a stiff competition. We can mention the Casino subsidiary, established since 2014 in French-speaking West Africa. Indeed, Casino and Bolloré have joined forces to launch, via two subsidiaries (respectively C discount Africa and Bolloré Africa Logistics), an e-commerce site in Africa developed under the brand name Cdiscount (owned by Casino).

However, according to the Afri-shopping report [12], only 30% of start-ups in e-commerce in Africa make profits. Some actors did not have the expected success and preferred abandoned (case of Kalahari

¹¹Deloitte (2018) TMT Predictions Afrique.

¹²Banque mondiale (2016) World Development Report: Abbreviated Digital Dividends.

¹³Ninot O, Peyroux E (2018) Digital revolution and development in Africa: A singular trajectory, Questions Internationales, pp: 44-52.

¹⁴Weigert M (2018) The invention of African e-commerce by the private sector. Passerelles 19(2).

¹⁵PWC (2016) Disrupting Africa: Riding the wave of the digital revolution.

¹⁶Disrupt Africa (2017) Afri-Shopping: Exploring the African E-commerce Startup Ecosystem Report

¹⁷A start-up whose valuation is over \$1 billion.

¹⁸Echos L (2018) Jumia establishes itself as the African Alibaba.

in Kenya in 2011 or Mocality in 2013 in South Africa) or reduce their activity (Cdiscount which focuses since 2016 only on Ivory Coast).

Obstacles and Barriers to the Development of Electronic Commerce in Africa

Many obstacles of various kinds, however, can block the development of e-commerce in Africa. First, lack of enabling infrastructure or poor trust of customers in the quality of products in Africa hinders the take-off of e-commerce. Indeed, in this region, the density of road network is the weakest in the world: 7 km per 100 km² in 2013, of which only 28% asphalted. ICT investments are accounted for between \$1.3 and \$2.4 billion between 2012 and 2016, representing between 1.8 and 3.5% of total infrastructure investment in Africa. In addition, there are still obstacles to online transactions effectiveness at the operational level, namely the low rate of bank account owners, the still dominant use of cash payment or the customers' feeling of computer insecurity.

In addition, another barrier is the low level of development (characterized by persisting illiteracy and a low level of computer literacy, and the institutional quality of poor institutions and the legal system), which favors an uncertain business climate [14]¹⁹.

The development of e-commerce is hindered by the socio-cultural factor since the market is considered as a place of proximity and socialization.

Lastly, management of the "last mile" [15]²⁰ remains a logistical obstacle to delivery as road infrastructure and postal systems are of low quality. It results from these barriers to the growth of electronic commerce, high transaction costs, geographical constraints or even the weak exchange of information.

In fact, according to Geo Poll's 2016 survey of 1,251 people from five African countries (South Africa, Ghana, Kenya, Nigeria and Uganda), the lack of trust and security in e-commerce and payment problems are the two main reasons for the reluctance of these populations to use e-commerce, followed by transport costs (Charts 2 and 3 in the Annexure).

Challenges and Prospects for Africa's E-Commerce Take-Off

The prospects for e-commerce in Africa also lie in the development of new enabling tools, namely mobile payments. Mobile connectivity brings financial inclusion by enabling ICT banks and providers to reach unbanked customers and offer low-cost services. Promoting mobile payment technology increases the volume of unsealed transactions and limits cash flow management costs.

Mobile accounts are more numerous than bank accounts. The smartphone contributes to the banking of the population. We can cite Orange Money, launched in 2008 and present in 17 countries with 40 million customers [16]²¹. The Internet and mobile phones are accelerating financial inclusion as revealed in the Global Findex database 2017²². The share of adults with a mobile bank account has

almost doubled to 21%, particularly in the following eight African countries: Burkina Faso, Côte d'Ivoire, Gabon, Kenya, Senegal, Tanzania, Uganda and Zimbabwe (Table 3).

	2011	2014	2017
Adults with an account	23.2	34.2	42.6
Adults with an account on their mobile	23.2	28.8	32.8
Adults with an account with a financial institution		11.6	20.9

Table 3: Survey of the share of adults (age 15 and over) in sub-Saharan Africa account holders (% of population).

In addition, 34.4% of the adult population made or received digital payments in 2017 compared to 26.9% in 2014. In contrast, only 7.6% of the same population used their mobile phone to perform a digital payment and online order with the establishment of successful.

M-commerce payment platforms, for example through the M-Pesa service, a digital payment platform developed by Safaricom as early as 2007, there have been some progress. One in three people have an account in Kenya. In 2016 even though this country is characterized by one of the highest inclusion rates, according to the World Bank [8], 10% of the population in sub-Saharan Africa now has an account for making telephone transactions. This result is a rise in the banking sector in this region, from 24% in 2011 to 34% in 2014. Jumia did not hesitate to go from e- to m-commerce. Another specificity of African Internet Group is that it accepts payment in cash upon receipt of the package²³ or delivery points relay. Another payment possibility is making transactions based on the diaspora present in a developed country (for example in France, the United Kingdom) for purchases then delivery to Africa. This avoids money transfers between different countries with additional fees. We can cite for example the startup in African market which allows to order articles online from France and to deliver in several countries of French-speaking Africa. Moreover, solar drones offer new prospects for electronic commerce in the delivery of parcels (made in Rwanda) ordered on the internet, even if there is a regulatory vagueness.

Finally, these new challenges and prospects for launching the e-commerce sector in Africa also require the State to support this digital revolution in the establishment of infrastructure, quality telecom and road networks, as well as favorable policies and regulation. This strategic vision, which can be described as "market friendly" (the expression used by the World Bank [17]²⁴ during its report on the Asian miracle), will be beneficial for the private and public sectors since the State will perceive, through the take-off from e-commerce more tax revenue.

The risk of a digital divide is already present in Africa, as the report of the World Bank [8] shows. 23% of Internet users on the continent are urban against 10% of rural territories. Similarly, only 8% of Internet users are 45 and over, compared to 20% for Generation Y. Again, 18% of Internet users are men and 12% are women. Finally, from the point of view of households, 11% of Internet users are among the richest 60% against 4% among the 40% poorest. The state must therefore intervene through public policies and targeted investment to correct such spatial, social, income and educational inequalities [18]²⁵.

²³However, with this measure, the dropout rate (return rate) of orders and frauds can become significant.

²⁴Banque mondiale (1993) The East Asian Miracle: Economic Growth on Economic Policy Oxford University Press, New York.

²⁵Ponelis SR, Holmner MA (2015) ICT in Africa: Enabling a Better Life for All. Information Technology for Development 21(1): 1-11.

¹⁹Elsmani R, Rahim, Mahmoud MA (2017) A Review of the E-commerce Barriers Faced by the SMEs in Africa. International Journal of Innovation and Business Strategy 7(1).

²⁰Rosen J (2017) Ghana's last mile. MIT Technology Review 120(1).

²¹Stratégies (2018) Mobile IA blockchain l'Afrique au cœur des tendances, pp: 24-26.

²²Demirgüç-Kunt A, Klapper L, Singer D, Ansar S, Hess J (2017) Global Findex Database 2017: Measuring Financial Inclusion and Techno-Financial Revolution, World Bank Group.

Conclusion

The rise of the internet and the boom of the mobile phone usage in Africa offer great opportunities for e-commerce development. Technological disruption is transforming markets and society in Africa very quickly and opening up commercial potentials [19,20]. This continent has many assets such as urbanization, the development of the middle class, the high demographic proportion of young people or even the presence of local African actors. The potential of Africa in this 21st century to become a new home of production and consumption, to take off just as Asia was in the late 20th century, is therefore very high. E-commerce players in Africa are targeting internet consumers in the upper middle classes, the wealthiest and the diaspora. Strategies established by local actors to promote the use of internet platforms to consumers must consider the ethnic diversity of potential consumers. However, there are persistent structural barriers in terms of physical infrastructure (transport, logistics) and ICTs, developmental delays or cultural barriers. Internet access, though, helps to remove these obstacles. Among the prospects and challenges in Africa in terms of e-commerce, payment on delivery and via mobile phones are the most promising, as well as the possibility of using solar drones to deliver products ordered over the internet.

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