The impact of the digital economy in Algeria on socio-cultural development

Nassima BOURI

Associate professor – A - University of Oran 2, Oran, Algeria email : nassimabouri@rocketmail.com

Submitted, on	Accepted, on	Published, on
05/03/2019	30/06/2019	01/12/2019

Abstract

The digital economy is trying to cover digital-related economic activity sectors. It refers to the interrelation between all socio-economic activities through the production, distribution, intermediation and consumption of information goods and services. The article aims to analyze the stakes, the strengths of the digital economy, and its impact on the Algerian economy. The application of numerous discoveries and innovative computer techniques encourage the managerial development of firms in Algeria, especially those of small and medium size. For this purpose, the economic aspect will be present with a major force since these innovations in the digital domain reduce the economic costs of the company in one way or another. The main objective is summed up by the economic and cost-effective effect of digital integration and ICTs in terms of Big Data and digital applications, and the analysis of computer and economic threats to propose possible methods and IT solutions and adequate.

***Keywords**: Digitization, Big Data, Digital Applications, Industry, Information and Communication Technologies, Innovation.*

الملخص:

يحاول الاقتصاد الرقمي تغطية قطاعات النشاط الاقتصادي الرقمية. ويشير إلى العلاقة المتبادلة بين جميع الأنشطة الاجتماعية والاقتصادية من خلال إنتاج السلع والخدمات الإعلامية وتوزيعها والوساطة فيها واستهلاكها. يهدف المقال إلى تحليل المخاطر ، ونقاط القوة في الاقتصاد الرقمي، وتأثيره على الاقتصاد الجزائري. يشجع تطبيق العديد من الاكتشافات وتقنيات الكمبيوتر المبتكرة على التطوير الإداري للشركات في الجزائر، خاصة الشركات الصغيرة والمتوسطة. لهذا الغرض، سيكون الجانب الاقتصادي موجودًا بقوة كبيرة لأن هذه الابتكارات في المجال الرقمي تقلل من التكاليف الاقتصادية للشركة بطريقة أو بأخرى. يتمثل الهدف الرئيسي في التأثير الاقتصادي والفعال من حيث التكلفة للتكامل الرقمي وتكنولوجيا المعلومات والاتصالات من حيث البيانات الضخمة والتطبيقات الرقمية، وتحليل التهديدات الحاسوبية والاقتصادية لاقتراح الطرق الممكنة وحلول تكنولوجيا المعلومات وكافية.

***الكلمات الرئيسية:** الرقمنة ؛ البيانات الضخمة ؛ التطبيقات الرقمية ؛ الصناعة ؛ تكنولوجيا المعلومات والاتصالات ؛ الابتكار.*

Introduction

Digital economy is the conjunction of two polysemic terms in the sense that each of them can have several meanings according to the concerns of the specialist who casts his gaze or the field of application. It therefore refers to different realities (NICT, e-commerce or e-commerce, mobile commerce or m-commerce, electronic economy, new economy, etc.), which it tries to encompass in one and the same semantics.

The digital economy or the Internet economy is a true source of innovation that has increasingly influenced our day-to-day activities ; social and economic and even our way of life. The internet and its ancillary activities, including information and communication technologies, have given rise to new products, services, jobs, businesses and even markets.

The global economy is also undergoing a digital transformation, and it's happening at breakneck speed. Thus, the largest companies in the world - Microsoft, Google, Facebook and Amazon come from the digital world.

So what is the digital economy? It is the economic activity that results from billions of daily online connections between people, businesses, devices, data and processes. The backbone of the digital economy is hyper connectivity, which means a growing interconnection of people, organizations and machines that results from the Internet, mobile technology and the Internet of Things (IoT).

The digital economy is taking shape and undermining conventional notions of business structure; how businesses interact and how consumers get services, information and goods. These operations facilitate new products and services, create new processes, generate greater utility and usher in a new management culture.

The digital economy refers to all processes, transactions, interactions and economic activities based on digital technologies information and communication. The digital economy is different from the Internet economy in that the Internet economy is based on Internet connectivity, while the digital economy is more broadly based on one of the many digital tools used in the current economic world.

In this context, improving international connectivity has greatly reduced the cost of broadband services in recent years. Algeria Telecom, for example, continues to invest in developing its national fiber optic infrastructure, while the government has committed funds for its national broadband program despite lower revenues from the drop in oil prices that put pressure on its global investments. This report provides an overview of Algeria's broadband Internet and broadband market, providing key statistics, profiles of key players and broadband subscriber forecasts.

1. Digital Economy : Conceptualization and neology

The concept of "digital economy" results from the widespread use of new technologies, of general use first of all in the field of information and

communication; however, it has become a universal technology that has implications far beyond information and communication technologies (ICTs). It has had an impact on all economic sectors, the growth and the productivity of the States without forgetting the environment of the companies, the individuals, the households and their behavior.

1.1. Digital Economy : Definitions

The economy digital encompasses two Notions who the compound: the economy and the digital. Indeed the term economy Having already been defined and explained in several research and several economic references: "Economics can be defined as a discipline of the social sciences whose object of study is the allocation of scarce (or limited) human resources to the satisfaction of its multiple and competing needs. It focuses on the production, distribution and consumption of goods as well as institutions, regulatory frameworks and the environment facilitating these activities "(Alexandre Nshue M. Mokime, [2012]).

The second notion “digital”, Brings together Information Technologies and of the Communication so than all of the techniques used in the treatment and the transmission of the news such than by example the telecommunications, internet or IT. The digital sector refers to the sector of economic activity relating to technologies of Information and of the Communication and at the production and at the sale digital products and services.

«The digital economy is a science that covers different concepts, dominations and technological, economic and social expressions according to the authors, especially since this notion has evolved over the years : new technologies, new economy, telecommunications, interconnections, information and communication technologies, electronic commerce, and electronic economy. The digital economy refers to all processes, transactions, interactions, interconnections and economic activities between different economic agents and based on digital information and communication technologies and the internet economy ".

1.2. Definition of the digital economy according to INSEE

The digital economy is assimilated to information and communication technologies (ICT), and in particular to the productive sectors. According to the OECD and INSEE, the ICT sector groups companies that produce goods and services supporting the process of digitization of the economy, that is to say the transformation of the information used or provided into digital information (computer science, telecommunications, electronics) ".

Given the difficulty of defining the digital economy and the complexity of quantifying it, INSEE likens it to the ICT producing sectors. The ICT sector groups companies that produce goods and services that support the process of digitization of the economy, that is, the transformation of information used or provided in digital information (IT, telecommunications, electronics) .

According to INSEE statements, the digital economy is at the origin of the new innovative sectors and has made the existence of other sectors dependent on it. It brings together the ICT sector, user sectors and sectors with high digital content, the latter could not exist without these technologies.

2. A digital applications, information management system and managerial decisions

The management information system « SIM » is an information system used for decision making, coordination, control, analysis and visualization of information in an organization; especially in a company. The study of management information systems or management examines people and technology in an organizational context. In a business context, the ultimate goal of using a management information system is to increase the value and benefits of the business.

2.1. Definition and origin of digital applications

The origins of digital applications can be found in ancient Greece, the Greeks called them aplicatius digitalius. The application software is a computer program, or a combination of several computer programs, developed to perform specific operations such as writing, calculation or otherwise. This is not the same as a system software that only runs application software. Microsoft Office, with all its components, is a good example of application software, while Microsoft Windows is an example of system software running Office.

By computer application, we mean "a set of computer elements to automate the execution of a certain number of predetermined and formalized tasks".

2.2. Types of digital applications

- Digital applications of brand awareness

The brand awareness applications aim to attract a large number of users and increase the number of fans or followers as much as possible. It is important to note that digital applications have a positive influence on business results.

- Digital performance applications

With performance applications, the goals are different. Customers want to increase sales, achieve high ROI, etc.

- Mixed digital applications

Mixed-use digital applications simply have both purposes. Attract users and achieve better business results.

2.3. Application characteristics

To be successful, digital applications must be designed around a few important features.

- Gamification: demanding and rewarding digital applications get the best results because users do their utmost to make the most of it, which is also good for the brand.

- Fun: It's essential that digital apps be entertaining because people usually go online for fun. Fun apps result in greater user engagement and an intense viral effect of the app.
- Utility: they must solve the problems of customers or satisfy their needs.
- Compliance with communication strategies: In order for the brand message to be clearly disseminated, digital applications must follow the same communication guidelines as other marketing activities of the company.
- Visual appeal: Users are more likely to use digital apps and interact with them if they feel good. This is why the UX (user experience) and UI (user interface) design principles are taken into account during the development phase.

2.4. Management and digital applications: Interrelationships «Eco-digital»

Digital applications have participated in the digital transformation. The growth of different techniques has changed the strategies of production, distribution, intermediation and even consumption of products and services.

This means that internal IT will have to abandon the development of software and module tests and play the role of technology and services broker. Prashant Kelker , [2018] proposed the five rules of engagement for the future of application management as follows:

- Translating business needs into business opportunities : To do this, IT must pass a thorough understanding of technology with a deep understanding of the business to know how to create solutions with technology and appropriate partnerships. Application managers must be proactive.
- Designing solutions with partners : The days of "buy versus sell" decisions are over. Today, the decision is more complex: buy, build, reuse. By doing what is good for a business, the IT department must now play the role of architect of business solutions informed by technology. If IT buyers and sellers believe that this change in core competency is an opportunity, the end result is likely to be better for all parties involved.
- The selection of components: The boundaries between "service" and "product" are blurred, involving multiple IT vendors: those who provide components as services and those who add know-how and skills to their services so that they become products. Organizations need to carefully consider how they can leverage different types of IT vendors and solutions on the market to create and modernize their application environment.
- Creating an initial solution: Instead of simply testing whether the software works, it's about testing whether it's what the market needs. Rapid deployment allows you to try two variations of the same feature on the market and keep the one that works the best.
- Continuous improvement of managerial decisions : The success rate of an application depends on how quickly the company can incorporate features that the user community appreciates and needs, whether internal or external.

Through these digital transformations, today's consumers are more inconstant than ever and instant gratification is the norm. Whether it's an online sales site that recommends a new product that can be easily purchased at the click of a mouse, a banking application that warns customers of real-time fraud or streaming video that allows you to watch the favourite programs of its users. An optimal digital experience, regardless of the sector, is an essential factor of competitive differentiation and now essential for a sustainable success !

3. Big Data: A source of digital upheaval

3.1. Definition of Big Data

Big Data involves looking at the large and varied data set to discover hidden models, unknown correlations, market trends, customer preferences, and other useful information to help businesses make more informed decisions. . This concept was popularized in 2012 to reflect the confrontation of companies face data volumes (data) to be treated more and more considerable in the context of the management of their managerial, commercial and marketing activities.

3.2. Big Data: mass data analysis (the 5 V)

According to Gartner, this concept brings together a family of tools that respond to a problematic so-called 5 V rule . :

- From a “Volume” Of important data to process of all types, which are counted in terabytes or even in petabytes.
- From a big “Variety” Information (from various sources, unstructured, organized, Open ...). This is the complexity of several types of data and structured or unstructured schemas.
- From a " Speed "Or a certain level of “Velocity” To achieve, creation frequency, collecting and sharing data.
- The “Volatility “(Volatility) or speed. It's about the "lifetime Generated data, in other words, how long they are valid. Depending on the area, the volatility of Big Data differs a lot. This tends to make it an important element to take into account from an operational point of view, but which does not define them from a theoretical point of view.
- The “Validity” (Validity). But again, this V actually refers to a preliminary stage of Big Data management rather than to their definition.

3.3. The benefits of Big Data

- Big Data in the medical field

There are areas where big data makes the difference. One is the field of integration. Insurers and providers try to combine data from different sources, such as claims, x-rays, doctor's notes and prescriptions.

- Big Data in Finance

The finance industry is based on the idea of making decisions based on computer analysis. The Wall Street flashes are due to automated trading, with machines that sell quickly without human intervention, depending on what is happening on the market. This is called high frequency trading.

Now, financial data scientists are using big data to predict which stocks will succeed and when new accidents may occur. Banks also see Big Data as a way to increase their revenues.

- Big Data in E-Commerce and Marketing

Credit cards and loyalty cards, surveillance cameras, or even telephones, as well as account creation, promote consumer and producer interest in e-commerce applications based on demographic information and information. other parameters.

3.4. The risks of Big Data

The increasing openness to the manipulation of individuals and corporations may create risks of abundant passwords and credit card numbers or to vote for candidates we would not otherwise support.

This creates more targets for the attack. Data breaches are now commonplace and what happens to these data is out of control.

4. Digitization in Algeria: global analysis of the eco-digital context

Digitization désigne ainsi le secteur d'activité économique relatif aux technologies de l'information et de la communication notamment à la production et la vente de biens, services et contenus numériques. Il englobe, les services de télécommunications, l'audiovisuel, l'industrie du software, les réseaux informatiques, les équipements informatiques et télécoms, les services d'ingénierie informatique, les services et contenus en ligne, etc.

Digitization could have effects of all kinds throughout the nation's economy. Based on the analysis an endogenous analysis and an exogenous analysis :

4.1. Internal managerial analysis of the indicators

Investments in the Algerian Internet market are helping to increase wage productivity, which requires the mastery of digitized tools to carry out digitizable activities, so the production process is intensifying in terms of capital. Thus , the increase in the use of the Internet recorded by the importance of the number of Internet subscribers relating to private state companies combined , accompanied by diversified Internet offers as needed and quality control.

Telecommunications companies with high levels of organizational capital (high-quality personnel management and decision-making processes) and human capital (skilled labour) that invest in digital technologies.

In addition, soaring prices for digital technologies discourage companies from upgrading their equipment in order to achieve efficiencies and increase their capacity, so the high prices of 4G-compatible smart phones reduce its diffusion.

Digitization then causes an acceleration of the growth of the world economy. However, according to his research sources, during the transition to a digital economy, there is a risk of an increase in the asymmetry of skills and long-term unemployment.

To successfully manage the transition to the digitization and generation of Internet networks in Algeria, the economy must have the capacity to adapt; that companies are brought by positive properties of the market to be flexible; that economic gains are widely distributed.

So, to solve the imperfections of the domain «digital» It is essential that "the various Algerian education, education, learning, and employment combine well with the new information technologies and communication and new business processes".

4.2. External managerial analysis of the indicators

Results from recent Canadian studies suggest that technological change is contributing to the declining share of national income paid to the labor force (Chris D'Souza and David Williams, [2017]).

Increasing the digital divide in a precise way is a real threat that negatively affects the economic environment, so digitization in general causes financial influence combined with "inflation": According to researchers (like Mendes); digitization could lead to increased productivity and growth in potential output. All other things being equal, a higher potential growth rate of growth must be combined with a rise in the neutral interest rate for the inflation target to be reached (Mendes, [2014]).

In addition, the Algeria's commitment in the digitization of the administration encourages us to reflect on the direction for the Algerian monetary policy in the context where the economy becomes more focused on digital technologies and services. Indeed, digital technologies influence and transform the functioning of Algerian telecommunications companies by facilitating tasks that are highly dependent on connectivity, use of information, forecasts and collaboration.

It should be noted in this regard, the opportunities of Internet market in Algeria will get rich the new structure of the economy, and this when the productivity gains at the level of the Algerian economy could be realized only at the stage of deployment, a stage where the new technologies and the new operational processes are omnipresent.

So to minimize the threats; and that tools (statistics, taxation, competition and industrial relations policies) and related institutions that manage the economy are current and able to fulfil their mandate.

Conclusion

Digital economy is the conjunction of two polysemic terms in the sense that each of them can have several meanings according to the concerns of the specialist who casts his gaze (for the economy) or the field of application (for the digital). It therefore refers to different realities (NICT, e-commerce or e-commerce, mobile commerce or m-commerce, electronic economy, new economy, etc.), which it tries to encompass in one and the same semantics.

Digitization has transformed societies and economies over the last twenty years and this evolution is accelerating. The transforming powers of artificial intelligence, big data, the Internet of Things, mobile technologies and blockchain are underway for a fourth industrial revolution. This development is essentially positive, improving standards of living, life expectancy and quality of life.

We conclude by noting at the international level that digital and computer and networking technologies not only improve the economic efficiency of financial institutions and businesses, but also present a new type of fictitious and digital market that could be an example of a perfect market requiring a more vigorous re-examination of the assumptions and economic results provided by studies conducted in traditional markets.

Besides, on the national level that Algeria presents a significant development potential in the digital sector in the coming years, it nevertheless represents a weak dynamic in the digital domain, which is in fact mainly due to a significant lack of support and financing schemes, as well as a weak development of innovation activities. Finally, we hope that our country will be able to catch up with much of the gap with emerging and developed countries in terms of added value achieved by ICT.

Bibliography

1 Agrawal, A., J. S. Gans and A. Goldfarb (2017). "What to Expect from Artificial Intelligence," MIT Sloan Management Review, Vol. 58, No. 3.
2 Arthur, W. B. (2011). "The Second Economy," McKinsey Quarterly, October, p. 1-9.
3 Autor, D., D. Dorn, L. F. Katz, C. Patterson and J. Van Reenen (2017) Concentrating on the Fall of the Labor Share, Working Paper No. 23108, National Bureau of Economic Research.
4 Baldwin, J. R., and W. Gu (2013). Measuring Multifactor Productivity at Statistics Canada, Research Paper No. 31 in the series "The Canadian Productivity Review", Statistics Canada. Publicationno 15-206-X in the catalog.
5 Baldwin, J. R., W. Gu, R. Macdonald and B. Yan (2014). What is productivity? How are we measured? What was Canada's productivity for the period from 1961 to 2012? Research Paper No. 38 in the series "The Canadian Productivity Review", Statistics Canada. Catalog no. 15-206-X.
6 Bank of Sweden (2015). Digitization and Inflation, Monetary Policy Report, February, p. 55-59.
7 Boston Consulting Group (2015). The Robotics Revolution: The Next Great Leap in Manufacturing. Broadberry, S., B. M. S. Campbell and B. van Leeuwen (2013). "When Did Britain Industrialise? The Sectoral Distribution of the Labor Force and Labor Productivity in Britain, 1381-1851, "Explorations in Economic History, vol. 50, No. 1, p. 16-27.

8 Derviş, K., and Z. Qureshi (2016). The Productivity Slump-Fact or Fiction: The Measurement Debate, working paper, coll. Global Economy and Development, Brookings.
9 Ericsson, N.R. (2016). Economic Forecasting in Theory and Practice: An Interview with David F. Hendry, Board of Governors of the Federal Reserve, coll. "International Finance Discussion Papers", No. 1184.
10 World Economic Forum (WEF) (2016a). Digital Transformation of Industries: Logistics Industry, World Economic Forum white paper prepared in collaboration with Accenture.
11 World Economic Forum (WEF) (2016c). Digital Transformation of Industries: Automotive Industry, World Economic Forum white paper prepared in collaboration with Accenture.
12 Frey, C. B., and M. A. Osborne (2017). "The Future of Employment: How Susceptible Are Jobs to Computerization? "Technological Forecasting and Social Change, vol. 114, No. C, p. 254-280.
13 Fung, B., and H. Halaburda (2016). Central Bank Digital Currencies: A Framework for Assessing Why and How, Staff Analysis Paper No. 2016-22, Bank of Canada.
14 Fung, B., M. Molico and Gerald Stuber (2014). Electronic Money and Payments: Recent Developments and Issues, Staff Analysis Paper No. 2014-2, Bank of Canada.
15 Gordon, R. J. (2014). The Demise of U.S. Economic Growth: Restatement, Rebuttal, and Reflections, Working Paper No. 19895, National Bureau of Economic Research.
16 Sand (2015). "Has the Canadian Labor Market Polarized? Canadian Journal of Economics, Vol. 48, No. 2, p. 612-646.
17 Kaplan, G., B. Moll and G. L. Violante (2016). Monetary Policy According to HANK, Working Paper No. 2016/2, Council on Economic Policies.
18 Lev, B., S. Radhakrishnan and P. C. Evans (2016). Organizational Capital: A CEO's Guide to Measuring and Managing Intangible Enterprise, coll. "Measuring and Managing Organizational Capital Series", No. 1, The Center for Global Enterprise.
19 Poloz, S. S. (2016). From Wood Cutters to IT Professionals: The Expansion of Canada's Service Economy, delivered at the C.D. Howe Institute, Toronto, November 28.