

The digital economy and the value of the virtual in the labor market of Mexico

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Abstract

The objective of this article is to analyze the ecosystem in which the digital economy is developed to recognize the general aspects that make the value of the virtual in the labor market in Mexico a reality, besides answering the question ¿The digital economy is a model that generates value to the labor market of Mexico ?, which will allow to analyze and verify the effects of technological change in the labor market and their relationship. The hypothetical approach is that Internet connectivity is the essential value that makes the difference between the traditional economy and the digital economy; followed by the institutional value that promotes the connection to the Internet for purposes of interlocation between the economy and the organization or users. The research uses a qualitative methodology of descriptive and explanatory type, developing the theoretical analysis that allowed documenting the impact of technological change in the labor market reaching to demonstrate that ICT changed the work patterns and characteristics of the labor market, from a digital ecosystem based on technological platforms and institutional platforms with social and economic impact. Analysis of the results reveals that the digital economy has no limits; By virtue of the ubiquity characteristic of ICTs, however, we also observe some factors of "immaterial labor", which determine the limits of the traditional labor market, leading to rethinking the term of work.

Digital economy, Connectivity strategy, ICT, Labor market, Immaterial work

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Introduction

It starts from the idea of recognizing that the digital economy is also called economy of the internet and that in its main characteristic is the incorporation to the internet of the techniques of production and satisfaction of needs. The digital economy is divided into several sectors: 1. digital goods and services, 2. mixed digital goods and services, and 3. ICT-intensive goods and services.

For the OECD (2016: 4-5), "the digital economy shows how countries and partner economies leverage Information and Communication Technologies and the Internet to meet the goals of their public policies"; through comparative data, provides policymakers with information about regulatory practices and policy options in order to maximize the potential of the digital economy as an engine of innovation and inclusive growth.

So too, ECLAC. (2013) recognizes that the digital economy is a crucial force in driving structural change, advancing the reduction of inequality and strengthening the social inclusion so much needed by the countries of the region. In this sense, the digital economy offers an opportunity to promote innovation and inclusive growth, but it poses some challenges, such as increasing confidence in it, which is a permanent value of prime importance that must be preserved and promoted.

From this framework, ECLAC (2013: 9) considers that "the digital economy is made up of telecommunications infrastructure, ICT industries (software, hardware and ICT services) and the network of economic and social activities facilitated by the Internet, cloud computing and mobile, social and remote sensor networks."

As described, the digital economy facilitates the processes of buying and selling, in an ecosystem that is supported in both technological platforms and institutional platforms.

A partir de este marco, la CEPAL (2013: 9) considera que "la economía digital está compuesta por infraestructura de telecomunicaciones, industrias TIC (software, hardware y servicios TIC) y la red de actividades económicas y sociales facilitada por Internet, cloud computing y mobile , redes de sensores sociales y remotos ". Como se describe, la economía digital facilita los procesos de compra y venta, en un ecosistema que se apoya tanto en plataformas tecnológicas como en plataformas institucionales.

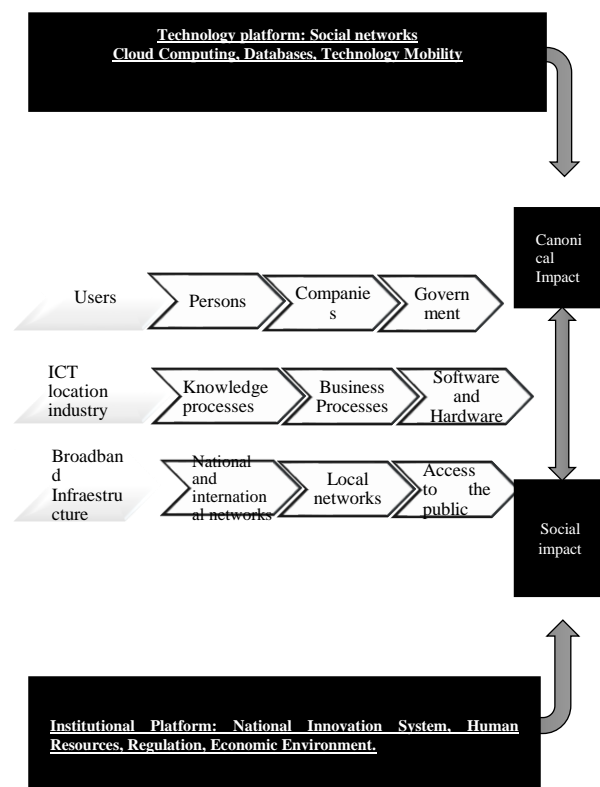


Figure 1 Ecosystem of the digital economy

Source: Own elaboration with information from Sabbagh et. To the. (2012)

As can be seen, the development and deployment of the digital economy takes place in an ecosystem characterized by the increasing and accelerated convergence between different ICTs, which is concretized in communication networks (networks and services, fixed-mobile networks), hardware (3G and 4G multimedia mobiles), processing services (cloud computing) and web technologies (Web 2.0).

In this sense, it is interesting to carry out an analysis that prevails the connectivity as a benefit of the use of ICT in the labor activities. Therefore, to make use of the benefits of digitalization in the economy, connectivity components are necessary, since ICTs in the economy are the digital future that offers the necessary conditions to build both the economy in general and the market digital labor that are driven by the growth of digital commerce.

Thus, as the digital economy and the labor market develop, from intangible resources, in the exploitation of ideas rather than material things, to give way to e-commerce, online services and without a doubt, the labor market with digital perspective.

In this sense, the objective is to analyze the ecosystem under which the digital economy is developed to recognize the general aspects that make visible the value of the virtual in the labor market of Mexico, in addition to answering the question ¿The digital economy is a model that generates value to the labor market of Mexico?, which promotes the analysis of the impact of technological change in the labor market and its relation with the digital economy.

The hypothetical approach of which it is part is that the connectivity in Internet, is the essential value that makes the difference between the traditional economy and the digital economy; followed by the institutional value that promotes the connection to the Internet for purposes of interlocution between the economy and the organization or users, which is why the digital ecosystem starts from institutional proposals based on technological proposals.

Derived from these methodological components, the specific objectives are to identify the impact of technological change in the labor market to verify the relationship between the use of ICTs with the digital economy and the labor market, as well as to distinguish the central technological factors that give value to the new labor structures in Mexico.

Problems linking the digital economy to the labor market

Observing the digital reality that is lived in the jobs is contrasted with theoretical aspects expressed from the arguments of Expósito (2017), documenting that information and communication technologies in Mexico and their relationship with the digital economy and the market. In addition, it is evident that the specific job positions are linked to digital profiles and that there is an increase in the extinction of trades in which there is no use of ICT, with low added value and low wages for objectives. These are some of the facts that are observed in the process of development with the digital transformation, facts that hide another reality adhered: the loss of trades or labor activities, at the hands of the use of ICT and artificial intelligence.

Another important reference documenting perceived reality is a joint study by Citibank and Oxford University, pointing out that at the international level, 35% of jobs are in danger of being replaced by machines in the United Kingdom, a percentage that rises to 47% in the United States, 57% in all OECD countries and 77% in China. In this group of countries, Expósito (2017) mentions that in the next ten years, jobs will be lost with technology, in which some cases such as operators, supermarket cashiers, documentalists, dispatchers, administrators. This problem is related to the performance of the government, since it is presumed that they are not working at the same speed that emerges, develops and applies ICT.

Another negative aspect that affects both the digital economy and the labor market is analyzed by Gonzales (2016), who says that digitization in the labor market represents "the greatest threat" for all the population that lacks Internet access and of the world's population (57%), equivalent to 4 billion people, has no access to the Internet, and three-quarters of them are concentrated in 20 nations, according to the Global Commission on Governance on the Internet (GCIG).

In another vein, Tabares (2016) mentions aspects related to the digital economy and the labor market, mentions that service intermediation platforms that establish filters and a system of recommendations as insurers of service quality, as well as their adequacy to the needs of the end user, do not promote any kind of social benefit or coverage to the thousands of users who perform their work activities in this digital platform. However, they promote labor flexibility and equal opportunity but not social protection.

For his part, Lagunés (2016) points out that the digital economy is becoming a priority for governments around the world; as the Internet and other ICTs are changing the way information is exchanged and products and services are offered.

Despite this adverse scenario in the digital economy, the growth and potential of the digital economy in the labor market must not be overlooked and, without a doubt, connectivity is the primary value to develop labor activities and impact on the economy digital.

In this sense, it is recognized that the digital economy in Mexico and other OECD countries has allowed us to share experiences and ideas about the imperative need for workers to develop digital skills, global connectivity, economic competition and openness Internet to develop work activities. In this regard, Sosa (2016), records that the Mexican digital market in the last 6 years went from 26 billion to about 60 billion dollars.

As can be seen, this growth is due to the fact that there are increasingly better conditions for technological entrepreneurship, from the development of infrastructure, greater market and access to capital; as well as structural changes that are going to accelerate the growth with better ecosystems of online payment, greater connectivity and speed of Internet of each time better quality.

Investigation methodology

To develop the empirical and theoretical analysis of the context, we used the qualitative methodology.

This alternative allows to develop concepts and theoretical understandings in an inductive way, starting from the empirical information to verify the assumption that is posed and thus give answer to our research questions that consist in What aspects generate the value of the virtual in the labor market of Mexico? Is the digital economy a model that generates value to the Mexican labor market?

Under this methodological strategy, it will be possible to see the digital economic scenario and the users (as workers), from a broader perspective, which implies first to recognize that without connectivity; simply the digital economy would not exist, which leads to the reflection that the value of the virtual lies in the connectivity and access to the internet to give permanent dynamization of the economy, thanks to the technological change that is lived, impacting on economic and social life of the users, creating a digitally enterprising life and in constant restructuring.

To test the above hypothetical approach, we first make an empirical analysis of facts that reveal the technological developments that affect the economy, which leads to the adoption of new patterns of change in the economy and the labor market. Subsequently, to understand the development of connectivity strategies and the value of being connected, the theoretical discussion is made, based on the arguments of López and Saladrigas (2016) in relating that in the relationship of the digital economy with the traditional economy, it is emphasized that connectivity is the value that makes the difference between one and the other; ie the internet connection, is the value that allows the interlocation between the economy and the organization or users (for this case will be the workers).

Thus, according to Tabares (2016), organizations, individuals and government have witnessed the creation, development and establishment of large corporations that have colonized the digital environment. For some thirty years to date, the digital economy has not stopped growing based on the expansion of business opportunities offered by the combination of the internet and globalization.

The design of the research corresponds to a non-experimental design with an explanatory and descriptive cut, according to what Castañeda, et.al. (2002: 122), "the design of the explanatory studies requires a specialized knowledge", which for the case is of the ICT and its relation with digital economy and the labor market, which represents a study of facts related to the use ICTs and the economy, as well as their link with the labor market; hence, the role of the dependent variable (RV) is derived. For the case of this study, we consider 2 dependent variables: Digital Economy and Labor Market, which corresponds to the interest to know the impact of ICT as an independent variable on the dependent variables. When the variables are operationalized, the position of the independent and dependent variable is considered to be merely situational, which means that we can exchange their roles

Literature Review: empirical and theoretical discussion

Studying the use of ICTs and their relation in the digital economy and the labor market, no doubt made us observe the theoretical basis on which this research work is based. Its basis is the theory of biased technological change proposed by Bekman et al. (1998). This theory is based on the increase of economic inequality and is followed by diverse thinkers and researchers of technological bias.

Bound and Johnson (1992) and Katz and Murphy (1992) put the first stone in a study carried out in the United States during the period of 1974, and to propose the theory of biased technological change, in relation to inequality in the labor market. 1987, identifying that the average salary of graduates of professional careers with skills and competences in the use of ICT, increased more than that of people who did not have a professional career.

In this sense, Krueger (1993) argues that the use of the computer in the workplace is the key element as ICT skills that determines the contracting conditions and wage level of a worker. Hence, it coincides with that of Bekman, Bound and Machin (1998), in arguing with solid evidence that the biased technological change that occurred in the 1980s in the United States became widespread in all developed countries; and as far as we can see, the underdeveloped countries as well. They show that all industries increased the number of skilled workers in technological skills, and report that a number of developing countries recorded wage increases as a benefit to the technological competencies of their workers.

Thus, Bekman et. to the. (1998) argue that the main cause of this labor gap is the digital divide; that is to say, the displacement of labor demand is due to the technological change that diminishes the labor force, saves the labor but increases the wage, affirmation that is supported empirically when finding a close relation between the demand of qualified work and the financial investment in computer equipment, as well as in research and development activities.

As explained by several authors, this fact would be associated with the adoption of technologies that favored the use of educated and competent workers in the use and access of ICTs.

In this sense, Acemuglu (2000) follows Bekman, Bound and Machin (1998), noting that the increase in technological inequality; experienced in some developed economies during the eighties, is attributed to the use of intensive technologies in skilled labor.

Similarly, Atkinson (2003) argues that the increase in technological inequality would have been generated by factors, such as technological change and globalization, which have favored the remuneration of skilled workers in technological skills, which employment and the digital labor market.

In addition, the consultation of various scientific documents establishes that technological changes in the economy depend not only on chance, but also on companies and governments, which in recent times have strengthened their investments in this area, virtue, of the reduction of the costs that generate the use of the TIC, that quite possibly is the most significant economic indicator of the technological change.

García Irigoyen (2016: 87) also points out that "drastic drops in the price of the internet and computers have led to ICT adoption and use by more people than previously developed inventions." Also, Castillo and Lechuga (2005: 38), point out that if ICT advances slow down, productivity would be affected in two respects: the growth rate in (ICT) producing industries would fall and the ICT investment rate in the whole economy would be lower and slower.

An indicator of the impact of the Internet on the economy is the low cost of information that will constitute one of the main inputs; that is, the supply curve shifts to the right to a higher production point but at a lower price, noting that the most important thing in the digital economy is not the change to high technology, but the way in which efficiency is improved of the different sectors of the economy, having as empirical evidence that the strong investment in ICT generates a greater growth in the productivity of industry, commerce and the labor market.

On the other hand, Sabbagh et. to the. (2012) and Krull (2016) indicate that the ecosystem of the digital economy consists of three main components that, according to their degree of development and complementation, determine their level of maturity in each country. These components are 1. End users, 2. The ICT applications industry and 3. Broadband network infrastructure.

For Katz (2015: 5), the concept of the digital ecosystem defines a new industrial context and of economic and social impact resulting from the massive adoption of digital information and communication technologies. The study of the digital ecosystem involves three dimensions: new ways of producing information and content, different social behaviors related to the use and consumption of goods, and a more important economic and social impact than information and communication technologies in isolation.

All of this leads to economic and social impacts that distinguish the value of connectivity, as shown in Figure 1. An essential mechanism for generating services and applications for users (individuals, companies and government) is the ICT hardware, software and applications industry, which also includes services that facilitate these technologies.

For this reason, the software and hardware industry represents the foundation under which management of the network infrastructure, the electronics industry and the assembly of equipment is forged.

Based on the information considered by ECLAC (2013), which gives value to virtuality in the services provided by ICTs, the business process industry and analytical or knowledge processes stand out. Business processes include, on the one hand, horizontal applications such as financial, accounting and human resources services and, on the other hand, vertical business processes associated with specific activities such as financial, public sector, manufacturing, commerce, telecommunications, transport and health. Knowledge processes refer to activities of complexity, with emphasis on analytical, design, engineering and technological research and development services.

Another important element that offers value of virtuality, are the end users (individuals, companies and government) that need the level of use and access of digital applications, depending on their demand for services and digital applications. In this sense, individuals become more competitive and improve their quality of life, companies improve the efficiency of administrative and productive processes; and government increase efficiency in the provision of public services and transparency; for this reason, it is crucial that users are able to use ICTs, virtual services and digital applications in a productive way, highlighting electronic commerce in its various modalities, shopping and internet sales, and access to public services and communication via internet.

Under this model, it is proposed that the ecosystem of the digital economy generates impacts in the economic and social spheres from its gestation until its maturity, observing that it begins, are considered positive effects on productivity, economic growth and employment; Likewise, during its consolidation phase, the positive impacts on education, health, access to information and public services are highlighted; but already in its consolidated stage, the positive impacts occur in the fiscal transparency and the greater citizen participation.

Modification of labor structures by the digital economy

The true digital revolution is changing the social and economic structures we have traditionally known, and is undoubtedly the most profound process of change that humanity has experienced, and also the fastest. In the last decade we have seen not only the exponential growth of the internet and e-commerce, but also the explosion of social networks, smartphones and tablets; and the appearance of millions of new applications and services that have changed not only how we relate and communicate but also how we buy and sell, work or study.

Castillo and Lechuga (2005; 58), show that in the economy, "the greatest gains are derived from ICTs (internet and computers)." These gains in technologies tend to spread all over the planet, because there are all kinds of devices connected to the internet. This connectivity is what we access at any time and from anywhere, at increasingly reduced prices. In spite of the confusion that could generate the speed with which all these technological changes have occurred, in the next years it is assumed that these transformations will continue to accelerate, which means that the digital revolution is in an initial stage.

The digital revolution leads to a series of changes in the labor market, which leads the imaginary that a day not far away, a document like this, be written by a machine or a robot. In this sense, according to Exposito (2017), it is clear that there is no reference to facts of science fiction, prestigious media such as The Washington Post or The New York Times and the Associated Press already use robots to elaborate information related to statistical data created from mathematical processes.

With this, it is shown that the communication tools provided by the technology make the change continuous; so, professional profiles must adapt to the requirements of a evolving digital market. Tabares (2016), coincides with the idea of the "digital pro-common". It is another perspective to this labor paradigm of capitalism that has allowed the development of diverse social initiatives in the Web like Wikipedia or LinkedIn like the greater communities and networks of professionals in the world.

For Katz (2015), studies on the digital ecosystems of both companies and the labor market indicate that "for ICT investment to be effective, it must be accompanied by skills training for workers and employers, as well as greater investment designed to integrate ICT in business models and processes. Hence, based on what was analyzed in Cave and Flores Roux (2017: 57), it is noted that the digital revolution has had an impact on production, transaction and consumption by reducing costs, bringing services closer to consumers both young people and creating new categories of goods and services. It has also dramatically increased communication between people ranging from a simple voice call to a video call, text messages and even now the development of large social and professional networks.

Delivering personal data and making payments over the internet will require an act of value. Cave and Flores Roux (2017: 59) reveal that it is important for both the public and private sectors to appreciate this feature, with government actions to be at the forefront in terms of cyber security and setting a good example by paying attention and care in its maintenance; given that, first and foremost, both workers and consumers should feel protected, so that if a product or service does not meet expectations, suppliers are forced to respond and reward customers quickly and through simple mechanisms.

Hence, broadband connectivity is a seductive strategy for investors, not only because of their potential for performance, but also because venture capital investment has little correlation with labor markets because their investment horizons in employment tends to decline, (Sosa, 2016). So, whether a company that is engaged in online loans for working capital, electronic payments, digital advertising platform, e-commerce, Marketplace for different services, market intelligence based on big data and analytics; everything indicates that the coming years could be vital for the growth of the labor market and employment in Mexico, ECLAC (2014).

For the development of the digital economy and employment, it is advisable to train workers in the use of ICT, since technologies do not necessarily mean progress; offers opportunities that also imply new problems. According to López and Salandrigas (2016), it would create a scenario in which Information Technologies were being used for labor purposes (as a means and not as an end in itself) and with the aim of enhancing labor development of the regions of a country.

Through the use and implementation of ICTs, economic, social and labor aspects can be strengthened, as well as promoting socialization in historically excluded groups based on knowledge, learning and empowerment of ICTs, such as ICTs in actions of learning of university students (Islas and Delgado, 2016: 116).

In order to have educated workers, students are required to include ICT in their educational practices so that, through them, they can exponentially increase their ability to create and produce content and information. In this sense, Islas and Delgado (2016: 118) says that connectivism emerges as an alternative framework to learning theories and reveals new opportunities to employees and employers. On the other hand, Tello (2017) mentions that it is desirable to reach a knowledge society where the inclusion of individuals in the labor market by the generation of knowledge is total, that knowledge societies are sources of development for workers.

It is clear that these assertions lead us to analyze the role of the digital divide and the cognitive gap in the labor market as causes of the labor exclusion of companies and individuals in the use of information and communication technologies in Mexico, opening with this reflection a possible line of research. Tello (2017), refers to the argument that the digital divide is probably one of the first concepts to start thinking about the economic and social impact of ICT.

Cave and Flores (2017) also point out that ICTs are changing how people, households, businesses and governments communicate, produce, consume, work, transfer information, interact with each other and carry out transactions. With the applications and collateral benefits of ICT in the digital economy and the labor market, this explosion and digital revolution continues in innovation unlimited for employment.

For the past decade, Tello (2007) mentions that a new form of labor exclusion, known as the "digital divide", is now visible, capable of widening the gap between regions and countries (international digital divide) and citizen groups of a society (domestic digital divide) that refers to employers and employees. On the other hand, the cognitive gap reveals the potential for exclusion that can be found in knowledge societies, when their development is limited to promoting a knowledge economy.

Hence Tello (2007) says that since then it has been perceived that ICTs produce differences in the labor and development opportunities of populations, so that a distance will be established between those who have and those who do not have access to and emphasizes that they should not be marginalized in the societies of information and knowledge.

It is clear that for Tello (2007), the knowledge divide points to a society where knowledge begins to be part of the domain of only one segment of society, while the majorities are excluded from it, which makes reference to the existence of a pronounced cognitive gap that can generate a scenario of conflicts and greater inequality in the labor market. Cave y Flores (2017) also says that according to metrics constructed by several authors on the digitization of the information society, Mexico's position is not privileged in the world context.

This is true, says Katz et al. (2016), both for digital economy measurements published by the World Bank and the World Economic Forum, which record significant progress in the last five years, but these have not been sufficient to change the relative position of the country. For its part, Cave and Flores (2017) mentions that the lack in this dimension motivated a radical reform at the constitutional level, with changes in the educational reform.

The digital economy and the value of the virtual

In order to analyze the value of the virtual in the digital economy, we refer to Lopez and Saladrigas (2016: 71), who discuss how to reduce the "digital divide" (technological and knowledge) among people using ICT and those who do not have access or do not know how to use them, among which the participation of workers stands out. Their arguments are based on a paradigm in which all the labor, social, political processes, of the war, and of the economy, happen to be affected by the capacity of process and distribute information of ubiquitous form.

The ubiquity character gives value to the activities carried out with the use of ICT. Already described by López and Saladrigas (2016), whose fundamental idea grows before the digital survival of adapting processes to the use of ICT. However, Islas and Delgadillo (2016) emphasize something that is perceived daily and means that educational institutions seem to be closed to this evolution, since they are far from meeting the requirements of globalization in terms of digital economy, and far of access to the value of the ubiquity of the internet of things.

Against this background, Lagunés (2016) states that the member countries of the Organization for Economic Co-operation and Development (OECD) have met in Mexico to discuss the design and implementation of digital policies that foster innovation, growth and social prosperity to impact on a more productive labor market.

Hence, this would boost the digital economy, implying not only the liberation of obvious trade barriers, but also amplification in the flow of commercial data across borders; technology certifications and policies that do not distort international competition; fostering local ICT products in public sector procurement and widespread accentuations of intellectual property. These and other forms of liberalization would be ICT-focused, enabling it to disinhibit digital commerce, fostering innovation and accelerating economic growth for companies, customers, suppliers and workers around the world.

It is clear that our society is involved in a generous process of transformation. A transformation that, although unplanned, has a positive impact on the way individuals are organized, how they work, how they relate, and how they learn. As a result, we realize that the division and differentiation between the world of study and the world of work is no longer comprehensive.

Results and accuracy of the study of the question of the value of being connected

Among the aspects that are accentuated when considering the value of being connected, are the strengths and opportunities offered by the internet. With ICTs destined to be the main tool of growth in the following decades, many people are proposing that a developing economy like the Mexican one, reach greater access to the use of the TIC.

Since the OECD pronouncements (2016), it has been stated that ICTs can provide growth to developing economies; However, although poor countries have very little capacity to access telecommunications and computers, and the most pessimistic think that the use of the Internet can widen the gap between rich and poor, the studies analyzed, emphasize that in the economies in development is the only way to sustain growth is to increase the opportunity for access to technologies to achieve better methods of organization and employment.

Considering that poor countries undertake economic activities, with much less capital per worker, their development has a wide field of opportunity for rapid growth, buying technology and reproducing production methods in similar successful economies, which may allow grow faster than developed economies. Here the question is how to spread technology in poor countries. The answer is through the use of the internet and telecommunications, as they narrow geographic barriers and globally disseminate knowledge faster than previous technological revolutions. In this sense, countries like Mexico must take the advantages of applying ICT in all labor, professional, educational, economic processes, among others.

A tangible value is highlighted by the indicator of the impact of the internet on the economy, which represents low cost of information that is constituted in one of the main inputs; that is, what represents the supply curve that moves to the right to a higher production point but at a lower cost.

Based on this idea, the methodologically pointed out by Armas Morales (2016: 11) regarding the form of technological disruption that give value to being connected, which means the change of the traditional business models, by other models of businesses that use ICTs and platforms with digital applications to offer goods and services with advantages and benefits to both suppliers and consumers.

Similarly, a fresher referent on the value of being connected is Katz (2015), who points out that the path of ICT leads to a more efficient economy, a greater competitiveness of the country and a decrease in unemployment. This marks the step of the countries that with their own strategies of route towards the digital economy, bet by the industrialization and the innovation, creating value permanently.

Also, you can see aspects that signify the value of being connected related to accelerate the digital transformation in economic sectors away from technology, such as the agricultural sector; and other aspects that represent the value of being connected as the generation and development of human capital suitable for the digital economy, which means putting forward appropriate motor projects to boost the economy. In this sense, any economy wishing to compete globally must have a multipurpose digital agenda at the base of its growth and development strategy. It should contain local investments in key areas such as education and training in science, technology, engineering, mathematics and ICT infrastructure development through the expansion of broad-based banking and other means of spreading the digital economy. Faced with the greater importance of capital in the digital economy and the impetus of a fourth industrial revolution, the problem of massive industrial unemployment, which could be shattered by what we know as a "welfare state", continues to emerge for Tabares (2016).

It is clear that skills in the use of ICT are essential for a successful digitalization of the economy, so they rethink Cave and Flowers Roux (2017) regarding that one of the most efficient ways to create digital skills is establishing the need of the digital services that generate value and in that sense the strategies of connectivity could be a solution to a greater competitiveness for the labor market.

Cloud computing as a connectivity strategy

Among digital services that generate value, cloud computing is observed and in particular "The Cloud" or "The Cloud", which are handled in different contexts, commonly to refer to a linked number of stored information resources and interconnected information processes and accessed by users remotely through a communications network.

Users of a cloud service, whether they are service developers or end users, typically require less specific knowledge about technology, management, and security than traditional services.

However, for Boes, et. to the. (2017: 132), it is highlighted that both cloudworking and crowdsourcing are the conclusive and determinant strategy of the relationship between the digital economy and the labor market and thus pose a "revolution in the world of work". In their studies they deal with these developments and their relevance to work and society, giving rise to the emergence of a global "information space" for work that allows companies to extend the scope of their production of value, much more beyond its formal limits; as well as the integration of forms of work.

The novelty of this type of labor strategies (cloudworking, and crowdsourcing) that are backed by Cloud computing as a strategy of connectivity, is that they come to colonize the space of technological information, allowing people to strive to do the work inside and outside of the mutually interchangeable formal boundaries of the company, on the basis of computerized and industrialized production structures, and to take advantage of this interaction between the interior and the exterior. For its part, Boes, et. to the. (2017) argue that this represents areas of opportunity for users not specialized in the use of technologies, which allows a significant reduction of labor costs thanks to the resulting economies of scale.

Big data and the value of social interaction

Also Big Data is a new prototype for business intelligence. For ECLAC (2014), Big Data is based on the 3 "sees" of volume, variety and speed, to which some need to add value and truthfulness. Its origin goes back to the needs of some companies like Google or Facebook as the most notable to order and take advantage of the immense amount of data that people upload each day, which makes possible the social interaction in the Big Data that is represented by networks social.

Hence social media generate more information on a day than what all humanity has accumulated for centuries. Interpreting correctly and understanding this volume of information requires a whole new generation of technologies and techniques, among which the Big Data field stands out. Social networking and social-purpose business software (e-mail, chat, WhatsApp) have forged social branching by two important aspects: 1. By the connectivity that allows communication between people who use social networks, and 2. By the information that people share and exchange, highlighting with this, the importance of connectivity as an essential value of social impact.

For social exchange, social media is the turning point for Big Data; given that Big Data deviates from archaic methods by applying ways of capturing information, storing it, and processing it in truly gigantic amounts of data, which is precisely the kind of data that emerges from today's social media ecosystems like Facebook and other digital platforms through which they buy and sell goods and services.

This can be seen in Gleeson (2016: 77), platforms based on social media such as Facebook and Twitter are increasingly used around the world as a way to capture and develop work in a wider audience and get their attention on online activist campaigns on various social issues, which represents a form of digital work for activists, implying a way of undertaking contemporary online work as a form of digital work and examining the effects of this workforce on activists involved in these groups.

The Big Data in the labor market represents a connectivity strategy and shows the value of being connected by offering new trends and employment opportunities to workers as internet users and as agents of the digital company that remains hanging on socially virtual media.

This connectivity strategy aims to reveal propensities of use to know what will happen before it happens and so, to get ahead of the conversation and see where it goes. However, Big Data is still a specialized niche of technologies and techniques that fundamentally makes new assumptions in managing and understanding the knowledge contained in huge amounts of data. It is moving to the central domains of information technology. With this development, the world is becoming more and more social.

It is clear that social media and Big Data in the immediate future will increase their influence through different applications.

These applications of Big Data that connects to social networks, will be as much of end consumers as business. Analytical applications that are part of social networks and that offer up to the last information exchange report.

Coincident with this idea, Hurwitz, et. to the. (2013), admit that large data is becoming one of the most important technological trends that has the potential to change the way organizations use information to improve the experience and transform their business models, considering that the models are changing the way data can be used in a variety of ways, allowing data to be scrutinized, queried, reviewing the most prominent trends, and visually displaying information of a different type simply because of the inherent speed of the strategies of Big Data, for which there will be much work. Hence, the dissemination of Big Data between internal data and external data of an organization, as well as the organization of information, would enable sources of employment.

From the virtual to the physical

At the moment of analyzing the connectivity that represents a value, we find that the Internet reduces barriers to entry to the markets, since it is cheaper to place a business online than opening a traditional store or office, also makes it easier for consumers compare prices, which increases competition.

Also, the simple fact of making a purchase via internet, requires a simple procedure in which through a digital platform, the product is observed in an image (with digital characteristics), the purchase and sale of the product is agreed upon, if it is paid online and subsequently the supplier sends the product to the buyer to his home, and thus an object that was virtual (display image for sale), could be converted into the physical item that was acquired.

In this way, it is considered that there must be a perfect balance of information so that young people face the labor market using their imagination, having as support the cyberspace as well as the physical world and that it does not become a primary necessity to be immersed in the ICT, since the correct use implies a moderate use and above all have criteria to differentiate the type of information that is useful, information that does not serve.

Conclusions and final reflections

By way of reflection, it is understood that like any other communications network, the essence of the internet is in creating and strengthening connections between people. Adapting people, businesses and government to networked culture and giving customers the ability to interact with each other and with the company itself, with workers and other organizations that can build more relationships with customers, suppliers, workers and businessmen.

Although the latent threat of the displacement of workers in the labor market, due to the increasing use of ICTs in the economy, it is also observed that connectivity expresses an intangible value that is developed from a digital ecosystem based on technological platforms and institutional platforms.

Mexico continues with a significant backlog in connectivity.

The investment rates in connectivity in broadband networks and the capacity for digital innovation in Mexico are still limited to the challenges that show a rapid digitization process, which based on information from the Ministry of Economy (2017) has mobilized close to 36 billion dollars to GDP for the next 10 years, in addition to the creation of a thousand direct jobs.

Behind this dynamic, there is a relevant component of public policies that seeks to boost the country's digital transformation process, as well as substantial initiatives that enrich the different stages of the Internet value chain; since ICTs, like all general-purpose technologies, have effects throughout the supply chain and across all economic production chains.

Likewise, the internet economy and the labor market are subject to rapid technological advances and network economies, which means being subject to a digital ecosystem that shows patterns of development of immaterial labor activities (social impact of the digital ecosystem), as well as income generation that cease to be static in the short term economic impact of the digital ecosystem), and require a technological process (technological platforms of the digital ecosystem) and an institutional process (institutional platforms of the digital ecosystem) that focuses on initiatives of public policies that respond flexibly to maximize the employment opportunities that appear in these processes.

In consequence; it is essential for the country to advance in the identification of the factors that condition its digital capacity from a digital ecosystem in the labor context, with the general purpose of a greater creation of jobs that potentiate the value in the digital economy.

In this regard, we refer to the need to guarantee the growing flow of investments in technological infrastructures that will allow the development of digital ecosystems, in addition to the requirements to promote and develop innovation and competition through public policies that are flexible, compensatory and oriented to the protection of workers from virtual environments.

This digital revolution is undoubtedly the most important period of economic, social and technological transformation since the industrial revolution. But there is a fundamental difference between these events: the massive and diversified adoption of information technology and connectivity and the digitization of the economy has taken place in an extraordinarily short period of time no longer than ten years.

High-speed Internet connectivity represents the fundamental value in the labor market and in the economy in general. Innovative digital technology, commerce and services are the driving force behind the digital economy that is changing the world. Social networks, cloud computing, big data, mobile technologies, and the Internet of things are at the core of the transformation of our way of living and working, which has also changed economic cycles and faded geographical borders, giving a character of flexibility and ubiquity to labor processes and structures.

Therefore, it would be imperative to make public policy proposals related to connectivity. For example, it is necessary to extend the coverage of networks and greater use of mobile data. The guidelines should be outlined to legally and economically undertake the different elements of the digital ecosystem; this will reduce the risk of job inactivity, job confusion, paralysis and even contradiction in the development of the labor market in Mexico.

Confidence should be created to develop an employment market based on connectivity, but rather a regulatory framework should be developed on a number of important issues such as digital confidentiality, cyber security, anti-fraud measures, worker and consumer protection, simplification processes and rules, as well as the reduction of barriers to use and appropriation of ICTs in the economy and the labor market. Therefore, generating the digital skills and appropriation of the use of ICT is fundamental for the existence of demand and labor supply from an interconnected environment.

In conclusion, this research is an approximation that allows to understand the impact of recent changes in the digital economy and the digital ecosystem in the labor market. Finally, we consider that at this moment, we have contemplated the theoretical frame of reference to approach the study of virtuality in Mexico to later define the impact of digital transformations in Mexico and answer other approaches: How have users reacted to products and digital services in the face of these changes in the economy? To what extent has the digital ecosystem been developed to meet economic and social needs? These would be subjects to be developed in the following investigations.

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