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Exploring the Information Society: Origins, Initiatives, Conceptual Framework, and the Significance of ICT

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Review Article

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ABSTRACT

This research paper reviews the literature on how the term "Information Society" (IS) first appeared in academic writing and official documents, how this type of society is conceptualised, how it is related to Information and Communication Technology (ICT), and how it might affect developing countries. For this study, 44 academic and scientific papers, 44 official documents from various countries, and 44 publications by international organisations were all analysed.

The advent of the information society has transformed the way we live, work, and interact with one another. This abstract provides an overview of a comprehensive study that delves into the origins, initiatives, conceptual framework, and the profound significance of Information and Communication Technology (ICT) in shaping the information society.

In conclusion, this comprehensive study provides a deep understanding of the information society by exploring its origins, initiatives, conceptual framework, and the profound significance of ICT. It underscores the need for continued research and collaboration to harness the full potential of ICT in creating a more inclusive, prosperous, and sustainable society.

Keywords: Information society is concepts; Information and communications technology–ICT; Literature research; IS promotion programme; International organisations

Abbreviation: CEPAL: The Economic Commission for Latin America; ECLAC: Economic Commission for Latin America and the Caribbean; eLAC: Information Society in Latin America and the Caribbean; GIS: Genesis of the Information Society; IS: Information Society; ICT: Information and Communications Technology; ITU: International Telecommunication Union; JACUDI: The Japan Computer Usage Development Institute; MDG: Millennium Development Goals; UNPD: United Nations Procurement Division; UNCSTD: United Nations Commission on Science and Technology for Development; WSIS: World Summit on the Information Society

INTRODUCTION

Every day it is common to hear that we are facing the advent of a social, economic and cultural transformation that occurs as a consequence of the advancement of Information and Communication Technologies (ICT) and the use of the internet by millions of users [1].

The possibility of connection has allowed the development of a new space in which a number of transactions are carried out, ranging from the simple exchange of information to the performance of commercial activities [2]. These possibilities have revolutionized social, cultural and economic life at an orbital level, transforming the modalities of communication between people, the way of doing business between companies, the way of working, etc. Additionally, specific applications arise in different fields, for example, in education, e-learning is developed through training and supervised distance learning; in the public administration, procedures such as paying taxes (e-government) are allowed; In health, the aim is to develop a health system with coverage independent of the geographical and time situation (e-health); in the field of work, new operating schemes are understood (teleworking); new services are offered in banking (e-banking), etc. [3].

This series of possibilities and applications in different fields has become a powerful source of economic growth and increases in productivity, especially in developed countries, as well as a strategy for progress in developing countries. The above phenomenon has been known under the name of Information Society - SI, characterized by the fact that through ICT, access and manipulation of large volumes of information is provided to millions of individuals in the world.

The IS presents a series of characteristics and offers a series of challenges that, together with what has already been stated, lead to the fact that it is not surprising that governments have been concerned with the design of public strategies that allow their respective societies to enjoy the possible benefits of this new transformation. Colombia has not been immune to these changes, which is why it has designed and implemented strategies aimed at incorporating the IS as a model of society [4-8].

Given the importance of the changes that are to be achieved, it is necessary to know the emergence of said society, likewise, to understand its meaning and its relationship with ICTs and the implications that this society has in developing countries. In the same way, to know the efforts that have been developed in the country. For this reason, a synthesis on the subject is presented, which was developed within the framework of the doctoral work "methodological proposal to evaluate public policies for the promotion of e-government as a field of application of the information society. The Colombian case" and in the development of the doctoral thesis "proposal for a model to evaluate e-Inclusion. The Colombian case".

It should be noted that the importance of reviewing aspects related to the IS derives from the need to make these issues known in the context of systems engineering, given that, for the development of said model of society, the participation of expert professionals in ICT, to create and develop proposals that fit the needs of the country [9-12].

The genesis of the IS described below, considering for this some discourses that have been taken into account to explain the emergence of this phenomenon, the origin of the phrase "Information Society" since its appearance in academic literature. Subsequently, some of the conceptualizations that have been developed in the academic, governmental and business fields are presented; likewise, some of the initiatives that have been proposed to create said society, its relationship with ICT and the advances that Colombia has been developing in favour of incorporating said society model are presented.

LITERATURE REVIEW

Genesis of the information society

This section presents some arguments developed from the academic context to account for the origin of the IS; It should be noted that each of these arguments can be debated and/or complemented from different areas of knowledge.

According to castells the emergence of the information society occurs from the convergence of three independent processes that take place at the end of the sixties and in the mid-seventies, which are:

- The economic crisis and the exhaustion of the pattern of accumulation characteristic of industrial development, which manifested itself with labor conflicts that led to the weakening of labor productivity,
- The flourishing of social and cultural movements that questioned the preceding culture, such as feminism, environmentalism, anti-authoritarianism, the defense of human rights, and
- The information technology revolution–IT; which allowed a historical redefinition of the relations of power, production and experience on which societies are based. It should be noted that these ideas are framed in positivist foundations, where the mechanics between progress, well-being and the absence of conflict are associated as a functional variable.

For their part, Bergonzelli and Colombo argue that the emergence of the IS occurs in a historical period produced by the crisis and the exhaustion of the Keynesian Fordist accumulation pattern characteristic of industrial development, which began to manifest itself in the mid-1950's. The 60's with the labor conflicts that led to the weakening of labor productivity that was experienced in the 70's as a result of the crisis of the scientific organization of work. In the same way, due to the high inflation figure that was generated by the implementation of aggressive policies to curb unemployment and the expansion of social welfare programs, the Welfare State entered into crisis, which led to the redefinition of the role of the state by taking measures such as rapid commercial and financial liberalization, the deregulation of the markets for goods, services and factors of production, and the modification of the state's participation in the mechanisms for allocating economic resources. Likewise, within the framework of the economic crisis, research aimed at developing new tools that would make it possible to overcome the crisis began to be strengthened. These developments occurred in different areas and in productive activities [13-16].

It should be noted that the position raised by Castells and Araya, diverge as to what determined the rise of Information Technology, Araya affirms that it was given as a response to a social need, while, Castells proposes that it originated from the diffusion of technology which accelerated its development. For their part, they agree that the context marked by a deep economic crisis was a determining factor in leveraging the development of technology.

For his part, Becerra establishes that the ideas that give rise to the information society are framed in positivist foundations, where the mechanics between progress, well-being and the absence of conflict are associated as a functional variable. Likewise, he recognizes the exhaustion and subsequent modification of growth strategies, with the technological leap as elements that allow the emergence of the IS.

On the other hand, it is important to highlight that from the theories of social change in which they have worked to explain and name the transition from an industrial order to a new social order, they have all found an element in common, despite the fact that they differ from the forms and characteristics of said social order, and it is to attribute an important and decisive role to ICT in the new forms of communication associated with them [17].

The origin of the phrase "Information Society" is inexorably linked to Japan and dates back to the 1960's, where various events took place, such as the publication in 1964 of Kamishima Jiro's study, Sociology in Information Societies, whose title

was assigned by editor Michiko Igarashi; Yoneji Masuda and Konichi Kohyma published in 1968, Introduction to an Information Society; Yujiro Hayashi published the book "The Information Society: From Hard to Soft Society" in 1969. Later in 1971 the "Dictionary of Information Societies" was published. Likewise, it is referenced that in 1961, the architect Kisho Kurokawa and the historian and anthropologist Umesao Tudao coined the term. In 1972, the Japan Computer Usage Development Institute (JACUDI) Plan was prepared based on a report from the Japanese Ministry of Industry and Commerce, which describes the public policies that the Japanese government would adopt to strengthen the development of the Computer Usage Society. Information with a view to the year 2000 [18].

According to Karvalics, in the American sphere the use of the phrase "information society" occurs from 1970. As antecedent to this phrase, we can see the use of terms such as: "post-industrial society" the which was proposed in Great Britain by Ananda K. Coomaraswamy and Arthur J. Penty in 1914 and taken up in America by Daniel Bell in the 1960's, who sought to describe the transformation of industrial structures. Likewise, other phrases were generated in order to present the rapid economic and social evolution, and explain the changes generated by the development of information technologies, such as the importance of services compared to production materials, the automation of tasks, the emphasis on tasks based on intellectual work, among others [19].

In the study carried out by beninger, some of the terms and phrases that were generated to define the new transformation can be highlighted, among these are: Meritocracy, post-capitalist society, a scientific revolution-technological, technotronic age, post-industrial society, information economy, educational revolution, computational revolution, knowledge economy, computerized society, postliberal age.

In general, it was not until 1980 that the expression "Information Society" became popular thanks to the work the information society as a post-industrial society by Yoneji Masuda, where he established that said concept is based on two premises:

- The information society will be different from the industrial society, because the production of information values, and not material assets, will be the driving force for the formation and development of society where ICT must be thoroughly analyzed, and
- The development pattern of industrial society can be used to predict the composition of the information society, that is, it is used as a historical analog model to predict future society.

The information society concept

The concept of Information Society (IS) arises when experts in the subject observe how industrial society is transformed into another type of society, which differs from the previous ones in the possibility of having almost unlimited access to the information generated by others, in opposition to the access to material goods. Below is a review of various definitions of IS proposed from sectors, such as government, academic and business, to later carry out an analysis of these. It is important to highlight that the definitions that are presented reflect the vision of their proponents and their contexts, and what is sought is to deal with the common elements from the different conceptual proposals [20].

In the government sector, the European Union considered that:

"The world economy is in full mutation: from a predominantly industrial society we are moving to a society governed by new rules: the information society. It has tremendous potential for growth, employment and integration. Digital technologies make it increasingly easier and cheaper to access, store, process and transmit information. The basis of the new economy is the transformation of digital information into economic and social value, creating new industries, modifying others and

profoundly affecting the lives of citizens."

For their part, different States and Administrations have been concerned with conceptualizing said society, as is the case of the Argentine State, which conceives it as:
"...a force for change that raises the need for concrete actions by public organizations aimed at configuring and promoting the use of information and communication technologies. Therefore, public policies must face the social challenges posed by the Information Society, which are based on how to promote job creation, social solidarity, equal opportunity and access to information technologies. information and communication, guaranteeing the preservation of the diversity of ideas and cultural particularities."

Or the administration of the autonomous community of catalonia which suggests that:
"The Information Society is not a society in which technology enslaves individuals, but just the opposite: It is a society in which technology generates jobs that, and where this same technology automates routine tasks, and allows access to education and culture by those people who are in remote places, or who for any reason are unable to move; in short, a society that allows a better treatment of diseases, as well as a better participation of the citizen in political life".

Regarding the conceptualization carried out by academic entities, the definition made by the Institute of Business Administration of the Autonomous University of Madrid in its 2001 report stands out, in which it establishes that the IS is:

"The stage in which the societies in which the use of Information and Communication Technologies is implanted and generalized are found, in the different spheres of life of citizens, companies and institutions. All of them are allowed to access the information and products that are in electronic format without limitations of time and space."

Likewise, authors such as the renowned Spanish sociologist Manuel Castells state that the Information Society is:
"a specific form of social organization in which the generation, processing and transformation of information become the fundamental sources of productivity and power, due to the new technological conditions that arise in this historical period".

Meanwhile, Jorge Katz, in a document for ECLAC, considered that:
"The concept of the Information Society is very complex and its level of development is still incipient. The conceptual framework that characterizes this paradigm is based on Information and Communication Technologies (ICT) and the resulting digitization process."
For his part, Salazar states that Webster defines the Information Society based on five different approaches that are not mutually exclusive: Technological, economic, occupational, spatial, and cultural; which are explained below:

- The technological approach simply formulates that the new technological revolution is profoundly transforming the social world.
- The economic definition distinguishes between the development of information activities and industries and the labor force. Webster emphasizes that occupational change is what distinguishes the Information Society (not ICT), as well as the transformative power of information as such (rather than ICT). By shifting these emphases, Webster gives people, particularly the workforce, a leading role in the information society, rather than technologies.
- The spatial approach refers to the role played by networks (of information and communication) altering time and

space.

- The cultural definition refers to the volume of information to which we are exposed today, a phenomenon that few deny, but which is perhaps one of the least studied and measured.

It should be noted that some companies have also defined what IS is. For example, Telefonica of Spain defined that the IS is:

“a stage of social development characterized by the capacity of its members (citizens, companies and public administration) to obtain and share any information, instantly, from anywhere and in the way they prefer”.

According to the previous definitions, Sanchez-Torres concluded the following aspects:

- In the literature there is a certain consensus about the meaning of the expression information society. However, there are nuances regarding it that vary according to the degree of importance attributed to each aspect that makes up the concept.
- In this society, the main resource is information and it tends to become the central element, taking into account that it sustains the economy and social relations that structure today's society, through the progressive use of ICT.
- As a consequence of the transformation of a traditional society into an Information Society, a determining factor of competitiveness is introduced in the business world that, additionally, affects people's habits, the way they work, interpersonal relationships and in communications.
- The information society is a phenomenon that affects the economy, society and organizations to different degrees.
- The information society concept is a dynamic concept triggered by the use of ICT.
- There is a tendency to transform information into knowledge more quickly.
- Information favors the flowering of intellectual creativity and therefore gives rise to innovation.
- In the business field, new skills are developed to adequately manage both the technological resources to obtain the information and the information itself.
- The information society, from a political point of view, breaks with borders and cultural, social, economic limits, etc.

Likewise, Sanchez-Torres pointed out that there is a debate around the denomination under which this phenomenon should be understood: Information Society or Knowledge Society. Authors such as Webster and Kuipers point out that these are phrases without a clear definition, but that they are used daily to describe something related to ICT. White et al., consider that one way to contribute to the debate is to differentiate what is knowledge from what is information, and especially, to distinguish the forms of reproduction of information from the forms of reproduction of knowledge.

Thus, on the one hand, knowledge implies having the capacity to carry out intellectual and manual activities, which means that in order to reproduce knowledge, a cognitive capacity must be reproduced that is difficult to explain and transfer from one individual to another. In other words, the reproduction of knowledge is an expensive process. And on the other hand, there is information, as a set of structured and formatted data that has the quality of being easily codified and with low reproduction costs. This is especially true when the so-called “digital goods” are formed from the information.

On the other hand, there are authors who suggest the use of the phrase "Knowledge Society" instead of "Information Society" to shift the emphasis from ICTs as drivers of change, towards a perspective from which these technologies are seen as tools that can provide a new potential, combining information with the creative virtuality of knowledge incorporated in people. In short, they maintain that the knowledge society is the society that appropriates knowledge, understood not only as scientific knowledge but also technological knowledge, tacit knowledge, talent and collective experience, to influence its

reality as a motor of economic development and social changes.

In turn, Bianco et al. and Salazar consider that the information society is a stage prior to the formation of the knowledge society to the extent that ICTs are applied to countless activities. In this same sense, Morcillo adds that the information society has elements that are building a system whose functions create knowledge that, once disseminated, will generate innovations.

For his part, Medina argues that the information society is a subset of the knowledge society, that the former emphasizes ICT by reducing the issue to a technological problem; while the second covers much more. For their part, sociologists such as Echeverria consider that the use of the expression society of information and knowledge may be an exaggeration in some countries and regions. This is due to the development of the IS is unequal in its social and economic impact in the different countries and regions, which can be explained if it is considered that there are economic and social heterogeneities between them (and within them); as identified by who establish that the possibility of joining the IS and accessing its benefits is mediated by the existing economic, social and cultural circumstances.

On what to call the model of society that we are living in, the authors agree with Professor Jorge Katz that the debate on this topic is very complex and it can be said that the level of development is incipient, so it is necessary to go setting the terms. Likewise, the definition of SI constructed by Sanchez-Torres is assumed, based on the analysis of the definitions presented above. Said definition considers that the phenomenon that is currently experienced can be called the information society, and is:

“The society that considers that the engine of social and economic development is information and knowledge, through the implementation and use of information and communication technologies in all areas”.

When it says "all areas" it refers to the areas of promotion and management, digital administration, training and dissemination, and infrastructures and telecommunications. For each of these areas there are particular divisions for each level of society.

DISCUSSION

Initiatives

The emergence of a new society leads the different countries, beginning with the industrialized ones, to put the promotion of the IS on their agendas as a strategy for development, progress and prosperity.

In Europe, the implementation of the information society project begins with the establishment of an action plan to generate cooperation initiatives between the private and public sectors in order to lead Europe to the information society, which is presented in the report known as the Bangemann Report. In said document, the vision that:

“The widespread presence of new information instruments and services will offer interesting opportunities to build a fairer and more balanced society and to favor personal fulfillment. The information society has the potential to improve the quality of life of European citizens, to increase the efficiency of our social and economic organization and to strengthen cohesion”.

The European commission assumes that the IS involves issues in three aspects:

- **Economic:** market expansion, increased profits, improved productivity and technological convergence.
- **Socially:** Facilitates access to sources of knowledge, increases well-being, enables democratization, makes use of productive time, and improves quality of life.
- **Politically:** it allows new opportunities for democratic participation.

Likewise, said report presents the need to quickly free up the telecommunications sector and information activities.
“The market will lead and decide who wins and who loses. Due to the power and omnipresence of technology, this market (info-communication technologies) is global in nature. The first task for governments will be to protect competitive forces and ensure a long-lasting warm political embrace of the information society, so that the demand drive can finance growth, as occurs in other sectors.”

For its part, the United States government also makes a proposal on the effect that ICTs have on economic activities and on society. This initiative was called “Information Highways” and was launched at the 1994 International Telecommunication Union (ITU) meeting, held in Buenos Aires–Argentina, by Vice President Albert Gore at the time. Said proposal can be summarized as: promotion of private investment, increased competition, development of flexible regulations, propensity for open access and management through the principle of universal service.
The American denomination was renamed by the European commission with the aim of providing the project with social content, likewise it presents that the IS seen as a historical production deals with:
“Cardinal socioeconomic transformations in the structuring of societies in central countries. The economic structure is transformed and with it the set of social relations. In these transformations, info-communication technologies, notably those generated around micro computing and telecommunications, play a leading role in the development of the productive forces”.
To develop and consolidate the IS, there have also been joint efforts worldwide, which are evidenced in the "World Summit on the information society - WSIS" organized by the International Telecommunication Union (ITU) and promoted by the Organization of United Nations, which was held in two phases: Switzerland and Tunisia.

In Switzerland the political commitment of 175 countries, including Colombia, was achieved, embodied in the establishment of 67 principles of the IS through the "Declaration of Principles of Geneva" where they state that:
“We, the representatives of the peoples of the world, ..., declare our common desire and commitment to build a people-centred, inclusive and development-oriented Information Society, in which information can be created, consulted, used and shared by all. and knowledge, so that individuals, communities and peoples can fully use their possibilities in promoting their sustainable development and improving their quality of life, based on the purposes and principles of the United Nations Charter United and fully respecting and upholding the Universal Declaration of Human Rights.”

For its part, the Civil Society issued in the WSIS, a statement where it extends its vision on the IS and expresses:
“We commit to building people-centred, inclusive and equitable information and communication societies. Societies in which everyone can freely create, use, share and disseminate information and knowledge, as well as access them, so that individuals, communities and peoples are empowered to improve their quality of life and lead to its full potential in practice”.

In turn, in Switzerland it was possible to define an action plan that embodies the achievement of 167 goals aligned with the Millennium Development Goals (MDG) by 2015. In Tunisia the implementation of this Action Plan and some agreements in the economic and technological field, especially related to the Internet, were sought. This phase allowed the establishment of the "Tunis Commitment" and the establishment of the “Tunisian Agenda for the Information Society”. Subsequently, in 2009, a new forum meeting was held in Switzerland to monitor the agreements reached.
On the other hand, the WSIS established the importance of creating their own plans that were adjusted to the specific needs

and realities of each region, this motivated the creation of joint work initiatives, such as the union that the countries of Latin America have carried out. and the Caribbean in order to integrate into the information society in an efficient, equitable and sustainable manner within the framework of the global economy, as well as to face the digital divide; which made it possible to define concrete actions such as the strategy for the information society in Latin America and the Caribbean–eLAC.

It should be noted that Becerra establishes that the IS project has a heterogeneous impact on societies, he states that there are differences in the configuration that the IS is taking in different countries and regions where in some cases production processes have been improved and in some cases the social and economic fracture has deepened as a structural phenomenon. In the same way, it states that the development of the IS is unequal in its social and economic impact in the different countries and regions, "despite the fact that there are unifying traces from the concentration of economic policies between the great blocks of the planet."

Relationship between the information society and Information and Communication Technologies (ICT)

There is no doubt that the use of and access to information are critical factors in the development of today's economy and it is Information and Communication Technologies (ICT) that have allowed access to large volumes of information to be relatively simple, efficient and effective, for which it can be affirmed that part of the consolidation of the IS has been possible thanks to the dizzying development of ICT.

Definition and Characteristics of ICT: ICTs are those technologies that allow the acquisition, storage, processing, evaluation, transmission, distribution and dissemination of information. These ICTs are developed through the convergence of computing, telecommunications, electronics and microelectronics. ICT constitute a new technological system with a wide field of application, especially in fields in which: it is required to process large amounts of data, it is possible to integrate industrial and service activities, and the use of tangible investments such as R&D, software, staff training, etc. Castells considers that the most relevant features of ICT are:

- Technologies to act on information, not just information to act on technology.
- They have great capacity for penetration and effect on the economy, since information is an integral part of all human activity, both individual and collective.
- The interconnection logic and capacity that every IT system uses allows for fast and cheap interconnection.
- Allow organizations to reprogram and re-equip.
- Convergence of specific technologies for their development.

Similarly, Castells and Himanen reiterate that:

"The paradigm of new technologies is based on three characteristics: The processing capacity of ICTs-in terms of volume, complexity and speed-, the ability to recombine and the flexibility of distribution".

It is key to highlight that ICTs are characterized by their application in different facets of human activity, affecting the way information and knowledge are generated, the way individuals relate to each other and the relationship with the public administration. Likewise, these technologies have allowed the convergence of areas such as telecommunications, electronics and computing, with areas such as audiovisual or industrial, forming what has been called the "ICT Hypersector".

Impact of ICTs on economic development: References in the literature to the contribution of ICTs to economic development are frequent. The contributions to the "New Economy" and the globalization process are especially noteworthy. ICTs are considered a relevant factor in their development thanks to the fact that they have introduced new ways of doing business

between companies, which favors these businesses to be more dynamic and flexible.

In the literature there is a consensus that the new economy is related to knowledge and ICT, whose consequences include social, economic and political changes. For his part, Castells describes that the "New Economy" stands out for three fundamental characteristics: it is informational, networked and global. It is informational, because the productivity of economic units is based on their ability to generate knowledge and process it. It is an economy that works in networks, both within the company and between companies, and between networks of related companies, and, finally, it is a globally articulated economy that works as a unit in real time, that is, the new economy has the technological capacity that allows work and interaction in a globalized and coordinated way; the organizational capacity that allows direct or indirect access to global markets; and the institutional capacity that allows regulation or deregulation to allow participation and the generation of the new scenario.

For those who believe in the new economy, the best example is the United States economy, since more than a quarter of the growth achieved in the last five years was due to the incorporation of ICT.

For its part, the European commission also considers that the incorporation of ICT influences economic growth and employment, and uses as an argument the economic growth and job creation of US companies related to the Internet in the year 2000, due to that generated 2.3 million direct jobs compared to 1.6 million in 1998. At the European level, authors such as Vijselaar and Alberts and Ark et al., maintain that significant empirical evidence is observed in the sense that part of the growth in the European economy is due to the incidence of ICT.

For the defenders of the new economy, growth is generated thanks to the virtuous circle that is produced: the emergence of a high supply of innovative products and processes with a great elasticity in their price elaborated with the intervention of ICT, which allows the reduction of costs causes, if there is sufficient sensitivity, that the demand for these increases. As demand increases, the income received by companies increases, which benefits investments in R and D. In turn, this sustained investment is what maintains the process and, consequently, growth.

In short, according to Dahlman there are seven major key trends driving the knowledge economy:

- Increasing codification, ignorance and development of new technologies.
- Increasing importance of research and development, closer connections with the scientific base, increased rate of innovations and shorter life cycles of products.
- Increased importance of innovation and productivity in competitiveness and GDP growth.
- Growing importance of education and training of the workforce, as well as lifelong learning.
- Strong investments in intangibles (research and development, education, software, training, marketing, distribution, organization and networks) in OECD countries, greater than investments in fixed capital.
- The greatest gains in the value chain are due to investments in intangibles such as research and development, projects, brands, marketing and information management.
- Growing importance of foreign direct investment and the globalization of knowledge.

For its part, the process of globalization of the economy benefits from the incursion of ICTs, since with them it is possible to have information and acquire products quickly, reliably and without limitations, neither time nor location. This possibility leads to a new economic scenario in which there are good possibilities of communication and exchange between companies and individuals.

According to Castells, the globalization process, understood as a process that has the three characteristics previously exposed, and not as a merely internationalized economy which has existed for several centuries, begins when companies internationalize their commercial activities, to internationalize their business today. production activities. This process has

been extended and reinforced thanks to the incorporation of ICTs in the business environment, since they facilitate integrated management worldwide, and an international regulatory framework that facilitates the development of these exchanges.

Regarding globalization related to technologies, Archibugi and Iammarino suggest the following three categories:

- International exploitation of technological production on a national basis;
- The global generation of innovations, and
- Global technological collaborations.

In the first category, they refer to the international exploitation of innovation capacities via products, patents and licences. The second category includes innovations conceived from the beginning on a global scale, for which reason only multinational companies are capable of carrying them out. As for the third category, it involves national and international agreements between companies for the common development of specific technological discoveries. Other economic impacts of ICT are:

- The increase in productivity, which can be seen reflected in aspects such as the development of products with customer oriented designs, distributed design and engineering processes, and flexible production in quantity and quality.
- Increased competitiveness through the generation of products capable of acting beyond the local sphere.
- Changes in the concept of company: virtual type and company networks are formed to act in the fields of research and development, production or commercialization of products.
- Changes in labor relations. Transformation of the labor market, teleworking and the need to develop new skills arise.
- Changes in the competitiveness of companies, since those will be maintained if they have the capacity to manage, assimilate information on markets, trends and changes in the environment.
- Changes in the scope of the company such as: reduction of transaction costs, cheaper factors of production, lower level of stocks, less time to reach the market.
- According to Pilat and Wycoff there are other impacts of ICTs such as higher salaries being paid in companies that use ICTs or that companies in the service sector are the ones that benefit the most from the implementation of ICTs.

It should be noted that, as described and as recalled by ECLAC, ICTs constitute the infrastructure and physical equipment of the knowledge based economy, but they are not a sufficient condition for the transformation of information into knowledge and incorporation into the production process.

The role of ICT in developing countries: In addition to the potential impacts on economic development, ICTs have the potential to impact social development. ICTs, among other impacts, can help raise education standards and learning mechanisms, can be aimed at improving health systems, alleviating poverty, providing access to basic health care information, or establishing alert systems for natural disasters.

In support of the aforementioned activities, the role of the Internet is clearly relevant, since it offers access opportunities to the population, it also allows the formation of networks that facilitate the sharing of knowledge or even bring together social movements led by NGOs or activists, which offers opportunities to less favored countries.

In summary, according to Pilat and OECD, the opportunities offered by ICTs for developing countries are:

- They greatly increase the ability of researchers, scientists, professionals, institutions and governments to share their knowledge and experiences with specialists and organizations from around the world, accessing information

and materials that would be difficult to obtain otherwise. This contributes to increasing the pace of its technological development and the training of its professionals.

- They offer the possibility for small companies from many countries to compete in specialized segments of the world market. They also make it possible to increase productivity and reduce costs through collaboration between small producers, and offer them the possibility of accessing new technologies and processes throughout the world.
- That excluded and minority groups have created communities with the capacity for political pressure, becoming an instrument of social integration and the backbone of society.
- They favor decentralization and diversity, and allow governments to get closer to citizens.

While ICTs offer advantages, there may also be some circumstances that may pose a risk to developing countries, for example because they allow multinationals to take advantage of their dominant position to corner markets and expand their businesses and activities, preventing local companies from developing their capacities and many of them are forced to close.

Another possible risk is that ICTs can facilitate cultural homogenization, through means of communication that are largely in the hands of developed countries and to the detriment of the cultural identities of the poorest countries–in this regard, Huntington in his work "The Clash of Civilizations" maintains that such risks are unfounded, since innovations throughout history have ordinarily been assumed by other civilizations, without significant cultural consequences; and adds that there are no indications that due to the appearance of communication systems of a planetary order, massive convergent changes are taking place in the attitudes and beliefs of societies, and that, on the contrary, each civilization tries to adapt them according to their own needs. values and needs.

In addition to the threats, it is convenient not to forget that developing countries have, as the main limitation to the incorporation of ICTs, the scarcity of telecommunication infrastructures, due either to their cost, or to the level of income in the most disadvantaged areas means that the investments necessary to create infrastructures are not profitable for telecommunications companies.

These threats lead to the phenomenon known as "The Digital Divide", which according to the OECD refers to "The existing gap between individuals, companies and geographical areas of different socio-economic levels with respect to the opportunities of these agents to access to ICTs and the use of the Internet for different activities".

In other words, despite the fact that new ICT advances appear every day and that the amount available on the Internet also increases, it is also real that the difference between those who have a computer at home and who, in addition, have access to the Internet, varies significantly around the world.

On the other hand, it is necessary to consider whether all people are taking advantage of the services and benefits that are generated in the IS, which must be available to each one of the citizens, regardless of their health situation, their economy, their age, their gender and their geographical location, in such a way that the exclusion of individuals can be overcome, improve economic conditions, performance, opportunities, social participation and cohesion.

In this sense, interest has been generated in the existence of "digital inclusion" or "e-inclusion" in order to: "achieve that no citizen is left behind in enjoying the benefits of ICTs", (Free translation), which is why it "focuses on the participation of all individuals and communities in all aspects of IS; given that the uneven development of the IS can lead to the generation of new gaps or the deepening of existing ones.

It should be noted that e-inclusion or digital inclusion (e-inclusion or digital inclusion) focuses on taking advantage of the benefits offered by the IS, therefore, if this objective does not occur, some authors call it the second digital divide. As for the so-called digital divide, it focuses on access to ICTs and the internet.

It is important to say that to overcome these gaps, public initiatives have been generated, such as the riga ministerial declaration that seeks to improve digital inclusion and the digital divide for citizens of the European community.

Finally, it should be noted Banegas establishes that despite the drawbacks that arise, "the information society represents an opportunity linked to the assumption that most people are connected to networks with computers and other electronic devices telecommunications, and more specifically the Internet, in order to exchange information and knowledge ecumenically".

Likewise, he adds that never before has a technology given equal opportunities to large masses of access to knowledge, professional training, culture, science and pure entertainment easily and cheaply; coinciding in this way with the approaches of the UNPD. On the other hand, the United Nations Commission on Science and Technology for Development-UNCSTD maintains in its report Building Innovative Knowledge Societies that it is true that although for a developing country the cost of building the infrastructure to be part of the IS is high, the derivative of doing nothing would be much higher.

Development of public policies for the incorporation of ICT in colombia

The Colombian government, based on the assumption that ICTs are crucial to increase the country's competitiveness and that their adoption in different sectors is an investment that pays for itself, accepted the challenge of formulating public policies. These policies have included everything from the regulation of telecommunications and Internet-related services and incentives for companies to innovate, to the modernization of the State and the provision of online services. The first efforts date back to 1997, when efforts such as:

- "Guidelines for a national information policy".
- "Bases for a national information policy" which was created with the participation of the private sector in the High Technology Permanent Forum.
- The national development plan 1998-2002 "change to build peace" which establishes that it should seek to increase productivity and competitiveness with the support of telecommunications
- The connectivity agenda whose objective is to spread ICTs to promote social and economic development;
- The presidential directive of august 2, 2002 which implements the mandatory compliance of the connectivity agenda by all public entities through the "Online Government" strategy.

The government, in order to collect the effort made and guide it strategically, establishes through the 2006-2010 government Plan the creation of a National Plan for Information and Communication Technology-ICT Plan led by the ministry of communications, which seeks to be a strategy to generate the development model called "The Knowledge Society (SC)", which is based on the proper use and appropriation of ICT to achieve productive growth and economic and social progress. The ICT Plan proposes that work be carried out on four transversal axes: Community, Online Government, Research, development and innovation, and the normative, regulatory and incentives framework; and four verticals (education, health, justice and business competitiveness.

Finally, there is decree 1151 of 2008 where the general guidelines of the online government strategy are established which are mandatory for all entities that are part of the public administration of the country. On the other hand, in terms of actions aimed at promoting access and IT service, the most outstanding programs are: the plan vive digital, computadores para Educar-CPE and compartel, which have made it possible to generate an infrastructure for digital inclusion in the country.

CONCLUSION

The information society refers to the fact that information and knowledge tend to become the central element where the economy and social relations that structure today's society are sustained, through the progressive use of ICT. Its conceptualization has been given from different fields, such as academic, business and governmental, highlighting the importance of ICT as a transforming element of the dynamics of society.

In this sense, the incursion of ICTs has caused effects on the economy, for this reason they can have a role in developing countries, for which they could, in the best of cases, become an opportunity to facilitate the social development of these countries., and in the worst case, increase the existing gap between developing and developed countries. Due to the above, the Information Society poses a series of challenges to governments and, furthermore, due to its characteristics, they justify state intervention either to promote, guide, regulate or facilitate its development. In this sense, it is important to highlight the supranational initiatives that have been aimed at generating commitments between the different regions in favor of creating dynamics that allow the use of ICTs as a development strategy, as well as promoting their use by all citizens, regardless of their economic, social, health and location conditions.

For the specific case of Colombia, it was detected that initiatives and efforts have been created to promote the use of ICT in different areas, as well as the necessary conditions to achieve this objective.

On the other hand, according to the review carried out, the origin of the IS is located in the mid-1960s and early 1970s. Among the causes that have been established to explain its emergence are the rise of technology and as a response to a social and economic need.

Finally, it is important to highlight that the debate and discussion about the IS is open, and there is still a lot to be understood about the changes that have arisen and the implications that these bring. Therefore, it is necessary that this topic be analyzed from different perspectives that enrich its understanding, considering that any definition or conceptual proposal is always linked to the subjectivity of its author.

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