

Research Article

IMPORTANCE OF ICTS, TELEWORK, ROLE OF COVID-19 AND E-COMMERCE IN MEXICO

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ABSTRACT

Advances in ICT have made online education more important in the national education system. In terms of teleworking, the Federal Labor Law was modified on January 11, 2021, which highlights that the employer must cover costs proportional to the electricity and internet service used by workers. In eleven months (from March 1, 2020 to January 31, 2021) nearly 800 thousand formal jobs of IMSS contributors were lost, by October 2021 only 36 thousand jobs remained to be covered from that loss. In Mexico, due to COVID-19 in 2020, the GDP contracted 8.3%, recovering 5% by 2021. In the relationship between electronic commerce and GDP, Mexico presents 2.7% as of October 2021, the same percentage as Brazil, with countries such as Chile, Peru, Argentina and Colombia above; The United States and Canada present positions above our nation in 2.2 and 1.5 times more, respectively. In Mexico, five economic activities generated 24,560 million dollars through electronic commerce operations in 2020: (travel-accommodation, electronics, fashion-beauty, toys-hobbies, and furniture-appliances).

Keywords: digital divide; office automation; pandemic; e-commerce.

INTRODUCTION

With the implementation of new information and communication technologies (ICT), educational activities, especially at a distance, have acquired notoriety and importance in the educational process. Therefore, ICTs are tools that allow active participation of students in the digital environment, where they achieve learning based on self-taught techniques and in an asynchronous way. The advance of ICTs is allowing the configuration of new social and organizational forms, where communication with traditional media is undergoing a modernization, derived from the use of digital communication devices that are shortening distances and times in the form of social communication. In addition to health and sanitary problems, the COVID-19 pandemic has generated multiple economic and social problems for our country and the world in general. Here I will address two of the activities that have grown the most during the last twenty-four months: telework and e-commerce, in addition to the economic impact that COVID-19 had on the country. In our country and in general around the world, telework or 'home office' has expanded considerably and has reached all activities that allow working from home, since two decades ago but particularly intensified since the advent of the pandemic of COVID-19. In our country new legal reforms of January 12, 2021, where are modified the legal aspects that deal with the actions of the companies in the matter of telework, marking them obligations to take care of the well-being and to prevent the risks for their workers or collaborators. Among other expenses, it is incumbent upon the employers to cover proportional parts of consumption of electric energy and internet service used for teleworking issues. There is no doubt that E-Commerce (electronic commerce) is gaining more and more importance and notoriety with the pandemic of COVID-19 this type of commerce became preponderant in the commercial activities of the country and worldwide. Information and Communication Technologies (ICT) played a major role in the active participation of commercial expansion through e-commerce.

The role of ICT in education and in digital media

Online learning and self-learning in these times are unthinkable without the daily use of Information and Communication Technologies (ICT). In this regard, I bring up two concepts provided by Ríos Campos *et al.*, (2021: 7564-7565) about them: "The so-called Information and Communication Technologies are the resources and tools that are used for the process, administration and distribution of information through technological elements, such as: computers, telephones, televisions, etc. [Universidad Latina de Costa Rica, 2021]". Since the 1980s, the use of computers and computer programs has made it possible to create, store, modify and process a wide range of information, which has led to the development of new skills and competencies in recent years. For some authors such as J. Cabero (1998; cited by Cerón & Muñoz, 2020: 12) and J. Almenara (1998; cited by Arellano *et al.*, 2021: 43), information and communication technologies (ICT) have three interrelated and mutually reinforcing elements: computer science, microelectronics and tele-communications. ICTs have enabled substantial progress in the field of education, as facilitators of knowledge through the application of participatory methodologies. The use of educational platforms (especially online) allows the integration of innovative technological strategies, with which the student accelerates his cultural and social learning process, achieving progress in research more quickly, generating search skills, opening communication channels and above all saving time.

According to P. Seybold (2006: 42; cited by Bolaño *et al.*, 2017: 162-162), five types of users are manifested in the appropriation of ICT:

- Leaders: those who, not finding technology that meets their needs, invent it; they are responsible for the creations of the next generation.
- Contributors: those who donate and share their work for the benefit of others.
- Consultants: participate in the reconfiguration by giving their technical opinions.
- Guides: help the user to understand complex technologies, adding value through the creation of new knowledge.

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- Promoters: who come up with innovative ideas by promoting the technology among potential users.

In recent years, with the incorporation of ICTs, another concept is being applied to the educational approach: person-centered learning (PCA), whose main exponent was Carl Rogers in 1982, an approach that establishes self-taught learning, where the role of the teacher or tutor is to facilitate knowledge according to the personal characteristics of the student, who learns by discovery and is able to do so in an autonomous and non-directive way (Veytia & Bastidas, 2020: 76). If in the last decade of the twentieth century it was not possible to implement person-centered learning, today it is possible thanks to the significant progress made by ICT, where social networks can be used to enable this type of education and where a tool that can fulfill these purposes is WhatsApp, mainly with students in higher or postgraduate education. Cerón Vargas & Muñoz Alonso (2020: 13-14) state that the changes brought about by the use of ICTs produce substantial changes in all sectors of society, impacting the educational sector and especially in the process of active learning methodologies, noting on this topic: "...gradually the use of these resources has been introduced in the classrooms of students, until reaching the current situation where the paradigm of education is focused not on the figure of the teacher and the teaching process, but rather on the student and his learning process (Belloch, 2012)". With ICTs, the participation of users in social networks is increasingly active, for which they use, among other means: computers, tablets and smart phones. Rodríguez Hidalgo et al (2020: 45) point out on the subject of reference: "Information and Communication Technologies (ICT) are tools that allow users to communicate and collaborate with each other, facilitate the creation and dissemination of content through different platforms and in various formats, while motivating an increasingly active participation of people in the digital environment". Regarding the advance of Information and Communication Technologies (ICT), Veytia Bucheli & Bastidas Terán (2020: 75) have expressed: "The increase of information and communication technologies (ICT) in the different spheres of life is shaping new social and organizational forms, changing paradigms and challenging traditional limits, as well as spatio-temporal ones, since thanks to these, digital communication has increased (Agnese, 2017)...". The technical advances that support the information highway and the application of the internet in the new scenarios of collective communication, where aspects of social and political participation are intertwined, make us see ICT as detonators of a change, in such order of ideas I. Sábada (2002: 2; cited by Bolaño *et al.*, 2017: 163) comments: "A series of ruptures are perceived in front of the traditional means of communication (press, radio and television), de-rived from the use of networked communication devices, protocols and global web portals that converge in a transmission of information whose cost and access time is not proportional to the distance where it is produced and where it is received". The relationship between ICTs and communication and learning, known as connectivism, Ríos Campos et al (7574) point out in their conclusions: "Information and Communication Technologies and connectivism are very important in this digital era, where digital natives have many advantages compared to digital migrants. In our Latin American countries, the digital divide limits the adoption of ICTs by the vast majority". Since the implementation of new ICTs, the media have diversified as the evolution and adaptation of the use of technological devices in human life progresses, with the hybridization of the media arises the media ecology, in which there are new ways of carrying out the ways of communicating, where the media have to adapt to new practices of relationship and communication (Jáuregui & Ortega, 2020: 356). Here we appreciate two concepts: digital natives and digital migrants. Following Marc Prensky, digital natives are those who were born in a new culture and where modern technologies (iPhones, social networks, high-speed Internet, etc.) prevailed, while

digital migrants are people who were born when analog technologies were in use and who had to learn as adults the use of digital devices. Because of the stage in which they lived, digital migrants are at a disadvantage with digital natives. Digital natives develop habits of informative character very different from those of their parents, even young people from other generations, where the former have been shaped by the intensive use of ICT, for Rivera, Velázquez & Rodríguez (2018; Rodríguez *et al.*, 2020: 49) the main activities carried out by digital natives on the internet are leisure, entertainment and socialization. Activities in which social networks become their favorite tool, since for them their use does not represent any difficulty, they have a long reach and are also free.

Telework and its new legal environment in Mexico

Teleworking in Europe and the United States has been widely used for twenty years and in Latin America its introduction is approximately fifteen years old, among the first authors who dealt with the subject of teleworking we find Cristina Civit and Monserrat March (2000: 2; cited by Osio, 2010: 93-95). Benjumea, Villa & Valencia (2016: 61; cited by Peralta *et al.*, 2020: 328) state that from the end of the last century Latin America has begun to adopt telework, thanks to the constant advances in ICT, increased productivity of companies, labor enthusiasm and the reduction of costs and expenses associated with transportation, clothing, auto insurance, fuel, maintenance, parking, cleaning and food, among others. Authors such as Guzmán Duque & Abreo Villamizar (cited by Peralta *et al.*, 2020: 328) have pointed out that teleworking is not a new practice, since it dates back to the seventies, when the first major oil crisis occurred, with which several employees could not use their cars because of the scarcity of fuel and the high costs associated with gasoline and therefore could no longer move to their offices or workplaces. As for the definition of telework, from the article by Osio Havriluk (2010: 96-97) I take up two of them: "Telework occurs when salaried workers perform all or part (regularly or occasionally) of their work outside the usual site of their activity, usually from home, using Information and Communication Technologies [CIDEDEC, 2000: 7]...teleworkers, are those who work in a computerized way (with a computer), away from the business of their employer or the person who hires them, and who transmit the results of their activity via a telecommunication link [ECaTT, 1999: 12]". From these two definitions I can highlight some of the most important elements of telework: 1) For this to exist it has to deal with salaried workers by a company; 2) They are outside the factories or offices where the work is done; 3) Use of ICT in an intensive way; 4) They work with a computer or other similar technological tool; 5) They transmit the results of their work through telecommunications.

The European Institute for Strategic Telecommunications Research and Studies (Yáñez, 2007: 71; cited by Osia, 2010: 99-100) has defined these modalities of telework:

- ✓ Home-based teleworker. He/she does not have an office position and works exclusively at home.
- ✓ Office teleworker. Has a permanent office position and works predominantly at home.
- ✓ Flexible office teleworker. Includes workers who work evenings or weekends at home and are available during office hours.
- ✓ Flexible home-based teleworker. Does not have a permanent position in an office, but works at home and in different offices.
- ✓ Teleworker with home office. Who has a computer in the office and at home, spending two or three days in the office and the rest at home.

Additionally these teleworkers are distinguished: a) salaried teleworker, who is on the payroll; b) Self-employed or Freelance, works for one or more companies offering their services; c)

Teleworker entrepreneur, who has his own business. Peralta Beltrán *et al.*, (2020: 327) point out that among the advantages of teleworking are: a) Less need for infrastructure; b) Lower costs, since the worker assumes some expenses; c) Fewer resources in the control, schedules and other workers; d) Better use of jobs; e) Less or no absenteeism; f) Less conflict among workers. Among its disadvantages are: a) Less face-to-face communication; b) Less control over the employee; c) Large investments in technology. In 2020, a regional study of Latin America was conducted by the IPADE Business School of Mexico, in collaboration with the Centro de Investigación de la Mujer en la Alta Dirección (CIMAD) -Center for Research on Women in Senior Management-, the survey showed: prior to the pandemic 34% of the population worked full time connected remotely and 10% did so only a few days a week, while during the COVID-19 pandemic 68% of Mexicans presented full-time home office schemes and 11% a few days a week, with which Mexico becomes the country in Latin America where telework and the dynamics of working at home (home office) has been more accepted and where expectations to continue with that kind of work are high (Hernandez, 2020). Also in the reference study, 26% of the people indicated that it is the first time they do home office; 69% of the companies enabled telework during the pandemic, 24% organized mixed shift schemes combining face-to-face and remote work, 4% work normally and 3% suspended activities at the peak of the contingency in 2020; 54% of the people took training courses for telework, being the highest percentage in Latin America, however 42% said they had not received emotional support, being the lowest percentage in Latin America (Hernandez 2020). In legal matters, Chapter XII 'Work at Home' of the Ley Federal del Trabajo (LFT) - Federal Labor Law- already contemplated before the pandemic, in its articles from 311 to 330, regarding out-of-office work: "Home work is that which is habitually performed for an employer, in the worker's home or in a place freely chosen by the worker, without the immediate supervision or direction of the person providing the work... Work performed at a distance using information and communication technologies will be considered as home work". It is also considered home work when the employer sells raw materials for the worker to transform them at home and subsequently sells the goods to the same employer (article 312 LFT). Employers who provide this type of work must previously register in the Registry of Home Work Employers, which will operate at the Labor Inspection (Article 317 LFT). According to article 318 of the LFT, working conditions shall be established in writing and shall contain: I. Name, nationality, age, sex, marital status, domicile of the worker and of the employer; II. Premises where the work will be performed; III. Nature, quality and quantity of the work; IV. Amount of the salary and date of place and payment. The wages of home workers may not be less than those paid for similar work in the fixed establishments where the work is performed (article 323 LFT). Home workers will also be entitled to their weekly rest and to the enjoyment and payment of vacations (Articles 327 and 328 LFT). On January 11, 2021 the reforms to the Ley Federal del Trabajo -Federal Labor Law- were published in the Diario Oficial de la Federación-Official Gazette of the Federation-, adding Chapter XII BIS 'Telework', defining in article 330-A as follows: "Telework is a form of subordinate labor organization that consists of the performance of paid activities, in places other than the establishment or establishments of the employer, so it is not required physical presence of the worker under the modality of telework, in the workplace, using primarily information and communication technologies, for contact and command between the person under the modality of telework and the employer". Under the modality of teleworking, the person will render his personal services through a remuneration and in a subordinate manner to an employer, in a place different from the company's facilities. The third paragraph of article 330-A states:

"...information and communication technologies shall be understood as the set of services, infrastructure, networks, software, computer applications and devices whose purpose is to facilitate the tasks and functions in the work centers, as well as those needed for the management and transformation of information, particularly the technological components that allow the creation, modification, storage, protection and retrieval of such information". Diana Barriga (2021) notes that the federal government has 18 months to publish a Norma Oficial Mexicana (NOM) -Mexican Official Norm- that governs the health and safety obligations for workers who are within the telework modality. D. Barriga (2021) points out that among the main 2021 reforms to the LFT are:

- Changes in contracts and regulations. Modification in writing.
- Work teams. The employer must provide its employees with the appropriate equipment to work at home (computers, ergonomic chairs and printers, as well as the maintenance of these items).
- Costs derived from teleworking. Proportional parts of electricity and internet.
- Right to disconnection. The employer will have to respect the schedule and end of the working day that is established, if more time is required, the employer will have to pay overtime.
- Constant training. The employer will have to train workers in digital competences.

Impact of the COVID-19 pandemic in Mexico

According to the World Health Organization (WHO), a pandemic is the worldwide spread of an infectious disease in humans, where a large number of people are affected and it is geographically extensive. According to WHO (OMS, 2021) the conditions for a pandemic are: 1) That it is a new virus; 2) That there is no population immune to it; 3) That the virus produces severe cases of disease; and 4) That it can be transmitted from person to person. In March 2020 and at the beginning of COVID-19, 118,000 people were infected worldwide, 114 countries had at least one infected person and 4,300 deaths were recorded due to the disease, at which time the WHO declared COVID-19 a pandemic. The official name of the virus is SARS-CoV-2, being reported for the first time to the WHO on December 31, 2019, which is part of the family of viruses known as corona viruses. The global economy has a new challenge of enormous magnitude due to what happened with COVID-19, shaking developed, developing and poor countries, in their most diverse sectors and economic activities, from which the field of finance in general has not escaped and especially the field of business or corporate finance. The first great crisis of the 21st century at world level occurred in 2008, as expressed by Villalobos López (2020: 8):

"...the ensuing 2008 crisis that began in the United States, but with worldwide repercussions in the financial and economic spheres. In the same sense, Egea (2013:5) comments that in 2007 the subprime mortgage crisis in the United States was caused by the bankruptcy of the two largest companies in this country: Freddie Mac and Fannie Me, which covered half of the mortgage market in the neighboring country, thus forcing the Federal Reserve and the US government to intervene in 2008 to rescue these two financial institutions". The second great world crisis has been experienced since March 2020 as a result of the COVID-19 pandemic, which was felt worldwide, and from which we have not yet found a complete solution, although with the vaccination doses applied in the country and worldwide, a window of hope for a way out can be glimpsed. Among the activities affected by the COVID-19 crisis are: 1) Community, social and personal activities; 2) Hotels and restaurants; 3) Real estate, business and rental activities; and 4) Manufacturing. The impact of the pandemic will be reflected in different ways depending on the sector and type of

business, the most affected would be hotels and restaurants, which have a large number of small and medium-sized enterprises, where commerce could lose 1.4 million businesses and 4 million formal jobs, while tourism would lose 290,000 businesses and one million formal jobs (CEPAL –ECLAC-, 2020).

The British Broadcasting Corporation (BBC: 2021) gives us a summary as of November 30, 2021 of the economic impact of COVID-19 in Latin American countries, based on information from the World Bank and United Nations Development Programme (UNDP):

- One out of every four people in Latin America has not managed to recover the employment they had before the pandemic (27% did not recover it), where the most vulnerable group has been women by almost 2 to 1 compared to unemployed men. Informal work in the area grew to 53%, compared to 48% before the pandemic.
- Nearly half of the households have not been able to bring their total income back to the pre-pandemic level (48%), despite fiscal assistance given to the most vulnerable families.
- Food insecurity (households that went without food due to lack of money) rose to 24% during the pandemic, which caused this indicator to almost double.
- After the crucial part of the pandemic, only 23% of children attend classes, although most of them participate in some academic activity.
- On the encouraging side, access to health services reported that only 3.5% of households in the area reported that one of their members was unable to access them; another positive development is that digital transactions in the area increased by 52% as a result of the pandemic.

López Calva, UNDP regional director for Latin America and the Caribbean (BBC, 2021) says about the economic effects of the COVID-19 pandemic: "The COVID-19 pandemic highlighted the pre-existing inequalities in the region, where the most vulnerable and poorest groups have been disproportionately affected". Turning to quantitative information from Mexico, the number of jobs registered with the Instituto Mexicano del Seguro Social (IMSS) -Mexican Social Security Institute- is the one that can give the best idea of what has been lost due to the economic crisis originated by the COVID-19 pandemic in the country, we have that by November 2019 there were 20'803,652 formal jobs, according to information provided by the IMSS (Tableau Public, 2021). El Instituto Nacional de Estadística, Geografía e Informática (INEGI) –National Institute of Statistics, Geography and Informatics- highlights the second quarter of 2020 (April-June) as the worst quarter in many years in terms of GDP growth, with a historical contraction of 18.7% of GDP compared to the same quarter of the previous year. With the COVID-19 pandemic, 791,885 formal jobs were lost in eleven months (March 2020 to January 2021), which were fully recovered as the months progressed, reaching 20'767,587 jobs registered in the IMSS by the end of October 2021, almost fully recovering the eight hundred thousand jobs lost. If we consider that the maximum number of jobs was reached in November 2019 with 20.8 million workers registered in the IMSS, by October 2021 we have almost the same number, missing only 36,065 jobs to reach the maximum reached in Mexico, representing only 0.17% of the jobs of November 2019. In Mexico, the GDP in 2020 contracted by 8.3%, in figures released on January 31, 2022, the INEGI shows that the GDP will definitely grow by 5% in the whole year 2021 in Mexico, in such a way that in order to reach the figure it had before the COVID-19 pandemic, a 3.3% growth would have to be reached in 2022, which would barely recover the levels of 2019. If we do not grow at that rate, it will take at least another year to reach 2019 GDP.

I close this part by pointing out what Val and Navarro (2020:8) rightly conclude: "It seems that the corona virus is here to stay and its effects will not disappear immediately, but will be with us for a while, perhaps long enough to start (really) this discussion".

Electronic Commerce

The subject of consumer theory focused on e-Commerce or electronic commerce is becoming increasingly important, in view of the preponderant importance it is having in the current era, increased by the COVID-19 pandemic we are suffering. In the last decade, the use of devices such as cell phones, laptops and tablets has accelerated substantially, which has led to the expansion of e-commerce and the development of apps or specific pages for the sale of products and services online. The use of the Internet has spread and been used in such a way that the younger segment of the adult population can no longer carry out commercial transactions except on electronic platforms, where they have found speed and variety of goods and services. E-commerce consists of the purchase and sale of products or services, where consumers obtain information and acquire products through electronic means (Olson, 2000; cited by Mercado *et al.*, 2018: 110). The Global Digital Report 2021 October, compiled by Simon Kemp (2021: 161) provides us with very valuable recent information on the activity of electronic commerce (e-Commerce) in relation to the Gross Domestic Product (GDP) of each country, I mention some in order of global importance: Thailand 11.9%; China 11.5%; United Kingdom 9.3%; Denmark 6.9%; United States 6.1%; Sweden 5.8%, Hong Kong 5.6%, South Korea 5.5% and Taiwan 5.3%, among the first eight places worldwide..., Other countries are Spain 4.7%; Canada 4.2%; Japan 3.8%; Chile 3.4%; Peru 3.2%; Argentina 3.1%; Colombia 3%; Mexico 2.7%; Brazil 2.6%. Among the countries with the lowest development of e-commerce related to GDP we have three African nations: South Africa with 1.1%; Morocco 0.6% and Kenya 0.3%. With these figures, to my surprise I see that Thailand occupies the number one position in the world that performs e-commerce in relation to its GDP. It is not at all surprising to find China in second place very close to the first, as it is trading more products in the last decade. Once again, three of the Asian tigers (Hong Kong, South Korea and Taiwan) move from sixth to eighth place, which speaks to the growth and economic development they are achieving. Our T-MEC trading partners, the United States is ranked fifth and Canada is ranked sixteenth, with U.S. and Canadian e-commerce representing 2.2 and 1.5 times more than Mexico's in relation to each country's GDP. Latin American countries such as Chile, Peru, Argentina and Colombia are above Mexico in this ratio of e-commerce as a proportion of GDP, and compared to Brazil, which is practically the same as Mexico. Regarding the method of payment of purchases made by e-commerce worldwide, we have that globally (Kemp, 2021: 160) these are the main means: 1) Electronic wallets 44%; 2) Credit or debit card 39%; 3) Bank transfer 10%; 4) Cash 4%; and 5) Others 3%. Another of the most important indicators of e-commerce shows that it has grown by 7.6% in the last year, from October 2020 to October 2021 (Kemp, 2021: 155).

For Perez Ortega (2021: 22-26) there are four types of e-commerce:

- B2B: Business-to-business, and there can be three types: manufacturers, distributors and retail stores.
- B2C: Business-to-customer, the most widespread type.
- C2C: Customer-to-customer, a type of sale between private individuals, which can be second-hand goods or private websites.
- B2A: Business-to-Administration (business-to-public administration, such as social security, employment, tax services), also known as B2G (Business-to-Government).

The e-commerce that I am interested in highlighting is business-to-person (B2C), which is the most frequent and the one that has developed the most. The use of e-commerce has expanded at such a speed that its commercial structure, distribution system and distribution channels have undergone considerable transformations in recent years. This is one of the compelling reasons for examining consumer theory in the online purchasing process and with the use of electronic platforms. It is worth remembering that consumer theory is based on the assumption that goods and services are purchased to achieve the maximum possible welfare or satisfaction, based on the key element of scarcity. Assumptions play an essential role in consumer theory, without them it is not possible to explain it, these assumptions being: 1) Knowledge of all the information regarding the goods to be chosen; 2) Law of transitivity: if A is preferable to B and B is preferable to C, then A will be preferable to C; 3) Law of non-satisfaction, the consumer always wants more and is not satisfied. Applying these theoretical and conceptual aspects of consumer theory, the first step that is required for online purchases, is that those who want to acquire the products or services, are perfectly informed of the qualities of them. Santos Millán (2019: 622) shows that the use of ICT has more than doubled from 2010 to 2018, expressing in this regard: "Consumer behavior has changed; today the consumer is as if he were a small specialist as a result of the large number of media from which he can obtain information". Hence the importance of trying to understand the variables that influence the consumer's buying process. L. Shiffman (2010, cited by Santos, 2019: 623) understands consumer behavior as the behavior that consumers employ when searching for and purchasing goods and services in the hope of satisfying their needs. Traditional microeconomics is based on the assumption that people always follow rational behavior when making decisions, but consumer behavior has not been fully understood, which is why psychology and neuroscience have been incorporated into the analysis and study of consumer behavior, with the aim of understanding the process of personal decisions in situations of uncertainty. For Daniel Kahneman and Amos Tversky (1979; cited by Santos, 2019: 623) behavioral economics explains that the decisions people make are influenced by cognitive, social and emotional aspects that condition them. Returning to the subject that concerns us, the first uses or purchases over the Internet began by acquiring airline tickets or booking hotel stays, but progressively it has moved on to the purchase of more every day or personal objects. The above situation occurred as a result of the progress and development of information and communication technologies (ICT), which has structured a new consumer who has much more information, thanks to the Internet and social networks can learn about multiple products and opinions of other consumers. Currently, the percentage of digital content purchases for October 2021 (Kemp, 2021: 159) shows the following information on the products chosen: Series or movie streaming service (e.g. Netflix) 31.3%; Music streaming service (e.g. Spotify) 23.3%; Download music 20.2%; Mobile applications (App): 17.1%; Mobile games 16.4%; Study programs or learning materials 14.2%; Electronic books 12.6%; and In-app purchase (in-app) 11.7%. As can be seen, the preferred products for online purchases are considered streaming and are used to watch series or movies, as is the case of the segment leader: Netflix, where Claro Video, HBO, Amazon Prime and Disney Hot star also have a share in this market segment. In the case of study programs or learning materials, one out of every seven people who make online purchases do so for educational preparation. In my case I can speak for and it is the products I have purchased the most online. I present some figures on the percentage of internet users worldwide, who have engaged in e-commerce activities in the considered fast week (Kemp, 2021: 150-152):

- By activity: Shopping for products or services online 57.8%; Ordering groceries in-store online 27.4%; Second-hand items 14.4%; Using online price comparison 24.6%; and Buy now, pay later 17.4%.
- Weekly online shopping: Of the total number of Internet users, these are the percentages by age: 16 to 24 years 55%; 25 to 34 years 60.3%; 35 to 44 years 60.5%; 45 to 54 years 57.2%; and 55 to 64 years 53.8%. By gender of the buyer, there is a slight advantage for women in E-Commerce.
- Kathya Mercado et al (2018: 110) found in their results of the research they conducted in the State of Sonora, on consumer behavior, that three variables influence the purchase decision: 1) Purchase motivation; 2) Experiences; and 3) Consumer behavior. This I can comment on from the study conducted by Mercado et al (2018: 118):
- The existence of products has a decisive influence on the purchase of products, since when these do not exist in local stores, the tendency to consume online increases. The study shows that 75% of participants agree that the use of shopping platforms made them change their shopping habits, as online stores display more products and better offers.
- In terms of purchase motivation, the influence of blogs and social networks make them decide to buy online. The study found that user comments on social media are more influential than commercial messages from the supplier, particularly those born between 1975 and 1995.
- Based on the profile and experiences of the online consumer, the study found that when shopping for work, price is the determining factor, while for the end consumer the most important factor is the shipping method, putting price in second place.

The most online purchases of products and services were made in the technology, clothing and entertainment sectors, since the time between motivation and purchase decision decreased, due to comments on social networks, which is why consumers buy more products in less time. Regarding purchase motivation, the point is reinforced by Sanchez (2013; cited by Santos, 2019: 631) when he mentions that apps such as Instagram or Facebook store great information about users. When a 'like' is given, this data is recorded and how much time the user invested in the platform, as well as what type of person you relate to or what brands you follow. For the specific case of Mexico, e-commerce transactions were recorded in 2020 (Kemp, 2021b; 74-75) in the following categories presented in US dollars and in annual growth, equivalent to these amounts:

- Travel, mobility and accommodation 7.68 billion: -48.5%.
- Fashion and beauty 4,520 million: +36.2%.
- Electronics and physical media 5,890 million: +25.5%.
- Food and personal care 1,930 million: +42.5%.
- Furniture and appliances 3,020 million: +31.8%.
- Toys and Hobbies 3,450 million: +32.4%.
- Video games 1,970 million: +32.8%.
- Digital music 344.6 million: +35%.

In previous paragraphs I mentioned that the first purchases made through e-commerce were purchasing airline tickets and booking hotels, this data confirms that these activities are the ones that generated the highest volume of purchases through e-commerce. Although it is observed that as a consequence of the COVID-19 pandemic, the travel, mobility and lodging category was very affected by this contingency, falling by almost half during 2020, which is the only activity that presented negative growth or a decrease in its operations in that year. From our own experience and because it is presented in this information, the majority of electronic goods are

acquired through online purchases, occupying the second place by category in terms of the volume of purchases made during 2020, with a growth of just over a third in relation to the previous year in the electronic goods sector. A similar inference can be made in the purchase of furniture and household appliances, purchases which, in terms of volume, occupy the fourth position in the total, showing a little less than a third of growth compared to the previous year. The category with the greatest dynamism corresponds to food and personal care, it is logical to assume that due to the continuity of COVID-19 many people stayed at home for several months, which made them order their food and personal effects through e-commerce, with the highest growth of 42.5% of 2020 being observed in this category. It can be said that in the way consumers interact, they are leaving traces of what they do in social networks, becoming a target for the designers of marketing campaigns. Santos Millán (2019: 637) points out in this regard: "Unlike now it is no longer only useful to know which place on the supermarket shelves is the most observed by customers to place their product, but they have to know, for example, their tastes through their social networks or their lifestyle and what sites they usually go to, with the information provided by the apps used by their mobiles".

I will now present some e-commerce figures recorded in Mexico, as of February 2021 (Kemp, 2021b: 71), in relation to the characteristics of the users:

- ✓ 36.9% have an account in a financial institution.
- ✓ 9.5% have a credit card (7.9% women and 11.4% men).
- ✓ 5.6% have a mobile money account (cell phone).
- ✓ 13.2% make purchases or pay online (11.8% women and 14.7% men).

CONCLUSIONS

- The new Information and Communication Technologies (ICT) have made online education gain prominence and notoriety in the national educational system, where studies with self-taught and asynchronous methods stand out, with students acquiring active participation in their learning process and programs. The changes brought about by ICT in recent years, have shaped new social forms of communication, with it those considered as digital natives develop activities very different from those performed by their parents, highlighting the sessions they carry out concerning leisure, entertainment and socialization, making social networks in their favorite communication tool.
- Teleworking occurs when salaried workers perform all or part of their work away from their usual place of activity, generally at home, making use of ICTs permanently and constantly. Telework is carried out with a computer, transmitting the results of their work through programs or Internet platforms. On January 11, 2021 the Federal Labor Law (LFT) is reformed, adding Chapter XII BIS 'Telework', where Article 330-A defines telework and information and communication technologies (ICT).
- The reforms to the LFT of January 2021 basically establish these changes: a) The contracts and regulations governing telework must be in writing; b) The employer will be required to train its workers in digital skills; c) The worker will have the right to disconnection, if he/she had to work additional time, overtime will have to be covered; d) In terms of expenses the employer must cover: cost of computers used for teleworking, as well as proportional parts of electricity and internet used in the work.
- The crisis originated by the COVID-19 pandemic cost the country the loss of 791,885 formal IMSS jobs, in the period of eleven months (from March 1, 2020 to January 31, 2021), although by

October 2021 the record figure of 2019 was almost reached (two years later), with only 36 thousand jobs still to be covered.

- In Mexico the GDP in 2020 contracted 8.3%, with figures for the year 2021 provided by INEGI an official growth of 5% of the GDP was recognized, with which to reach the level it had before the pandemic would need to grow in the year 2022 at a rate of 3.3% per year, if the country did not grow in this amount would take at least another to recover what was lost by the contingency of COVID-19.
- E-commerce has become one of the most widely used instruments for the acquisition of products or services in recent years, particularly during the COVID-19 pandemic, where ICTs have contributed significantly to the advance of e-commerce. Globally, an important figure as a point of comparison, is to measure the weight of e-commerce related to GDP, in this case the countries with the largest transactions as of October 2021 are: Thailand with 11.9%, China with 11.5%, United Kingdom with 9.3%, Denmark with 6.9% and United States with 6.1%, while Mexico with 2.7%. In the aforementioned ratio, countries such as Chile, Peru, Argentina and Colombia show higher figures than our country, while Brazil is in a similar position to Mexico. Our T-MEC trading partners, the United States and Canada, are 2.2 and 1.5 times higher than our country in this e-commerce ratio.
- In the case of e-commerce in Mexico during the year 2020, the following main activities and their respective annual growth rates were recorded: a) Travel, mobility and accommodation with 7,680 million dollars, a decrease of 48.5%; b) Electronics and physical media with 5,890 million dollars, growth of 25.5%; c) Fashion and beauty with 4,520 million dollars, growth of 36.2%; d) Toys and hobbies with 3,450 million dollars, 32.4% growth; and e) Furniture and appliances with 3,020 million dollars, 31.8% growth. Following video games; food and personal care.

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