Toward a Contact-Free Economy

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Researc

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Our purpose:

"To bring the age of **opportunity** to everyone

Introduction

With the world's growing technological and telecommunications advances over at least the last three decades, the daily processes of individuals, businesses, governments and the academic and social sectors have been changing to incorporate these advances, not just to increase productivity and reduce costs, but also to increase interactions and links between people.

Today, in the difficult international situation caused by the COVID-19 pandemic and the social distancing rules to contain the spread of the disease, economic agents who supply and demand goods and/or services have had to accelerate the incorporation and adaptation of the use of technology into the production, distribution and consumption phases, in order to be able to interact with less contact between people.

It is therefore important to talk about the role of the **contact-free economy** not only as a temporary tool to allow some economic activities to continue during the pandemic but as a system that, once implemented, is part of the new reality of a society with and without contact. In a broad sense, the term refers to economic activities carried out without physical contact between people, whether in person or remotely. In particular, the contact-free economy becomes more important when analyzing the transition to contact-free forms or substitutes of various economic activities and sectors that traditionally were carried out with physical contact between people. This paradigm takes place within the context of constant technological, cultural and social changes and having received a strong boost due to the pandemic. Given the above, we have published this study **Toward a Contact-Free Economy**, analyzing the most significant trends in a contact-free economy that have reconfigured our lives during the lockdown and subsequent period of social distancing due to the COVID-19 pandemic and that will probably retain a strong impetus in the coming years. These trends are: 1) greater digital take-up in the world and among age groups and by gender, 2) use of digital payments growing at a faster rate, more contact-free technologies and less use of cash, 3) acceleration of e-commerce as the future of retailing to consumers, 4) slow recovery of the experience economy and more digital experiences, 5) more remote working from home, 6) growth of distance education in schools and universities, and 7) a rise in telemedicine.

While it is true that this social distancing phase caused by COVID-19 will come to an end, we hope that the results seen from accelerating our move toward a contact-free economy will lead to more efficient production, distribution and consumption processes than before this pandemic.

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Greater Digital Inclusion in the world and between age groups and by gender

01

Universal and affordable Internet access as a sustainable development goal

SUSTAINABLE G ALS



9 INDUSTRIES, INNOVATION AND INFRASTRUCTURE



The global crisis caused by COVID-19 and the lockdown measures imposed to reduce its spread in 2020 may, on the one hand, promote and expand the use of telecommunications technologies globally and among people in different age and gender groups; and on the other hand, highlight the important digital divides between economies, people of different age groups and genders.

Among the Sustainable Development Goals (SDGs) forming part of the United Nations' 2030 Agenda, Goal 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation" includes target 9.c.:

"Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020."

The United Nations International Telecommunication Union (ITU) notes that "all three pillars of sustainable development – economic development, social inclusion and environmental protection – need ICTs as key catalysts" It adds that "digital inclusion is necessary for sustainable development in 21st century."

Access to fixed-broadband has increased and its cost has decreased



Cost of the fixed-broadband Basket, 2019 (% of Gross National Income per capita, GNIpc)



Note: * 2019 ITU estimate.

Source: BBVA Research based on data from the United Nations International Telecommunication Union (ITU) and the Broadband Commission for Sustainable Development, 2020.

The number of fixed-broadband subscriptions has grown very significantly in recent years, from 220 million in 2005 to 1,145 million in 2019. Last year, it is estimated that there were 14.9 fixed-broadband subscriptions per 100 inhabitants.

In 2019, the average cost across 173 countries of the fixedbroadband Basket was **USD 26.66 per month**, representing **8.7%** of the Gross National Income per capita (GNIpc).

However, this figure varies greatly: in Macau, China, it accounted for only 0.12% of the GNIpc, while in Burundi, Madagascar, Niger, Rwanda and Malawi it cost more than 100% of the GNIpc.

The ITU and UNESCO established the Broadband Commission for Sustainable Development in 2010. One of its goals is:

By 2025, entry-level broadband services should be made affordable in developing countries at less than 2% of monthly Gross National Income per capita (GNIpc).

Monthly fixed-broadband Basket



256 kbit/s

Digital inclusion is being implemented through mobile data

Active mobile broadband subscriptions (millions)



Cost of the low consumption mobile voice and data Basket, 2019

(% of Gross National Income per capita, GNIpc)



An ever-greater number of people around the world can connect to the Internet through mobile data services using their mobile phone. In 2007, fixed broadband subscriptions exceeded mobile subscriptions, 346 vs. 268 million. By 2019, active mobile broadband subscriptions were nearly six times as large as fixed connections, 6.4 vs. 1.1 billion.

This is partly explained by the fact that broadband access over mobile data has become cheaper than fixed services.

In 2019, **64** countries had a fixed broadband basket cost of less than 2% of their monthly GNIpc. By contrast, for the lowconsumption mobile voice and data basket, **106** countries recorded a cost of less than 2% of their monthly GNIpc. For the 184 countries analyzed, the average cost of this basket was **USD 15.07**.

In the regions of Hong Kong and Macao and in Luxembourg, using this mobile voice and data basket cost less than 0.1% of the GNIpc. In 2019, the countries with the most expensive baskets were Niger, Liberia, Burundi and Chad, costing more than 30% of their GNIpc.

Low consumption mobile voice and data Basket



97% of the world's population lives in an area with mobile phone coverage

Global population with mobile phone coverage, by technology (billions of people)



Mobile telephony and mobile broadband subscriptions per 100 inhabitants by region, 2019*



Today, homes no longer require a computer to access the Internet, as many do it through mobile phones. Thanks to this gradual evolution in mobile phone ownership and signal coverage, over the past two decades the percentage of the population with access to the Internet has increased.

ITU estimates that 97% of the world's population lives in an area with a mobile phone coverage.

Of the total world population, 82% lives in places with Long Term Evolution (LTE) technology or higher and 11% have 3G network access.

It is estimated that there are 108 mobile subscriptions per 100 inhabitants worldwide, while there are 83 mobile broadband subscriptions per 100 inhabitants.

The number of Internet users is growing rapidly, but the global gap remains large

People who use the Internet

(millions and ratio per 100 inhabitants)



Internet users per 100 inhabitants by region, 2019*



Despite the wide geographical coverage of mobile phone Internet access worldwide, much of the population is without access to this service.

In 2001, only 495 million people, 8 out of every 100 inhabitants worldwide, had access to this service. By 2019, the ITU estimates that 4.1 billion people had Internet access worldwide, almost 54 people per 100 inhabitants.

However, the gap across the regions remains wide. **Europe is the region with the most people using the Internet, 82.5 people per 100 inhabitants**, followed by the American continent with 77.2 people per 100 inhabitants.

In the Sub-Saharan Africa region, there are an estimated 28.2 Internet users per 100 inhabitants.

A gender and generational gap persists in the use of the Internet

Internet user population by age group, 2019 (%)



▲ 16-24 25-54 ● 55-74

Note: For Brazil and Colombia, the data correspond to 2018; for Chile and Switzerland, 2017. Source: BBVA Research based on data from the Organization for Economic Cooperation and Development (OECD), 2020.

Gender gap in Internet users, 2017–2018 (percentage points (pp): % men minus % women)



Note: Some data correspond to 2019, 2016 or 2015. Source: BBVA Research based on data from the United Nations International Telecommunication Union (ITU). Although the proportion of the population using the Internet is high in many developed countries, a major generational gap persists.

Based on OECD data, over 90% of the population aged 16 to 24 have used the Internet in the last 12 months, while in countries such as Chile, Slovakia, Greece, Hungary, Italy, Lithuania, Poland and Portugal, more than 40% of adults aged 55 to 74 were not Internet users in 2019, either through a fixed connection or a mobile phone.

In addition, a gender gap also persists in the world. According to ITU data, it is estimated that 58% of men were Internet users in 2019, while this figure was 48% for women.

In several countries, both developed and developing, there is a gender gap in Internet use of more than 2 percentage points (pp) between men and women. In Germany and Italy the divide is more than 5pp. Iraq and Côte d'Ivoire, where the gender divides are 47.1pp and 20.2pp respectively, stand out.

In contrast, in countries such as Mongolia, Jamaica and Oman the percentage of women using the Internet is higher than the percentage of men.



02

Adoption of Digital Payments at a faster pace: more contact-free technologies, less cash

Increased adoption of digital payments during the COVID-19 crisis

According to the Committee on Payments and Market Infrastructures and the World Bank, **digital or electronic payment services** have been developed by banks and a variety of other payment service providers to address the limitations of cash as a payment instrument and to provide new opportunities for greater speed, security, convenience and other relevant features in a rapidly changing world (CPMI & World Bank, 2016).

Digital payments have changed the way people perform financial transactions, and for many people digital payments have replaced cash.

Digital payments include: debit cards, credit cards, prepaid and/or stored value cards, electronic online/mobile payments, mobile money transactions, electronic wallet, and bank transfers, among others (Roubini ThoughtLab & VISA, 2017).

Because of the global COVID-19 pandemic, people have become more aware of the cleaning and hygiene measures they must take to reduce the risk of contagion and these include less use of cash.

In a study by Kampf, Todt, Pfaender & Steinmann (2020) published in the Journal of Hospital Infection, 22 previous studies on human coronaviruses were reviewed and the conclusion was that it can remain on inanimate surfaces for some time. However little is known about the new SARS-CoV-2 virus that belongs to the same family.

Although the official World Health Organization (WHO) position makes no recommendation to stop or decrease the use of cash (Full Fact, 2020), uncertainty as to whether or not banknotes and coins can transmit the virus means that many people have chosen to reduce their use and increase digital payments (Gardner, 2020; Lomsadze, 2020; Mastercard, 2020).

47.7% of the world's population has at least a debit card

When it comes to digital payments, the system of payments through credit and debit cards usually comes to mind and this dates back to the middle of the last century.

World Bank data indicate that **47.7% of people aged 15 or over had a debit card in 2017, an increase from 2011, when it stood at 30.7%**.

In the Netherlands, Finland and Sweden, more than 98% of the population had a debit card; in contrast, in South Sudan and Sierra Leone, only 2% had a card of this type. At the global level, there is a marked gender gap. 52.1% of men had at least one debit card, while among the women this was only 43.4%.

There are countries where more than 50% of the population has a debit card but with marked gender gaps. Examples include Spain, Italy, Saudi Arabia, Turkey and Brazil, where the proportion of men with debit cards is significantly higher than the proportion of women.

Population 15 years or older with a debit card (%)



100.0% 80.0% 60.0% 40.0% 20.0% 0.0% Spain France Turkey Canada Australia Brazil Russia Argentina Kenya Finland Germany Japan China India Peru Mexico Myanmar Vetherlands Sweden ¥. Italy **Jnited States** South Korea Saudi Arabia Venezuela Indonesia Colombia Egypt Ethiopia Sudán del Sur Sierra Leone _. Men Women

Population aged 15 or older with a debit card, selected countries, 2017 (%)

The use of mobile or Internet banking is growing, but there is a huge gap in the world

Population aged 15 or older who have used a mobile phone or the Internet to access a financial institution account in the last year by region and country, 2017 (%)



Use of the mobile phone or Internet to access an account

With a financial institution account



Digital payments began with physical instruments such as cards, but have increasingly moved into the virtual domain, toward Internet payments or mobile payments.

When talking about online (or Internet) payments or banking, we are referring to this service being provided through a web page or website, while mobile banking or payments generally refers to those made through applications on mobile phones and tablets.

Today, with the increasing use of mobile broadband connections for mobile communication, the importance of the distinction is diminishing.

In 2017, 22.8% of people aged 15 or over in the world had accessed a bank account using a mobile phone or the Internet. Having a bank account is undoubtedly very important in this variable, however there are many other factors. In South Asia almost 70% of the population has an account but only 4.7% of the total access it using a mobile phone or the Internet.

The United States and Canada, Europe and Central Asia, and East Asia and the Pacific are the regions with the greatest use of mobile banking or Internet banking. In Sub-Saharan Africa, the Arab countries and South Asia, however, the use of mobile banking and Internet banking are very low.

In the Nordic countries (Norway, Denmark, Finland and Sweden), more than 79% of the population over the age of 15 had used mobile banking or Internet banking in 2017.

Globally, there is a trend to use cash less and digital payments more

Population aged 15 or older who regularly paid for water, electricity, and/or garbage collection only using cash in the last 12 months, 2014 and 2017



(% of the total payments made for these services)

Population aged 15 or older who made or received a digital payment in the last 12 months, 2014 and 2017 (%)

91.7% 91.8%



With the growth in credit and debit cards among the population and the use of financial services over a mobile phone or the Internet, more transactions have been made through digital payments and fewer using cash.

Data from the World Bank's Global Findex project indicate that in 2014, about 70% of the population paid their utilities on a regular basis only with cash; by 2017, this proportion had fallen to 51.9%.

In 2014, 41.5% of the world's population had made or received a digital payment in the last 12 months; by 2017 that figure was 52.3% of the population.

The Arab countries and Latin America and the Caribbean are where the largest proportion of people continue to pay for their utilities only with cash.

The United States and Canada, Europe and Central Asia, and East Asia and the Pacific are the regions with the greatest penetration of the use of digital payments. This is very clearly related to the high percentage of people who use the mobile phone or the Internet to access their bank account.

In-person contact-free digital means of payment

Outline of the main contact-free digital means of payment



Due to the COVID-19 health crisis, there has been growing interest in the population in paying for their purchases using the least amount of cash possible and more digital means.

In terms of digital payments made directly in brickand-mortar stores or in-person, there is a growing preference for the use of contact-free technologies, which will be discussed in the following pages.

In addition, thanks to the growth of digital payments, purchases made remotely or through e-commerce have also grown and this will be discussed in the next section.

Less cash, more contact-free payment technologies



Interviewees who indicated that they had used cash less frequently, or had not used it at all, April 2020

Interviewees indicating that they do not plan to change their use of contact-free means of payment after the pandemic, April 2020



A survey conducted by Mastercard in April 2020 involving 17,000 people in 19 countries was designed to learn **about the trends in in-person contact-free payments.** From this it was concluded that, boosted by COVID-19:

- 79% of respondents had made contact-free payments.
- 82% said that hygiene was one of the factors driving the decision to use contact-free payments.
- 63% had decreased their cash use or had not used it in the last few months.
- 74% stated that they do not plan to change their pattern of using contact-free payments after the pandemic.
- In both the United States and Europe, most contact-free payments are made in grocery stores and supermarkets, followed by pharmacies.

Note: * Preliminary data. Source: BBVA Research based on data from Mastercard, 2020.

The use of contactless cards is growing

Contactless cards incorporate RFID (Radio-frequency identification) proximity technology in the plastic, which is often used in identification credentials and for public transport, in combination with terminals or devices that implement NFC (Near-field communication) protocols. Generally, the user is the one who moves the contactless card toward the terminal to make the payment and for low value transactions they are not required to enter a PIN, so the card does not have to be handed over to the person working in the establishment and there is no physical contact with the terminal.

Europe is the region in the world with the highest penetration of contactless credit and debit card technology. According to data from the Bank for International Settlements (BIS, 2020), **in Switzerland, the Netherlands and the United Kingdom, more than 70% of active cards in 2018 were contactless.**

Furthermore, during the COVID-19 lockdown, 86% of those interviewed in Europe indicated that contactless cards were one of their most common means of making in-person contact-free payments, followed by mobile phones (28%) and other devices like Fitbit or Garmin (4%).

46% of interviewees who have a contactless card have made changes in their card use patterns and have increased their preference for the contactless card. In Asia this proportion was 51%, while in Europe it was 40% (Mastercard, 2020).

Most common method used for contact-free payments, selected countries, April 2020 (%, multiple answers)





Total contactless cards, selected countries, 2018 (millions and % of total cards)



Source: BBVA Research based on data from Mastercard, 2020, various publications.

Mobile payments using QR are a part of everyday life in China

China has become a very important case study for the rapid acceptance and use of mobile payments in the last decade, due to the growth of the **e-wallets offered by Alipay and WeChat Pay**. These e-wallets **are contact-free payment technologies** that work through the generation of a two-dimensional open license code called **QR (Quick Response)**. These two third-party mobile payment systems are widely used in cities in China and are even accepted by street vendors, leading many users to almost never use cash in their day-to-day lives (Klein, 2020).

These **e-wallets store money (such as the balance of a prepaid or gift card), as well as having multiple functions** such as: topping up the balance from a bank account or card, transfers to bank accounts or third parties, payment of services, online store for shopping, investments, etc.

To make a transfer or payment, one of the parties involved in the transaction generates a QR code on their mobile phone or prints it out and the other party scans it with the camera on their mobile phone, accepts the transfer and that completes the transaction. For several years now, many of the mobile phones in China and around the world have come with a camera and mobile data connection, so many people have the technology to make such payments.

In 2019, Alipay had 1.2 billion active users, while WeChat Pay had 1.15 billion, almost all in China. These are the two mobile payment platforms with the most users in the world (Merchant Savvy, 2020). In the third quarter of 2019, these two platforms accounted for 94% of the third-party mobile payment market: Alipay 54.5% and Tencent (WeChat Pay) 39.5%. It should be noted that many people have both e-wallets. In that period alone, transactions in China through third-party mobile payments amounted to USD 8.2 trillion, with annual growth of 15.2% (iResearch Global in China Banking News, 2020).

In recent years, the two companies have expanded their use to other countries in Asia, Europe and the United States, but mainly to allow Chinese tourists to make payments in those destinations using these same platforms (Klein, 2020).





Source: BBVA Research based on Merchant Sawy data, 2020.



Source: BBVA Research based on data from iResearch Global (2019) and China Banking News, 2020.

There are 441 million Apple Pay users worldwide, 35 million in the U.S.

Countries that can issue credit and debit cards that accept Apple Pay, June 2020



Source: BBVA Research based on data from Apple (2020).

United States: Estimate of proximity third party mobile payment users (millions and % of total smartphone users)



Apple Pay is a third-party mobile payment method through iOS platform devices. Unlike the e-wallets used in China that store money, **Apple Pay's e-wallet** was initially based on being a secure digital repository to replace the physical card. This e-wallet uses a technology similar to contactless cards, through NFC proximity devices.

For transactions greater than a certain amount, contactless cards usually ask the user to place the card in the terminal or input their PIN. However, with the Apple Pay e-wallet, once the card information has been uploaded, authorization is through fingerprint verification or facial recognition on the mobile device itself, without having to come into contact with the sales terminal.

In 2019, Apple Pay already had 441 million users, mainly in the United States and Europe. It is the third largest mobile payment platform in the world (after Alipay and WeChat Pay in China), and probably the one with the most users in the United States and Europe (Merchant Savvy, 2020).

In June 2020, Apple Pay's e-wallet had a presence in 59 countries/regions around the world. This is different from Alipay and WeChat Pay which are mainly intended for consumers in China.

In the United States, there were an estimated 70 million users of proximity mobile payments in 2020, equivalent to nearly 31% of those people who have a smart phone. About half of the total users of mobile payments by proximity, 35 million, used Apple Pay (Wurmser, 2019).

In 2019, it was estimated that more than 80 million Americans would use some sort of proximity payment by 2023. Because of the pandemic, the estimate may need to be significantly adjusted upward.

Sweden and Norway are moving toward a cash-free society



Sweden and Norway: More digital payments and less cash, 2018

Sweden: Means of payment used for household purchases, 2018 (%)



Sweden: Annual value per capita of mobile phone payments (Swish) vs. ATM cash withdrawals, 2012–2018





The payment market in Sweden and Norway is being digitized. To give an international comparison, the cash in circulation as a percentage of GDP variable is used as a proxy for the demand for cash. In 2018, the cash in these two economies was equivalent to 1.3% and 1.5% of their GDP, respectively. In contrast, in the United States and the Eurozone, this variable was at 8.2% and 10.9%, respectively.

The reduced use of cash is related to the increase in digital payments. In Sweden and Norway, the number of card payments per person is almost three times that in the Eurozone.

In 2018, 40% of Sweden's population stated that they had not used cash in the previous month and in 2019, 18% of durable goods retailers did not accept cash (Sveriges Riksbank, 2019).

In Sweden, only 5.8% of household expenditure is paid in cash and most payments are made by card (57.6%). Since 2017, the sum of payments per capita made by mobile phone has exceeded the value of cash drawn from ATMs.

What's Sweden digital i krona."

What's next? For several years, the Bank of Sweden has been exploring the issue of digital money called the "**e-krona**" or "digital krona."

Cryptocurrencies or digital currencies: could they be the means of payment in the near future?

According to the Financial Stability Board (FSB), cryptocurrencies are a sub-division of what is known as crypto-assets, which refer to private assets that rely on cryptography and distributed accounting technologies to control the creation of additional value units and verify transactions (FSB, 2018).

Cryptocurrencies have become an object of interest and study for various audiences. Cryptocurrencies can be used as a means of payment in companies that accept them as payment for goods and services. In 2015, the capitalization value of all cryptocurrencies was close to USD 3 billion. By June 1, 2020, there were more than 5,000 different cryptocurrencies on the market (Bagshaw, 2020), with a total capitalization value of USD 259.2 billion.

Bitcoin was probably the first well-known cryptocurrency. It remains the most popular and the largest in terms of capitalization, valued at USD 170.7 billion as of June 1, 2020, representing about 66% of the value of the entire market. It is followed in order of importance by Ethereum (USD 25.9 billion), Tether (USD 9.2 billion) and XRP (USD 8.1 billion) (TradingView, 2020).

However, because they have not been around for long, cryptocurrencies have been subject to speculation and this has led to large fluctuations in their value and problems with trading with this instrument. This is in addition to the possible money laundering risks that may be raised by the anonymity of these operations. On May 1, 2017, a Bitcoin cost around USD 1.400. On December 16 it reached a record high of about USD 20,000 and on April 10, 2018 it was valued at USD 6,800.

Various public and private institutions around the world, both financial and non-financial, have analyzed the advantages and disadvantages of cryptocurrencies to consider the possibility of implementing them as a generally accepted means of payment.

Today, cryptocurrencies are not supported by any authority or government, but instead rely on a distributed group of people and businesses. What would happen in the future if a central bank were to issue an officially supported cryptocurrency or digital currency?



Top 10 cryptocurrencies by capitalization value, June 1 of 2020 (billions of USD)

2018

2019

2020 iun-01







03

Acceleration of E-commerce trends: the future of retail



What is e-commerce?

The Organization for Economic Cooperation and Development (OECD) defines electronic commerce or e-commerce as:

"the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders."

Another definition, given by the World Trade Organization (WTO), states that it is:

"the production, distribution, marketing, sale or delivery of goods and services by electronic means."

E-commerce is carried out through a wide range of different business relationships, involving any possible pairing of consumers (C), companies (B) and governments (G). Typically:



The main sources of information for quantifying and characterizing e-commerce worldwide are surveys, corporate information and Big Data.

How to measure e-commerce?

Surveys. Specific questions are asked at the company, household and individual levels.

Advantages: They are suitable for capturing the involvement of economic agents in e-commerce. They can be done faster and allow us to learn about very specific topics.

Disadvantages: Quantitative information may not be reliable because companies usually do not record the channel through which they obtain their income and people's memories may not be accurate. They cannot usually be compared across countries, due to different methodologies for processing data and a lack of consensus on measurements.

Corporate information. The compilation of company reports, payment data and Internet traffic, among other information, is carried out.

Advantages: They allow for the capture of quantitative information about e-commerce.

Disadvantages: The wide range of sources generates partial information and with a perspective that can be biased about transactions in e-commerce.

Big data. By structuring the constant flow of data coming from our digital life, it is possible to analyze the changes in the consumption of the different economic agents in relation to the e-commerce operations they carry out.

Advantages: These types of tool allow us to have real-time and high-definition indicators.

Disadvantages: It is not yet a widespread tool within the companies that own the information, leading to partial analyzes that are often not comparable.

E-commerce: USD 25.6 trillion in 2018

E-commerce sales (B2B and B2C), 2018



Percentage of B2B and B2C e-commerce sales in the 10 countries with the greatest sales, 2018 (%)



According to the United Nations Conference on Trade and Development (UNCTAD), the global value of e-commerce sales (B2B and B2C) reached USD 25.6 trillion in 2018, equivalent to 30% of global GDP.

Of this volume, USD 21.2 trillion (82.9%) was accounted for by Business-to-Business (B2B) and the remaining USD 4.4 trillion (17.1%) was Business-to-Consumer (B2C).

The United States was the largest e-commerce market globally, followed by Japan and China. However, China was the country with the largest proportion (59.1%) of the B2C e-commerce market among the 10 countries with the highest sales in 2018.

Percentage of B2B and B2C e-commerce sales, 2018 (%)



Participation in e-commerce depends on the sector and size of the company

In 2019, more than 30% of the companies in the commercial sector, wholesale and retail, and those related to accommodation, food and drink participated in e-commerce (B2B and B2C). In contrast, professional, scientific and technical activities and the construction sector had the lowest participation rates.

In OECD countries with available information, it is notable that large companies are more involved in e-commerce sales channels. It is also notable that in several European countries, at least 1 in 4 small businesses (10 to 49 employees) receive orders by e-commerce. Companies* with e-commerce by sector of economic activity, 2019 (% average of 25 OECD countries with information)





Companies* with e-commerce by size, 2019 (%)

Note: * Companies with 10 or more employees.

Source: BBVA Research based on data from the Organization for Economic Cooperation and Development (OECD), 2020.

China and the United States account for 56% of e-commerce sales B2C worldwide

E-commerce sales, top 20 economies, 2018 (billions of USD)



The global value of Business-to-Consumer (B2C) e-commerce sales reached USD 4.39 billion in 2018.

China is the largest B2C e-commerce market in the world, while the United States ranks second. The two countries accounted for 55.9% of total B2C e-commerce sales globally, amounting to USD 2.45 billion in 2018.

In Europe, the United Kingdom, France, Germany and Spain are the countries with the highest e-commerce sales to customers. The total for these four countries taken together amounts to USD 548 billion.

In Latin America, Mexico and Brazil stand out with USD 26 billion and USD 15 billion, respectively.

In this study we will focus on the analysis of B2C e-commerce in detail. Thus, from now on, we will refer to this category simply as e-commerce.

Cross-border transactions accounted for more than 9% of the e-commerce total



Cross-border B2C e-commerce sales, selected countries, 2018

Percentage distribution of B2C e-commerce sales by destination, selected countries, 2018



Of total B2C sales, it is estimated that USD 404 billion was accounted for by cross-border transactions, or, in other words, 9.2% of the total.

China and the United States are the leading crossborder e-commerce sellers in the world. In the case of Hong Kong, it is notable that 94.3% of its e-commerce is cross-border.

The United Kingdom, Germany, France and Italy have significant proportions of cross-border e-commerce, ranging from 10% to 15%.

Note: All data refer to B2C e-commerce.

Source: BBVA Research from data from the United Nations Conference on Trade and Development (UNCTAD)

The potential to involve new consumers in e-commerce varies across the countries



The **UNCTAD** B2C **e-commerce index** allows an international comparison of the preparedness, in terms of technology and infrastructure, of the economies to host e-commerce transactions, on a scale of 0 to 100. The index represents the average score across four indexes strongly related to e-commerce, as shown in the figure.

Economies with a higher index have a greater potential to take advantage of the involvement of new consumers for e-commerce.

In 2019, the global index was 55, with the Universal Postal Union (UPU) postal reliability index being the lowest of the four. By contrast, the index for the developed economies stood at 87, showing the gap in technology and infrastructure at the global level.

In terms of geographical regions, Latin America and the Caribbean is below the global average and Asia is two points above the global average, showing that the potential for increased e-commerce transactions in the pandemic could be better exploited in Europe than in these regions.

There are 1.45 billion shoppers online

Online shoppers, top 20 economies, 2018 (millions and % of total Internet users)



UNCTAD estimates that **1.45 billion people, or a quarter of the world's population aged 15 or older, made an online purchase in 2018.** This represents growth of 9% compared to the number of buyers in 2017.

By far, China is the country with the most online buyers of products and services, with about 610 million, 73% of their Internet users. Second is the United States, where 80% of Internet users (189 million) have made an online purchase.

In Brazil, Russia, India, Mexico and Thailand, less than 35% of Internet users shopped online in 2018. These 5 countries accounted for 125 million online shoppers, with a potential 432 million Internet users who did not make online purchases.



There is a marked gap in the use of e-commerce by age and in some countries by sex



Population aged 16 to 74 who has made one or more online purchase in the last 12 months, by age and sex, 2019

There is a marked difference in the use of e-commerce between the population aged 16 to 24 and that aged 55 to 74. In countries such as South Korea, Slovakia, Poland, Estonia and Portugal, the divide by age group is higher than 50 percentage points.

In many of the countries where more than 70% of the population have made online purchases in the last 12 months, it can be seen that more than 60% of the population between aged 55 and 74 has used e-commerce.

The United States and Colombia are noteworthy as they have the smallest gaps between age groups in e-commerce use.

In some countries with lower penetration of online purchases, such as Israel, Greece, Portugal, Italy, Chile, Turkey, Brazil, Mexico, Costa Rica and Colombia, there is greater use of this purchasing channel by men than by women.

Note: For Brazil, Canada, Colombia, Costa Rica and Japan, the data are for 2018; for Chile, the United States and Israel, 2017; and for Australia, 2016. Source: BBVA Research based on data from the Organization for Economic Cooperation and Development (OECD), 2020.

People with more education and in the higher income quartiles buy more online

Population aged 16 to 74 who has made one or more online purchase in the last 12 months, according to household income quartile and highest education level, 2019 (%)



In many of the countries analyzed, more than 60% of the population with more education have made online purchases over the past 12 months.

In Turkey, the United Kingdom, South Korea, Brazil, Portugal and Greece, the gap in the use of e-commerce between people with higher education and those with education to a basic level is more than 50 percentage points. The smallest divide by education level is observed in Norway, at only 5 percentage points.

When analyzing this by household income quartile, we find a similar situation to the data by level of education. In most countries, more than 60% of the population in the last income quartile make use of e-commerce.

In general, it can be seen that the divides in e-commerce use per income quartile are very wide. For Brazil, South Korea and Lithuania, the difference between the first and last quartiles is around 50 percentage points. Iceland stands out as individuals in the first quartile make more use of e-commerce than those in the fourth quartile. In Norway the gap between these two quartiles is only 9 percentage points.

Note: For Brazil, Colombia and Costa Rica, the data are for 2018; for Chile, the United States and Israel, 2017; and for Australia, 2016. Source: BBVA Research based on data from the Organization for Economic Cooperation and Development (OECD), 2020.

What is purchased online?

Population aged 16 to 74 who made one or more online purchase by category of goods and services, selected countries, 2019 (% who bought online in the last 12 months)

	<u>(6)</u>						C*	 + 	٩	*• *	Average
Clothing, footwear and sporting goods	45.4	58.2	63.6	28.3	66.1	78.8	32.1	47.4	16.4	78.5	51.5
Tickets for events and entertainment	32.9	17.2	37.7	13.2	56.6	53.0	6.8	31.5	8.7	54.3	31.2
Music and movies products	12.5	17.2	52.6	8.7	57.2	49.4	4.2	47.8	6.5	41.3	29.7
Travel products	39.0	42.3	30.2	17.4	56.5	48.9	10.9	21.1	5.4	23.4	29.5
Books, magazines and newspapers	20.6	21.0	29.7	17.3	34.5	44.1	8.9	22.9	3.2	55.3	25.8
Software and/or video games	20.8	30.0	36.1	9.4	33.0	42.8	3.5	42.4	7.0	13.6	23.9
Telecommunications equipment	16.5	12.8	21.6	12.1	28.4	45.0	7.2	24.5	5.7	n.a.	19.3
Groceries, cleaning and cosmetics	15.6	12.5	17.7	5.3	16.1	25.9	10.3	39.2	6.0	44.0	19.3
Financial products	5.3	10.1	11.6	4.2	44.0	43.5	5.5	n.a.	0.3	4.6	14.3
ICT services	7.2	15.5	19.3	5.1	24.7	17.8	5.8	n.a.	9.2	n.a.	13.1
Computer equipment	14.1	16.6	17.9	3.3	21.6	20.9	4.3	n.a.	1.1	14.2	12.7
Medicine	1.3	1.2	10.3	0.9	8.0	14.1	0.9	3.3	n.a.	n.a.	5.0

Clothing, footwear and sporting goods are the most purchased through e-commerce. In the selected countries, we find that on average **51.5% of people aged between 16 and 74 have purchased clothing and footwear online in the last 12 months.**

In addition to these goods, we can see different patterns among countries regarding the use of e-commerce.

In Spain and France there is a high percentage that uses it for the purchase of travel-related products and services.

In Norway and the United Kingdom, more than 48% of the population has purchased online tickets to events, music, movies and travel in the last 12 months.

In Canada and South Korea, the use of e-commerce for the purchase of essentials, such as foodstuffs, cleaning goods and cosmetics, stands out among the various countries.

The COVID-19 pandemic has generated changes in consumption patterns, increasing the use of e-commerce

United States: Have you done the following in the last week?, 2020 (%. multiple answers)



Source: BBVA Research based on Ipsos/Reuters (2020) data.



United States: How have your online purchases been affected by coronavirus?, April 2020

In response to the global pandemic, governments imposed social distancing measures at different times during the first half of 2020. Faced with this new reality, households around the world found e-commerce purchases to be an alternative to replace their spending in physical establishments while still complying with the lockdown recommendations and reducing the risk of contagion.

The Reuters/Ipsos survey (2020) in the United States found that by mid-March, 56% of respondents reported eating out the last week, while by mid-April this figure had fallen to 7%.

In the same period, people who reported visiting a family member or friend fell from 48% to 19%. With the relaxation of the lockdown measures, we can see that in May and June both variables were increasing, but without returning to the levels seen in mid-March.

In April 2020, 22% of respondents reported having placed significantly more online orders compared to previous periods and 33% indicated that they had placed more orders online. That is, 55% reported buying more online (Freedman, 2020).

March April
Source: BBVA Research from Freedman data in Digital Commerce 360/Bizrate Insights, 2020.

Online demand for essentials and entertainment is growing as a result of coronavirus

(% of respondents) April February Clothing, shoes or accesories 56% 52% Pharmacy, health or beauty products 38% 44% Household supplies (cleaning supplies, kitchen 30% 37% supplies, etc.) 36% Food or beverages 27% Books, music or videos 33% 32% 25% 31% Pet products Office equipment or supplies 17% 21% Toys or games 19% 20% Consumer electronics (TV, computer, phone, etc.) 21% 19% 17% 16% Home, furniture of appliances Sports or outdoor (including lawn and garden) products 13% 16% Baby products 7% 7% Tobacco products or smoking accessories 4% 3%

16%

16%

United States: What product categories did shoppers buy digitally in the last month?, 2020

In the U.S. market, as a result of the pandemic and social distancing measures, several surveys were conducted to analyze short-term changes in the products demanded online.

Between February and April 2020, there were changes in the consumption patterns of US digital buyers. It can be seen that essentials ("food or drink," "household items," etc.) showed an increase; in contrast, other products such as "clothing, footwear and accessories" and "consumer electronics" showed a reduction.

For example, the percentage of respondents who bought "food or drink" through e-commerce had increased by almost 10 percentage points in April compared to February.

However, other categories of entertainment such as "toys or games" and "books, music or videos" should also be highlighted, as their purchases increased, albeit not to the same extent as essentials.

Other
Big data, a new way to measure consumption in a timely manner

United States: Main results on e-commerce, 2020 (% change)



Source: BBVA Research based on data from Mastercard (2020).

United States: Main results on e-commerce, April vs. March 2020 (% change)



Today, the constant flow of data from our digital lives allows us to obtain a real-time picture of the changes in different economic agents. Big data has established itself as an important tool for understanding and reinterpreting our knowledge of the environment.

Various surveys and reports have highlighted the increase in e-commerce in the economy as a result of the social distancing rules imposed due to the pandemic. However, with big data we can estimate the scale of the changes and differential increases in greater detail and in real time.

A Big Data analysis of the major e-commerce retailers in the United States carried out by Adobe found that in April 2020 daily sales grew by 49%, grocery store orders by 110% and Buy Online, Pick Up In Store orders by 208%.

For its part, the big data analysis by Mastercard found that **expenditure on e-commerce in the United States between April and May 2020 increased by USD 53 billion** compared to the same period in 2019.

BBVA Research Big Data: Changes in consumption, a real-time and high definition analysis

BBVA has promoted the use of the new Big Data analysis tools, allowing it to have indicators in real time that are proxies for various economic variables. This allow us to analyze the changes in consumption in this atypical situation in various geographic areas around the world.

The analysis of monthly card consumption allows us to identify the change in patterns in various sectors of the economy. The selected sectors seek to cover those that are considered most sensitive given the nature of the pandemic.

In February, there was an annual increase in consumption in most of the sectors studied. However, in the following months the data show a dramatic change in trend.

Analyzing the monthly average consumption from March to June, compared to the same period in 2019, there is a distinct prioritization of goods and services; while consumption of food products increased at an annual rate of more than 20%, all other sectors saw a reduction. In the entertainment, hotels, restaurants and transport sectors, there were falls of between 30% and 80% between March and June 2020, compared to the same period in the previous year.

The health sector fell by a smaller amount than the other four sectors and even increased in Mexico, reflecting the supply of products from this sector to cope with the emergency.

Credit and debit card consumption by sector, selected countries, average March to June 2020* (% YoY variation)



Source: BBVA Research, The COVID-19 Impact on Consumption in Real Time and High Definition, 2020

Big Data: Increase in e-commerce, decrease in retail sales in physical stores during the lockdown

Annual growth rate of consumption using cards, online and in-store, 2020 (%)













Using BBVA's Big Data between April and June 2020, we can see a rapid growth in consumption using cards in e-commerce and a sharp decline in in-store purchases in most of the countries analyzed.

In the Sunbelt region of the United States, there was 50% growth in e-commerce in much of the period between March and June.

Between late April and June, e-commerce operations in Mexico grew on average 150%, while in-store sales fell 20%. In the same period, Turkey had an average increase in online purchases of more than 100%.

In June, e-commerce purchases grew by more than 100% in Peru. In Colombia, there is only a oneoff increase in e-commerce during mid-April as between May and June it seems to return to its upward trend seen at the beginning of the year.

In **Spain**, between mid-March and mid-May, retail sales in physical and online stores fell, although the latter were less affected. Unlike other countries, instore sales have performed better than e-commerce in June.

The pandemic accelerated the growing trend toward e-commerce. However, will it maintain this momentum or is it temporary?

Before the pandemic, e-commerce was already showing a positive growth trend due to the boom in B2C sales and year-on-year the share of overall retail sales accounted for by e-commerce was increasing (as can be seen from the pre-pandemic e-commerce sales forecasts). However, the data analyzed in this report clearly demonstrate the acceleration of that trend during the pandemic.

This acceleration has led to revised estimates of e-commerce growth in the coming years. The question underlying the new estimates is whether the online market will retain new the customers gained as a result of the pandemic

Taking into account the likely continuation of the pandemic in the second half of 2020 and the partial relaxation of social distancing measures (implemented by most countries given the threat of new outbreaks of infections), we estimate that sales in physical stores worldwide will start to recover slowly, while online sales will continue to grow.



Note: Includes products or services ordered through the Internet using any device, regardless of the payment or fulfillment method; excludes travel and event tickets, service payments, taxes or money transfers, food services and beverage outlets; gambling and other sales of entertainment goods. Sources BBVA Research based on data from Linsman in Marketer. 2020.

United States: Percentage of respondents who agree with the statement "I have been avoiding shopping in physical stores," April 2020 (%)



Source: BBVA Research based on Ipsos/Reuters (2020) data.

In addition to these conditions, we need to consider the behavior of consumers when they return to an economy with fewer restrictions. The figure above shows that in April more than 50% of those interviewed were still avoiding physical stores. Although there was a decline in this trend during April, concern about avoiding crowded places continued for longer than the social distancing measures.

Similarly, it is important to take into account the substitution factor that the online market may have on the physical market in the various countries. The variety of products that can be offered in conjunction with the technological infrastructure will be key to retaining new consumers during this period.



Slow recovery of the Experience Economy and more Digital Experiences



What is the experience economy?

For more than two decades, Joseph Pine and James Gilmore (1998, 2011, 2013) have analyzed the evolution of value generation in various economic phases.

They point out that in an **agrarian economy**, tradable goods were characterized by being non-differentiable. Many of these goods were extracted or harvested directly from the land and exchanged for other goods based mainly on price.

In the **industrial economy**, thanks to different technological advances (e.g. invention of the printing press, industrial revolution), many of the products that were previously made "by hand" could be industrially manufactured at a fraction of their previous cost. Goods were mass produced to a standardized quality.

The **service economy**, based on the exchange of intangible goods that a person performs on behalf of someone else (preparing food, transporting goods, cutting hair, repairing equipment, legal and accounting activities, sales and customer care, among many others), became indispensable in improving the quality of life and the productivity of companies. Since the mid-20th century, in most countries the service sector has generated the greatest contribution to GDP and accounted for the majority of workers.

The **experience economy** is not based on delivering a good or service, but rather on generating "memorable moments that transcend". Services have some degree of personalization, but experiences are individual. People are not paying for a good that is tangible, useful and/or durable or a service that generates value, but for ephemeral events that occur over a certain period of time but that remain in the memory: experiences.

There are two important features in generating experiences:

- The participation of the individual, which can vary on a spectrum from totally passive to being the central actor. The fact that a person is going to watch a car race, which would seem like a passive activity, has an effect on that person which is different from the effect on the other people who are also going.
- The connection or relationship with the environment, which links the individual to the event. Sitting down to watch a car race generates multiple sensory experiences in the individual through all the interactions with their environment during the event. This relationship with your environment can vary from contemplative to immersive.

Evolution in the generation of value through the economies of humanity

Economy	Agrarian	Industrial	Service	Experience
Primary economic offering	Commodities	Products	Services	Experiences
Economic function	Extracted	Manufactured	Delivered	Created
Nature of offering	Fungible	Tangible	Intangible	Memorable
Extent of use	Subsumed in Products	Permanence beyond production	Consumed at delivery	Experienced over a duration
Character	Natural	Standardized	Customized	Individualized
Production method	Extracting/ Harvesting	Batches	Co-production?	Co-experienced?
Delivery method	Bulk stored	Inventoried	Created at delivery	Participated in at creation
Observability	Detectable	Tactile	Perceivable	Sensorial

Many activities related to the experience economy had to close because of the COVID-19 crisis

The experience economy can be applied in all sectors of activity. The main objective of going to a concert by an artist is not listening to their music as you can do this from the comfort of your home with an audio device or over the Internet. Instead, it may relate to the experience of being in a crowd of people who also like the artist, to seeing them in person or to seeing the stage show, among many other factors.

You can probably find out about a tourist destination with more accurately and in more detail through books and documentaries but visiting the destination will generate a real and individualized experience. In general, the cost of this experience is much higher than the cost of the first method, but the market is willing to pay for it.

The experience economy is not limited to major sporting and entertainment events, or to theme parks and tourist destinations. Social events, large or small, and simple visits to bars or cafes are part of the experience economy.

Because of the COVID-19 pandemic and the isolation measures implemented to contain infection rates, many of the activities related to the experience economy had to close or were severely affected, especially those that directly or indirectly involved bringing people together. The main activities related to the experience economy had to close or were affected by the COVID-19 crisis

- Performing Arts (theaters, musicals) and concerts
- Festivals, fairs and conventions
- Mass sporting events (soccer, baseball, basketball, tennis, among others)
- Amusement, theme and water parks
- Tourism (hotels, planes, cruises, tour providers)
- Museums, zoos and children's parks
- Movie theaters and bars
- Social events (weddings, birthdays, parties)

Will the experience economy recover after COVID-19?

As noted in Galles (2020), the greatest impact of the COVID-19 crisis may be the changes in consumption patterns for the goods and services of these companies. In his article, Joseph Pine argued that:

"Any place where people want to meet is a place where no one wants to be at this moment."

In the absence of a vaccine or effective treatment for COVID-19, it is difficult to think that mass sporting events such as soccer, football, baseball, basketball and others can bring so many people together again and return to the normality seen pre-pandemic. Similarly, the tourism experience could change dramatically. The same could happen for other economic and social activities based on bringing people together.

At the end of April 2020, Reuters and Ipsos surveyed more than 4400 people aged 18 or older in the United States to estimate the potential impact of COVID-19 on recreational activities. The following are the key results:

- A high percentage (30%) responded that they would wait until a vaccine had been tested before returning to their favorite event, even if this took a year or more.
- Many interviewees said they would definitely return to their favorite event once they reopened.



1 out of every 10 jobs in the world is related to the tourism and travel sector

The tourism and travel sector is a key element of the experience economy and a very important part of the global economy. In 2019, it contributed **10.3% of global GDP**and represented **1 in 10 jobs globally**; in addition, it is estimated that 1 in 4 jobs created in the last five years were in this sector (WTTC, 2020).

- The tourism and travel sector in North-East Asia is the largest in the world in 2019 by value, and this is also the region with the highest number of jobs in this sector, with 88.3 million people.
- The Caribbean was the region where tourism and travel activities accounted for the highest percentage of GDP (13.9%) and total employment (15.2%) in 2019.

Contribution of the tourism and travel sector to GDP by region, 2019





Top 10 economies by size of the tourism and travel sector, 2019 (billion USD)

Employment in the tourism and travel sector by region, 2019



In April and May 2020, less than 3% of international tourists arrived compared to 2019

International tourist arrivals worldwide (millions)



International tourist arrivals worldwide by month, 2019 vs. 2020 (millions)



Over the past few decades, the numbers of international tourist arrivals has reflected the growth of the tourism and travel sector. In 2019, the global figure was an estimated 1.46 billion international tourist arrivals, implying an increase of about 788 million over the past two decades (UNWTO, 2020).

During this period, various events have affected the tourism and travel sector. The effects of two of these events are visible in the international tourist arrivals indicator:

- The fall caused by the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2003.
- The economic crisis known as the Great Recession, with its worst effects on tourism in 2009.

The outlook is worrying for the tourism and travel sector in 2020. Compared to the falls in 2003 and 2009, in 2020 there will be a much larger one. Preliminary figures show the effect of the cancellation of travel plans due to the recommendations to stay at home and the restrictions on the flow of people that most countries have implemented during the first quarter of the year.

- In 2019, the first five months had an estimated 537 million international tourist arrivals; in contrast, 2020 registered only 237 million.
- The economic revenue that the July and August holiday period would normally generate, these being the months with the highest number of international tourist arrivals, could be lost.

91% of museums in the world had to close temporarily due to COVID-19, and one-third of museums will cut their staff in 2020

Estimated number of museums with temporary closures by region, April and May 2020



Estimated number of museums, 15 major countries, 2020



Within the culture sector, museums have been one of the institutions most affected by the pandemic. **Globally, there are more than 94,000 museums.** The United States, Canada and Western European and Other regions account for almost two thirds of the world's museums.

UNESCO estimates that almost 86,000 museums in the world (91%) had to close temporarily due to the COVID-19 pandemic. The consequences of this temporary closure will be serious for most museums, as many depend on the income generated by their visitors.

According to a survey on museums and museum professionals on five continents, conducted between April and May by the International Council of Museums (ICOM, 2020), about one third of museums worldwide will cut their staff and more than one in ten institutions will close permanently.

However, the current situation has led to a number of digital responses by these institutions, in order to maintain contact with their public and continue to offer cultural experiences:

- The exploration of previously digitized content: 360° tours, virtual museums, online publications.
- Digitization of events and activities planned for the year: virtual conferences, streaming of talks.
- Increased presence on social media.

The movie industry has lost 70% of its box office revenue in the first half of 2020

The movie industry has been another of the sectors strongly affected by the COVID-19 pandemic and social distancing measures. Throughout the world, many move theaters closed temporarily for several months in the first half of 2020.

Although in the second half of the year some countries and regions are allowing them to open, many people are still scared about going. Several producers announced the postponement of the release of their movies and postponed part of the 2020 movie production.

In 2017, it is estimated that 7.5 billion movie theater tickets were sold. This industry has a strong presence in many economies: India, China and the USA accounted for more than 60% of admissions worldwide.

According to Gower Street data, in 2019 the value of the global box office was approximately USD 42.5 billion, with the United States and China providing the highest figures at the box office (Mitchell, 2020).

Compared with the average from 2017 to 2019, it is estimated that in the first half of 2020, USD 14.7 billion was lost in box office takings, which is equivalent to a 70% fall compared to previous years.

Value of the world movie theater box office takings, first half of the year (billion USD)







Source: BBVA Research based on data from Mitchell, 2020.

Economic scars from canceled and postponed large-scale events

United States: Estimated economic impact of canceled or postponed major events, estimated March 2020 (million USD)



Olympic Games: Tickets sold, entrance fee income and broadcasting revenue



In the experience economy, major events canceled or postponed due to the COVID-19 crisis are leaving economic scars inside and outside the host countries. Festivals, fairs, conventions, sporting events, etc. had to stop due to the pandemic.

It is estimated that the cancellation or postponement of 26 of the most important events in the United States during the pandemic will result in losses of USD 6 billion (Performance Research, 2020).

In the sporting arena, professional leagues around the world have suffered huge losses. One of the most important sporting events postponed due to the pandemic is undoubtedly the Olympic Games to be held in Tokyo, Japan in the summer of 2020. At the beginning of March, the International Olympic Committee announced that it had been hugely successful with ticket sales, selling 4.5 million (IOC, 2020).

According to an academic at Kansai University, the loss caused by the one-year delay to the Tokyo Olympic Games will be about USD 5.8 billion, while the figure if it were canceled would reach USD 41 billion (Miyamoto in Nannichi & Hashida, 2020).

The experience economy is likely to recover slowly while demand for digital experiences will grow

Netflix: Net increase in paid memberships at the end of the period, 2018Q1–2020Q1 (million)



Netflix: Geographic distribution of the net increase in memberships at the end of the period, 2020Q1

(millions and %)



Because of the COVID-19 pandemic, social distancing policies and lockdowns were imposed, increasing the demand for digital experiences.

Netflix, one of the world's leading video streaming companies, reported a significant growth in its number of subscribers. For the first quarter of 2020, the company had an estimated growth of 7.0 million additional net paid memberships, while the market consensus on Wall Street was 8.5 million (Rodriguez, 2020).

In its earnings report it indicated that by the end of the quarter it had a total of 183 million subscribers worldwide, equivalent to **15.8 million additional net** subscribers, more than double the amount the company had predicted it would obtain.

It reported that during the first two months of the year, membership growth was similar to that in previous years. However, with the start of the lockdowns imposed in many countries in March, there was a sudden upturn in net additional paid memberships (Netflix Investors, 2020).

The region covering Europe was the one showing the greatest growth in subscriptions to this video streaming service, with 7.0 million additional net memberships in the first quarter of 2020 (44.1% of the global total), many of which were during March.

Toward Extended Reality (XR) Experiences?

The term **Extended Reality (XR)** encompasses cutting-edge technological development that allows a higher degree of immersion in virtual and real-world environments through the technologies of:

- Virtual Reality (VR). Individuals are in a completely virtual environment.
- Augmented Reality (AR). Virtual objects are added to a real environment and users have the ability to interact with virtual objects.
- Mixed Reality (MR). Refers to the range of possibilities afforded by combining VR and AR technologies.

Extended reality expresses the ability to interact in new ways with virtual and real environments, and how it is revolutionizing many areas of everyday human life.

As it is a relatively new market, the methods for measuring the extended reality market vary. However, different consultants have observed and predicted a positive trend for the next 5 years, the most optimistic reaching a **market value of USD 571.4 billion for 2025.**

Various estimates of the value of the extended reality market (billion USD)



The current pandemic has been a catalyst for many sectors of the experience economy to accelerate the use of this type of technology to deliver contact-free immersive experiences

Examples include the **Cannes Festival**, an event that was canceled this year. Instead, the festival offered an experiment in the use and support of these technologies in its **Cannes XR**, composed of:



- The Tribeca Film Festival. A virtual presentation was made of XR projects customized by the Tribeca Film Festival.
- VeeR Future Award (360 Cinema). Virtual reality 360 movies were presented.
- Development showcase. It involved the virtual presentation of 23 virtual and augmented reality titles currently under development and allowed them to connect with decision makers.
- Positron Visionary Award. The virtual presentation for Best Cinematic XR.



More Remote Work from Home



Remote work, telework, work at home or home-based work?

Remote work, telework, work at home, home-based work? Despite the growth of the use of these terms in the last few decades, there is still no international consensus on their definitions and use. As the International Labor Organization (ILO, 2020) points out, at some point these concepts converge, but they are not equivalent.

For analysis purposes, an employee who usually works in an office and who due to the COVID-19 pandemic is working from home is not equivalent to a pieceworker making clothes from home. Both work from home, but the former probably has a formal job with all the legal benefits and thanks to telecommunications technologies they have the option to continue working from a location other than their office. In contrast, the second is most likely to be in the informal sector, without medical coverage or social security and always works in their home.

The ILO notes that to have an adequate understanding of the different concepts of work, we need to understand the term **default place of work**. Taking into account the type of work, it should be understood as the place or location where the work would typically be expected to be carried out. This location may be: a) a location provided by the employer, b) in the family business, c) at the customer's premises, d) at the worker's premises, e) on the public road, among others.

For a domestic worker, their default place of work would be the customer's home; for a street seller it would be on public roads; and for a police officer it could be in an office doing administrative activities, patrolling by car and/or on the street.

The understanding of this concept allows us to then define these types of work.

Although the concepts and their use are not standardized, according to the ILO (2020), the following definitions could be found:

- Remote work. This can be described as situations where the work is fully or partly carried out on an alternative worksite other than the default place of work. In the examples mentioned above, the office worker who works at home due to the pandemic is considered to be doing remote work, while the person who sews from home is not covered by this definition.
- Telework. Refers to those who do remote work and who also use personal electronic devices such as a computer, tablet or telephone (mobile or landline) to perform the work.
- Work at home. This is a concept that refers only to the place where the activity is performed. Work at home refers to work that is done in whole or in part within the worker's home.
- Home-based work. This refers to labor relations where the primary workplace is the worker's own home, even if this is not the default place of work. As a result, this is a subcategory of work at home.

These four concepts can be combined to create more specific terms such as: remote work from home, telework from home or home-based teleworker. The term "Home Office" is closer to telework from home.

Finally, it should be noted that these terms are more relevant when referring to **employees**; if they are analyzed for the self employed, the importance of these distinctions is not so clear.

260 million people worked from home before the COVID-19 crisis





Potential population that could effectively perform its functions working from home, considering the occupational structure of each region, 2019 (%)



When it comes to working at home, the relationship this has with the quality of employment and development of a country is unclear. On the one hand, it can be a valuable perk granted by the company, but on the other hand, it can be related to informality and job insecurity.

According to the ILO (2020), **7.9% of the world's labor** force, approximately 260 million people, worked from their homes permanently before the COVID-19 pandemic.

These figures include information on outsourced industrial workers (e.g., embroidery workers), craftsmen, independent business owners and self-employed workers, among others.

If these types of worker are omitted, **employees who worked exclusively or mainly from their homes accounted for 2.9% of the world's labor force, that is, about 95 million** prior to COVID-19.

The potential population that could work from home is much larger than those who do. The ILO estimates that 18% of workers in the world are in an occupation and in a country with the infrastructure to be able to carry out their functions effectively working from home.

For the regions of the United States and Canada, and Europe and Central Asia, more than a quarter of all workers could effectively perform their functions working from home. By contrast, only 7% of jobs in Africa could be done effectively from home.

The potential for working effectively from home depends on the occupation and the infrastructure of the country



According to the analysis carried out by the ILO (2020), the occupations with the most potential to work at home are:

- Managers,
- Professionals,
- Technicians and associate professionals, and
- Clerical support workers.

In contrast, those with the least potential are:

- Plant and machine operators and assemblers;
- Craft and related trade workers;
- Skilled agricultural, forestry and fishery workers; and
- Services and sales workers.

Within an occupation, the ability to work from home effectively depends on the infrastructure available in each region and country.

It can be observed that for occupations most likely to be effectively conducted at home, in general, middle- and high-income countries have a better chance of being able to do them at home compared to low-income countries.

Labor flexibility has gradually grown



Employed persons working from home as a percentage of the total employment (%)

By sex and age group, 2019



By occupation status, 2019 (%)



In the 27 countries that make up the European Union in 2020 (EU-27) there is no noticeable change in the proportion of **employed persons who usually work** from home: the percentage ranged from 4.5% to 5.5% between 2002 and 2019.

However, there is a significant increase in those who sometimes work from home, i.e. in those who have some degree of job flexibility. In 2002, 4.7% of workers in the EU-27 reported that they sometimes worked from home; by 2019, this figure had reached 9.0%.

In 2019, for both men and women, the proportion of employed persons who usually worked from home had increased for the older age groups. By contrast, the population group between 25 and 49 years old has the highest percentage that sometimes worked from home.

About **35%** of all employers and own-account workers stated that they usually or sometimes worked at home. Among employees, only **3.2%** usually worked from home and **7.9%** sometimes worked from home. The remaining 88.9% stated that they never worked from home in 2019.

There are gender divides between those who usually work from home



Employed persons who usually work from home as a percentage of the total employment, 2019

Infrastructure, types of work, educational level, customs, labor law and gender are some of the variables that determine whether workers in a country can or cannot usually work from home.

Among the countries analyzed in 2019, the **Netherlands and Finland** had the highest percentage of workers who usually worked at home, at 14.1%; whereas in **Bulgaria and Romania**, less than 1% of the employed population usually worked from home.

In general, it can be seen that the percentage of women who usually work at home is higher than that of men. This is probably due to gender-related factors linked to reproductive activities.

In Turkey the divide between men and women is very noticeable, since only 0.4% of men usually worked at home, while this figure for women was 5.8%. Other countries with a major divide, where a higher proportion of women worked at home than men, were France, Slovenia, Malta and Switzerland.

By contrast, the Netherlands, Norway and Montenegro have the greatest divides in terms of men usually working at home more than women.

In the United States 28.8% of wage and salary workers can work at home, but only 14.7% do so regularly



United States: Percentage of wage and salary workers working at home at least occasionally, 2017–2018 (%)



United States: Main reason for working at home (%)



Between 2017 and 2018, 28.8% of the wage and salary workers in the United States declared that they could work from home. 24.8% said they did work at home occasionally and only 14.7% said that they had days for working exclusively at home (BLS, 2019; Woods, 2020).

There is no significant difference in working from home between male and female employees. The population of Asian origin worked at home more than other groups, while **the Hispanic or Latino population has a relatively low proportion working from home.**

There is a very marked difference by level of schooling: 46.5% of those with bachelor's degree and higher education work at home at least occasionally, while only 3.2% of those with less than a high school diploma work at home.

The main reason for working at home is personal preference (31.0%), followed by the ability to coordinate work schedule with personal or family needs (29.1%).

Note: Data from the population aged 15 or older. * Population aged 25 or older. Source: BBVA Research based on data from the Bureau of Labor Statistics (BLS), 2019, and Woods, 2020.

Remote work would help reduce commuting and improve workers' quality of life



Many of the world's major cities and capitals suffer from traffic congestion.

Remote work, which can reduce the time and cost of communing to the work center to zero, helps reduce traffic overloads and can improve the quality of life for workers.

The cities with the highest traffic saturation by continent are:

Bogotá, Lima, Mexico City and Recife in America;

Moscow, Kiev and Bucharest in Europe; and

Bengaluru, Manila, Mumbai and Pune in Asia.

Because of COVID-19, many workers in the world had to work at home and 37% of workers in the European Union began to do so.

Based on data from the survey carried out by Eurofound (2020), in the European Union (EU-27) we can see that **5% of those interviewed reported** having lost their job permanently and 23% temporarily due to the coronavirus crisis. About half of the interviewees who were still employed indicated that they were working fewer hours, while those who were able to perform their functions at home saw almost no reduction in their working hours. **37% of those interviewed began working from home because of the pandemic.** Finland, Luxembourg, the Netherlands and Belgium reported the highest percentages of home work during April 2020, at more than 50%.

Percentage of workers working at home before and during the COVID-19 crisis, April 2020



Note: Electronic survey in the European Union sent to more than 85,000 people aged 18 years or older as of April 30, 2020. No data are available for Slovenia. BBVA Research based on data from Eurofound, 2020.

Is telework here to stay?

In mid-May 2020, BBVA Mexico conducted a survey among staff to understand their views about working from home nearly two months after the start of the COVID-19 lockdown. BBVA Mexico is the largest financial company in the country's banking segment with more than 35,000 employees.

It should be noted that, as part of the company's technology strategy, office employees had previously been assigned a laptop to perform their activities and most also had a mobile phone with broadband. Additionally, collaborative tools, virtual private network (VPN) connections and teleconferencing were already used to some degree in the company. Given the hasty start of the coronavirus lockdown, these decisions and actions helped ensure that almost immediately central office personnel could start working remotely.

Of the total number of employees, about 10,000 worked in offices and of these, more than 7,000 participated in the survey: 53.1% were men, 41.5% were single and half had one or more children. Because a large number of workers previously worked in the office but during the lockdown were currently doing so at home using information technologies, we refer here to the concept of teleworking.

Prior to the pandemic, 16.5% of workers indicated that they routinely teleworked at home. During the lockdown due to the pandemic this figure reached 98.4%. More than half of those who had not previously teleworked indicated that the main challenge they faced was to adapt to the new family dynamics. Other relevant challenges were to be able to establish a routine and maintain concentration.



The main challenges faced by those who had not teleworked before (%, multiple answers)





97% are in favor of teleworking and 99% consider it part of the value proposition of a job

Perceptions of work at home performance vs. office work performance (%) Working from home No difference In the office Less time to complete a task 36.9% 19.8% Fewer interruptions 49.0% Less time to recover concentration after being 38.3% interrupted More effective meetings 36.1% 29.1% More productive 42.9%

With regard to perceptions of performance, in general, this is considered to be better working from home than in the office. **42.9% said that they are more productive working from home, and only 16.1% said that they are more productive in the office**. It is notable that 49.0% of workers indicated that they had fewer interruptions at home than in the office.

97% of people have changed their opinion in favor of teleworking or have always been in favor of it, 99% consider it as part of a company's value proposition for its staff and more than half consider that working from home should be done 2 to 3 times a week.

Change of perception about teleworking



Should working from home be part of a company's value proposition for its employees? (%)



After the lockdown, how often should you work at home? (%)





Growth of Distance Education in schools and universities



Distance learning, e-learning or online learning?

Distance learning, e-learning or online learning? Moore et al. (2011) compared more than 40 studies using these terms and found that there are different expectations and perceptions of these names in the learning environment.

These concepts seek to describe certain features and at the same time they are interconnected in many ways, with some people almost using them as synonyms. In addition, they apply to both formal, non-formal and informal education.

- Distance learning. Distance education is the most commonly used term when it comes to distance learning: "It often describes the effort to provide access to learning to those who are geographically distant" (Moore et al., 2011). Some authors use the terms "learning" and "education" to refer to similar issues. Although this concept is currently linked to information technologies, especially for younger generations, in countries such as India, China and South Africa the term is strongly linked to correspondence, radio and television education (Zawacki-Richter and Qayyum, 2019).
- E-learning. According to UNESCO, this is defined as an approach to facilitate and improve learning through personal computers, CD-ROMs and the Internet, among others. This includes email, discussion forums and collaborative software (Chatelier and Voicu, 2018). Not all e-learning is remote. It is common to use computers, tablets and Internet websites in classrooms as learning tools, through interactive tutorials, etc.

Online learning. This is a somewhat more difficult concept to define. It can simply be those learning resources that are provided "online" or over the Internet; in this case it is be a subset of e-learning. Other authors emphasize connectivity, flexibility and the ability to promote varied interactions, as well as to relate it to distance learning (Moore et al., 2011). In other countries such as the United States, Canada and the United Kingdom, distance education is almost synonymous with online education (Qayyum and Zawacki-Richter, 2018).

Distance education and online education overlap, but not all distance education is online and not all online education is distance. Some have argued that online education has a separate origin from distance education, with the first focusing on collaborative learning while the second still focuses on independent learning (Qayyum and Zawacki-Richter, 2018).

For these concepts, learning and teaching activities can be: synchronous (in real time), asynchronous (without real-time interactions), group or individualized at your own pace (Naidu, 2006).

Under these three concepts, education has evolved to provide more learning options at different educational levels and economic strata. Schooling will no doubt continue to play a dominant role in education at the global level. However, the trend could point to a growth in hybrid systems in which most students take at least one distance subject within their curriculum.

There are at least 23 million students in higher education in open and remote programs

Student population enrolled in higher education in open and distance programs, selected countries, last year available

(student population and % of total in higher education)



According to Qayyum and Zawacki-Richter (2019), open and distance education has a long history globally. However, the introduction of information and communication technologies has led to their use in the more developed countries (that have more infrastructure in technology) as a way to move more quickly from distance education via correspondence, radio and television to that provided online.

From the authors' analysis of 12 countries, representing 51% of the world's population, they find that more than 23 million students are enrolled in open and distance education programs at the higher level.

China, the United States, India and Russia stand out with 6.4, 5.8, 4.2 and 2.5 million students, respectively, in higher education in open and distance programs.

Distance education is very important in the United States

United States: Virtual schools and students in virtual elementary and secondary schools, per school year

(schools and thousands of students)



United States: Post-secondary students by enrollment in distance courses (thousands and % of total students)



Source: BBVA Research based on data from the US Department of Education, National Center of Education Statistics, 2014 and 2019, and Miller, Topper and Richardson, 2017.

Distance education has provided flexible learning opportunities for students who are unable to attend regular school courses due to various circumstances.

In the United States, distance education is mostly offered online. Due to the development of its infrastructure, the market has been able to take advantage of the demand for this form of education.

Virtual schools are defined by the National Center for Education Statistics (NCES) as those "having instruction during which students and teachers are separated by time and/or location and interact via Internet-connected computers or other electronic devices".

According to U.S. Department of Education figures, there has been growth in the number of students taking classes in virtual schools since at least the 2013-14 school year, which has led to a student population in virtual schools of 278,783 for the 2017-18 school year in elementary and secondary education.

At the post-secondary level, distance education has also shown a positive trend, increasing from 25.8% of the total number of students enrolled in 2012 to 35.3% in 2018. That is, 6.9 million students in post-secondary education had enrolled in a distance education course, of which 5.7 million were at university level and 1.2 million in post-high school education.

Of those who participated in a distance education course, more than 3.2 million had fully distance education in 2018, which is 16.6% of all university and post-high school students in the United States.

COVID-19 affected 1.6 billion students in the world at all levels

Student population affected by school closures due to COVID-19, dates selected bi-weekly, 2020 (millions of students enrolled)



School closure due to COVID-19, April 1, 2020



Most governments around the world temporarily closed schools as a measure to contain the spread of the pandemic.

Because of this problem, UNESCO monitors these measures globally and makes an estimate of the volume of students affected in the world (UNESCO, 2020a, 2020b).

At its most severe point so far, 194 countries closed their schools across the nation and 6 countries closed them in a localized way.

Between March 25 and April 26, 2020, nearly 1.6 billion students had to stay at home, which is equivalent to 91.3% of total pre-school to post-graduate enrollment worldwide.

In a pandemic situation such as the current one, **distance education** allows millions of students to continue their studies in some way. However, in rural and developing regions, school closures mean that students are going without classes and this may well increase the drop-out rate once schools are reopened.

UNESCO: 10 recommendations to plan distance learning solutions during the COVID-19 lockdown

- Examine the readiness and choose the most relevant tools. Decide on the use of high-technology or low-technology solutions based on Internet connectivity and the digital skills of teachers and students. Solutions can range from integrated digital learning platforms or video lessons, to broadcasting through radios and TVs.
- Ensure inclusion of the distance learning programs. Implement measures to ensure that students including those with disabilities or from low-income backgrounds have access to distance learning programs.
- 3. Protect data privacy and data security. Ensure that the solutions do not violate students' data privacy.
- Prioritize solutions to address psychosocial challenges before teaching. Create communities to ensure regular human interactions, enable social caring measures, and address possible psychosocial challenges.
- 5. Plan the study schedule of the distance learning programs. With teachers, parents, and students, plan the most appropriate schedule to continue teaching, considering the length of school closures and the dates of the school year. Avoid learning methodologies that require face-to-face communication.

- 6. Provide support to teachers and parents on the use of digital tools. Organize brief orientation and training sessions for teachers and parents for the proper use of digital tools.
- Blend appropriate approaches and limit the number of applications and platforms. It is appropriate to use different tools and digital environments for learning processes, however, avoid overloading students with too many applications and platforms.
- Develop distance learning rules and monitor students' learning process. Design formative questions, tests or exercises to monitor closely students' learning process. In addition, try to use tools to support submission of students' feedback and avoid overloading parents by requesting them to scan and send students' feedback.
- Define the duration of distance learning units based on students' selfregulation skills. Maintain coherent timing in activities, especially real-time classes. Preferably, the unit for primary school students should not be more than 20 minutes, and no longer than 40 minutes for secondary school students.
- Create communities and enhance connection. Create communities of teachers, parents and school managers to address sense of loneliness or helplessness and facilitate sharing of experiences.

Distance education is also a very important solution in the workplace and for self paced learning



Note: For Brazil, Canada, Colombia and Costa Rica, the figures are for 2018; and for Chile, the United States and Israel, 2017. Source: BBVA Research based on data from the Organization for Economic Cooperation and Development (OECD), 2020. Distance learning, e-learning and online learning are not unique to universities and schools but are part of a large market used for employment training and for people seeking to learn on their own, among other segments.

In European countries, about 11% of people aged between 16 and 74 have taken an online course in a period of 3 months, with the proportion being noticeably higher for those people with higher education than for those with no or a low level of educational attainment.

According to Global Market Insights consultancy, the e-learning market was estimated at around USD 200 billion in 2019 and will reach USD 375 billion by 2026.

Estimate of the size of the e-learning market worldwide (billion USD)



Source: BBVA Research based on data from Global Industry Analyst, Global Market Insights and Statista



07 Toward the raise of Telemedicine?



Toward the raise of telemedicine?

The COVID-19 pandemic and the social distancing measures implemented to reduce the spread of the disease have also affected people's views about face-to-face medical care. Although the risk is comparable to other low-risk activities outdoors, some people have become concerned about the possibility of becoming infected when visiting physicians' offices and hospitals. These perceptions could accelerate the adoption of telemedicine and telehealth among the population.

According to the World Health Organization (WHO, 2010), **telemedicine** is a term coined in the 1970s and involves the use of the ICTs to improve patient outcomes by increasing access to medical care and information. It also recognized that there is no single definition, but adopted the following broad description:

"The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities."

The Commission of the European Communities (CCE, 2008), in its telematic program for health, has a similar definition:

"The provision of health care services through ICT in situations where the healthcare professional and the patient (or two health professionals) are in different locations. Telemedicine involves the secure transmission of medical data and information through text, sound, images or other forms necessary for patient prevention, diagnosis, treatment and monitoring." According to Rabanales et al. (2011), Vergeles (2002), Lex Sanitaria (2013) and Prados (2012), telemedicine offers many advantages such as:

- Enabling faster diagnosis and treatment,
- Facilitating continuity,
- Avoiding travel,
- Providing a tool for doctors and, used correctly, being of great help in improving the services provided,
- Promoting teamwork among the different professionals involved, helping with inter-consultations and making it easier to obtain a second opinion.
- Helping shorten waiting list times, assisting in appointment requests, facilitating patient-physician communication,
- Reducing accessibility inequalities, and
- Being economical in that it costs less than building medical units or having to send specialist teams to remote areas requiring support.

When analyzing telemedicine, we find other similar and related terms such as **telehealth**, **digital health**, **e-health** and **m-health** (health applications for mobile devices). As the American Telemedicine Association (ATA, 2020b) points out, although they may not be the same, they intersect and/or complement each other in multiple areas.

Telemedicine timeline

According to an analysis of the origin of telemedicine carried out by ECLAC (2013), the radio telegram used in 1925 may have been one of the first devices employed for medical purposes. This has been replaced by more advanced means of sending and storing images.

Timeline of significant events in the development of telemedicine



* The device was a copy of the Electronic Reaction of Abrams (ERA).

Source: BBVA Research based on data from Gertrudiz Salvador (2013) from 1925 to 1980; Samadi (2020) for 1985; Cabo (2010) for 2001; FDA (2019b) for 2013; Flores (2019) and AFP (2019) for 2019.
Telemedicine applications and their market size

Cardier et al. (2016) and Cabo (2010) indicate that the possible applications of telemedicine are:



Tele-prevention. Health promotion through the use of Information and Communication Technologies (ICT) and the prevention of risk and damage.

Tele-diagnosis. Providing assistance in the decision-making process, telemedicine includes areas such as specialized remote systems which contribute to patient diagnosis and the use of online databases.

Tele-monitoring. Consists of the transmission of patient information (ECG, X-rays, clinical data, biochemicals, etc.) as a means to remotely monitor the patient's condition and various vital functions. It is commonly used in intensive monitoring rooms or for home care for chronic patients.

Tele-consultation. Access for a specific patient to the experience or knowledge of a remotely located tele-specialist, in a particular care situation. It does not necessarily mean that the remote expert examines the patient directly.



Tele-emergencies. This consists of the use of mobile equipment that helps to make an initial and rapid diagnosis, with the collaboration of experts or monitoring of the patient's vital functions, to send information to the health facility, so that the necessary measures can be taken.



Tele-surgery. Experimental interventions making significant use of telerobotics, artificial vision and virtual reality.



Tele-epidemiological surveillance. Mandatory notification of events subject to surveillance, such as cholera, meningococcal meningitis, flaccid paralysis, measles, dengue, malaria and others that, due to their epidemiological importance, require strict control, through the use of information and communication technologies, allowing appropriate prevention and control measures to be taken.

According to various estimates, the size of the global telemedicine market in the period 2017–2020 is around USD 30 billion and for the period 2024–2027 forecasts range from USD 80.6 to USD 185.6 billion.

Value of the global telemedicine market (billion USD)



Source: BBVA Research based on data from Becker's Hospital Review (BHR), 2020; Fortune Business Insights (FB), 2019; Market Data Forecast (MDF), 2019; Present and Strategic Intelligence (P&S), 2018; Ugalmugale & Swain (U&S), 2019; and Values Report (VR), 2020.

77% of countries interviewed by WHO have a tele-radiology program

Number of responding countries with tele-health programs, 2015 (number of countries and % of total respondents)



Number of tele-medicine initiatives* in established status, 2015 (minimum: 0, maximum: 5)



Note: * It refers to these five areas: teleradiology, teledermatology, telepathology, telepsychiatry and remote patient monitoring. Source: BBVA Research based on data from the World Health Organization (WHO), 2016, Figures from the 2015 World eHealth Survey covering 125 countries carried out by WHO (2016b), indicate that approximately **77% of respondents had a program for tele-radiology, about half had one for tele-pathology, remote patient monitoring and tele-dermatology, and about one-third had one for tele-psychiatry.** In these results, it should be noted that many countries on the African continent did not participate in the survey.

Globally, six countries reported having all five types of telemedicine program in established status, with these being: Belgium, Canada, Colombia, Spain, the Netherlands and Sweden. Established status refers to an ongoing program that has been carried out for a minimum of two years and is planned to continue.

Mexico only reported having three programs in established status: teleradiology, teledermatology and telepsychiatry; while telepathology and remote patient monitoring were reported to be in "pilot" status.

Telemedicine has become an option in the COVID-19 era



United States: Adoption of telemedicine, December 2019 to May 2020

United States: Ways COVID-19 has caused disruption to physician practices, March 28, 2020 (% of the total, does not add up to 100%)



According to results from an electronic Civic Science survey (2020) of more than 100 participants, **29% of American adults surveyed in May 2020 said they had made a telemedicine appointment with a health professional. That is an increase of 21 percentage points since December 2019**, months before the pandemic hit the United States.

According to a survey conducted by SSG Media Group (2020), updated on March 28, 2020, it is noted that:

- 53% of physicians now use telemedicine because of the restrictions imposed by COVID-19, but have not used telemedicine prior to this pandemic,
- 31% see patients in the office, but overall volume is much lower,
- 24% see patients both virtually and in the office, and
- 23% see patients through virtual visits only.



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Toward a Contact-Free Economy: Conclusions

Conclusions

In late 2019 and early 2020, we began hearing news in the media about a new coronavirus affecting the city of Wuhan and its environs in China, which generated an unknown type of pneumonia. In February, the World Health Organization (WHO) decided to name this virus SARS-CoV-2 and the disease it caused, COVID-19.

At the beginning of January, 50 cases of this new virus were identified in the world; by the beginning of February, nearly 10,000 were infected and by the first week of March the figure had reached 100,000 cases with more than 3000 deaths having been reported. Given the alarming speed at which the disease was being spread and its severity, and the worrying levels of inaction by governments, the WHO officially declared COVID-19 a pandemic on March 11.

In March 2020, in response to this rapid rise in infections and deaths from COVID-19, many countries decided to close their borders. Closure was initially selective and targeted countries with the highest incidence of the disease, but within a few weeks, once the virus was more widespread around the world, total closures were imposed at borders. Only essential movements of goods and exceptional cases such as the repatriation of citizens stranded abroad due to the closure of borders and the suspension of land and air transport were permitted. Some countries even banned their citizens abroad from returning to their home country for fear of the disease being spread.

In addition, governments in various parts of the world declared a health state of emergency and schools, workplaces, public spaces and retail establishments considered to be non-essential were closed down. Social distancing measures, disinfection and hygiene protocols, hand washing, not touching your face and the use of masks began to be part of everyday life. In this context, the demand for goods and services that could be provided while avoiding interaction and contact with other individuals as much as possible, increased and this led to a sudden drive to use the technologies and sectors linked to the contact-free economy. The **Toward a Contact-Free Economy** study presented here analyzes seven of the most important non-contact trends that have reconfigured our lives during lockdown and the subsequent period of social distancing due to the Covid-19 pandemic. These will probably retain a strong impetus in the coming years

Greater digital inclusion in the world and between age groups and by gender. Health authorities in various parts of the world asked people to stay at home and only go out when strictly necessary. In some countries the lockdown was imposed with monitoring by the police, while in other countries people were asked to do this on a more voluntary basis. For many people, mainly in urban areas of middle- and high-income families, Internet access became the primary means of social and labor interaction and of shopping, entertainment and information.

Although the number of Internet users has grown rapidly in the last two decades, a large digital gap between economies persists. The United Nations International Telecommunication Union (ITU) estimates that, in 2019, about 97% of the world's population lived in an area with mobile phone coverage and 87% had LTE coverage or higher. However, only 54 out of every 100 inhabitants in the world had access to the Internet. Europe is the region with the most people using the Internet, while Sub-Saharan Africa has the least access. In addition to these divides between countries, a major generational gap persists within them: a large proportion of adults over the age of 55 do not use the Internet.

The global COVID-19 crisis may, on the one hand, have promoted and expanded the use of telecommunications technologies globally and, on the other, highlighted the important digital divides between economies, between age groups and by gender.

Adoption of digital payments at a faster pace: more contact-free technologies, less cash. Because of the exponential growth in COVID-19 infections, health authorities in many countries ordered the closure of many physical stores and shopping centers. Only those stores considered essential, such as food stores, grocery stores, stores selling basic goods and pharmacies were allowed to open and they operated under strict capacity and hygiene control protocols.

In addition, to reduce the risk of contagion, the population became more interested in making many of their payments and financial transfers using as little cash as possible, via digital media and without leaving home. This has been made possible by larger numbers of people having a bank account, the availability of debit and credit cards, the growth of mobile or Internet banking users and other digital payment technologies.

Several studies have found that during the pandemic cash use decreased and digital payments increased. In particular, for individuals who continued to make purchases in brick-and-mortar stores or face-to-face, transactions made with contact-free digital payment methods grew significantly. These include contactless cards and Apple Pay, mainly seen in the United States and Europe.

Acceleration of e-commerce trends: the future of retail. To reduce the risk of contagion, a segment of the world's population, mainly in urban areas, saw e-commerce as the means to meet many of their consumption and product supply needs during the lockdown.

Over the past decade, the share of total world retail sales accounted for by e-commerce has grown year-on-year, gaining ground on physical store sales. In 2018, the United Nations Conference on Trade and Development (UNCTAD) estimated that one in four people worldwide had made an online purchase in the past year. As a result of the pandemic, e-commerce retail sales received a strong boost in both volume and new consumers.

E-commerce platforms, which previously were an option for purchasing more specialized products or finding a better price, became the leading purchase option for groceries and essential goods, because they allowed consumers to minimize the risk of contagion and stay at home. A number of BBVA Big Data real-time surveys and figures show very clearly the reduction in transactions in brick-and-mortar stores and the growth of sales in e-commerce, particularly in foodstuffs.

It should be noted that the potential to add new consumers to e-commerce differs across the countries and is based on the digital inclusion of the population and its access to digital means of payment. In addition, there are noticeable divides in e-commerce use among socio-demographic groups. In many countries, people who are younger, have more education and are in higher income quartiles buy more online. In some countries with less penetration of e-commerce, there is greater use of this purchasing channel by men than women. Given the likely continuation of the pandemic in the second half of 2020, sales in brick-and-mortar stores worldwide may begin a slow recovery in 2020 and 2021, while online sales will continue to grow.

Slow recovery of the experience economy and more digital experiences. In addition to the brick-and-mortar stores, the COVID-19 pandemic and the lockdown measures to stop it spreading meant that many of the activities and sectors related to the experience economy had to close or were severely affected, especially those that directly or indirectly involved bringing people together. Cinemas, theaters, museums and entertainment parks had to close, and many sporting events, concerts, festivals, conferences and social events were canceled or had to be postponed. One of the most important sporting events to be postponed was the Olympic Games to be held in Tokyo, Japan in the summer of 2020.

The tourism and travel sector, which includes activities such as air and land transportation, cruises, hotels, restaurants, bars and tour guides, and which represents nearly 1 out of every 10 jobs in the world, was badly hit. The "traditional" experience economy is likely to recover slowly in 2020 and 2021 while demand and supply for digital and extended reality experiences is growing.

More remote working from home. The current concept of offices and work centers could undergo a revolution in the next few years, especially for those working in the service sector. For many people, businesses and governments, remote working from home, in particular teleworking, became the way to continue to perform their functions and activities. Many workers who had not previously worked from home had to adapt to the new labor paradigm almost overnight: adapting rooms to create an office space, balancing family life with the workload and interacting by videoconference, telephone or messages instead of in person, among other changes.

Despite the difficulties, many workers had a positive experience of working from home during the pandemic. Teleworking allows traffic to be reduced in cities, saves employees the time and money involved in commuting and can improve their quality of life. In the future, it is possible that workers will perceive work at home as a perk offered by companies, which could be decisive in attracting and retaining human capital, especially for younger generations.

According to the International Labor Organization (ILO), the occupations with most potential to work at home are: managers, professionals, associate technicians and clerical support workers; while those with the least potential are: plant and machine operators and assemblers, craft and related trade workers, skilled agricultural, forestry and fishery workers and services and sales workers.

During the pandemic, the occupations in the first group were probably the ones that were best able to continue their work activities successfully. For occupations in the second-group it would have been more difficult to adapt to the new reality and they were probably the ones facing the most job cuts.

Growth of distance education in schools and universities. Another sector severely affected was education. At its peak, at the beginning of April, the United Nations Educational, Scientific and Cultural Organization (UESCO) indicated that 194 countries had closed their schools at the national level and 6 countries had closed them in a localized manner. About 1,600 million students worldwide had to stay at home, which is more than 90% of total enrollment from pre-school to post-graduate levels. Distance education became the means for millions of students to continue their studies in some way. However, in rural and developing regions, school closures mean that students are going without classes and this may well increase the drop-out rate once schools are reopened.

Several months after the school closures, the vast majority of countries still do not have an adequate strategy for returning to the classroom after the summer holiday period. It is very likely that distance education will continue in many countries for the rest of 2020 and that the long-awaited return to schools will occur until 2021.

The boost to distance education could lead to lasting change: the experiences and skills learned by managers, academics and teachers during this lockdown could lead to the development of more remote training programs and courses by universities and schools, which could also be moved into the work environment and for self-learning.

We do not believe that distance education can replace schooling, which will continue to play a leading role, but it can complement it and offer alternatives that could lead to an increase in hybrid education systems.

Toward the raise of telemedicine. Finally, it is important to note that the COVID-19 pandemic has affected, at least in the short-term, people's idea of face-to-face medical care. Although the risk is comparable to other low-risk activities outdoors, some people have become concerned about the possibility of becoming infected when visiting physicians' offices and hospitals. These perceptions could accelerate the adoption of telemedicine and telehealth.

During the lockdown, some health professionals have engaged in telemedicine to avoid the risk of infection in clinics, hospitals or during transport. In addition, telemedicine has many benefits such as: faster diagnosis and treatment, easier follow-up, favoring collaboration between different professionals and facilitating communication between the patient and the doctor, among others.

At the time of writing this study, what we can be sure about is that the COVID-19 pandemic has generated disruptive social and economic effects worldwide. The evolution of this pandemic has resulted in the severity of infections following a very different time pattern in different regions. During the first two months of 2020, the epicenter of the pandemic was located in the Asia region, with a major outbreak of the infection in China. Later, toward the end of March and during April, Europe accounted for the largest number of new cases and deaths around the world, particularly in Italy, Spain, Germany, France and the United Kingdom. By June, July and August, the global epicenter of the pandemic had moved to the American continent, where most of the confirmed cases and deaths were reported in the United States, Brazil and Mexico.

The purpose of the contact-free economy is not to limit interactions between individuals, but quite the contrary, it aims to increase the frequency of interactions and reduce the distance between people in an increasingly digitized world. With this vision, in the decade that is about to begin, we consider that daily life as we know it today will gradually evolve toward a contact-free economy.

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Authors



CARLOS SERRANO HERRERA Chief Economist for Mexico



JUAN JOSÉ LI NG Senior Economist



GUILLERMO JR. CÁRDENAS SALGADO Senior Economist



LUIS ANTONIO ESPINOSA CARRASCO Economist



www.bbvaresearch.com

bbvaresearch_mexico@bbva.com

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Toward a Contact-Free Economy

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