



ECLAC

COVID-19
RESPONSE

26 August 2020

Universalizing access to digital technologies to address the consequences of COVID-19

A. Progress and limitations relating to digitization during the pandemic¹

- **Digital technologies have been essential to the functioning of the economy and society during the crisis caused by the coronavirus disease (COVID-19) pandemic.** Communications networks and infrastructure are being used more and more intensively for productive, educational, health and entertainment-related activities and to keep in touch with friends and relatives. **Progress that was expected to take years to materialize has been made in a few months.**
- **Digital solutions in the areas of health, education, commerce and work play a leading role in the fight against COVID-19** because they facilitate physical distancing and allow the socioeconomic system to remain viable to a certain extent.
- Mobility data during the first months of quarantine show a world gripped by physical, but not virtual, paralysis.
- **Data on the movement of people at the start of the lockdown show that, in the countries of the region, the number of people going to food outlets and pharmacies fell by 51%, to non-essential goods and entertainment outlets by nearly 75%, and to workplaces by about 45%.** A large share of the population is continuing to follow stay-at-home advice as a compulsory or voluntary preventative measure.
- At the same time, website traffic and use of applications for teleworking, distance learning and online shopping shows a significant increase in the use of digital solutions. **Between the first and second quarters of 2020, the use of teleworking solutions shot up by 324% and distance education grew by more than 60%** (see figure 1).
- **The development and adoption of technological solutions are conditioned by structural factors:** a heterogeneous production structure, a highly informal and precarious labour market, a vulnerable middle class, a weakened welfare state, poor digital infrastructure and socioeconomic restrictions on access and connectivity.



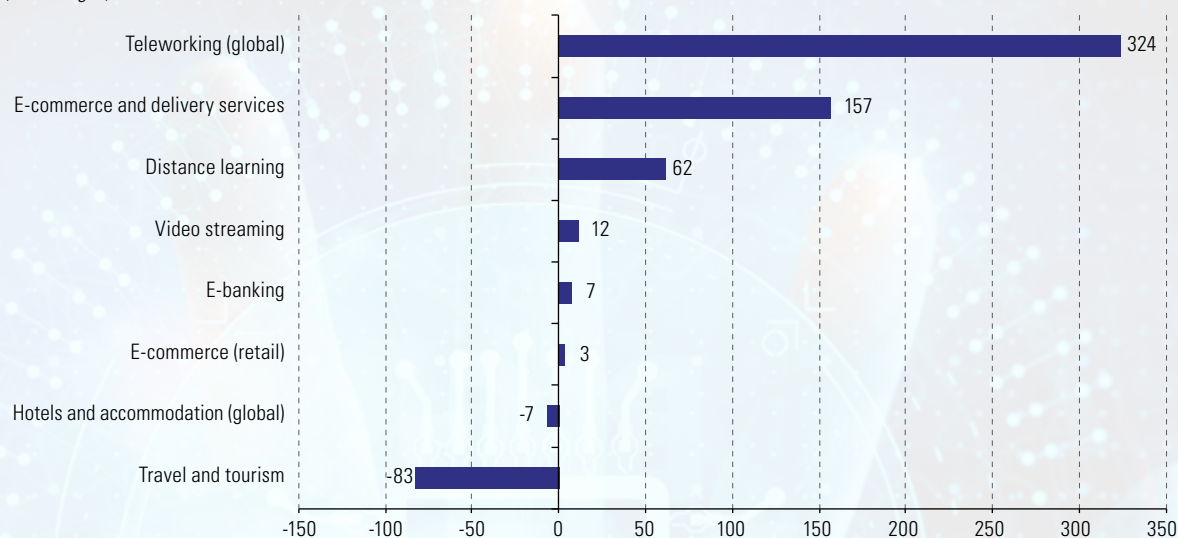
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¹ Unless otherwise indicated, the data used to prepare this report are those available up to 7 August 2020.

- The countries of Latin America and the Caribbean have taken steps to encourage the use of these technologies and to ensure the continuity of telecommunications services. **The scope of these actions is limited by gaps in access to and use of these technologies and by connection speeds.**

Figure 1 | Latin America (5 countries):^a changes in activity level by sector between the first and second quarter of 2020 based on website traffic and use of teleworking applications (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from SimilarWeb [online] similarweb.com [accessed on: 3 August 2020].

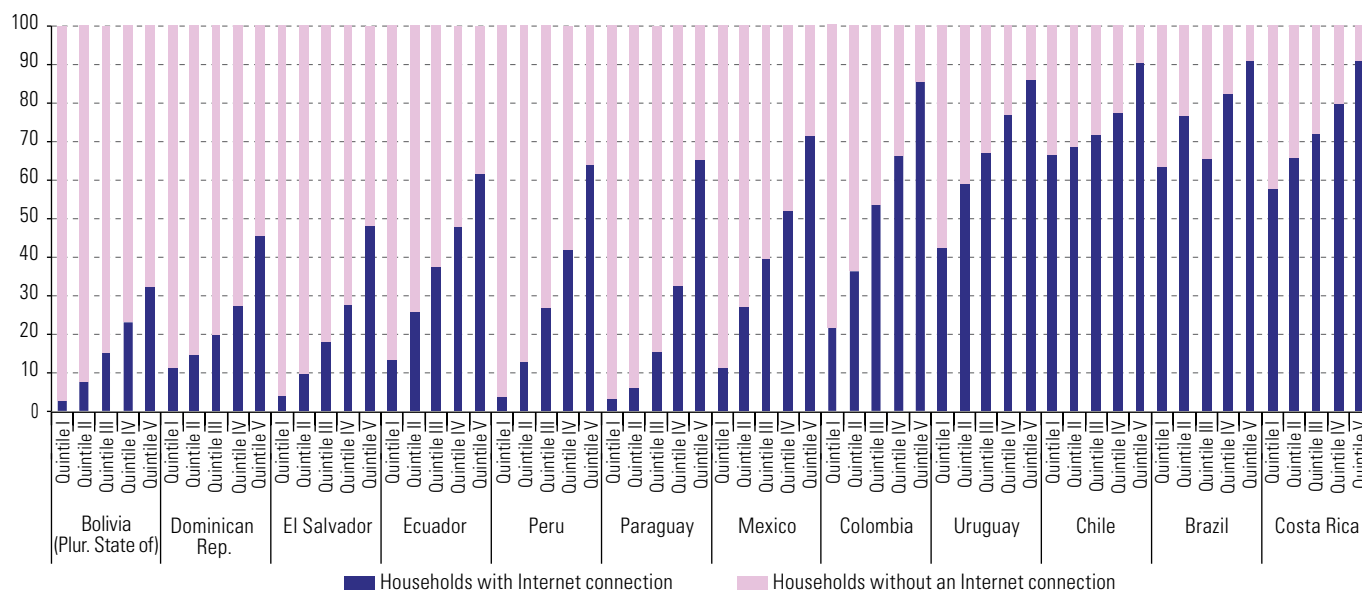
Note: The hotels and accommodation and teleworking categories include global data as the websites do not target users of a particular country. Teleworking applications include: zoom.us, meet.google.com, teams.microsoft.com, webex.com and slack.com; e-commerce and delivery service applications include: rappi.com, pedidosya.com, glovoapp.com, cornershop.com and ubereats.com; distance education applications include: uba.ar, unc.edu.ar, mineduc.cl, inacap.cl, uc.cl, uchile.cl, senasofiaplus.edu.co, brainly.lat, unad.edu.co, unal.edu.co, unam.mx, blackboard.com, edmodo.com, brainly.com.br, brasilescola.uol.com.br, colaboraread.com.br and qconcurso.com; video streaming platforms include: youtube.com and netflix.com; e-banking applications include: itau.com.br, banco.bradesco, santander.com.br, bancochile.cl, santander.cl, santander.com.ar, banamex.com and bbva.mx.; e-commerce retail applications include: mercadolibre.com.mx, amazon.com.mx, mercadolibre.cl, falabella.cl, olx.com.co, mercadolibre.com.co, mercadolibre.com.br, olx.com.br, mercadolibre.com.ar and cotodigital3.com.ar; hotel and accommodation applications include: booking.com, agoda.com, airbnb.com, hotels.com, trivago.com; and travel and tourism applications include: airbnb.mx, volaris.com, booking.com.co, avianca.com.co, latam.com, booking.cl, booking.com.ar, despegar.com.ar, booking.com.br, latam.com/pt-br/.

^aThe data are for Argentina, Brazil, Chile, Colombia and Mexico.

1. The access gap exacerbates inequalities

- Connectivity —understood as the availability of a broadband service that is fast enough and the possession of Internet-ready devices— affects the right to health, education and work, while it can also increase socioeconomic inequalities.
- Connectivity is one of the conditions necessary for leveraging the value created by digital technologies.
- **In 2019, 66.7% of the region's inhabitants had an Internet connection.** The remaining third have limited or no access to digital technologies owing to their economic and social status, particularly their age and area of residence.
- In 12 countries of the region, on average, 81% households in the highest income quintile (quintile V) have an Internet connection, while for households in quintiles I and II the figures are 38% and 53%, respectively (see figure 2). In countries such as Brazil and Chile, more than 60% of households in income quintile I have an Internet connection, while in Paraguay, Peru and the Plurinational State of Bolivia, only 3% do. This limits or prevents access to teleworking, distance learning and telemedicine, and to other goods and services offered by public platforms and institutions, thereby widening pre-existing gaps.
- **In 2018, nearly 23 million households, half of the total number of households with no Internet connection, were in the two lowest income quintiles (I and II).**

Figure 2 | Latin America (12 countries): households with and without an Internet connection, by income quintile, 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), Regional Broadband Observatory (ORBA), on the basis of information from the Household Survey Data Bank (BADEHOG).
 Note: Statistics for Brazil, Chile, Costa Rica, Ecuador, El Salvador, Paraguay and Uruguay include mobile Internet. Data are for 2018 for all countries, except Chile and Ecuador, for which data are for 2017.

- **The differences between urban and rural areas in terms of connectivity are significant.** In the region, 67% of urban households are connected to the Internet, while in rural areas only 23% are. In some countries, such as **El Salvador, Paraguay, Peru and the Plurinational State of Bolivia, more than 90% of rural households do not have an Internet connection.** Even in wealthier countries such as Chile, Costa Rica and Uruguay, only about half of rural households are connected to the Internet.
- In terms of age groups, young people and older persons are the least connected: 42% of those younger than 25 years and 54% of those older than 66 are not connected to the Internet. **The least connected groups are children aged between 5 and 12 and adults over the age of 65,** while the most connected are people between the ages of 21 and 25 and between the ages of 26 and 65.
- **Low connection speeds reinforce exclusion as they prevent the use of digital teleworking and distance learning solutions** (see table 1).

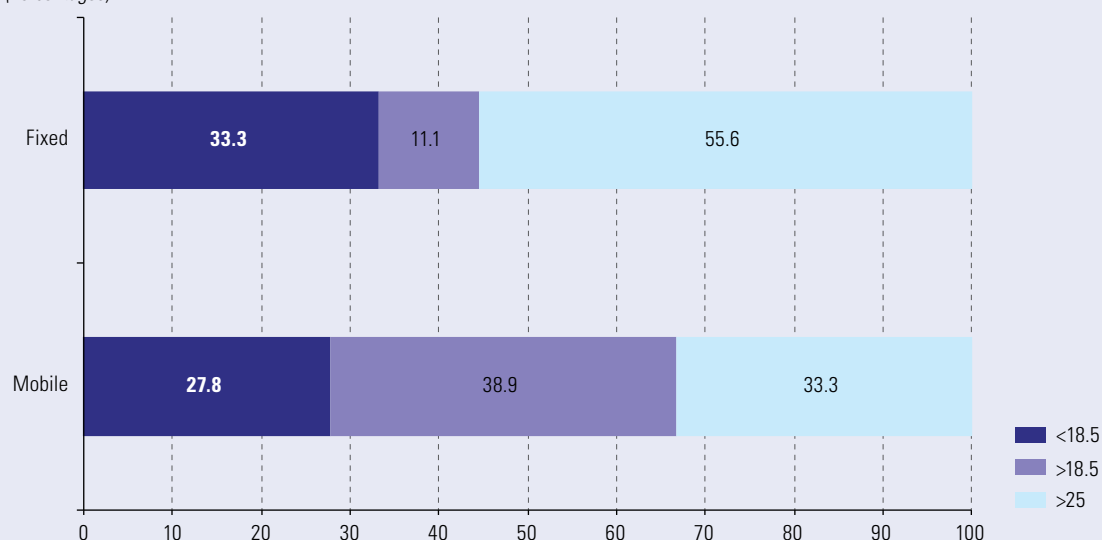
Table 1 | Functionality based on broadband download speed

Low	Medium	High
5.5 Mbps	18.5 Mbps	More than 25 Mbps
Allows the use of functions such as email, basic video and direct audio streaming	Allows two basic functions and one high-demand application to run simultaneously	Allows basic functions and more than one high-demand application to run simultaneously
Does not allow teleworking	Allows teleworking and distance learning, non-simultaneously	Allows teleworking and distance learning, simultaneously
Does not allow distance learning		

Source: Economic Commission for Latin America and the Caribbean (ECLAC), Federal Communications Commission (FCC), “Broadband Speed Guide”, February 2020 [online] <https://www.fcc.gov/reports-research/guides/broadband-speed-guide>.

- Since the beginning of the COVID-19 crisis, the demand for broadband communication services has skyrocketed. The increase in traffic has put a strain on network capacity and resilience, and several countries recorded a decrease in average network download speed during the first few months of lockdown. However, available data suggest that this situation has been rectified.
- **Nevertheless, as of June 2020, 44% of the region's countries were unable to provide the download speeds required to allow several online activities to take place simultaneously:** connection speed was less than 25 Mbps (see figure 3). Download speeds of around 18.5 Mbps allow two basic activities (for example, the use of email) and one high-demand activity (such as playing videos or videoconferencing) to be carried out simultaneously, meaning that users had to choose between distance learning and teleworking. When the download speed is less than 5.5 Mbps, users can carry out only basic activities, which do not include teleworking or distance learning.

Figure 3 | Latin America and the Caribbean (18 countries):^a mobile and fixed broadband download speeds, June 2020 (Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), Regional Broadband Observatory (ORBA), on the basis of Ookla, "Speedtest Global Index" [online] <http://www.speedtest.net/global-index>.

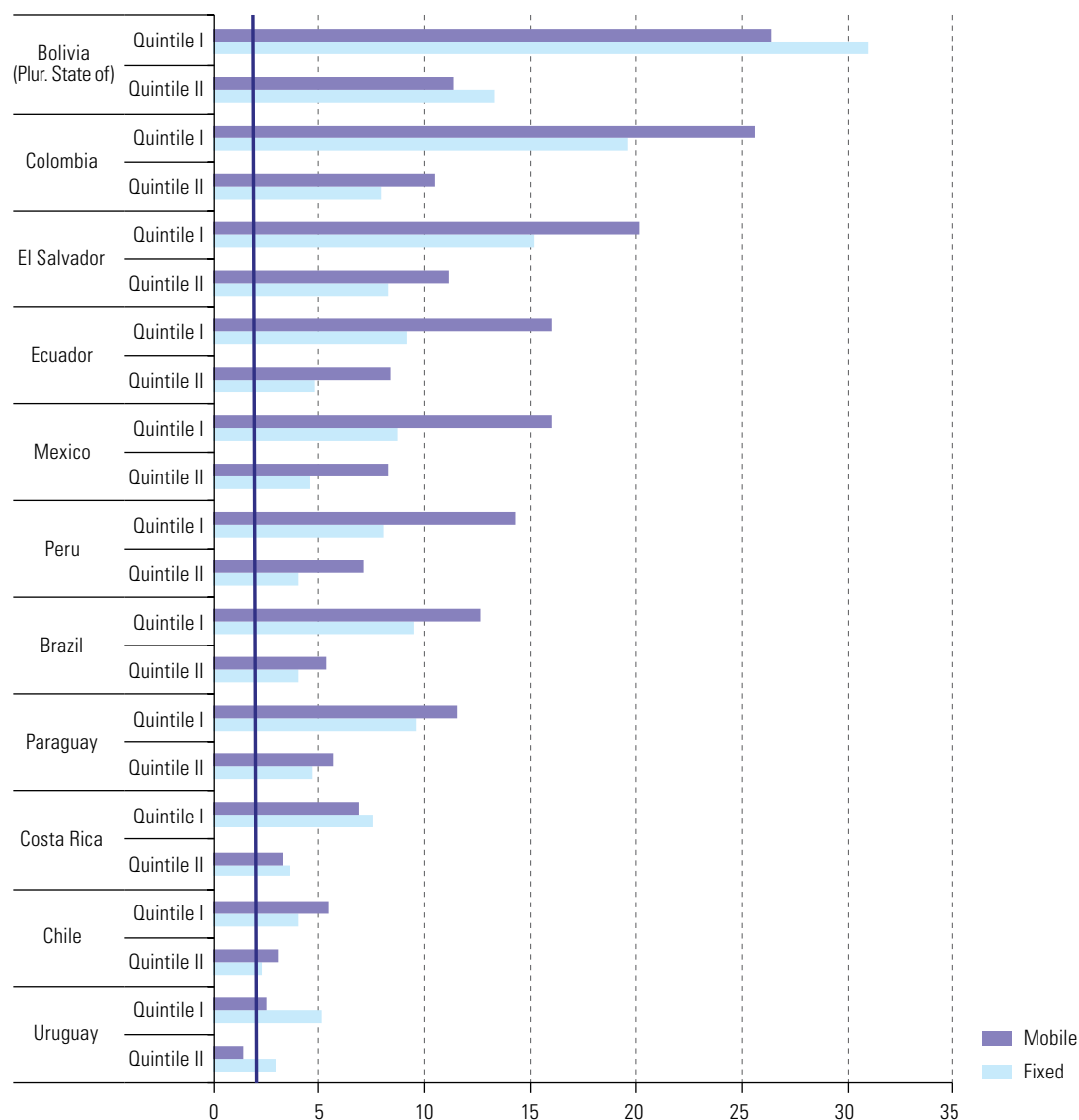
^a Argentina, Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia and Uruguay.

- In the case of mobile broadband, 67% of countries do not have adequate download speeds that allow high data consumption activities to be carried out simultaneously.
- In the region, mobile broadband penetration is five times higher than that of fixed broadband.

2. Low household income limits access to the Internet and the possibility of using mobile applications

- In 11 countries of the region, **the percentage of households with no Internet connection ranges from 60% to 85%, compared to around 30% in the countries with the highest connection rates.**
- **The cost of mobile and fixed broadband services for the population in income quintile I accounts for 14% and 12% of their income, respectively** (see figure 4). In the worst cases, these costs represent about six times the reference threshold of 2% of income recommended by the Broadband Commission for Sustainable Development for Internet service to be classified as affordable.

Figure 4 | Latin America (11 countries): affordability of fixed and mobile Internet by income quintile, 2019
(Percentages of household income)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), Regional Broadband Observatory (ORBA), on the basis of information from the Household Survey Data Bank (BADEHOG).

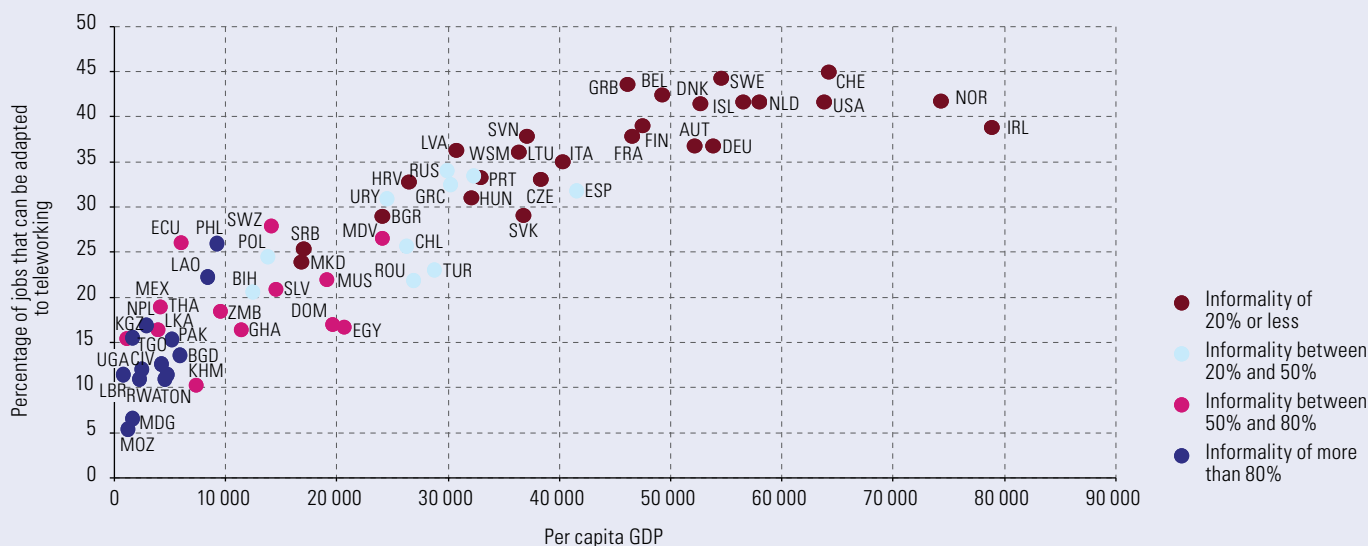
Note: The affordability of fixed and mobile broadband Internet is calculated on the basis of average broadband service costs in the country.

(a) Teleworking

- Teleworking has proved fundamental to the survival of some companies and for preventing the spread of the coronavirus. **Although 7.9% of the world’s workforce worked from home on a permanent basis prior to the pandemic, mainly industrial outworkers and artisans, only a minority were teleworkers.**²
- The proportion of work that can be done remotely varies among countries for structural reasons. Labour market structures, production structures, levels of informality and the quality of digital infrastructure play a key role.
- **The percentage of jobs that can be adapted to teleworking is positively linked to the level of per capita GDP and to lower levels of informality** (see figure 5).
- In Europe and the United States, almost 40% of workers can work from home, compared to less than 15% in some African countries. **In the case of Latin America and the Caribbean, the Economic Commission for Latin America and the Caribbean (ECLAC) estimates that teleworking is feasible for roughly 21.3% of employed persons** (see figure 6).

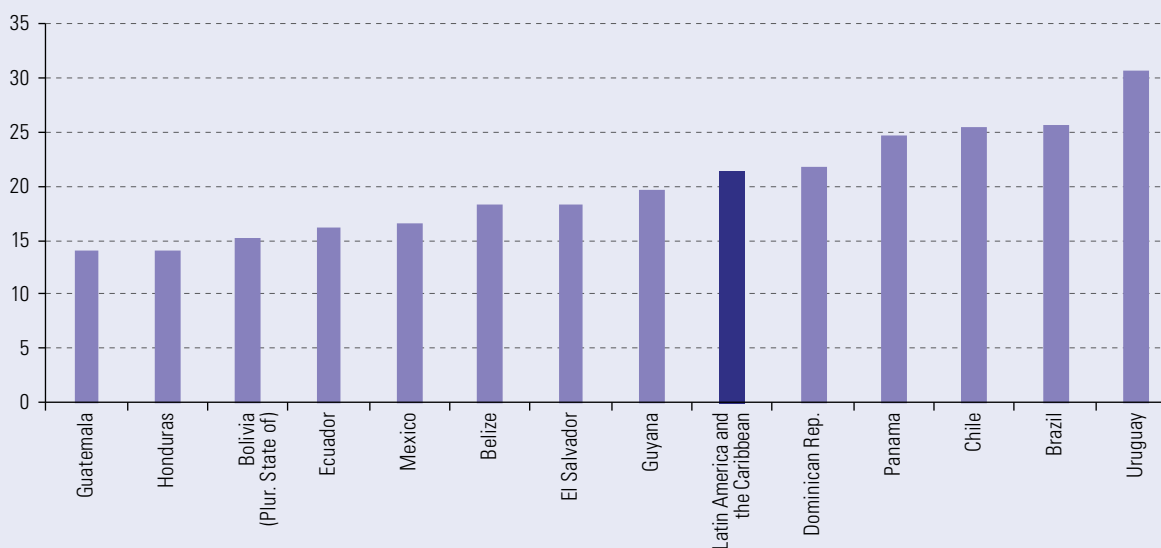
² International Labour Organization (ILO), “Working from home: estimating the worldwide potential”, *Policy Brief*, April 2020.

Figure 5 | Feasibility of teleworking, per capita GDP and level of informality, 2019 or latest available data
(Percentages and dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Household Survey Data Bank (BADEHOG); J. Dingel and B. Neiman, "How many jobs can be done at home?", *NBER Working Paper*, No. 26948, Cambridge, National Bureau of Economic Research (NBER), 2020, and data from the International Labour Organisation (ILO).

Figure 6 | Latin America and the Caribbean: feasibility of teleworking
(Percentages)

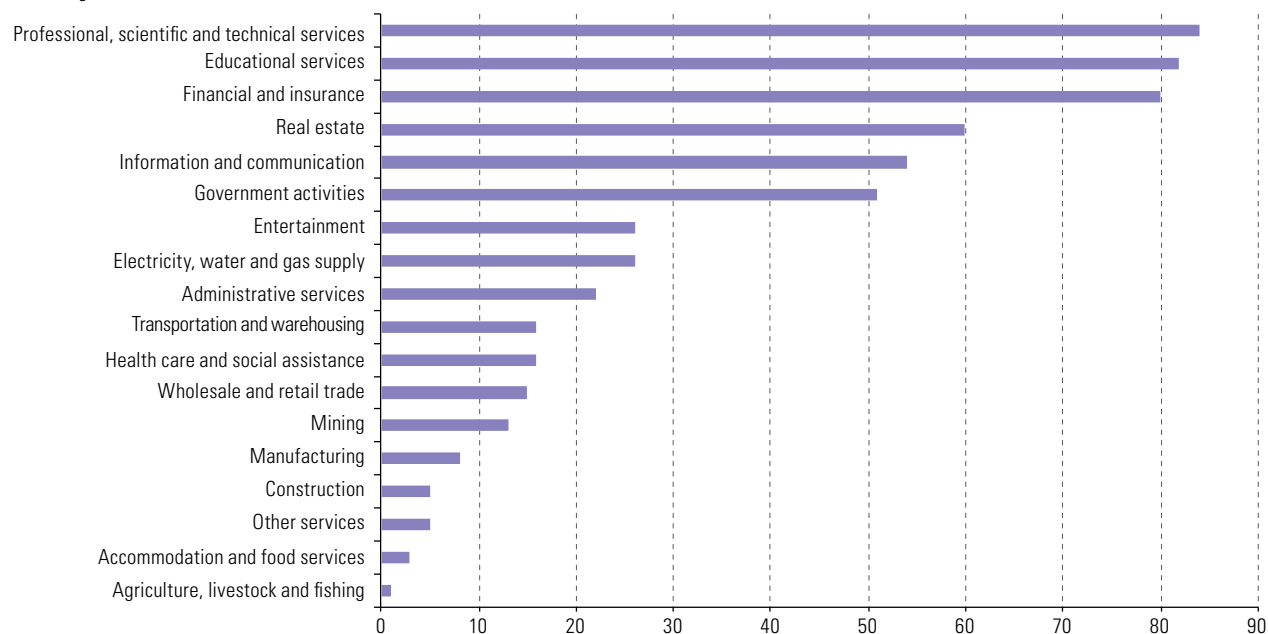


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Household Survey Data Bank (BADEHOG) and J. Dingel and B. Neiman, "How many jobs can be done at home?", *NBER Working Paper*, No. 26948, Cambridge, National Bureau of Economic Research (NBER), 2020.

Note: Figures for Ecuador, Mexico, El Salvador, the Dominican Republic and Chile and are estimated on the basis of four-digit national occupational classifications. Figures for the other countries are estimated on the basis of the two-digit International Standard Classification of Occupations (ISCO) of the International Labour Organization (ILO). Data are for 2018 or the most recent year available.

- **In the region, the percentage of occupations that can be adapted to teleworking is conditioned by the high levels of informality, which in 2018 represented more than 50% of total employment.** Most informal jobs are concentrated in sectors that require physical interaction and thus cannot be carried out remotely.
- The characteristics of the region's productive structure limit the percentage of occupations that can be adapted to teleworking owing to the high concentration of workers in activities that require social interaction and their physical presence. **At the sectoral level, the share of jobs that can be done at home is over 80% in professional, scientific and technical, educational, and finance and insurance services. In the countries of the region, these sectors account for less than 20% of employed persons.** By contrast, the share of jobs that can be done from home in the wholesale and retail trade and in agriculture is 15% and 1%, respectively (see figure 7).

Figure 7 | Share of jobs that can be done at home by sector of economic activity^a
(Percentages)

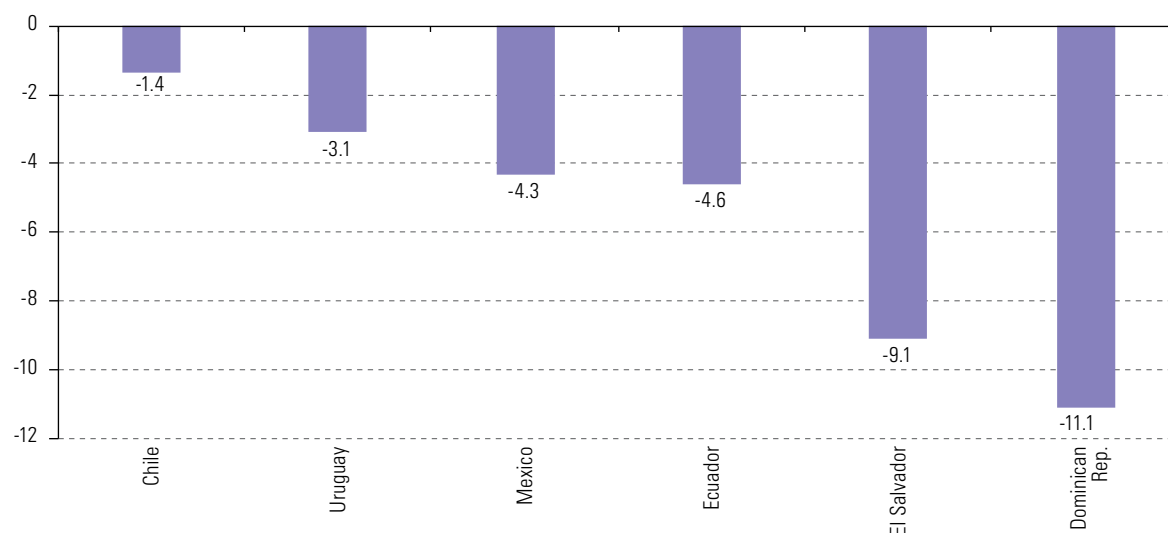


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Household Survey Data Bank (BADEHOG) and J. Dingel and B. Neiman, "How many jobs can be done at home?", *NBER Working Paper*, No. 26948, Cambridge, National Bureau of Economic Research (NBER), 2020.

^a Weighted averages of: Chile, the Dominican Republic, Ecuador, El Salvador, Mexico and Uruguay.

- **Other determining factors are digital infrastructure, level of digitization of companies and digital skills.**
- Figure 8 shows the percentage of people employed in jobs that can be done remotely but who cannot work from home owing to connectivity issues in the country. For example, **in the Dominican Republic, low connectivity reduces the proportion of employed persons who can telework by 11 percentage points. In countries with better connectivity, such as Chile and Uruguay, the percentage of workers who cannot work remotely for this reason is reduced by 1 and 3 percentage points, respectively.**

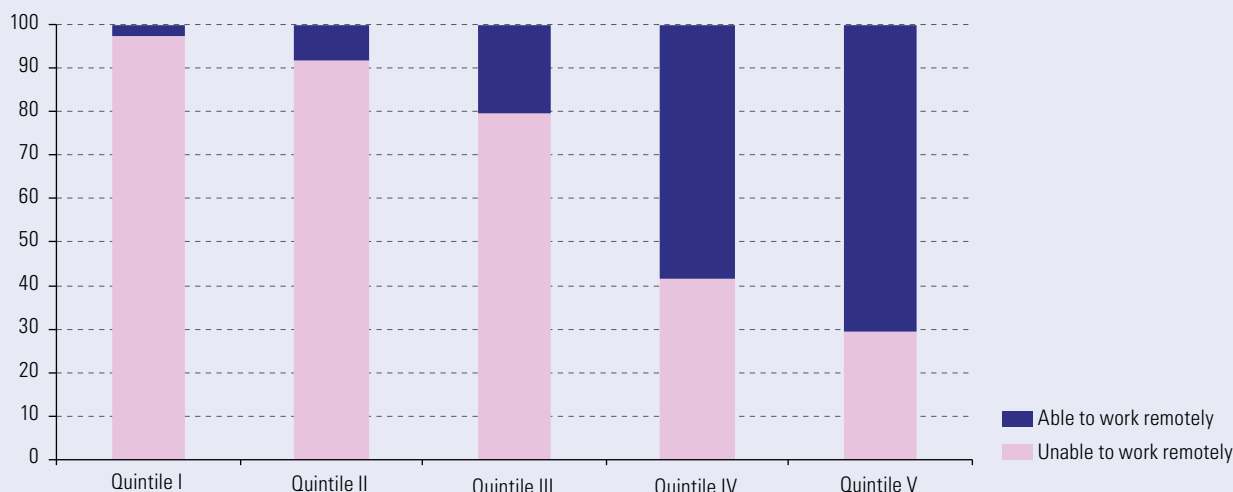
Figure 8 | Latin America (6 countries): people employed in jobs that can be performed remotely but who are unable to because of connectivity issues in the country, 2018 or latest available data
(Percentage points)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Household Survey Data Bank (BADEHOG) and J. Dingel and B. Neiman, "How many jobs can be done at home?", *NBER Working Paper*, No. 26948, Cambridge, National Bureau of Economic Research (NBER), 2020.

- Although digitization has played a fundamental role in allowing some productive activities to continue during lockdown, there is concern that the inequality of labour markets in Latin America and the Caribbean will worsen.
- In the absence of policies to support the most vulnerable workers against a backdrop of considerable inequalities in access to technological tools, significant heterogeneity in the capabilities of workers at various income levels and a productive structure concentrated on low-value-added activities, teleworking deepens inequalities.
- For most jobs that can be performed remotely, workers have a higher level of training and, on average, earn higher wages than those paid for activities that cannot be performed remotely.
- Figure 9 shows that in **wage quintiles I, II and III, more than 80% of employed persons cannot telework, while in quintiles IV and V, more than 50% can.**

Figure 9 | Latin America: (5 countries):^a employed persons' who are able to work remotely based on teleworking feasibility and average wage quintile (Percentages)



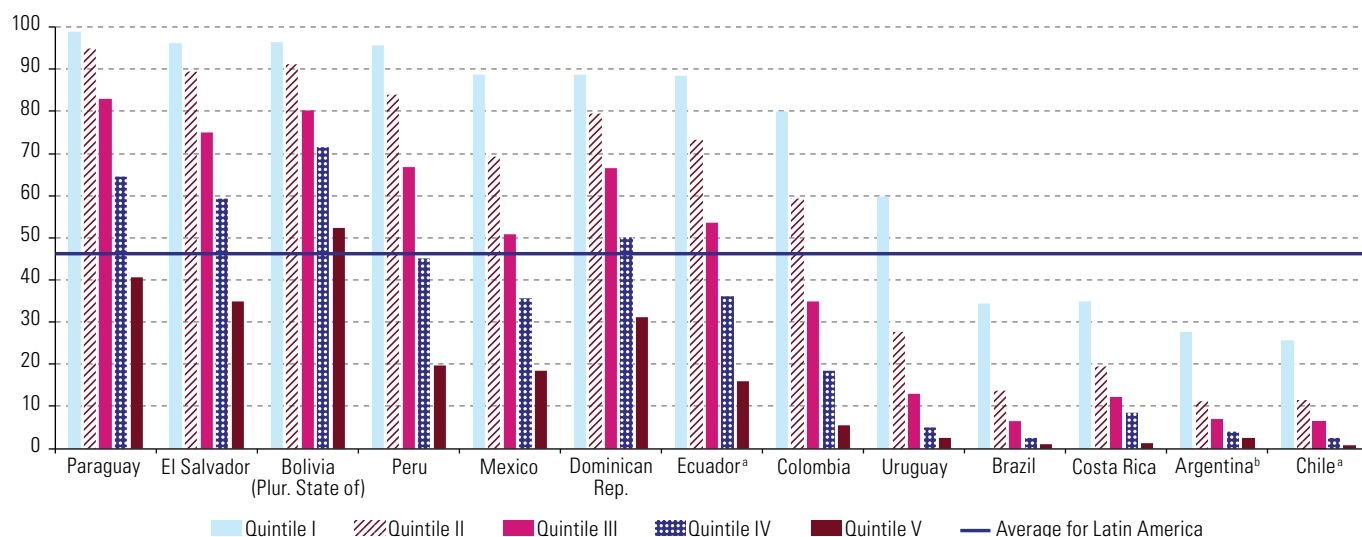
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Household Survey Data Bank (BADEHOG).
^aWeighted average of: Chile, the Dominican Republic, Ecuador, El Salvador, Mexico and Uruguay.

- The longer lockdown measures remain in force and economic activities suspended, the more serious the consequences for workers who cannot telework, exacerbating vulnerabilities and inequalities.
- During the crisis, workers who carry out basic or manual activities and cannot work remotely are at higher risk of wage cuts or job losses, while more qualified workers are able to maintain their incomes.
- **To mitigate the effects of lockdown, the steps taken to reopen the economy should include return-to-work plans that prioritize lower-wage occupations that cannot be performed from home.**

(b) Distance learning

- **As a result of the suspension of face-to-face classes, the countries of the region have developed strategies to continue education activities remotely.**
- The countries that already had **virtual educational platforms** have focused on **adapting and updating** them. The others brought new platforms online, in some cases in cooperation with companies such as Microsoft, Cisco and Google and with multilateral agencies. In most cases the content platforms were supplemented by virtual classroom solutions.
- The use of distance learning solutions is only possible for those with an Internet connection and compatible devices. **Of the children in the region aged between 5 and 12 years, 46% live in households that are not connected to the Internet. In those countries for which information is available, this means that more than 32 million children are effectively excluded from education** (see figure 10).

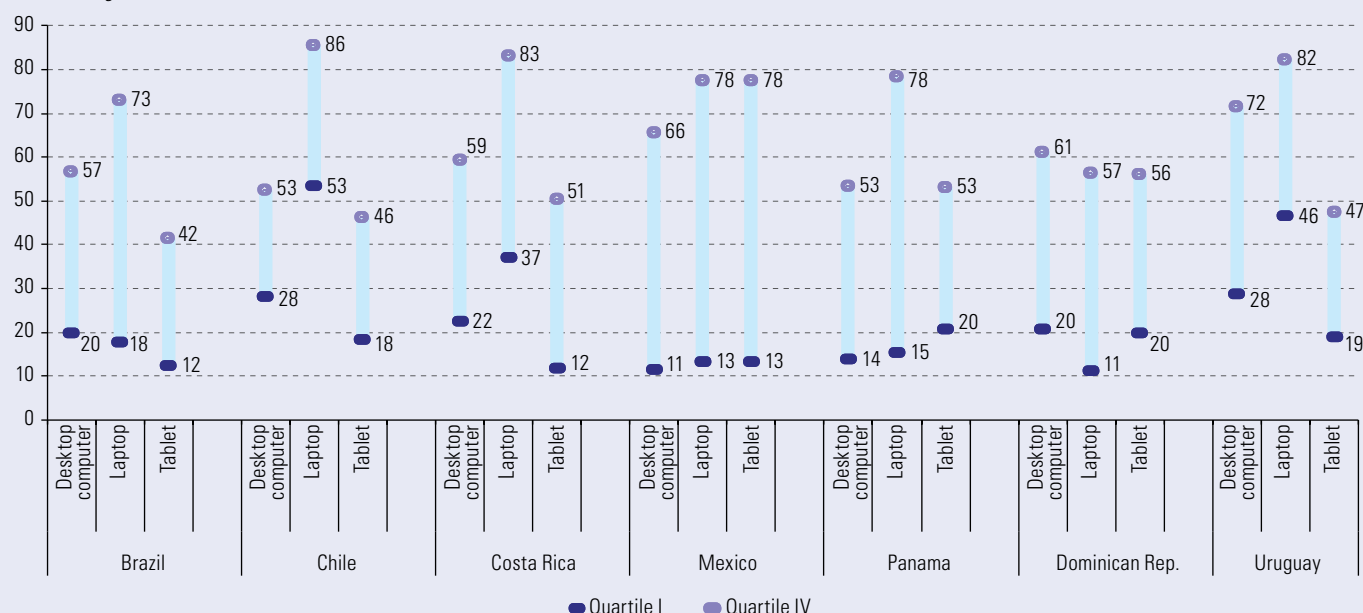
Figure 10 | Latin America (13 countries): children in households without Internet access, by income quintile
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Household Survey Data Bank (BADEHOG).
 Note: In the survey on which the information is based, “households with Internet access” means that the Internet is generally available for use by all members of the household at any time; the connection and devices may or may not be owned by the family, but should be considered as household assets; and the household Internet connection must be working at the time of the survey. The calculation is made on the basis of the total number of children aged between 5 and 12 years old in each income quintile of each country.
^aData are for 2017.
^bIncludes only urban areas.

- In El Salvador, Paraguay, Peru and the Plurinational State of Bolivia more than 90% of children from the poorest households do not have an Internet connection at home.
- In countries with better connectivity indicators, about 30% of children living in households in the lowest income quintile (Q1) do not.
- The average number of children in lower-income households in the region’s countries is four times higher than the average number of children in higher-income households, which makes Internet access difficult for those in lower-income households, since more devices are needed in the same household to allow each of them to be connected at the same time.
- Households’ access to digital devices is also unequal in the region, especially among different socioeconomic and cultural levels. **While between 70% and 80% of students from the highest socioeconomic strata (quartile IV) have laptops at home, only between 10% and 20% of students from the lowest income quintiles (quartile I) have these devices** (see figure 11).
- **The difference between the highest and lowest economic strata affects the right to education and deepens socioeconomic inequalities.**
- To ensure inclusive and equitable education, and to promote learning opportunities throughout the education cycle, **not only must connectivity and digital infrastructure be improved, but also the digital skills of teachers** and professors, and educational content must be adapted to the digital environment. The use of digital education tools specifically designed for a context of low rates of connectivity and use of basic mobile devices should also be explored.
- **The educational responses of countries of the region to the COVID-19 pandemic have been diverse.**
- In some cases, a comprehensive approach to the crisis has been adopted, through a comprehensive plan designed in conjunction with other economic, social and health-care actions.
- In others, specific initiatives have been implemented, providing guidance on the management of education centres. In these cases, planning responses are less cross-cutting and their content is focused on maintaining educational continuity and communication with families. Most of these initiatives have been disseminated through guides, intervention protocols, resolutions or news items published on the relevant ministries’ websites.

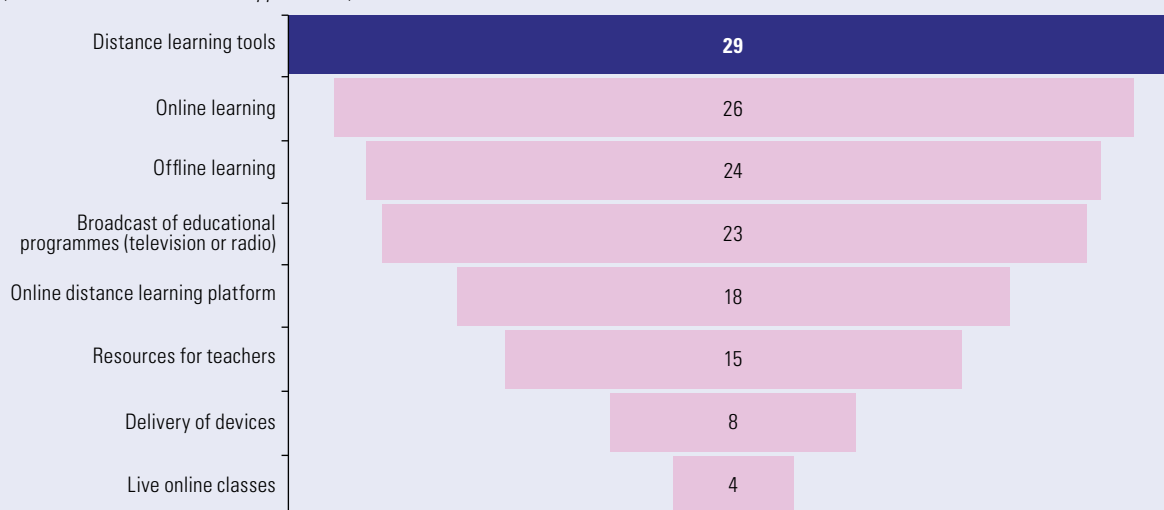
Figure 11 | Latin America (7 countries): 15-year-old students who have digital devices at home, by type of device and socioeconomic quartile, 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC)/United Nations Educational, Scientific and Cultural Organization (UNESCO), "Education in the time of COVID-19", *COVID-19 Report*, Santiago, 20 August 2020.

- **To develop a more inclusive distance learning proposal, consideration should be given to the context and possibilities afforded by the digital infrastructure and access to Internet services and devices.**
- Of the 29 countries analysed, 23 complement online learning with strategies that are supported by television and radio programmes. Meanwhile, only 8 countries arranged for the delivery of devices to those people without access to one (see figure 12).
- Learning strategies with printed resources were implemented in 24 countries for people without access to digital and audiovisual media.

Figure 12 | Latin America and the Caribbean (29 countries):^a strategies to continue education activities remotely, by learning modality, 2020
(Number of countries that have applied them)



Source: Economic Commission for Latin America and the Caribbean (ECLAC)/United Nations Educational, Scientific and Cultural Organization (UNESCO), "Education in the time of COVID-19", *COVID-19 Report*, Santiago, 20 August 2020.

^a Argentina, Bahamas, Barbados, Belize, Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia, Saint Lucia, Suriname, Trinidad and Tobago, and Uruguay.

(c) E-health services

- **The provision of e-health services is changing the models of care.** It has multiple benefits, including improving access to services, as well as their efficiency and quality; reducing costs; and increasing disease prevention capacity.
- **It also helps to relieve the pressure on health centres and hospitals, curb transmission of COVID-19 and flatten epidemic and infection curves.** Patients' COVID-19 symptoms and recovery can be monitored through telephone or video calls, thus keeping low-risk and mildly symptomatic patients at home, reducing the likelihood of transmitting the disease.
- This modality of providing online health services requires policies that provide for the approval of legal frameworks for their implementation, the digitization of medical information, interoperability and that address aspects such as privacy and data security.
- **By 2016, 56% of the countries of the region had a national e-health policy or strategy.**
- However, **only 38% of these countries had specific regulations regarding the exchange of digital data between health services**, which is evidence that a central component of the enabling regulatory framework is still missing (see table 2).

Table 2 | Latin America and the Caribbean (16 countries): regulatory frameworks for the provision of e-health services, 2015

Policy or legislation	Argentina	Chile	Colombia	Costa Rica	Cuba	El Salvador	Guatemala	Honduras	Jamaica	Mexico	Panama	Paraguay	Peru	Dominican Republic	Trinidad and Tobago	Uruguay
Defines medical jurisdiction, liability or reimbursement of e-health services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Addresses patient safety and quality of care based on data quality, data transmission standards or clinical competency criteria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protects the privacy of personally identifiable data	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protects the privacy of individuals' health-related data	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Governs the sharing of digital data between health professionals in other health services in the same country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Governs the sharing of digital data between health professionals in health services in other countries	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Governs the sharing of personal and health data between research entities	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Allows individuals electronic access to their own health-related data	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Allows individuals to demand that their own health-related data be corrected	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Allows individuals to demand the deletion of health-related data	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Allows individuals to specify which health-related data can be shared with health professionals of their choice	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Governs civil registration and vital statistics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Governs national identification management systems	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Yes
	No
	No information

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from World Health Organization (WHO), Global Observatory for eHealth.

- **Beyond increasing the demand for e-health services, the pandemic has highlighted some structural weaknesses in medical and telemedicine systems.** Costs and uncertainty about reimbursement are barriers to the use of e-health services; patients and health-care providers often lack information regarding payment and insurance coverage.
- Other barriers **are related to patients' age and the degree of training they have received:** those who are less digitally literate (for example, older persons) are the most vulnerable and are least able to take advantage of e-health solutions.
- **Governments in the region have developed mobile applications to minimize physical contact between patients and health-care providers, and to disseminate essential information on how to prevent infection and news about the COVID-19 pandemic.**
- Many of these apps provide information on the location of health facilities and allow for self-diagnosis (see table 3). In some cases, after an initial self-diagnosis, the application refers the user directly to a health-care centre, as is the case with the CuidAr COVID-19 app launched by the Ministry of Health of Argentina.
- Only the applications developed by the Governments of Ecuador and Peru allow for the prioritized scheduling of medical appointments, known as virtual triage.
- **Contact tracing systems using mobile applications have not been widely implemented.** In the region, only Peru and Uruguay have applications that provide information on possible contacts with infected people or are able to notify users of possible exposure.
- Another rarely used function is communication with quarantined persons and the immunity passport or movement certificate.

Table 3 | Latin America (9 countries): functionalities of government applications related to COVID-19, August 2020

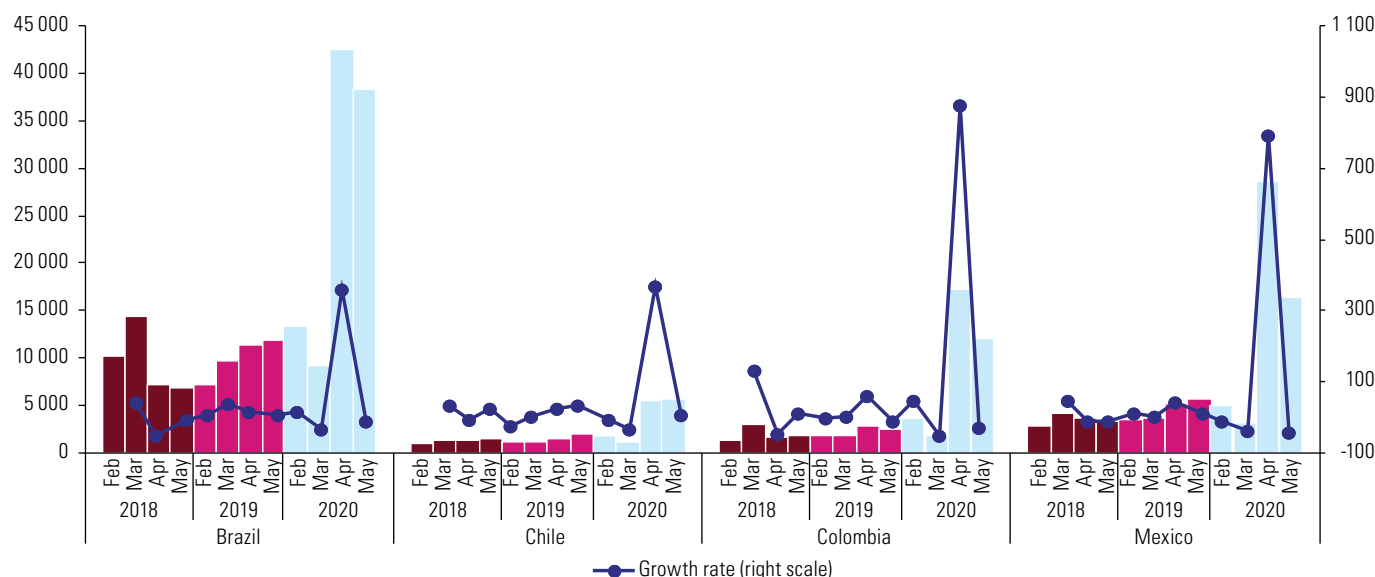
Functionality	Argentina Cuidar-COVID-19	Brazil Coronavirus-SUS	Bolivia (Plurinational State of) Bolivia Segura	Colombia CoronApp	Chile CoronApp	Ecuador Salud EC	Uruguay Coronavirus UY	Peru PerúEnTusManos	Mexico COVID-19MX
Information on how to prevent infection									
News and announcements									
Information on health-care facilities									
Self-diagnosis system									
Official data on the situation regarding COVID-19									
Make medical appointments									
Receive instructions during quarantine									
Contact tracing									
Immunity passport/movement certificate									

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

(d) E-commerce and digitization of companies

- **Businesses' presence on the Internet for recovery.** As the pandemic shows no signs of abating, businesses are seeing the advantage of having an online presence to reach consumers, as evidenced by the significant year-on-year increase in the number of business websites in Brazil, Chile, Colombia and Mexico in March, April and May 2020. Between April and March 2020, **there was an 800% increase in Colombia and Mexico, and a rise of about 360% in Brazil and Chile** (see figure 13).

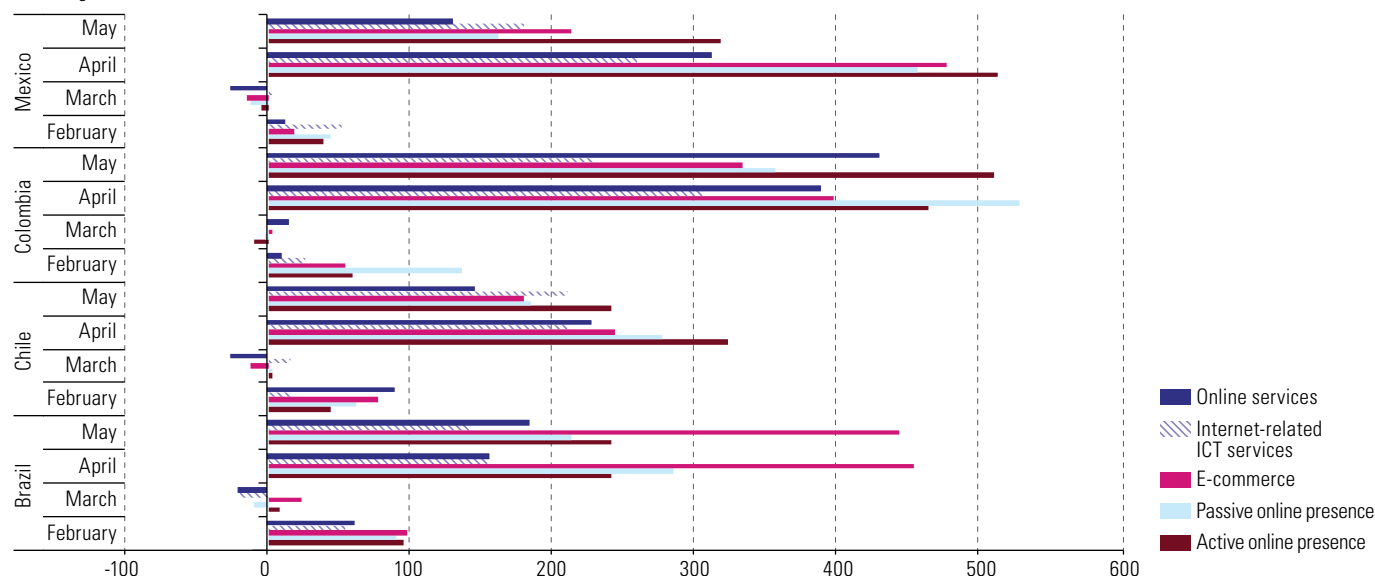
Figure 13 | Latin America (4 countries): new business websites registered per month and monthly growth, 2018–2020
(Number of websites and percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), project “Big data for measuring and fostering the digital economy in Latin America and the Caribbean”, 2020.

- **E-commerce has become essential.** The numbers of transactional (active presence) business websites and e-commerce platforms have seen the largest increases. **In Brazil and Mexico, the number of new e-commerce sites increased by more than 450% in April 2020 compared to the same month in 2019. Meanwhile, the number of active presence websites in Colombia and Mexico increased by nearly 500% in the same period** (see figure 14).

Figure 14 | Latin America (4 countries): year-on-year growth in business websites, by type, 2019–2020
(Percentages)

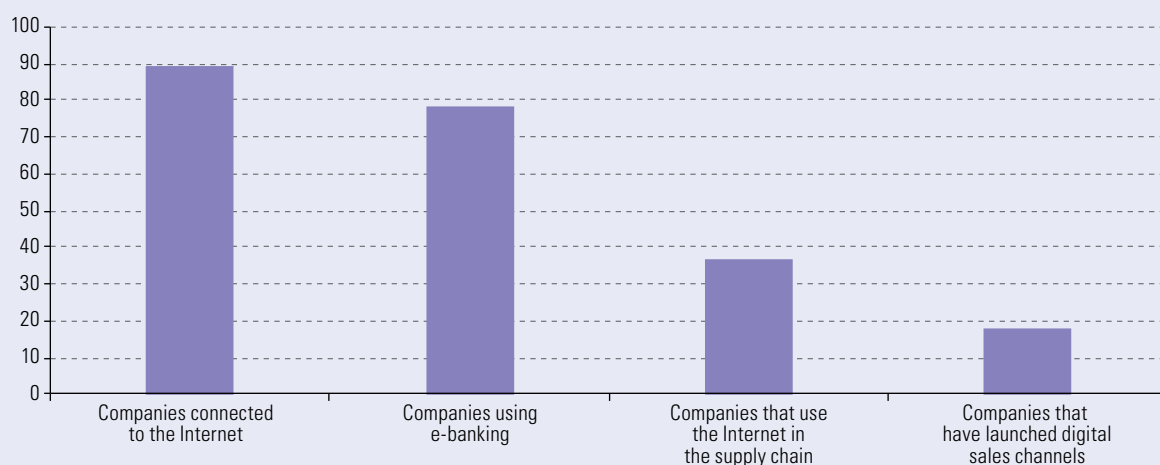


Source: Economic Commission for Latin America and the Caribbean (ECLAC), project “Big data for measuring and fostering the digital economy in Latin America and the Caribbean”, on the basis of Dataprovider.com, 2020 [online] <https://www.dataprovider.com>.

Note: Categories defined according to how a business makes use of the Internet (Ostrom and others, “Measuring the internet economy in the Netherlands: a big data analysis”, *Discussion Paper*, The Hague, Statistics Netherlands, 2016). Passive online presence: businesses purely use the Internet to provide information about their activities and to publicize their organization. Active online presence: businesses have websites that provide for direct interaction with customers in support of core business activities (for example, online sales, customer service). E-commerce: online stores without a physical presence that generate sales through the Internet. Online services: provision of online services that would exist even without the Internet (for example, accommodation and tourism). Internet-related information and communication technology (ICT) services: businesses that exist thanks to the Internet (web designers, web-hosting services, cloud services and app developers).

- **In June 2020, the online presence of retail companies jumped by 431% compared to June 2019, for restaurants and food delivery services it was 331%, and for business services, 311%.**
- **Between January and June 2020, analysis of business websites shows a change in the type of online presence.** In the first six months of 2020, 20% of the changes to existing websites in Brazil, Chile, Colombia and Mexico were to make them able to process transactions.
- **Delivery capacity is critical.** Delivery services have become more important, as they reduce the number of people going to supermarkets, stores and shops, and allow some commercial premises to remain open.
- **Between the first and second quarters of 2020, delivery service activity increased by 157%,** based on traffic on the related websites and platforms. In Argentina, Chile and Colombia, despite lockdown measures, their use has been authorized because they are essential for food deliveries. **Online delivery platforms have recorded higher demand for their services; in March, almost 100% of orders were concentrated in the food and pharmaceuticals segments.** However, for small businesses, service commissions of 20% or more can be a barrier to using these platforms.
- **Having an online presence has become particularly important for commerce and for business, professional, health and education services.**
- During the pandemic, e-commerce and delivery platforms have played an unprecedented central role. **In response to the exponential increase in the use of these platforms, which appears irreversible, countries must strengthen their regulatory and policy frameworks and their antitrust policies to ensure that increased concentration does not lead to abuses of market power, such as overcharging.**
- On the production side, **the region is lagging far behind in digitizing productive processes.** Although there is a high level of connectivity among companies (close to 90%) and even though 80% use e-banking services, the use of digital technologies in management processes and the use of the Internet in the supply chain, processing, manufacturing, operations and distribution channels is much less widespread than in more developed countries. **While 70% of companies in Organization for Economic Cooperation and Development (OECD) countries use the Internet in their supply chain, in Latin America and the Caribbean the figure is just 37%** (see figure 15).

Figure 15 | Brazil, Chile and Colombia: digitization of production processes, 2018
(Percentages)

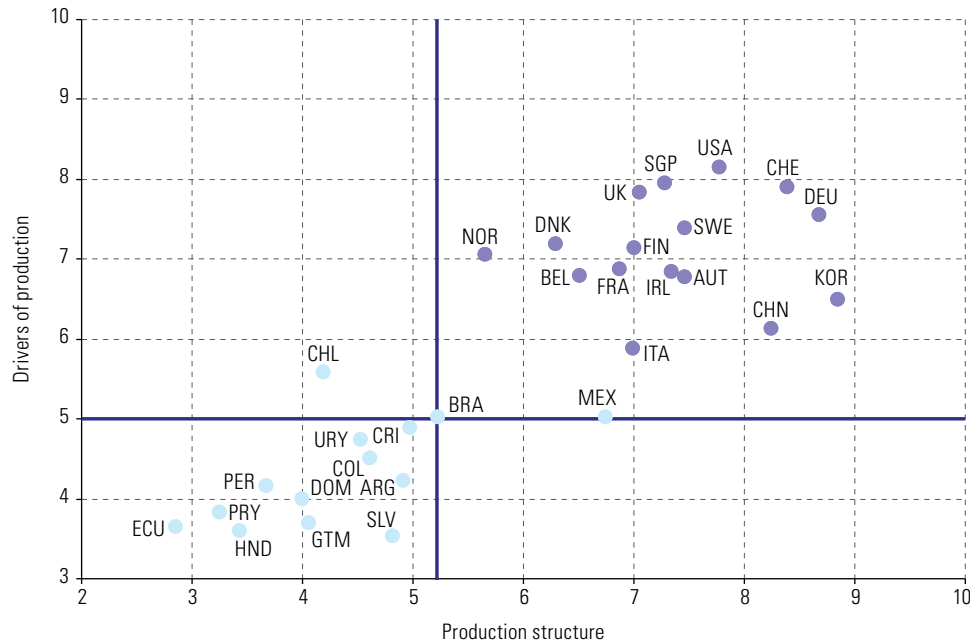


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of surveys of information and communications technologies (ICTs) in businesses from Chile, Colombia and Brazil.

- As the digital transformation progresses, countries' ability to mitigate the risks and challenges of the pandemic, to respond to new crises and to capitalize on production opportunities will depend on how ready they are for the production of the future.

- The structure of production, particularly its complexity and scale, and the factors that drive it —such as technological and innovative capabilities, skills and human capital, trade and investment, institutional frameworks and sustainable resources— determine countries’ positioning with respect to advanced manufacturing and Industry 4.0 (see figure 16).

Figure 16 | Selected countries: preparing for the production of the future



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of K. Schwab (ed.), *The Global Competitiveness Report 2018*, Geneva, World Economic Forum, 2018.

- Based on this positioning analysis, three sets of countries can be identified: (i) those that are very well positioned to take full advantage of these technologies, including developed countries and some South-East Asian countries; (ii) countries in an intermediate position, such as Mexico, which have a production structure that would enable them to better exploit the potential of digital technologies, but which lack the right factors to do so, such as innovative capacity and human capital; and (iii) **most of the countries of Latin America and the Caribbean, which have limited access to new technologies and are at great risk from the effects of technological progress.**
- **One of the main challenges in advancing the recovery process after the pandemic is to have the innovative capabilities and human capital to develop new industries and sectors and increase value added.**
- Insufficient training, limited inclusion of digital technologies in training and low investment in innovation are the region’s main problems. While the gross enrolment ratio in tertiary education in Latin America and the Caribbean is 50%, in OECD countries it is 74%; the student-to-computer ratios are 42 and 8, respectively; patents granted per million inhabitants stands at 1 and 211; and expenditure on research and development is 0.67% and 2.15% of GDP, respectively.

3. COVID-19 as a catalyst for discussion of data protection and privacy

- The pandemic is fuelling the discussion on Internet governance, because it has created a need for the full and coordinated deployment of information technologies, generating large volumes of data from the coordinated actions of authorities, health and research centres, and the population.
- **The security threats posed by the large-scale deployment of sensitive data are a new point of contention between authorities and data processing companies.**
- The pandemic-induced state of emergency has set alarm bells ringing with regard to data processing and led to the implementation of measures to protect citizens’ privacy and prevent cyberattacks.

- Applications have been developed not only by the public sector (focused on the spread of the pandemic and on safety) but also by the private sector. By and large, private sector initiatives have centred on the financial sector and telework, where the cybersecurity risks grow as the number of interactions increase.
- **In some countries, regulatory and institutional frameworks are being updated.** The main changes seek to increase coordination of efforts to tackle the pandemic by creating data protection authorities and establishing data protection assessment systems.
- **The health emergency has given actions taken by governments a different significance.** Table 4 shows how the data-use strategies of countries of the region have been implemented. **In Argentina, Brazil and Ecuador, the states of emergency have allowed authorities to extract data without individuals' consent.**

Table 4 | Latin America (10 countries): mining of personal data in relation to the health emergency, July 2020

Country	Declaration of state of emergency	Implementation at the national level	User consent required for data collection
Argentina	Administrative Decision No. 431/2020	Cuidar-COVID-19	No
Bolivia (Plurinational State of)	Circular No. 066/2020	Bolivia Segura	Yes
Brazil	Law No. 13.979	Coronavirus-SUS	No
Chile	Decree No. 104	CoronApp	Yes
Colombia	Decree No. 417	CoronApp	Yes
Ecuador	Executive Order No. 1017	Salud EC	No
Mexico	Agreement declaring the SARS-CoV2 virus (COVID-19) epidemic a health emergency due to force majeure	COVID-19MX	Yes
Paraguay	Law No. 6524	Covid-19 PY	No
Peru	Emergency Decree No. 026-2020	PerúEnTusManos	Yes
Uruguay	Decree No. 93/020	Coronavirus UY	Yes

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information from the countries.

- **Data also create a cybersecurity challenge.**
- Cybersecurity regulations in the region focus on data protection, primarily to prevent data theft and tampering, and operating errors in computer systems, as well as actions to delete or block access to data.
- **Cybersecurity rules have not taken into account the protection of critical infrastructure**, where attacks may threaten the provision of public services such as water, electricity and transportation.

4. Regulation and antitrust measures

- Digital tools have played an increasingly important role in the economy in recent years, and even more so during the COVID-19 crisis.
- During the pandemic-induced crisis, **antitrust policy has had to adapt to major changes, many of which may be lasting and require revised regulatory and institutional frameworks** (see table 5).
- **In the post-pandemic world, in which digital technologies in general, and online platforms in particular, will play a more important role, legislative and regulatory frameworks must be established to prevent abuse of market power as a result of concentration and to foster competition.** The regulatory model will depend on the type of platform in question: access to information or content through general search engines; access to personal data and other private content; access to goods or services offered by third parties or sharing economy platforms; access to labour or particular skills according to expertise; and access to money or capital, through crowdfunding sites, payment systems or cryptocurrencies.

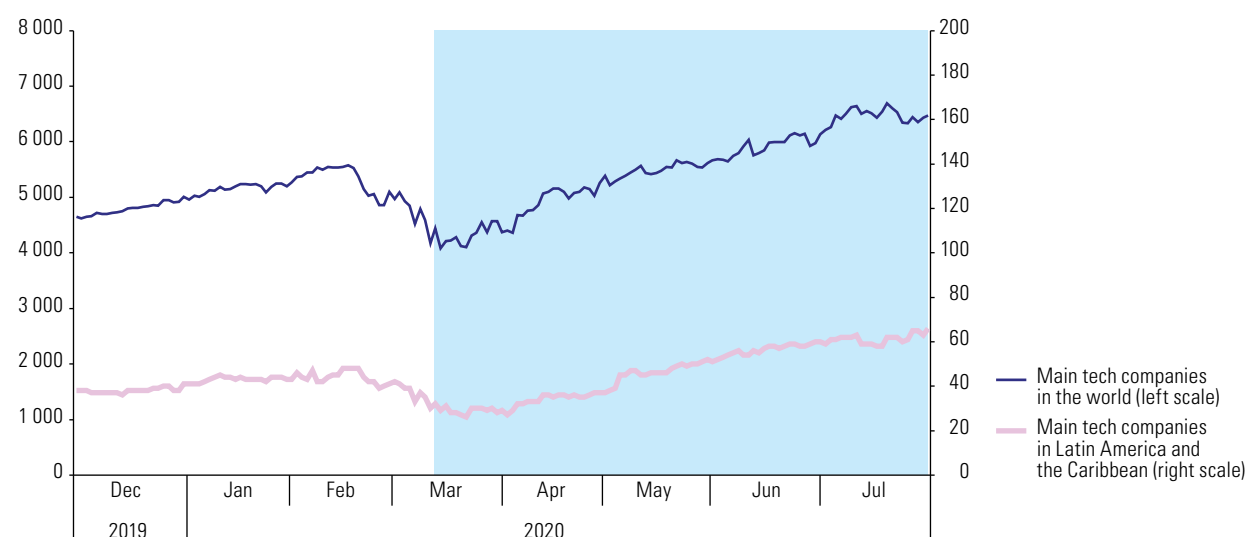
Table 5 | The key regulatory challenges of digital platforms

Areas	Objective	Level	Digitization challenges
Rights safeguards	Protecting the rights of workers, consumers and authors	International, national and local	<ul style="list-style-type: none"> Ensuring the sustainability of social protection and rights protection systems Balance between innovation and protection of rights
Competition	Market efficiency	National and local	<ul style="list-style-type: none"> Definition of markets Possible bottlenecks
Data governance	Data access and protection	International, national and local	<ul style="list-style-type: none"> Definition of rules on data access, portability and ownership
Taxation	Compliance with tax policy	International, national and local	<ul style="list-style-type: none"> Agreements to tax cross-border consumption of digital services

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

- Figure 17 shows the trend in the market value of the main platforms globally and in the region. During the pandemic, the indispensability of digital services has increased the market value of digital businesses, and particularly online platforms. This contrasts with the situation of many companies in the analogue economy, which have been hampered by the interruption of economic activities and the disruption of value chains.

Figure 17 | Latin America and the Caribbean and the world: market value of the largest tech companies, December 2019–July 2020
(Billions of dollars)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of data from Macrotrends [online] [macrotrends.net](https://www.macrotrends.net).

Note: The largest tech companies in the world include Alphabet, Amazon, Microsoft, Apple and Facebook; the largest in Latin America and the Caribbean include PagoSeguro and MercadoLibre.

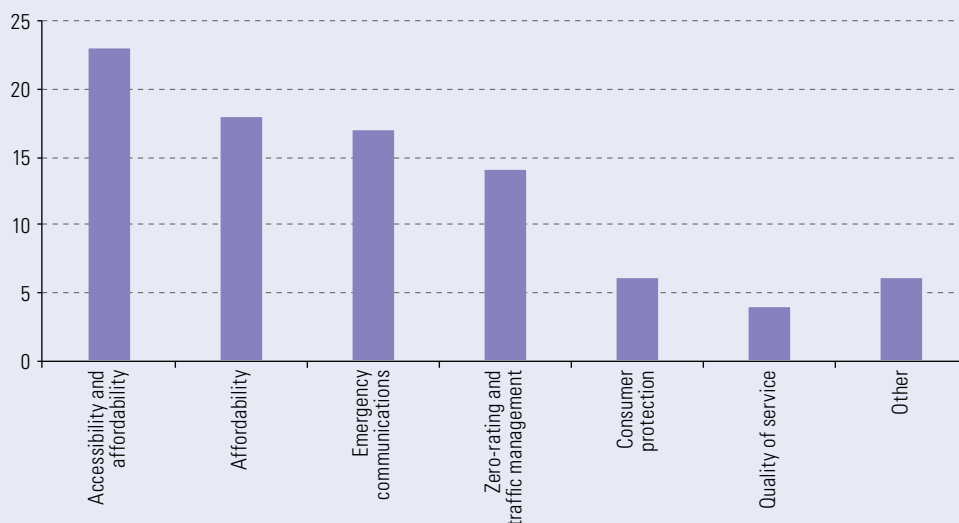
- Distortions of competition and innovation that favour the tech giants must be reduced, without hindering national or regional innovation and entrepreneurship by start-ups.
- Taxation of the digital economy can bring in significant fiscal resources. The digital economy business models of tech companies pose problems for tax systems, such as the absence of a physical presence because services are rendered without regard for geographical boundaries, their high dependence on intangible assets that are difficult to value, highly complex transactions and difficulties in categorizing economic activities and the resulting revenue.
- In view of the complexity of applying direct taxes to digital businesses, most countries have chosen to apply indirect taxes, such as value added tax (VAT), to digital services. Worldwide, 77 countries have introduced this type of taxation, including 12 in Latin America and the Caribbean. With regard to direct taxes on digital services, applicable to the earnings or profits of non-resident companies that provide digital advertising, services or content to a local user base, 22 countries have adopted unilateral tax measures until comprehensive international solutions are agreed.

- **The pandemic makes it necessary to accelerate efforts to increase the tax contribution of the digital economy through multilateral agreements to avoid harmful fiscal and trade effects**, and to increase the participation of the countries of the region in global negotiations on taxation of the digital economy, so that regional needs and interests are considered.
- At the same time, the widespread use of management algorithms for telework, information and communications technologies, big data for creating contact tracing applications, artificial intelligence, e-health and e-commerce has highlighted the need to **establish standards that take into account existing antitrust regulatory frameworks**.
- **At the heart of the disruptions are the business strategies of big tech companies, based on greater access to data**. This calls for a policy and regulatory discussion, covering both data protection and privacy and interoperability, access to data for development purposes, intellectual property and competition rules.
- **Some countries and organizations are concerned by privacy issues relating to the competitive practices and the growing market power of these tech giants**.
- Even before the pandemic some platforms, such as Twitter, had announced restrictions on political content that is considered harmful. While it does not seem to be the general rule, the declaration of a pandemic has opened the door to content monitoring by platform owners. Clear guidelines or rules are needed that balance the prohibition of harmful content with freedom of expression.
- These companies argue that is their responsibility to ensure that relevant and truthful official information is disseminated on the spread of the pandemic and the measures taken by governments to tackle it. It is an important argument, but **there is concern that these tools may become established as a new means for these companies to exercise market control and dominance**.

B. Policy measures and digital solutions

- **Governments in the region have adopted measures to protect and ensure connectivity and telecommunications services** (see figure 18). These include steps to guarantee the accessibility, availability and affordability of telecommunications services, to enable emergency communication services, to manage traffic to improve network efficiency, and to allow zero rated access to certain applications and websites, as well as measures to protect consumers and safeguard service quality.

Figure 18 | Latin America and the Caribbean (16 countries):^a telecommunications measures adopted by governments to tackle the effects of COVID-19, by type, 2020
(Number of measures)

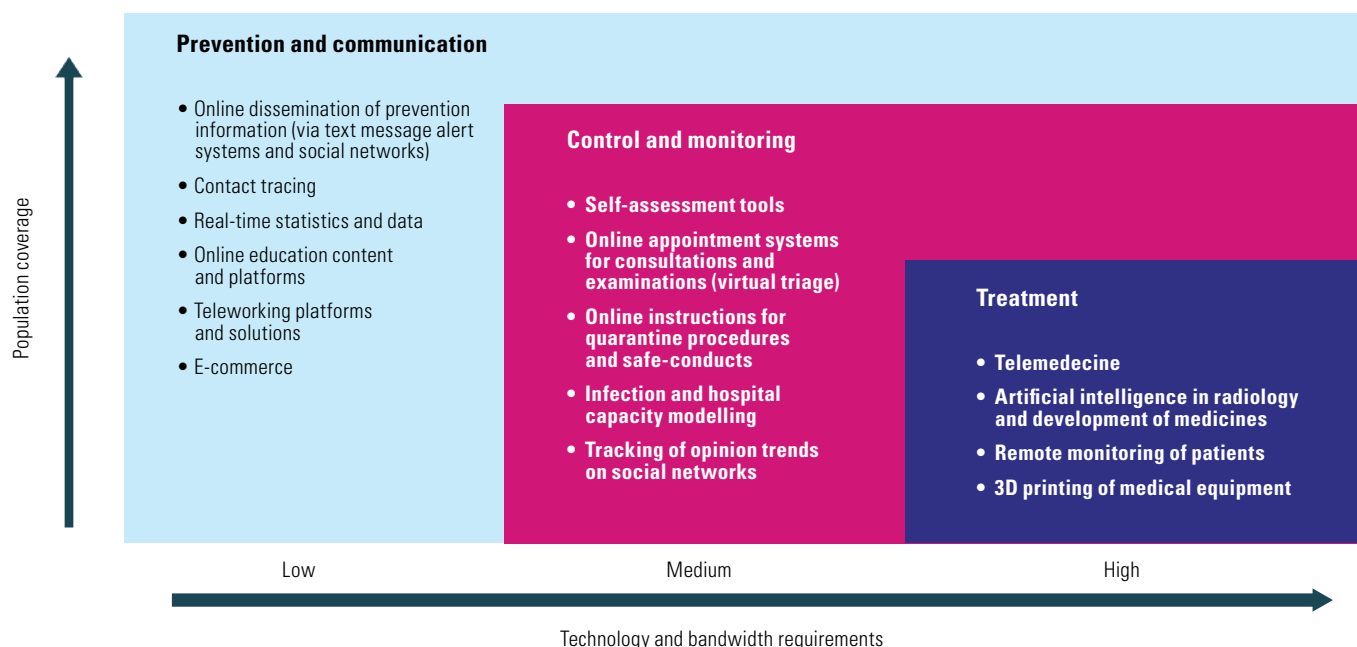


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of International Telecommunication Union (ITU), Global Network Resiliency Platform (#REG4COVID), 2020 [online] <https://reg4covid.itu.int/> and Andean Development Corporation (CAF) and others, *Las oportunidades de la digitalización en América Latina frente al COVID-19*, Santiago, 2020.

^a Argentina, the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru and the Plurinational State of Bolivia.

- **Accessibility and broadband: initiatives that facilitate infrastructure deployment**, such as the temporary allocation of spectrum or the temporary raising of traffic limits for broadband Internet plans.
- **Affordability: governments have urged operators to provide low-cost fixed and mobile Internet services and not to cut off such services because of non-payment.**
- Emergency communication channels: establishment of specific numbers and call centres.
- **Traffic management: measures to prioritize data traffic for e-health and e-learning**, and to provide zero rated access to certain mobile applications or websites.
- **Consumer protection:** regulators have required operators to be transparent about any measures they have take to ensure the provision of services. All the countries analysed³ have adopted specific measures to **maintain the continuity and expansion of telecommunication services.**
- **Governments have also developed solutions designed to meet the prevention and communication needs related to COVID-19, to carry out more targeted control and monitoring of the pandemic and its impact, and to facilitate treatment** (see diagram 1 and table 6).
- **In the area of prevention and communication, online channels have been developed to disseminate information through websites, applications and social networks.**
- Web traffic to government portals has increased substantially. Some of services and functionalities deployed include: general information on the pandemic and prevention measures; automated communication systems (chatbots and virtual assistants, among others); and real-time updates to statistics, data and maps. Teleworking platforms and online education programmes have also been developed.
- **On the control and monitoring front, countries have developed self-assessment tools that are available through mobile applications and websites.** Virtual triage or online appointment scheduling has been implemented to improve the efficiency of medical services.

Diagram 1 | Latin America (16 countries): areas in which digital solutions are being used to address the COVID-19 pandemic, 2020



Source: Economic Commission for Latin America and the Caribbean (ECLAC).

³ Argentina, the Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru and the Plurinational State of Bolivia.

Table 6 | Latin America and the Caribbean (9 countries): measures adopted by governments to tackle COVID-19, April 2020

Area	Policy measure	Bolivia (Plurinacional State of)	Mexico	Brazil	Ecuador	Colombia	Argentina	Uruguay	Chile	Peru
Prevention and communication	Online dissemination of prevention information	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	Contact tracing	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	Real-time statistics and data	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	Automated communication systems	Implemented	Implemented	Implemented	In development	Implemented	Implemented	Implemented	Implemented	Implemented
	Online teleworking platforms	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	Online education programmes	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
Control and monitoring	Self-assessment tools	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	In development	Implemented	Implemented
	Virtual triage	Implemented	Implemented	Implemented	Implemented	In development	Implemented	Implemented	Implemented	Implemented
	Quarantine instructions	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	Infection and hospital capacity modelling	Implemented	Implemented	Implemented	In development	Implemented	Implemented	Implemented	Implemented	Implemented
	Social network monitoring	In development	Implemented	Implemented	In development	Implemented	Implemented	Implemented	Implemented	Implemented
Treatment	Telemedicine	Implemented	Implemented	Implemented	Implemented	Implemented	In development	Implemented	Implemented	Implemented
	Artificial intelligence in radiology	In development	Implemented	Implemented	In development	In development	Implemented	Implemented	Implemented	Implemented
	Patient monitoring (chatbots)	In development	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	3D printing of medical equipment	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented
	Research and Development (R&D) to tackle COVID-19	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented



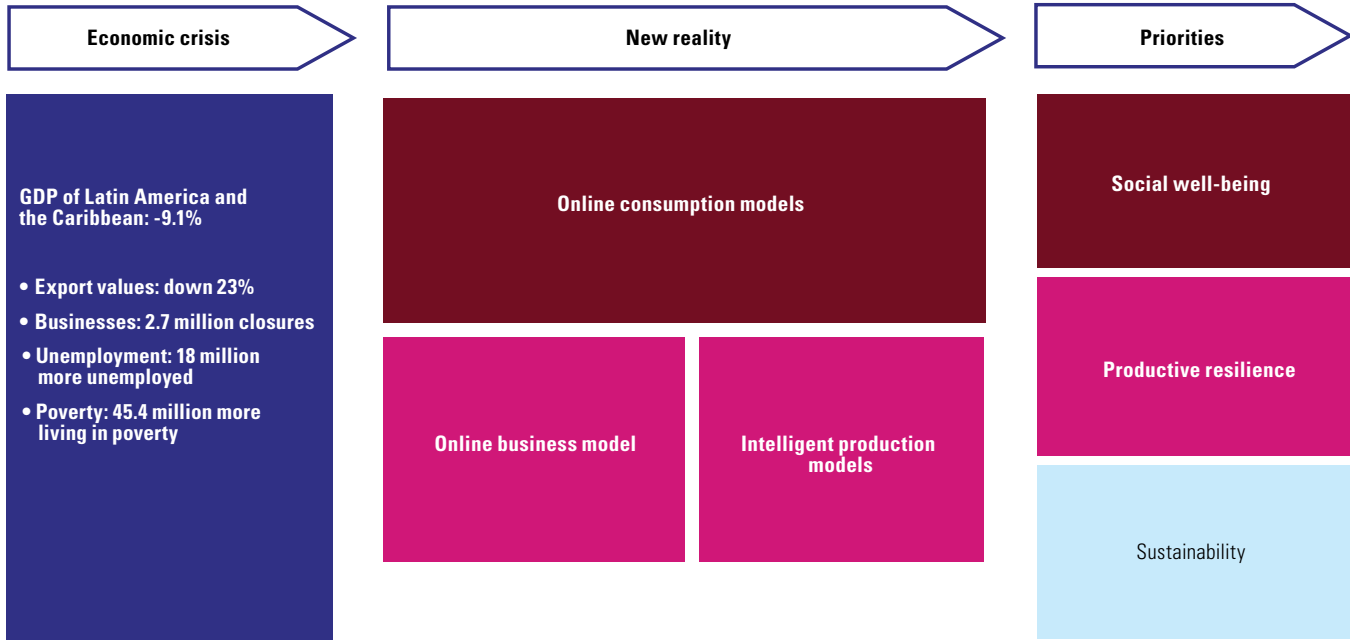
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official information.

- **The use of more advanced technology, such as artificial intelligence, is less common.** The shortage of medical supplies was a critical concern in the early stages of the pandemic. In response, a number of government and civil society institutions sought alternatives in 3D printing. Several governments have reported that they have adopted or are developing this technology. **There is still room to develop policies and instruments to tackle the COVID-19 pandemic by using digital technologies, especially in the area of patient treatment.**
- **Other key measures adopted include designating home delivery platforms as an essential service and authorizing them to operate during lockdowns.** Among the less-widely implemented measures were specific regulations on the processing of personal data and cybersecurity.

C. Towards reactivation

- The economic and social crisis and physical distancing measures stemming from the pandemic have **shifted production, demand and business management models towards online channels** (see diagram 2). **There is no stopping the acceleration of the digital transformation of production and consumption.**
- Value chains and companies alike have been hit by weaker demand for products. This has led to **changes in production models, requiring greater responsiveness and operational flexibility.** Automation and the use of intelligent manufacturing and operation tools can provide the necessary solutions.

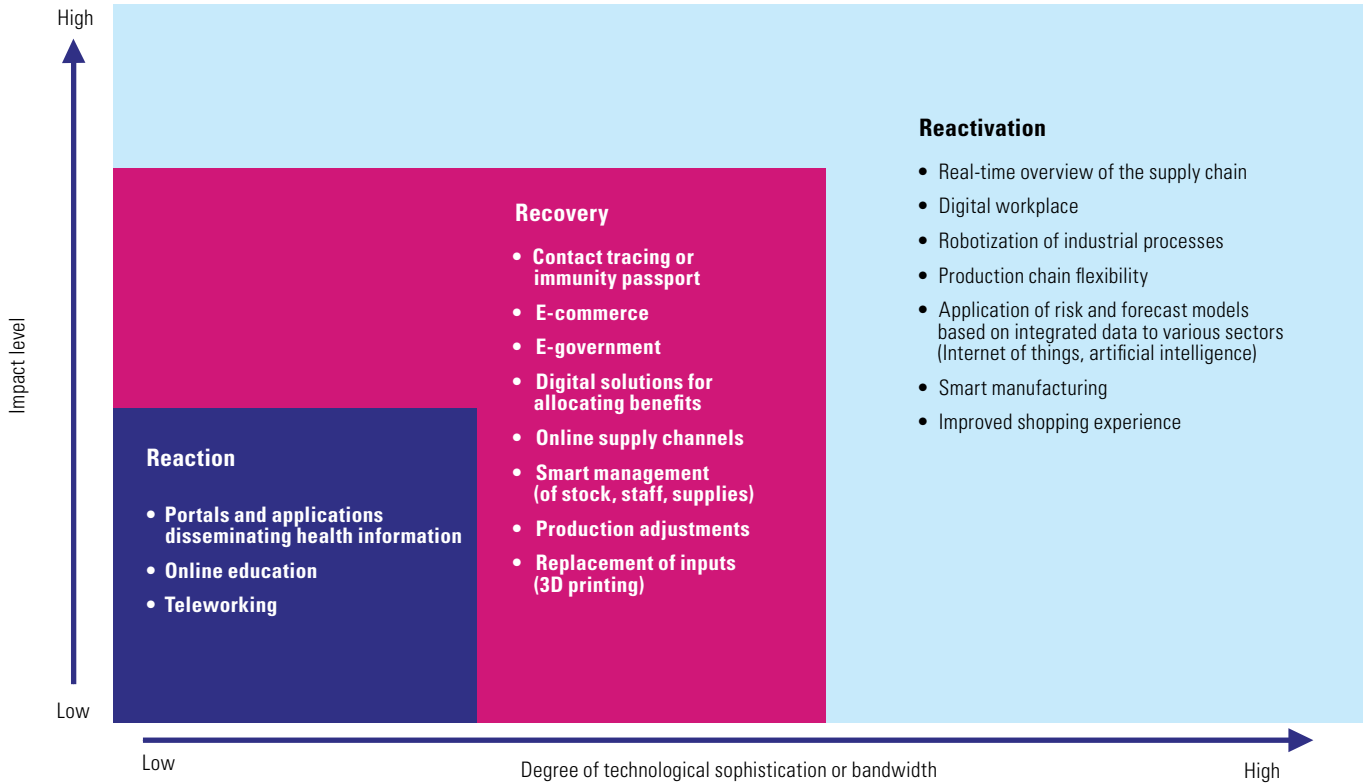
Diagram 2 | Latin America and the Caribbean: towards reactivation, 2020



Source: Economic Commission for Latin America and the Caribbean (ECLAC).

- With the crisis deepening structural inequalities, **social well-being, productive resilience and sustainability must be prioritized.**
- **The impact of digital solutions is directly related to the requirements at each stage of the pandemic (see diagram 3), the level of technological sophistication and the bandwidth available in each country.**

Diagram 3 | Latin America and the Caribbean: new realities and needs for technological sophistication, 2020



Source: Economic Commission for Latin America and the Caribbean (ECLAC).

- **Reaction.** The initial reaction measures were focused on generating and disseminating health information and implementing physical distancing. Teleworking and online education emerged as the first solutions.
- **Recovery.** In the area of health, contact tracing makes it possible to better understand the spread of the pandemic and identify outbreak hotspots, thus helping to improve strategy design.
- **Reactivation.** The development and adoption of digital technologies in all areas of the productive system will be fundamental.

1. New reality and structural change in the post-pandemic world

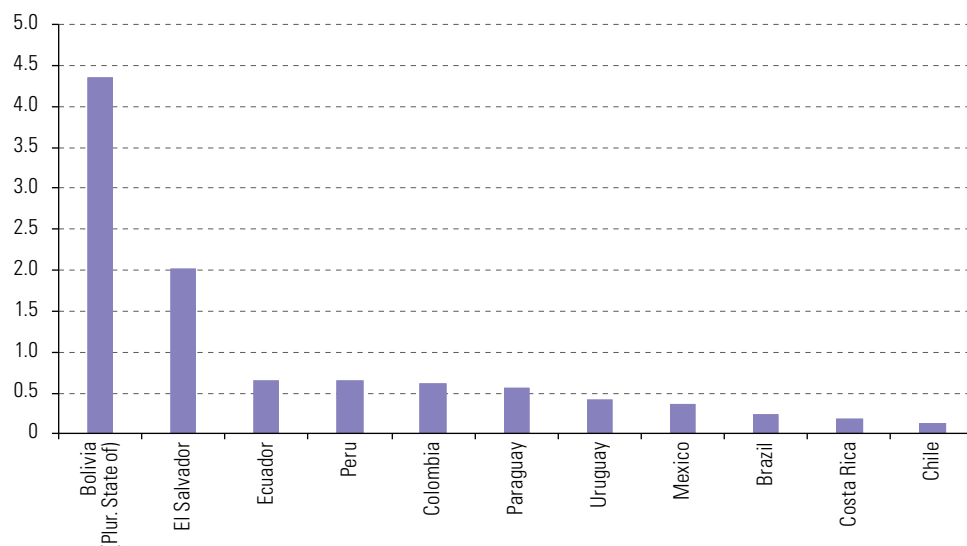
- **New demand patterns will be based on online channels** and marked by an increase in demand for online education (online courses and content), e-health (remote consultations and diagnosis), online shopping, e-banking and online insurance services, and online entertainment.
- To meet this increase in demand, governments and the private sector will need to guarantee a seamless experience by improving online shopping and customer service channels, electronic payment methods, data privacy and digital security.
- **New supply patterns will be based on flexibility, local proximity and response capacity.** To this end, there will be a need to develop new products and services, increase flexibility and scale up capacities, optimize performance, invest in R&D and provide training or retraining.
- This new scenario will require the restructuring of:
 - Investment patterns, including the development of 5G networks
 - Supply chains: proximity of suppliers (regionalization)
 - Plants: automation of processes and adoption of advanced technologies
 - Remote manufacturing, diagnostics and maintenance: hybrid model with on-site and off-site workers
 - Data: greater use, big data and artificial intelligence.
- Productivity and structural change will remain central to development. **The region must move towards more diversified, homogeneous and integrated productive systems in order to increase productivity and productive inclusion, which will lead to higher employment levels and wages.**
- **This new reality will also bring about changes in the area of government.** Governments must step up their e-government efforts, not only with regard to management of the pandemic on the health and socioeconomic fronts but also to the digitization of all public services.

2. Five lines of action

(a) Build an inclusive digital society

- **The main prerequisite for effective participation in the digital age is high-speed broadband access.** This calls for extending fixed broadband coverage and improving mobile broadband connection speed.
- The costs associated with connecting households and the required equipment, combined with the difficulties of financing digital infrastructure (e.g. fibre-optic cables), are barriers to digital inclusion. **Addressing the affordability of access and equipment is therefore crucial.**
- **ECLAC has estimated the cost of connecting all households that do not have an Internet connection** on the basis of rates for mobile and fixed broadband plans. This cost includes the monthly payment for a fixed connection and a mobile connection for offline urban households and payment for a mobile connection for rural households (see figure 19).

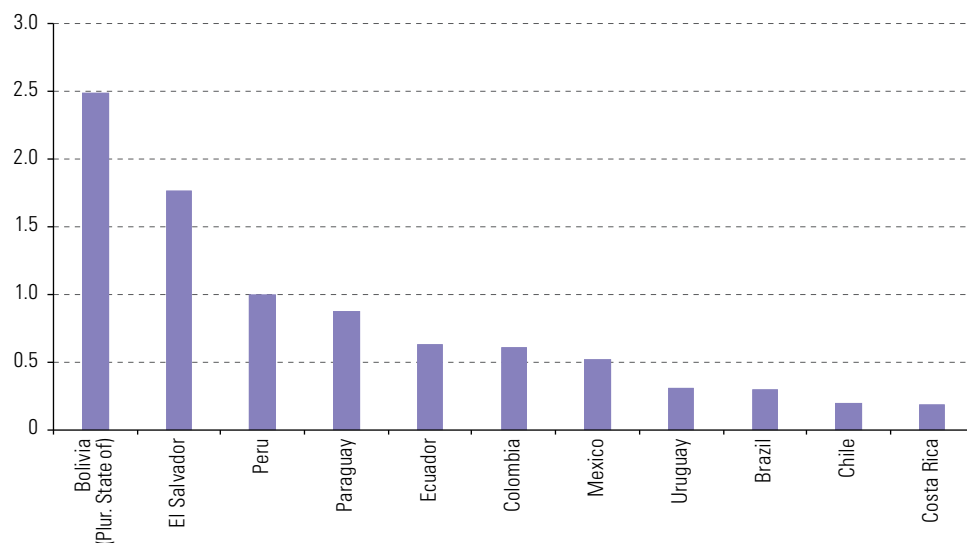
Figure 19 | Latin America (11 countries): monthly cost of connecting offline households, 2018 or latest available data (Percentages of monthly GDP)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), Regional Broadband Observatory (ORBA), on the basis of information from the Household Survey Data Bank (BADEHOG), the World Bank and Internet providers web sites.

- **In the Plurinational State of Bolivia and El Salvador, the monthly connection cost for offline households is much higher than in the rest of the region because of the prevalence of households without Internet subscriptions and with low incomes.** The cost of bringing the two lowest income quintiles online in these two countries exceeds the potential cost of universal connectivity in the rest of the countries.
- ECLAC has also estimated the **annual cost of a basic basket of technological products comprising a laptop, a smartphone and a tablet.** In many countries of the region, a basic ICT basket can be provided to households that do not have digital devices at an annual cost of less than 1% of GDP (see figure 20). Connectivity-improvement measures and this ICT basket are complementary and must be implemented simultaneously if they are to have an effect.

Figure 20 | Latin America (11 countries): annual cost of a basic ICT basket for offline households, 2019 (Percentages of annual GDP)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), Regional Broadband Observatory (ORBA), on the basis of information from the Household Survey Data Bank (BADEHOG) and the World Bank.

- **Demand-side subsidies can be used to assist lower-income households in financing telecommunications services subscriptions and the basket of ICT products, which means that coordination between the public and private sectors is essential.**
- **ECLAC is proposing the implementation of a regulatory sandbox which would allow Internet service providers to directly manage some of the resources that would be allocated through universal access funds** or other funds aimed at expanding telecommunications coverage, using them to cover the costs of providing services to lower-income households.
- The authorization to manage resources independently could be conditional on Internet service providers' compliance with terms established by the regulatory body that would encourage competition, leading service providers to offer better conditions.
- **This measure must be accompanied by efforts to make regulations more flexible.** One possible example in the area of network neutrality is encouraging the use of education, health and government services through zero-rating, which provides users with access to these services free of charge.
- **Concerning access to equipment, a temporary reduction of import and sales taxes** — for example, VAT— on devices identified by the regulatory body could be envisaged. Public-private partnerships with suppliers and manufacturers could also be encouraged to secure more favourable conditions for the supply of equipment.
- **Lastly, ensuring digital inclusion requires policies that are tailored to each country and actions that take into account socioeconomic, geographic, age and gender criteria.**

(b) Promote the digital transformation of production

- Given the **low level of digitization in the region's companies** —especially micro-, small and medium-sized enterprises (MSMEs)— **there is a need for public policies that allow for changes in management processes to incorporate the use of digital technologies in supply chains, processing, manufacturing and operations, as well as distribution channels.**
- Financing mechanisms to facilitate the creation of start-ups and technology firms must be developed.
- Vocational training and training systems in areas related to digital technologies should be promoted to strengthen digital ecosystems and improve employment prospects.

(c) Build digital trust and security

- **While privacy issues should not hinder efforts to address the health emergency, that emergency cannot be a reason to infringe on privacy; a balance must be struck.** Governments must provide guarantees to citizens that their personal data, to which exceptional access was needed to tackle the COVID-19 pandemic, will be securely stored and that their privacy will be protected.
- It is also important to establish the responsibilities of the relevant officials and the corresponding sanctions for the abuse or misuse of personal information. **The regulatory frameworks specifying how private companies and governments can use the data must be defined.**
- The pandemic has brought to the fore the need for legislation, as opposed to emergency decrees, governing the mechanisms for compliance with data privacy protection and the establishment of specialized competent authorities. **Strengthening institutional and regulatory frameworks for data privacy and cybersecurity is essential.**

(d) Enhance regional cooperation on digital matters

- **The architecture for regional digital cooperation is complex and ill-defined.** The region lacks an institutional framework for the discussion of policies, norms and standards.
- **The Digital Agenda for Latin America and the Caribbean (eLAC2020), which arose from the Ministerial Conference on the Information Society in Latin America and the Caribbean, is a forum for defining common principles and priorities,** bringing together 33 countries of the region and representatives from the private sector, civil society and the technical community.

- The agreed goals of eLAC2020 include fostering the development and implementation of broadband plans with concrete and measurable targets; promoting the development and incorporation of digital skills; mainstreaming inclusion in policy design; coordinating actions aimed at guaranteeing privacy and personal data protection; and encouraging the use of digital technologies in businesses, with a particular focus on MSMEs.
- **The current situation calls for greater coordination between the region and subregional blocs in order to define thematic priorities and the operational management thereof.**
- **To move forward in digital cooperation, ECLAC recommends a work agenda focusing on the following: digital infrastructure –including 5G high-speed networks– and connectivity to ensure universal access to broadband Internet; data protection and digital security; competition and regulatory policies; and digital taxes.**

(e) Rethinking the digital governance model within the framework of a digital welfare state

- In the post-pandemic world, there can be no social well-being without a digital transformation. Therefore, **the new digital governance model should:**
 - **Promote equality**, by considering inclusive digital transformation processes, enabling multi-channel interaction with the State and taking into account the population with insufficient access to digital technologies, the skills needed to use them and the socioeconomic barriers to their use.
 - **Protect the economic, social and labour rights of the population**, guaranteeing the provision of social protection systems and benefits through digital technologies in an efficient, accessible and user-friendly manner, and ensuring that selection of beneficiaries through electronic means is transparent and has built-in mechanisms to address legitimate requests for clarification and rectification.
 - **Repudiate the unauthorized collection and improper or unauthorized use of personal data**, establish high information security standards and prevent any infringement of individuals' privacy and dignity, strengthen access to public information and combat corruption.
 - **Promote a digital governance model with a strategic production approach** that results in structural change through innovation and the diffusion of technology in the productive system, the creation of new business models, entry into global value chains, digital capacities and skills development, and financing mechanisms that drive the digital economy.



This *Special Report* is the seventh in a series by the Economic Commission for Latin America and the Caribbean (ECLAC) on the evolution and impacts of the COVID-19 pandemic in Latin America and the Caribbean. The economic and social analysis it offers will be updated as the relevant information becomes available. The preparation of the Report was headed by the Executive Secretary of ECLAC, Alicia Bárcena, with the technical support of the Office of the Deputy Executive Secretary, Mario Cimoli, and the Division of Production, Productivity and Management of ECLAC.

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