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## **Achieving digital transformation for inclusive and sustainable development in the Dominican Republic**

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The digital transformation has the potential to improve productivity, foster inclusiveness, help tackle climate change, and transform public institutions. However, if not accompanied by an adequate policy mix, the digital transformation can also deepen existing inequalities and create new gaps. This chapter analyses where the Dominican Republic stands in its efforts to advance a digital transformation, and provides policy recommendations to make this a driver of greater well-being for all. In particular, the chapter analyses key dimensions for the digital transformation of households and schools, as two fundamental areas where technologies can play a role in favouring inclusion and reducing socioeconomic inequalities. It also examines how the digital transformation can be a driver of greater productivity, improving the adoption of new technologies by firms, and what policies will help in making the most of the digital transformation of labour markets. Finally, this chapter argues in favour of a strategic vision of the digital transformation, so that digital issues are addressed in a holistic and coherent manner.

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## Introduction

The digital transformation represents a profound and impactful global trend that could bring enormous opportunities for inclusive and sustainable development in the Dominican Republic. Indeed, digital innovation has the potential to improve productivity, foster inclusiveness, help tackle climate change, transform public institutions and increase the overall well-being of citizens. However, if not accompanied by an adequate policy mix, the digital transformation can also deepen existing inequalities and create new gaps, generating digital divides that could be a source of exclusion and aggravate structural development challenges in the country (OECD et al., 2020<sup>[1]</sup>).

The coronavirus (COVID-19) crisis has been a good example of some of the opportunities and challenges brought about by the digital transformation. Digital technologies allowed part of the population to keep working or studying, and allowed certain companies to continue operations while complying with social distancing measures. However, most vulnerable households, workers and companies have struggled through the pandemic and have not had the chance to benefit from these digital opportunities. The affluent and middle-class populations are more likely to be connected and to have integrated digital technologies into their work, educational and family life. Conversely, the poor and vulnerable populations are more likely to have little or no digital access or skills, and are left without the opportunity to telework or sell goods online, while their children may be unable to continue learning remotely (OECD et al., 2020<sup>[1]</sup>).

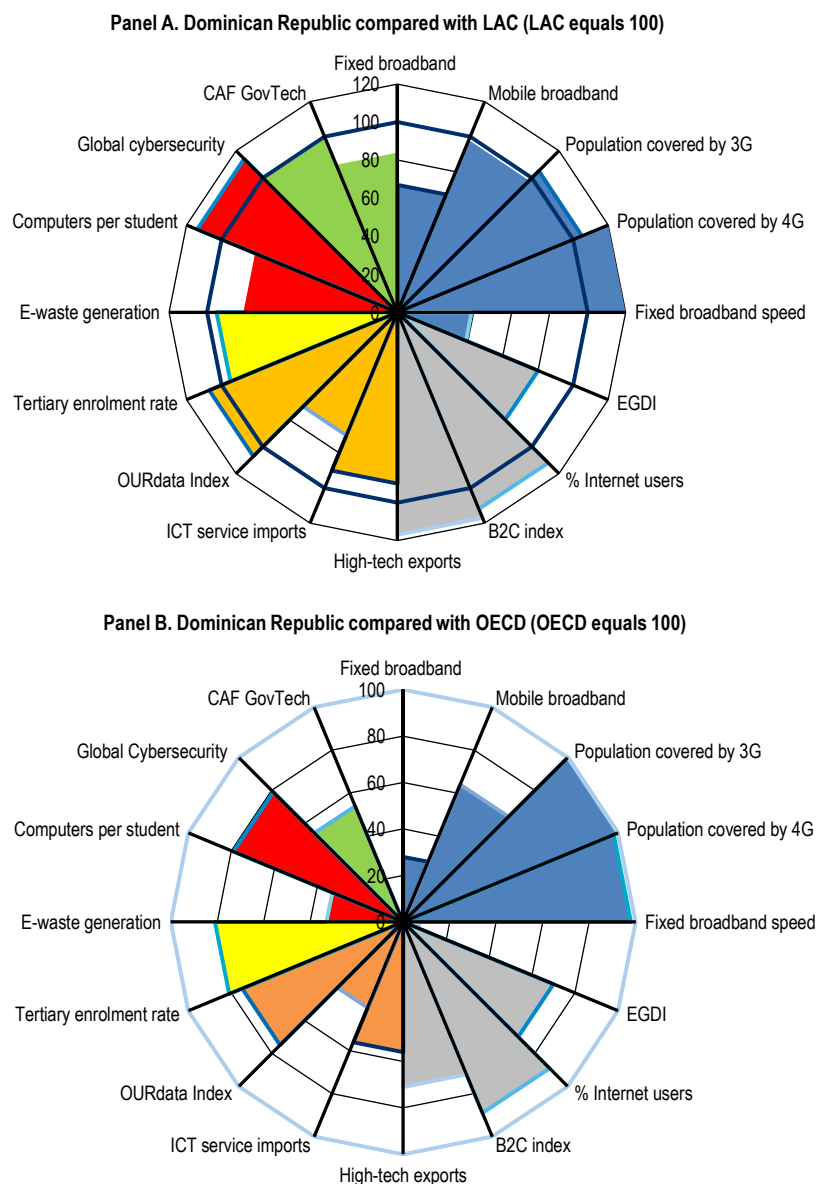
In recent years, Latin America and the Caribbean (LAC) has become a hub for digital innovation and home-grown start-ups. Foreign companies have also expanded into the region and helped the market expand. The LAC region is now home to 23 “unicorns” (start-up companies that are valued at more than USD 1 billion [United States dollars]), including Colombia-based Rappi and Brazil-based iFood (Crunchbase, 2021<sup>[2]</sup>). These examples help demonstrate that there is great scope to continue to expand the benefits of the digital transformation for micro-, small- and medium-sized enterprises (MSMEs), which represent 99.5% of all companies in the region and 61.2% of employment (OECD et al, 2021<sup>[3]</sup>).

The Dominican Republic can benefit greatly from the digital transformation, both in recovering from the COVID-19 pandemic and in supporting inclusive and sustainable development in the longer term. Not only does the digital transformation hold an enormous development potential, but failing to embrace it could leave the Dominican Republic behind in a world that will inevitably become more digital, and could thus represent a missed opportunity to “leapfrog” and accelerate development in the country.

Embracing the digital transformation and making it work for all in the Dominican Republic will require strong policy ambition. In 2021, Decree 71-21 created the Gabinete de Transformación Digital (Digital Transformation Cabinet) – which is in charge of developing a new Digital Agenda 2030 – and the national dialogue on digital transformation (*Dialogo de las reformas 2021: Transformación Digital*) was initiated; these two events provide good evidence of the political commitment to enable a digital transformation in the country (Consejo Economico y Social, 2021<sup>[4]</sup>). In this light, this chapter analyses the main challenges and opportunities that the digital transformation could present for the Dominican Republic in order to make policy recommendations that will allow the digital transformation to be a catalyst for more inclusion and greater well-being for all.

Progress towards a digital transformation in the Dominican Republic shows mixed results. The Organisation for Economic Co-operation and Development’s (OECD’s) Going Digital framework provides a framework based on seven key dimensions, which allows for a snapshot of the progress the Dominican Republic has made towards the digital transformation in comparison with the LAC and OECD member country averages (Figure 5.1) (OECD, 2019<sup>[5]</sup>). The number of fixed broadband subscriptions (per 100 inhabitants) and of active mobile broadband subscriptions, two key indicators for enhancing access, improved significantly in the Dominican Republic between 2008 and 2018, yet these figures are below the OECD member country average. Similarly, the country is also continuing to improve and reduce the gap with respect to the share of Internet users in comparison with the OECD member country average.

**Figure 5.1. Going Digital framework indicators for the Dominican Republic relative to LAC and the OECD, 2020 or latest year available**



Note: Based on selected indicators from the country notes adapted from the OECD's Going Digital project. Indicators were chosen depending on data availability for LAC countries. The border of the circle represents outcomes that are better for the Dominican Republic for a given indicator than the LAC (Panel A) or the OECD (Panel B) average. The full names of the indicators (clockwise from the top) are: fixed broadband subscriptions (per 100 inhabitants); active mobile broadband subscriptions (per 100 inhabitants); proportion of the population covered by at least 3G network; proportion of the population covered by at least 4G network; fixed broadband speed (in megabits per second [Mbps]); E-Government Development Index; share of Internet users (as a percentage of the population); UNCTAD B2C E-commerce Index; high-technology exports (as a percentage of manufactured exports); share of information and communications technology (ICT) service imports (as a percentage of total trade in services); OECD OURdata Index; gross tertiary enrolment rate; e-waste generation per capita (in kilograms [kg]); number of students per computer; Global Cybersecurity Index; and the CAF GovTech Index. The LAC average is derived from different countries depending on the data availability for countries in LAC. Each calculation includes as many countries in the region that were found in each source as possible. The full list of countries considered is: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru and Uruguay.

Source: Authors' calculations based on (OECD, 2019<sup>[5]</sup>).

Other key indicators of effective use show that, despite also making strides in the last decade, performance is below the OECD standards (see E-Government Development Index and United Nations Conference on Trade and Development (UNCTAD) Business-to-Consumer (B2C) E-commerce Index) (Figure 5.1). Digital innovation remains a key area for improvement; high-technology exports (as a percentage of manufactured exports) continue to lag behind the OECD member country and LAC averages. The Dominican Republic has an average tertiary enrolment rate that is comparable to the LAC average, but is still below the average among OECD member countries. In terms of an inclusive digital society, the Dominican Republic has increased the number of computers per student; however, this is also still below the OECD average. The Global Cybersecurity Index illustrates that there is room for improvement in the LAC region as a whole in terms of strengthening trust.

This chapter has four sections. The first focuses on the digital transformation in households and schools, with a particular focus on the potential for inclusiveness brought about by digital technologies and by making these accessible and useful for all, hence overcoming existing digital divides. The second section focuses on the digital transformation for workers and companies, with an emphasis on the potential of digital technologies to promote productivity growth and production transformation, as well as the creation of better-quality job opportunities. The third section acknowledges that policy efforts to embrace the digital transformation must move beyond a sectoral approach, adopting a co-ordinated, coherent and transversal strategic view. In this respect, the development of a well-designed digital agenda that is aligned with the broader National Development Strategy is a key factor for a successful digital transformation. The *Dialogo de las reformas 2021: Transformación Digital* highlighted key aspects of the Digital Agenda and reinforced the importance of harbouring a digital ecosystem in the Dominican Republic (Consejo Economico y Social, 2021<sup>[4]</sup>). Similarly, international co-operation is needed in order to reach the full potential of digital transformation. Finally, the fourth section presents the main conclusions and policy recommendations for key areas of action in order to make the digital transformation work for all in the Dominican Republic.

## Making the digital transformation work for households and schools in the Dominican Republic

Ensuring that the entire population has access to the Internet and digital services, and has the capacity to make good use of them, is a basic and necessary step towards ensuring that the digital transformation benefits everyone. In most developing countries, the primary barriers to mobile Internet adoption are affordability; knowledge and digital skills; lack of relevant content and services; and access to enablers (OECD, 2021<sup>[6]</sup>). Although the Dominican Republic has made significant strides in the last decade, as evidenced during the COVID-19 crisis, there are still important digital divides across different segments of society and the country still lags behind LAC and OECD member countries in various dimensions. This section analyses where the Dominican Republic stands based on key indicators for a digital transformation that benefits all households and schools.

### ***The digital transformation for households***

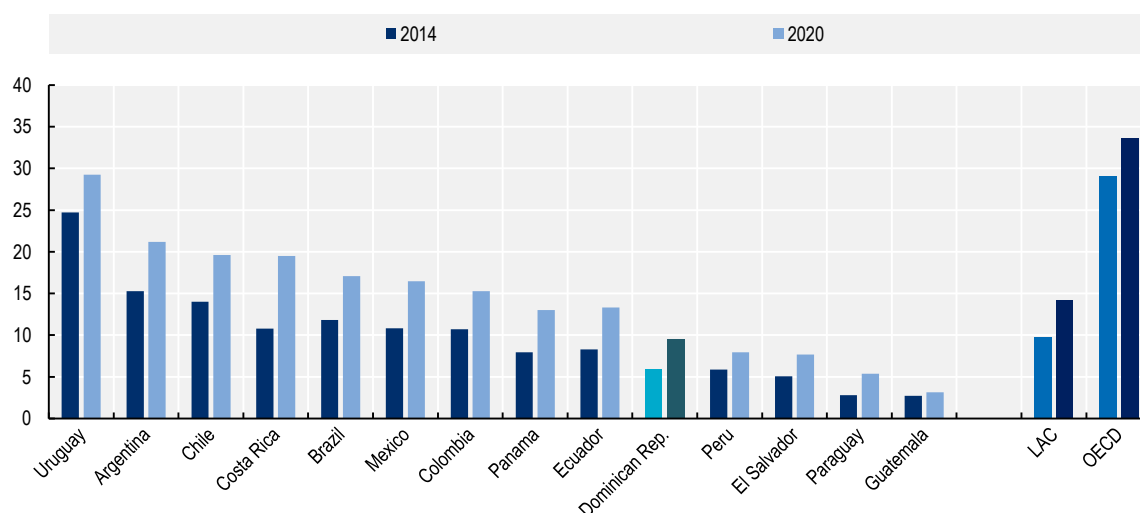
More people are connected to the Internet than ever in the Dominican Republic, a trend that should continue. However, gaps in access and use persist, both internally (across territories, as well as between socio-economic, age and gender groups) and in comparison with other LAC countries and the OECD. The COVID-19 crisis has shown that households with fewer ICT resources were more likely to be affected by the crisis. Policy action must not only focus on continuing to increase connectivity and access, but must also ensure that improvements are well-distributed across socio-economic groups. The Dominican Republic's 2030 Digital Agenda highlights the importance of these dimensions, listing connectivity and access as one of the five main pillars for the digital transformation in the country, with a focus on improving fixed broadband infrastructure and reducing the divide between urban and rural areas.

In addition, the *Plan Nacional Plurianual del Sector Público 2021-2024* emphasises the need to reduce the digital divide by improving access, increasing use of digital devices and improving ICT (MEPYD, 2021<sup>[7]</sup>).

### *Access and use have improved significantly*

The Dominican Republic made improvements in terms of fixed broadband connections from 2014 (5.9 connections per 100 inhabitants) to 2020 (9.5 connections per 100 inhabitants); however, it still finds itself well below the averages for the LAC (14.2 connections per 100 inhabitants) and OECD member countries (33.6 connections per 100 inhabitants) (Figure 5.2). Access to the Internet can also be analysed at the household level, under the assumption that each fixed broadband connection can be utilised by all the members of a household. In particular, only around 32% of households had access to a fixed broadband connection to the Internet in 2018, below the LAC (42%) and world (55%) averages, despite significant improvements between 2014 and 2018 (ONTIC, 2020<sup>[8]</sup>). These results highlight the need for policy to continue to emphasise the importance of providing access and connectivity to all in order to close these regional and global gaps.

**Figure 5.2. Fixed broadband subscriptions per 100 inhabitants in the Dominican Republic, selected LAC countries, and OECD**

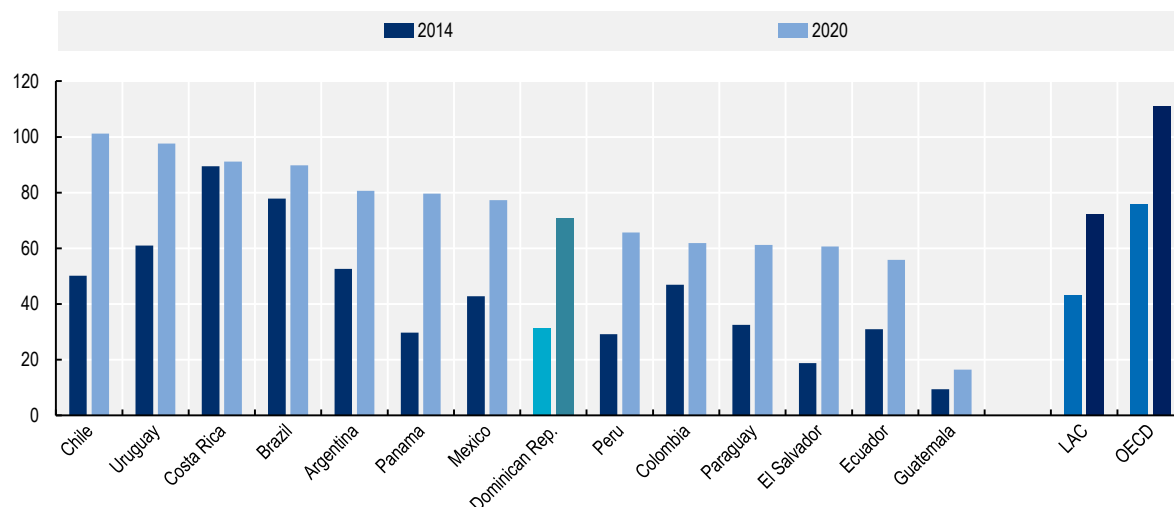


Source: Authors' elaboration based on (ITU, 2021<sup>[9]</sup>).

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In the last decade, pathways to the Internet continued to increase in volume and mobile connections emerged as one of the leading alternatives, especially in developing countries. The Dominican Republic continues to improve in the share of active mobile broadband subscriptions per 100 inhabitants, which jumped from 31.2 subscriptions in 2014 to 70.9 subscriptions in 2020, but is still below the averages for LAC countries (72.1 subscriptions) and OECD member countries (110.9 subscriptions) (Figure 5.3).

**Figure 5.3. Active mobile broadband subscriptions per 100 inhabitants in the Dominican Republic, selected LAC countries, and the OECD**



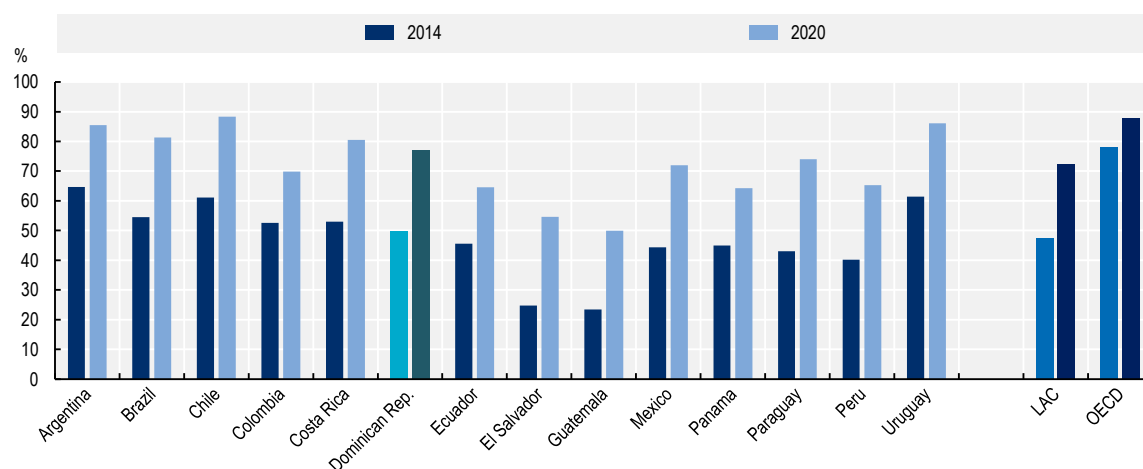
Source: Authors' elaboration based on (ITU, 2021<sup>[9]</sup>).

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The prevalence of mobile phones in society suggests that building a strong mobile broadband network can be an effective method of ensuring Internet access for all. This is the case in the Dominican Republic, where 80% of mobile broadband Internet access is through cellular devices (INDOTEL, 2021<sup>[10]</sup>). This is similar to the trend in other LAC countries, where the number of active mobile broadband subscriptions in 2018 was more than five times higher than the number of fixed broadband subscriptions (OECD et al., 2020<sup>[1]</sup>).

The expansion of fixed and mobile broadband in the Dominican Republic has led to a significant increase in the overall numbers of Internet users. As of 2020, the Dominican Republic had one of the highest rates of Internet users in the LAC region, with rates of Internet access above the regional average. Since 2010, the percentage of Internet users in the Dominican Republic has more than doubled, from 31.4% to 76.9%, around ten percentage points below the OECD average (Figure 5.4). This percentage represents the proportion of individuals aged five years or over using the Internet, based on results from national household surveys. From December 2019 to December 2020, the total number of Internet accounts in the Dominican Republic increased by 15.9%, while from December 2020 to December 2021, this number increased by 8%, reflecting the demand for digital tools during the COVID-19 pandemic (INDOTEL, 2021<sup>[10]</sup>).

**Figure 5.4. Share of Internet users in the Dominican Republic, selected LAC countries, and the OECD**



Source: Authors' elaboration based on (ITU, 2021<sup>[9]</sup>)

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Ensuring that people can access the Internet through mobile broadband subscriptions is crucial and has numerous benefits, but should not be viewed as a substitute for making fixed broadband connections available and affordable for all households. Advances in mobile networks open the door for users to take advantage of a growing number of services and applications, while increased 3G and 4G network coverage enables them to exchange information at rapid speeds. However, mobile broadband should still be viewed as a complement to fixed broadband, which generally delivers a relatively larger bandwidth, higher speeds and better quality. Due to the difference in speeds, fixed broadband can be a cheaper alternative for streaming videos, downloading large files, teleworking or doing complex tasks online. Furthermore, usage caps are often applied to mobile broadband services, whereas fixed broadband services are frequently unlimited (OECD/WTO, 2017<sup>[11]</sup>). However, expanding access to mobile broadband is relevant from a policy perspective, as it has been shown to have a positive impact on welfare, increasing consumption while reducing levels of both poverty and extreme poverty (World Bank, 2020<sup>[12]</sup>). Local reports also suggest that large spikes in Internet usage during work hours are due in part to individuals who connect to public networks from their mobile phones, as they are not able to afford an Internet connection at home.

In order to bring more people online, the Dominican Republic must continue to invest in and prioritise communication networks while it further advances its agenda to expand access to fixed broadband. In particular, the National Broadband Plan of 2020 stated that universal access to the Internet is a human right and gave the Dominican Institute of Telecommunications (Instituto Dominicano de las Telecomunicaciones; INDOTEL) the responsibility for co-ordinating and implementing this vision, as per Decree 539-20. The Decree also required the necessary actions to be taken to guarantee that bandwidth frequencies of 700 megahertz (Mhz) would be available for public tender by the end of 2021 and instructed the Dominican Electricity Transmission Company (Empresa de Transmisión Eléctrica Dominicana; ETED) to continue developing the national fibre-optic network to ensure its availability everywhere. Another important project is “Conectar los no conectados” (“Connect the unconnected”), which aims to provide Internet access and services to rural populations by supplying affordable 4G connections and subsidising demand for cellular devices, especially for single mothers who are heads of household.

In addition, the Digital Agenda 2030 sets specific connectivity targets, particularly to increase the Dominican Republic's score on the Broadband Development Index (Índice de Desarrollo de la Banda Ancha; IDBA) – which takes into account relevant public policy, regulation, infrastructure and application



– from 5.6 to 6.4 by 2027 and to 7.1 by 2030 (IBD, 2018<sup>[13]</sup>). The Dominican Republic currently scores higher than the LAC average of 4.7 but below the OECD average of 6.3 on the IDBA. IDBA scores range from 1 to 8, where 1 indicates a poor state of bandwidth development in a country and 8 indicates exemplary development.

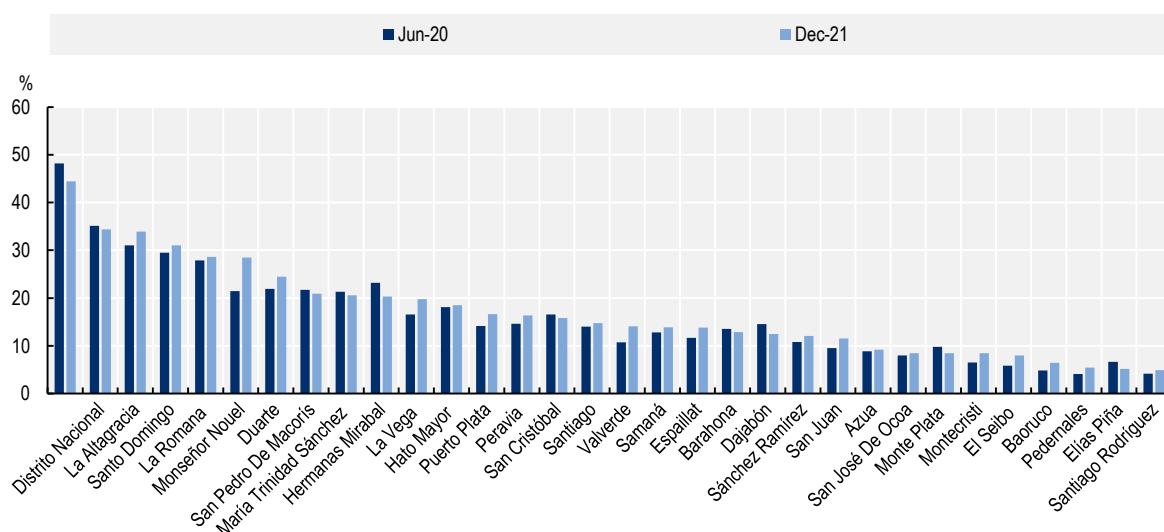
*Digital divides persist and have become particularly evident throughout the COVID-19 pandemic*

While the Dominican Republic has experienced a rapid expansion of connectivity, disparities in access and usage across territories, socio-economic status, age and gender persist, and these may have been exacerbated during the pandemic.

Territorial disparities represent one of the major inequalities in the Dominican Republic's digital transformation. In fact, the share of households with access to Internet ranges from 44.4% in highly populated and developed provinces such as the Distrito Nacional or 34.4% in La Altagracia, to the low levels of connectivity in smaller, less developed provinces, such as Elías Piña (5.4%) or Independencia (4.9%). There is a difference of 45.8 percentage points between the region with the highest share of households with Internet connectivity and the region with the lowest share (Figure 5.5).

Nine out of the 32 provinces in the Dominican Republic do not reach the 10% threshold of households with Internet (Figure 5.5). Similar results are found for individuals with fixed broadband connections, where significant territorial differences persist.

**Figure 5.5. Share of households with an Internet account in the Dominican Republic, by province, June 2020 and December 2021**



Note: "Internet account" refers to the total number of accounts by province. The number of households in the province was calculated using the relevant population data and the average household size in the Dominican Republic.

Source: Authors' calculations based on data from (INDOTEL, 2021<sup>[14]</sup>).

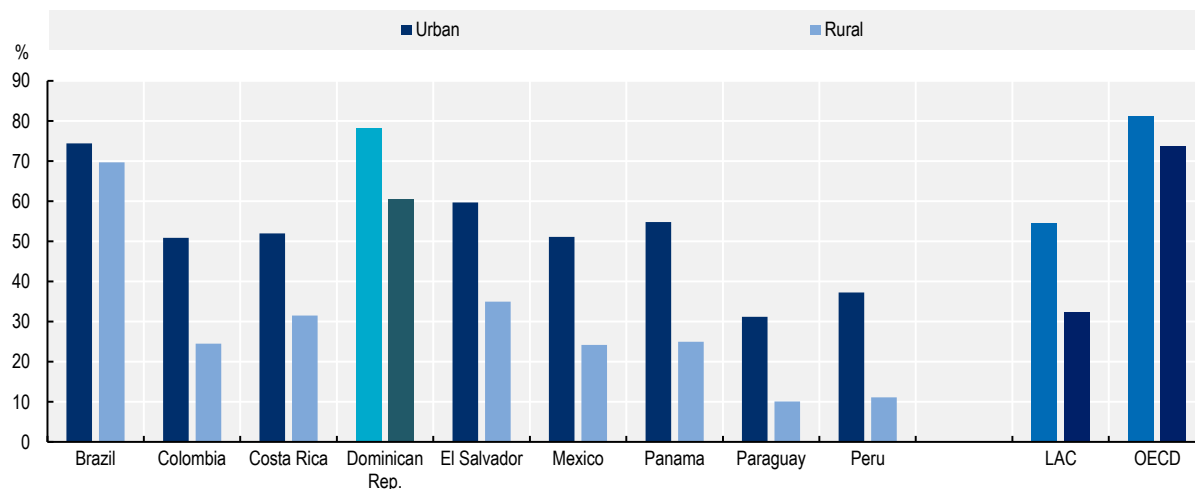
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Territorial disparities in the Dominican Republic tend to be similar to those in other LAC countries. In 2018, there was a significant divide in the number of computer users between urban and rural areas. The share of computer users in the Dominican Republic was 78.1% in urban areas and 60.5% in rural areas, i.e. a 17.6-percentage-point difference. However, both percentages are above the LAC average, at 54.4%




and 32.4%, respectively (Figure 5.6). Addressing the urban–rural divide in connectivity is a critical issue whose importance has been exacerbated by the COVID-19 pandemic, not only in the Dominican Republic but generally across the LAC region. Those with a cellular device and broadband connection at home were able to telework, study, access telemedicine and shop for goods, putting such individuals at a considerable advantage compared with the most disadvantaged and disconnected segments of the population. Investing in digitalisation in rural areas has important implications; for example, real-time payment solutions and smart contracts would fundamentally enhance the agriculture sector and improve its efficiency while also enhancing rural–urban supply chains (OECD et al, 2021<sup>[3]</sup>).

**Figure 5.6. Share of computer users in urban and rural areas, 2020 or latest year available**

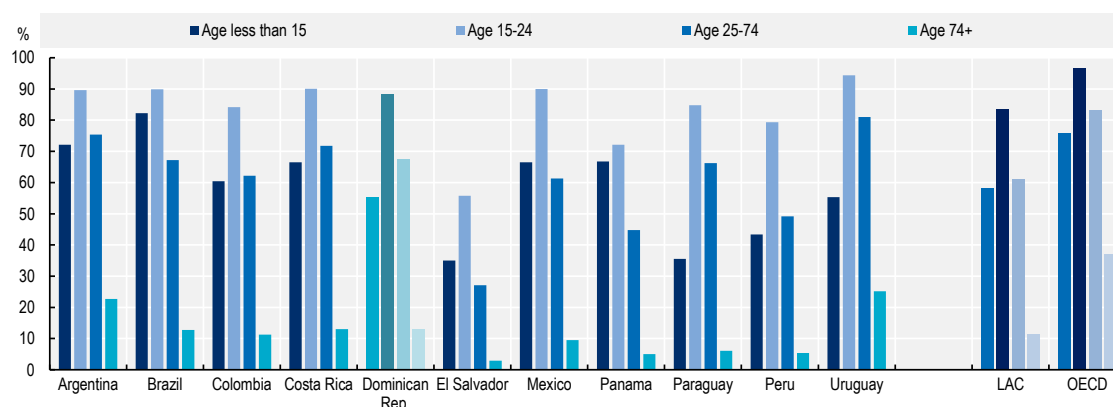


Source: Authors' elaboration based on (ITU, 2021<sup>[9]</sup>).

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Significant connectivity gaps exist across age groups in the Dominican Republic. Because they use computers and the Internet less, those in older age groups take less advantage of opportunities for connectivity than those in younger generations. The share of individuals using the Internet reached 88.2% in 2017 for those aged 15–24 years, while it fell to 67.5% and to 12.9% for those aged 25–74 years and over 74 years, respectively (Figure 5.7). While these figures are not particularly different from the LAC average, they are clearly well below the OECD levels.

Figure 5.7. Internet users by age in the Dominican Republic and selected LAC countries



Source: Authors' elaboration based on (ITU, 2021<sup>[9]</sup>).

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Gender gaps in terms of ICT use are relatively small in the Dominican Republic, with a slightly larger share of females using computers than males. Gender-related divergences are evident in other key areas such as access to digital skills or the specific uses made of ICT devices. In fact, recent studies in LAC show a gender gap with regard to individuals who conduct online transactions (20% of men and 15% of women) and who work with spreadsheets (24% of men and 20% of women) (OECD et al., 2020<sup>[11]</sup>).

Persisting digital divides across different socio-economic dimensions underline the need to develop broadband policies in order to reach the most disadvantaged populations. Territorial connectivity is a key challenge that demands ambitious targeting of remote areas with quality broadband at affordable prices. This digital transformation is particularly challenging for older generations, and specific policies should be aimed at these segments of the population in order to train and then retrain them so that they can benefit from digital technologies and participate effectively in the labour market. This also emphasises the importance of developing digital skills at an early age. Gender and income divides are also profound, providing evidence that the digital transformation still does not sufficiently promote inclusion, but rather perpetuates deeply ingrained inequalities. The COVID-19 pandemic has accentuated these digital divides, demonstrating the consequences of uneven access to Internet connectivity and underscoring the importance of an ambitious national policy to provide connectivity for all households.

*Availability, affordability and quality of digital devices remain challenges to greater connectivity in households*

Beyond the need for available and reliable broadband networks, it is equally important that individuals have devices that enable them to access digital services. Mobile phones, which are crucial in connecting individuals to the Internet, are the most prevalent digital device in the Dominican Republic (INDOTEL, 2021<sup>[10]</sup>). It must be noted, however, that older devices generally offer fewer benefits due to higher latency (the delay between transmission of a signal and when it reaches the receiving device) and lack of compatibility with new apps and software.

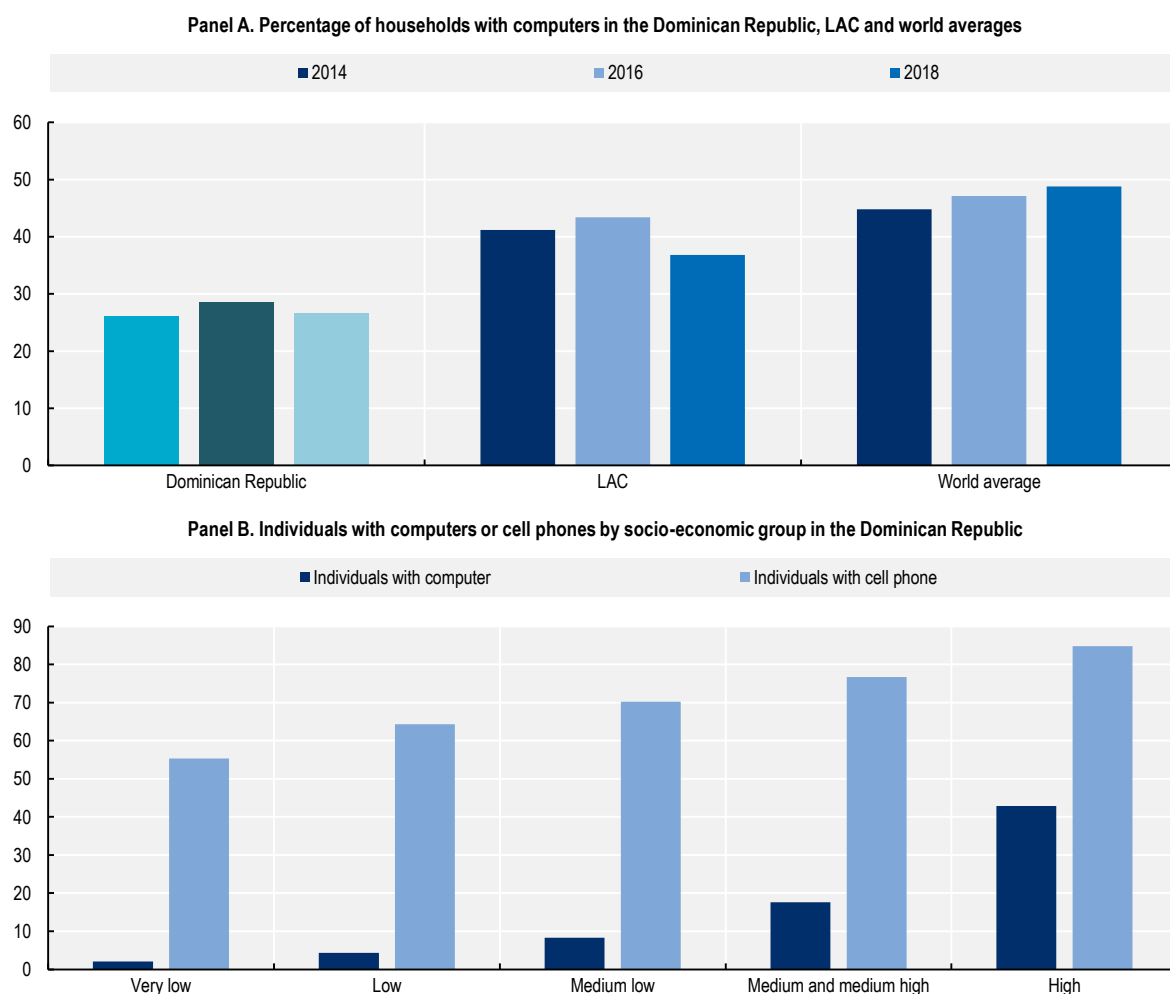
The availability of computers and other devices is a critical aspect of the digital transformation. In 2018, 26.7% of households in the Dominican Republic had computers, which is below the LAC (43.2%) and global (48.8%) averages (Figure 5.8, Panel A).

The distribution of access to digital devices across socio-economic groups shows significant divergences in the Dominican Republic. Among low-income groups, only 2.1% of individuals had access to a computer

in 2018, compared with 42.9% among high-income groups. Access to mobile phones is more widespread, although there are also significant gaps: in 2018, 55.3% of those in very-low-income groups had a mobile phone, compared with 84.8% of those in high-income groups (Figure 5.8, Panel B).

Recent plans have focused on increasing the number of digital devices that are given to students. In 2021, 19 000 devices were provided to students in the Espaillat province and an additional 55 000 devices were provided to students in San Pedro de Macorís. In 2020, more than 100 000 devices were given to students in Santiago to help guarantee effective remote learning during the COVID-19 pandemic (Hoy Digital, 2020<sup>[15]</sup>). Plans to increase computer usage among students could follow the example of the “one laptop per child” programmes that have been implemented in other LAC countries (such as Peru and Uruguay) with mixed results. In particular, accompanying the distribution of digital devices with training for both teachers and students seems to be a critical factor in making them a true catalyst for improved learning outcomes (OECD et al., 2020<sup>[11]</sup>).

**Figure 5.8. Households with computers and device usage, by socio-economic group**



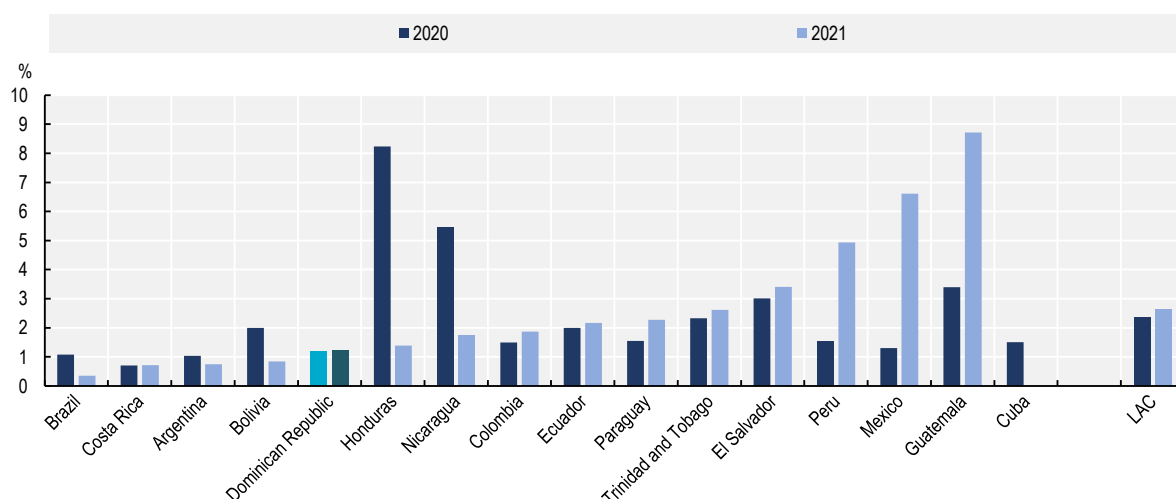
Note: The LAC average for 2018 is based on a smaller number of countries than previous years.

Source: Authors' elaboration based on (ONTIC, 2020<sup>[8]</sup>) for Panel A. and on (ENHOGAR, 2018<sup>[16]</sup>) for Panel B.

In order to reach every individual, especially those in lower socio-economic groups, plans must be put in place to ensure that an Internet connection is affordable for everyone. The 1998 General Telecommunications Law No. 153-98 laid the groundwork for this, declaring affordable pricing as one of its main objectives (IDB, 2020<sup>[17]</sup>). However, in 2015, 38% of households without Internet listed high prices as the primary reason (ENHOGAR, 2015<sup>[18]</sup>). Similarly, the Dominican Republic ranked 34<sup>th</sup> out of 65 countries for fixed broadband affordability (calculated as dollars per month in terms of purchasing power parity) and 42<sup>nd</sup> for mobile broadband affordability, below the OECD average in both cases and indicating the need for further improvements (IDB, 2020<sup>[17]</sup>). In 2020, the Dominican Republic ranked eighth out of 31 LAC countries (using purchasing power parity) for fixed broadband baskets. However, the country is one of the most expensive for both low- and high-speed mobile data (ITU, 2021<sup>[19]</sup>).

The Digital Agenda 2030 emphasises the importance of affordability, highlighting the high prices of telecommunications services as one of the major areas of improvement needed in order to boost connectivity. The affordability index used in the Agenda indicates that 1 gigabyte (GB) of data currently costs 1.23% of the average household income, below the LAC average of 2.64% (Figure 5.9). However, this cost per GB may be masking the particular difficulties that low-income households face in affording Internet connectivity. The goal is to reduce this figure to 0.66% by 2030. Due to the prevalence and importance of mobile broadband in the Dominican Republic, it is critical that mobile data be made affordable and available to all. In 2021, the cheapest plans providing at least 5GB of monthly high-speed data cost USD 18.10, up from USD 17.00 in 2020. These results are also below the regional average of USD 28.00 for 2021 (ITU, 2021<sup>[19]</sup>).

**Figure 5.9. Affordability index in the Dominican Republic and selected LAC countries**



Source: Authors' elaboration based on (A4AI, 2021<sup>[20]</sup>).

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High-speed Internet connectivity is a crucial component of the digital transformation and is key to providing citizens with the opportunity to make sophisticated use of digital technologies for work, learning and accessing public services. Similarly, as the digital transformation progresses globally, it is vital to install compatible infrastructure that is in line with international advancements. This translates to ensuring that the population is able to access 4G and 5G services, which, as of December 2021, are only available in the Distrito Nacional. Fixed broadband packages currently offer a wide range of plans, depending on price, from speeds of 512 kilobits per second (Kbps) to 100 Mbps. In 2020, the average download speed of mobile broadband connections, the most prevalent type of broadband in the Dominican Republic, was

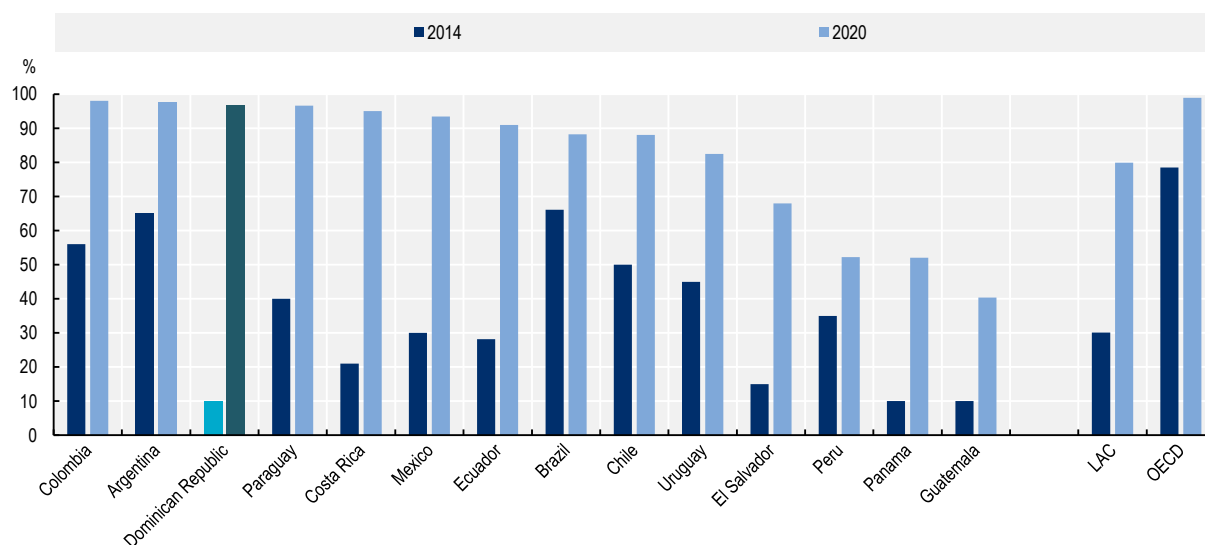
29.7 Mbps, below the global average of 36.0 Mbps. This is despite an improvement of 4.1 Mbps since 2019 (INDOTEL, 2021<sup>[10]</sup>). In order to continue to improve, the Dominican Republic has developed a framework under the National Broadband Plan to invest in improving the infrastructure and providing higher-speed broadband connections for all, as per Decree 539-20.

Almost every individual (99.2%) in the Dominican Republic lived in an area covered by a 3G network in 2018. This is above the LAC average (94.6%) and similar to the OECD average (98.9%). The significant improvement in 3G coverage since 2014 reflects a general global trend and helps ensure the possibility of basic connectivity for all citizens. It is important to note that this indicator reflects the possibility of accessing 3G networks rather than the proportion of people who actually take advantage of this access.

As of 2018, coverage by 4G networks (96.6%) had significantly improved since 2014, and was above the LAC average (79.9%) but below the OECD average (98.9%) (Figure 5.10). 4G is also referred to as Long-Term Evolution (LTE) and represents a significant upgrade over its 3G predecessor. More advanced networks are crucial to faster connections and pave the way for e-commerce, social media use and other options that require data to be quickly transferred and processed (O'Halloran, 2019<sup>[21]</sup>). In 2018, 4G overtook 2G to become the leading mobile technology globally, and could account for 60% of global mobile connections by 2023 (GSMA, 2019<sup>[22]</sup>). The Dominican Republic recognised this trend and its importance, and responded by deploying 4G between 2010 and 2015 with rapid development and assistance from telecommunications services, similar to the actions taken previously in order to establish 3G networks (ONTIC, 2020<sup>[8]</sup>).

In order to maintain this momentum, the Dominican Republic must now continue implementing 5G technology throughout the country. The network will be extended to other big cities in the coming months, with the eventual goal of covering the entire country. 5G provides a significant upgrade over 4G in terms of latency, allowing for real-time remote control at large scales and across wide distances. While the benefits of 5G will primarily be felt in the manufacturing industry, other benefits include driver health monitoring, smart traffic control, and establishing real-time monitoring systems (O'Halloran, 2019<sup>[21]</sup>).

**Figure 5.10. Proportion of the population covered by 4G networks in the Dominican Republic, selected LAC countries and the OECD**



Note: Data from 2014 and 2020 or latest available year.

Source: Authors' elaboration based on (UN Statistics Division, 2018<sup>[23]</sup>).

In addition, the Digital Agenda 2030 highlights implementing digital television as an important action under the “connectivity and access” pillar. The process requires changing the television signal from analogue to digital. This will improve the quality of the television signal in the Dominican Republic and will increase the capacity of the radio spectrum, which will be especially beneficial for 5G mobile devices. Providing digital television for free and ensuring availability for all is key to reducing the digital divide (INDOTEL, 2021<sup>[10]</sup>). In October 2020, the Dominican Republic laid out plans to use television channels to broadcast educational content. This was proposed as an alternative to remote learning in order to continue to limit the spread of COVID-19 in the country, while still providing a solution for students without Internet-enabled devices (Acento, 2021<sup>[24]</sup>).

### ***The digital transformation for schools***

The digital transformation of the education system could be a major enabler of inclusive development in the Dominican Republic. On the one hand, ICT can significantly improve learning and teaching practices and educational outcomes, while expanding the breadth of these improvements to the majority of citizens. For instance, new technologies can foster the development of innovative teaching practices, enable personalised and remote courses and feedback, and encourage students’ interest and engagement through new learning modalities, such as gamification (OECD et al., 2020<sup>[11]</sup>). On the other hand, as digital technologies transform societies and economies globally, the educational system will play a critical role in training and preparing citizens to thrive in a digital world through the development of fundamental cognitive, non-cognitive and digital skills. Preparing students so they have the tools necessary for a successful school-to-work transition is critical. Therefore, rethinking school-to-work transition programmes and focusing on a wider skill set for young people must be central aspects of digital education policies (OECD, 2021<sup>[6]</sup>).

The Dominican Republic must continue to prioritise the role of the digital transformation in education. The Digital Agenda 2030 lists “education and digital skills” as one of the five key pillars of the digital transformation. This Agenda assesses the primary areas for improvement while setting tangible goals for the short, medium and long term.

The COVID-19 pandemic has affected education, with large divergences due to existing divides in the educational system, and in access to and use of digital technologies throughout the educational system. With approximately 20% of the Dominican population enrolled in schools before the pandemic, responding to the educational challenges of COVID-19 is a priority and has highlighted structural challenges and divides within the educational system that must be dealt with (IDEICE, 2020<sup>[25]</sup>). In general, students struggled to access educational resources, with only one in five students being able to access the Internet whenever they needed it. One-half of adolescent students were only able to access the Internet through their mobile phone, limiting the types of activities they could participate in. Results for Internet access by socio-economic group show that only 30% of those in low-income groups have Internet access, while 70% of those in high-income groups have Internet access. Furthermore, while all adolescent students who took part in Kids Online reported that they were able to maintain some sort of contact with the education system, only 40% of those in low-income groups said they could access video calls for classes (UNICEF and INDOTEL, 2021<sup>[26]</sup>).

In response to the COVID-19 pandemic, the Ministry of Education of the Dominican Republic (Ministerio de Educación de la República Dominicana; MINERD) established the plan for educational support (Plan de apoyo educativo) in order to contribute to the general access to remote learning for students, reinforce learning habits, and educate the population about COVID-19. The plan also emphasises providing students with devices, and several important measures have resulted in the provision of computers and electronic booklets to students throughout the country (IDEICE, 2020<sup>[25]</sup>).

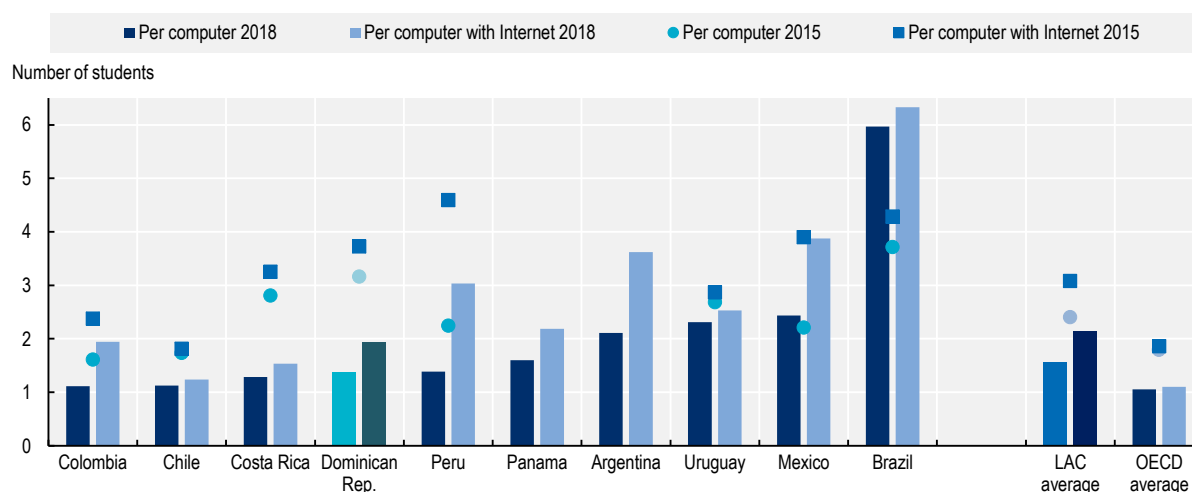
MINERD is leading multiple initiatives to integrate the digital transformation into the education system. Before the COVID-19 pandemic, the Dominican Republic had been working on launching the *Educando*

and *Eduplan* digital portals, which would provide material for both students and teachers online, respectively (IDB, 2021<sup>[27]</sup>). Through these plans, MINERD recommends leveraging WhatsApp, Zoom and other platforms in order to communicate with, and provide content for, students (IDEICE, 2020<sup>[25]</sup>). The *Informatica Prepara* programme is an alternative that provides a series of videos on the basic principles of computer use, which is crucial for both students and teachers who lack familiarity with digital devices (Ministerio de la Presidencia, 2021<sup>[28]</sup>).

*Access to ICT in schools has increased, but it must be extended across the education system in order to bridge existing gaps*

The Dominican Republic has seen an increase in access to ICT in schools in recent years; in fact, the number of students per computer has declined since 2015. In 2018, there was one computer available per 1.4 students, and almost one computer with an Internet connection per 2.0 students. This places the Dominican Republic in a slightly better position than the LAC average, but worse off than the OECD average, which in 2018 was approximately one Internet-connected computer for every student (Figure 5.11).

**Figure 5.11. Number of students per computer in the Dominican Republic, selected LAC countries, and the OECD**



Source: Authors' calculations based on (OECD et al., 2020<sup>[11]</sup>) and (OECD, 2018<sup>[29]</sup>).

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Access to ICT devices in school is critical for making the most of digital learning and teaching, and can be a source of equitable access to technologies. Indeed, in countries where household Internet connectivity is not universal and where large gaps remain at the household level, schools can play a role in facilitating access and bridging the gap between students with and without Internet connectivity at home (OECD et al., 2020<sup>[11]</sup>).

However, this is only partially true in the Dominican Republic, as notable gaps still exist across different socio-economic groups in terms of access to ICT both at school and at home. In fact, ICT availability – both at home and at school – among those in the fourth income quartile is more than double that in the first income quartile. This gap is larger than the LAC average, where ICT availability at home among those in the fourth income quartile is also double that in the first income quartile, but ICT availability at school is only around 37% higher for the fourth income quartile than for the first income quartile. In OECD member



countries, the differences between the first and the fourth economic, social and cultural status (ESCS) quartiles (classified by the Programme for International Student Assessment [PISA]) represent 32% for ICT availability at home and 13% for ICT availability at school (Figure 5.12). The PISA ICT availability indexes for school and home calculate the combined availability of various digital tools – including computers, the Internet and smartphones – on a scale from 0 (which represents no access to any digital tool) to 10 (which represents access to every tool listed), or to 11 in the case of ICT availability at home. According to these indexes, the Dominican Republic shows significant differences in the availability of ICT for students across different ESCS quartiles.

**Figure 5.12. ICT availability index at home and at school, by PISA ESCS quartile**



Source: Authors' calculations based on (OECD et al., 2020<sup>[11]</sup>) and (OECD, 2018<sup>[29]</sup>).

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Extending ICT infrastructure across schools is a relevant policy for improving education outcomes and benefitting from the digital transformation. Fairness in resource allocation is important to ensuring equality in education opportunities and is related to overall education system performance. High-performing countries tend to allocate resources (including computers and digital tools) more equitably, regardless of individual schools' socio-economic profiles. Better access to ICT at school may compensate for low access in rural or socio-economically disadvantaged homes (OECD/CAF/ECLAC, 2014<sup>[30]</sup>).

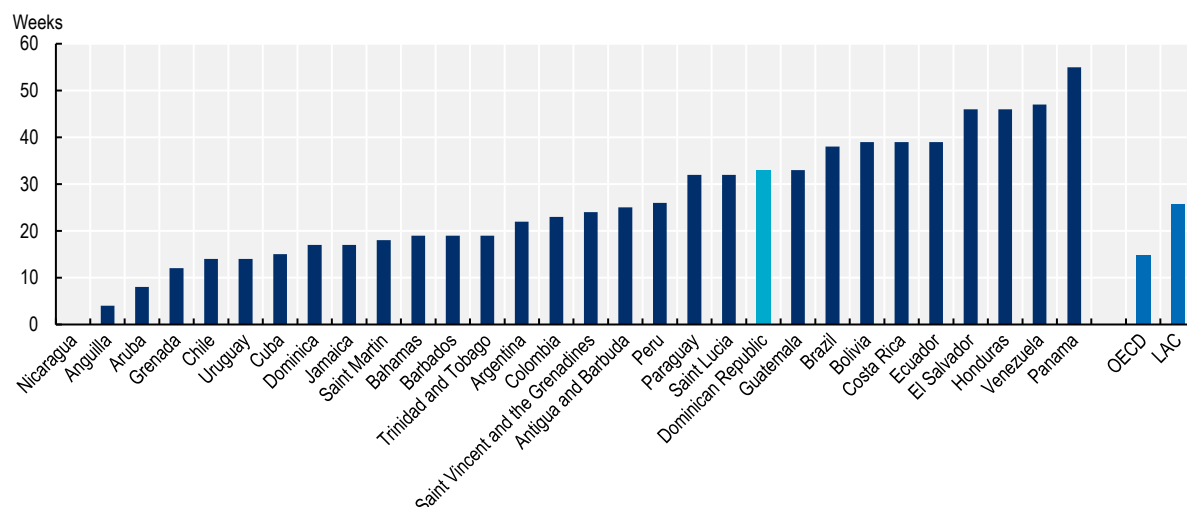
*COVID-19 has shown the risks and benefits of online learning, and has highlighted the fact that there is a long way to go in improving access to home-based online learning platforms*

The COVID-19 pandemic may have had an amplifying effect on educational inequalities, particularly in countries like the Dominican Republic where these were already large. With approximately 2.7 million students enrolled in school and an average of 30% of the curriculum still left to be covered when the pandemic started, many students who could not access educational content from home were harmed (IDEICE, 2020<sup>[25]</sup>; Ministerio de la Presidencia, 2021<sup>[28]</sup>).

Schools had to close due to lockdowns and other additional measures adopted throughout the COVID-19 pandemic. In general, school closures have been longer in LAC than in OECD member countries, which threatens to deepen educational inequalities. In the Dominican Republic, students have lost 33 weeks of education on average, above the OECD (15 weeks) and LAC (26 weeks) averages (Figure 5.13). School

closures are directly linked to potential learning loss, with particularly negative results for vulnerable students (OECD et al, 2021<sup>[3]</sup>).

**Figure 5.13. School closures in the Dominican Republic, selected LAC countries and the OECD, March 2020 to May 2021**



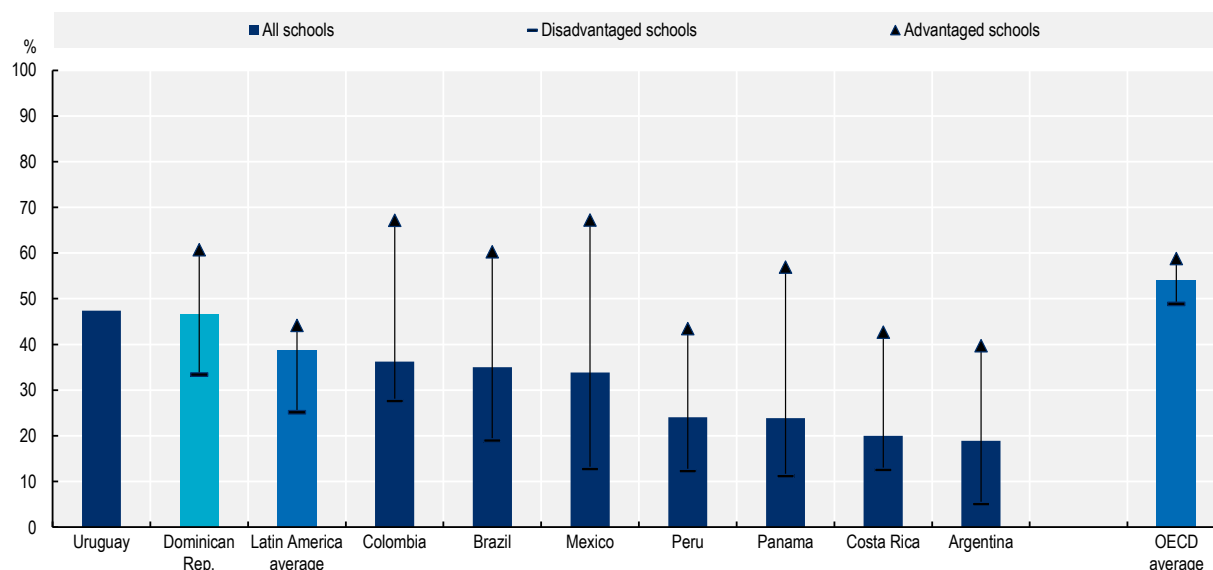
Source: (OECD et al, 2021<sup>[3]</sup>).

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However, not all households were equipped with the necessary technology, not all parents were prepared to take on teaching duties alongside trying to keep or find a job, and not all schools and teachers were ready to provide training in an online format (OECD et al., 2020<sup>[1]</sup>). In the Greater Santo Domingo area and in Cibao, where the majority of schools in the Dominican Republic are located, almost 30% of students did not have access to digital education platforms (Ministerio de la Presidencia, 2021<sup>[28]</sup>). It is difficult to predict the impact this will have on human capital accumulation, future earnings and general well-being, but it will surely be more acute for students from rural and more disadvantaged socio-economic backgrounds (OECD et al., 2020<sup>[1]</sup>; Psacharopoulos, G. et al., 2020<sup>[31]</sup>).

On average, schools' readiness to provide effective online learning was relatively good in the Dominican Republic, albeit with notable differences between advantaged and disadvantaged schools that may amplify socio-economic gaps in education. On average, 47% of schools were equipped with effective online learning support platforms. However, while 61% of 15-year-old students attending advantaged schools had access to these platforms, only 33% of 15-year-old students attending disadvantaged schools had such access (Figure 5.14). This represents a 28-percentage-point difference.

**Figure 5.14. Availability of effective online learning support platforms, by schools' socio-economic status, 2018**

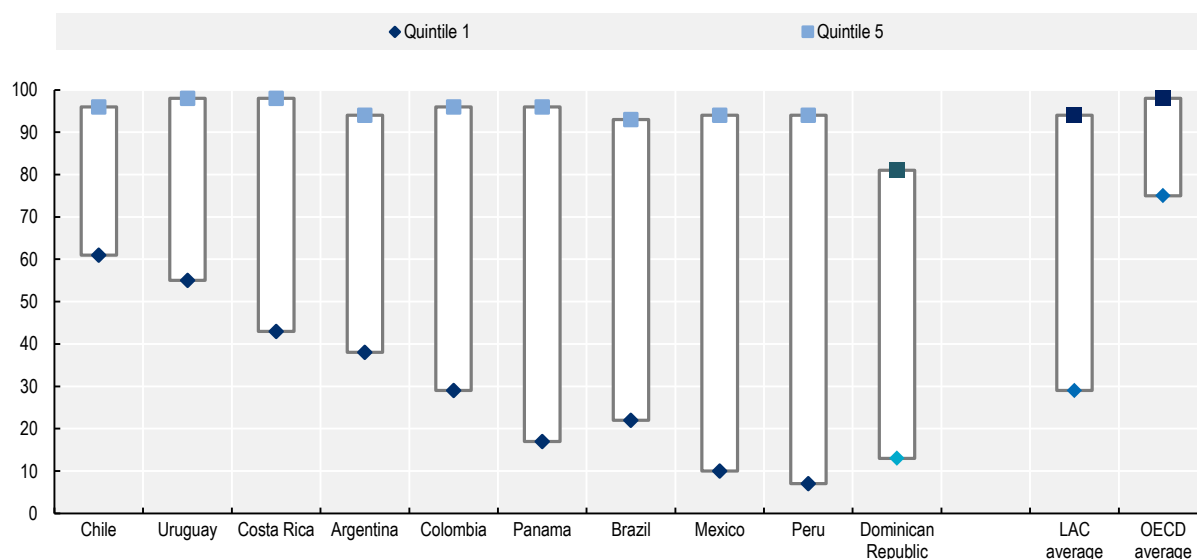


Source: Authors' calculations based on (OECD et al., 2020<sup>[1]</sup>; OECD, 2018<sup>[29]</sup>).


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Beyond the unequal distribution of the availability of online platforms across schools, there are other gaps across both schools and households that limit the potential of online learning. Indeed, the availability of online learning platforms must be complemented by access to Internet-enabled devices at home, which is particularly challenging for students from more disadvantaged socio-economic backgrounds. Students in the Dominican Republic from households in the lowest income quintile rarely have access to a computer at home (13%) for doing homework, below the LAC (29%) and OECD (75%) averages, resulting in a significant disadvantage compared with access among students from households in the highest income quintile (81%) (Figure 5.15).

Figure 5.15. Access to a computer at home for doing homework, by socio-economic quintile



Source: Authors' elaboration based on (OECD, 2018<sup>[29]</sup>).

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*Moving towards a truly digitalised education system with better education outcomes involves going beyond access to ICT and deeply transforming teaching and learning practices*

The digital transformation of the education system involves various dimensions that go beyond access to ICT and are critical to effectively changing teaching and learning practices. Simply providing students and teachers with digital devices does not ensure better educational performance (Bulman and Fairlie, 2016<sup>[32]</sup>; Escueta et al., 2017<sup>[33]</sup>; OECD et al., 2020<sup>[1]</sup>). If not used properly, computers can have no effect or negative effects on educational outcomes, and the impact of computer-assisted instruction depends on whether it is used as a substitute for or as a complement to traditional teaching, as well as on the quality of the teaching methodology that computer-assisted instruction is replacing or complementing (OECD et al., 2020<sup>[1]</sup>). In light of this, the use of computer-assisted training is generally more effective in improving performance in developing countries, where it replaces lower-quality instruction or compensates for a lack of teachers (Banerjee et al., 2007<sup>[34]</sup>; OECD et al., 2020<sup>[1]</sup>).

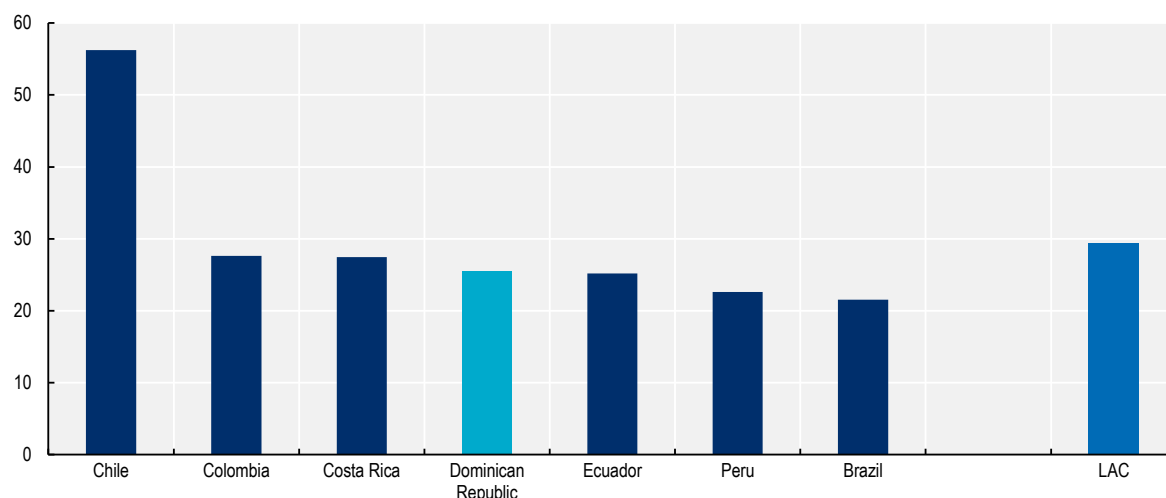
Teacher-guided digital learning is among the most effective ways to help children develop skills (OECD et al., 2020<sup>[1]</sup>). Children with little adult supervision may spend their time using computers for activities unrelated to homework or studying. Interventions to increase access should implement mechanisms to ensure proper use – for instance, preloading computers with interactive educational software and apps that launch automatically in order to encourage their use (IDB, 2011<sup>[35]</sup>). Similarly, an alternative to providing digital devices to all students could be holding computer labs for one or two hours per week, where training is provided in a targeted and focused manner.

Teachers must have adequate technological skills in order to make the most of the digital transformation of the education system. Investment in digital devices dedicated to teachers and in teacher training tends to result in better student performance (Denoël et al., 2017<sup>[36]</sup>). The quality of these digital tools and their co-ordination with other teaching practices, as well as the type and quality of teacher training, are essential dimensions of teachers' technological abilities. On average, 58% of 15-year-olds in LAC countries attended schools whose principals required that teachers have the necessary technical and pedagogical skills to

integrate digital devices into the curriculum, with large discrepancies depending on the socio-economic status of the school. In Colombia, for example, 75% of advantaged schools reported being prepared, compared with less than one-half of disadvantaged schools (OECD et al., 2020<sup>[1]</sup>).


The digital skills of the population are a critical dimension for making the most of the digital transformation in order to improve educational performance. Digital skills are needed to obtain better educational outcomes from a technology-rich education system. Likewise, improving digital skills must be one of the core objectives of a digitally transformed education system in order for students to go on to thrive in a digital society. One key element in this respect is promoting digital skills early in life. Early exposure to digital devices is correlated with better performance in the PISA test, highlighting the importance of investing in early ICT education. In 2018, 50% of 15-year-old students in the Dominican Republic had started using a digital device before the age of 10 years, similar to figures for Mexico but below those for Chile and Uruguay (75%) (OECD et al., 2020<sup>[1]</sup>). Digital skills among Dominicans are low by international standards, and are similar to the LAC average. The Dominican Republic ranks 53<sup>rd</sup> in the world in terms of ICT skills (Figure 5.16). While this indicator covers more than the ICT skills of students and refers to all active workers, it highlights the importance that ICT education programmes will have going forward in closing the gap with other countries and enabling people to take full advantage of the digital transformation both at school and in the labour market.

**Figure 5.16. Availability of ICT skills**



Note: ICT skills, indicator 2.1.2 under the “people” pillar of the Network Readiness Index, are defined as the average standardised answer to the question, “In your country, to what extent does the active population possess sufficient digital skills (e.g. computer skills, basic coding, digital reading)?” [1=not at all; 7=to a great extent]. Results are based on the World Economic Forum’s Executive Opinion Survey, which is conducted on an annual basis.

Source: Authors’ elaboration based on (Network Readiness Index, 2020<sup>[37]</sup>).

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## Challenges and opportunities to move from analysis to action

**Table 5.1. Increase connectivity throughout the Dominican Republic to ensure a successful and inclusive digital transformation**

Policy recommendation	Challenges and opportunities for implementation
<b>1.1. Design policies that continue to increase broadband Internet connections in the Dominican Republic and close the gap with LAC and the OECD</b>	
Invest in communication networks, creating the conditions to attract private investment and to foster public-private partnerships.	Barriers remain to facilitate private investment. Reducing red tape, providing legal security, and strengthening inter-institutional articulation are critical areas of action.
Expand the deployment of 4G networks across the country.	Barriers remain to facilitate private investment. Reducing red tape, providing legal security, and strengthening inter-institutional articulation are critical areas of action.
<b>1.2. Reduce gaps in access, particularly in rural areas and across low-income populations, to reduce the digital divide</b>	
Expand connectivity in rural areas by making full use of existing technologies.	The possibility of providing tax deductions for internet services in these areas should be analysed and considered.
Expand connectivity through enhanced public networks, particularly in remote or less advantaged areas.	Forging partnerships with the private sector will also be fundamental
Subsidise access to the Internet for low-income populations, making use of existing mechanisms such as conditional cash transfers, in order to better identify and target these transfers to vulnerable households.	Concerns around this recommendation focus on the impact on public finances and on fiscal sustainability. If implemented, a mechanism to gradually phase out these subsidies would be important.
<b>1.3. Improve affordability and availability of digital devices and services:</b>	
Continue to distribute digital devices to students, particularly those from less advantaged socio-economic backgrounds, accompanied by training for both teachers and students.	Training should be provided for teachers, students and parents.
Strengthen efforts to distribute digital devices among vulnerable populations, making use of existing mechanisms such as conditional cash transfers.	This policy should be well coordinated with the previous one and with strong mechanisms for effective focalisation
Create conditions for affordable access to digital devices and services.	Agreed

Note: Based on the workshop held in Santo Domingo on 20 June 2022, to discuss this draft and the policy recommendations with representatives from Ministry of Presidency; Ministry of Economy, Development and Planning; Ministry of Education; INDOTEL; OGTIC and CODOPYME.  
Source: Authors' elaboration.

**Table 5.2. Enhance digital skills and the use of digital tools in the education system and in the transition to the new world of work**

Policy recommendation	Challenges and opportunities for implementation
<b>1.1. Develop digital skills among students and teachers as well as across the adult population</b>	
Mainstream digital skills and tools across the education system, starting from early childhood. This should involve engaging the whole community in a debate to reform educational curricula at all levels of education, with the objective of including digital skills as a core educational objective.	Lack of institutional coordination is a key barrier. Teachers do not have enough incentives to engage in training and improve their skills. Engaging with other local actors, like parent association and associations and church, is crucial.
Develop an ambitious programme of training current and future teachers in digital skills and innovative pedagogical methods that are adapted to the needs of the digital society.	Developing the teacher career with a strong, transversal digital pillar, will be crucial.
Develop specific programmes to train the adult population in digital skills.	Improve existing programmes, and develop specific programmes for adult population.
<b>1.2. Reinforce the availability of digital tools within the education system</b>	
Bridge the gap in ICT availability – including online educational resources and platforms, as well as digital devices for teaching and learning – across schools of different socio-economic backgrounds.	Adapt existing tools to the necessities of the Dominican education system. Improving connectivity in most disadvantaged schools is essential.

Develop a national map that identifies the needs of schools in terms of connectivity, ICT and digital endowments in order to develop targeted actions in the most disadvantaged areas.	Agreed
<b>1.3. Strengthen linkages between the education system and the emerging digital economy</b>	
Strengthen the digital component within the vocational education and training system, as well as in higher education, with specific third-level degrees related to new/emerging professional profiles in the digital economy.	Agreed, though the challenge of adequately training teachers in digital skills is vital and takes time. It is important to also promote generic skills that are durable and facilitate adaptation to change.
Develop mechanisms to identify the demand for skills and, in particular, the emerging needs of the digital economy, in order to inform the development of adapted curricula and educational pathways and to favour the transition to the new world of work.	Agreed, though lack of financial resources can be an issue.

Note: Based on the workshop held in Santo Domingo on 20 June 2022, to discuss this draft and the policy recommendations with representatives from Ministry of Presidency; Ministry of Economy, Development and Planning; Ministry of Education; INDOTEL; OGTIC and CODOPYME.  
Source: Authors' elaboration.

## The digital transformation of the Dominican economy: A catalyst for more productivity and better-quality job opportunities

### *Digital technologies can be a catalyst for productivity growth*

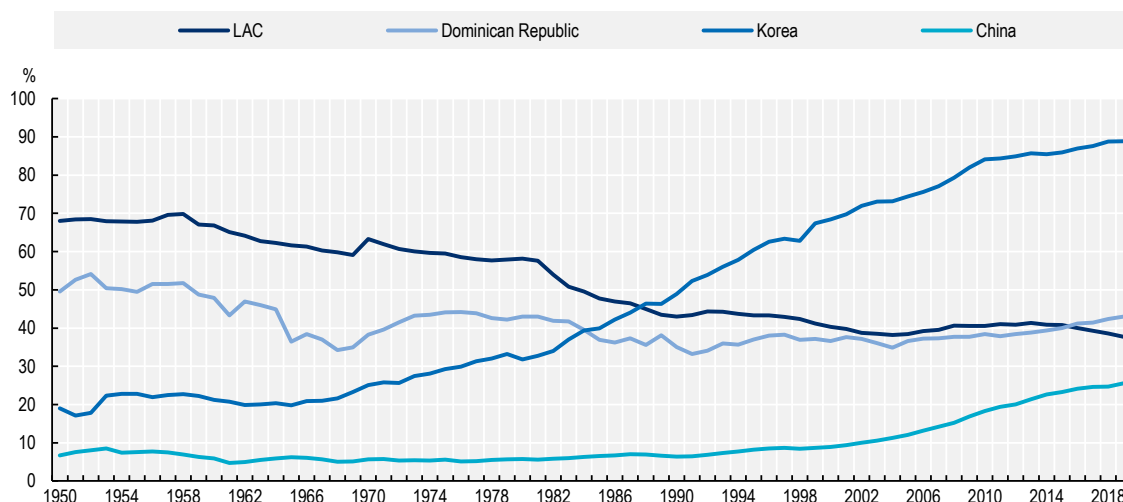
Increasing productivity remains a central development challenge for the Dominican Republic, and for LAC countries in general, which face persistently low levels of productivity – known as a “productivity trap” (OECD et al., 2019<sup>[38]</sup>). Although there is high heterogeneity across countries in the region, LAC has been generally characterised by a growth model based on low-value-added exports and an abundance of low-skilled labour. In this context, gross domestic product (GDP) growth has been stimulated more by the accumulation of production factors and, to a large extent, the expansion of the labour force than by productivity growth (OECD et al., 2020<sup>[11]</sup>).

Labour productivity in the Dominican Republic as a percentage of labour productivity in OECD member countries has remained stagnant. While it represented 50% around 1950, it declined to less than 40% during the 1990s before slightly and gradually increasing to around 40% by 2019 (Figure 5.17).

Because the digital transformation can be a catalyst for productivity growth, it represents an opportunity for the Dominican Republic. The digital revolution involves large disruptions that promote productive diversification and that can enable sustained productivity growth and trigger innovation. Harnessing the opportunities this presents depends on how economies, productive sectors, institutions and societies position themselves to absorb and adapt to new technology (OECD et al., 2020<sup>[11]</sup>). New technologies change the way companies produce goods and services, innovate, and interact with other companies, workers, consumers and governments. Digitalisation opens the door for superior data storage capacities and increased processing capabilities, while artificial intelligence enables companies to automate increasingly complex tasks (OECD, 2019<sup>[40]</sup>).



**Figure 5.17. Labour productivity of the Dominican Republic, LAC, Korea and the People's Republic of China (hereafter: China) relative to the OECD average, 1950-2018**



Note: Simple average of 17 LAC countries covered by The Conference board. Labour productivity is measured as the labour productivity per person employed in 2019 USD.

Source: Authors' calculations based on (The Conference Board, 2020<sup>[39]</sup>).

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Basic advances in Internet connectivity and access are linked to economic growth. For instance, recent studies have shown that a 1.00% increase in mobile broadband penetration is associated with a 0.15% increase in GDP on average. However, they indicate a saturation effect, where the contribution to GDP is less in more developed countries. In addition, a 1.00% increase in fixed broadband penetration is associated with a 0.08% increase in GDP on average (ONTIC, 2020<sup>[8]</sup>). The addition of 10 broadband connections for every 100 people can increase GDP by 1.21 percentage points in developing countries. Therefore, improving and investing in connectivity must be a policy priority in order to increase productivity and economic growth (IICA, 2020<sup>[41]</sup>).

The digital transformation can also be a motivator of productivity growth by fostering production transformation. For instance, digital technologies have a strong potential to transform the agri-food industry in the Dominican Republic. The industry is going through a transformational period where it must adapt to new consumer preferences, while greener and more inclusive value chains also need to become a priority. At the same time, new energy sources, forms of distribution and smart packaging have emerged as important global trends. The agri-food industry is an important part of the economy, contributing 10% of the Dominican Republic's GDP and ranking as the third-largest employer in the country. Maintaining a competitive industry that is integrated into regional markets will require the adoption of the latest technologies and best practices (OECD/UNCTAD/ECLAC, 2020<sup>[42]</sup>).

The Digital Agenda 2030 highlights the importance of establishing a digital economy, listing this as one of the five priority areas. The general objective of this priority is to elevate the competitiveness and productivity of the economy through the development and incorporation of technology in productive processes. The document highlights the low level of technology adoption by MSMEs and the lack of resources for research and development (R&D) as key areas for improvement. The issues regarding low productivity and implementing a digital economy mentioned in the Digital Agenda 2030 are not specific to the Dominican Republic and are present in many LAC countries. Policies to address these issues can be drafted based on regional experiences and using lessons learned in other similar countries.

***Incorporation of digital technologies is not sufficient to increase productivity; a digital ecosystem is required***

The spread of ICT is not enough to increase productivity, as illustrated by the fact that many countries globally have seen a slowdown in productivity growth in the last decade. This phenomenon, often referred to as the “productivity paradox”, is puzzling, as productivity would be expected to grow in a period where so many new technologies are being introduced, more companies and countries are being integrated into global value chains, and workers in general are more highly educated (OECD et al., 2020<sup>[1]</sup>). This paradox could be partially explained by the inadequate methods of measuring productivity. However, recent research suggests that the uneven adoption of digital tools across companies, industries and sectors plays a vital role in explaining these results. Large companies, especially in ICT-intensive sectors, are the main beneficiaries of technological progress, leveraging new tools in the production process. Laggard companies, typically MSMEs, often have limited capabilities or incentives for adopting new technologies and best practices (OECD, 2019<sup>[5]</sup>).

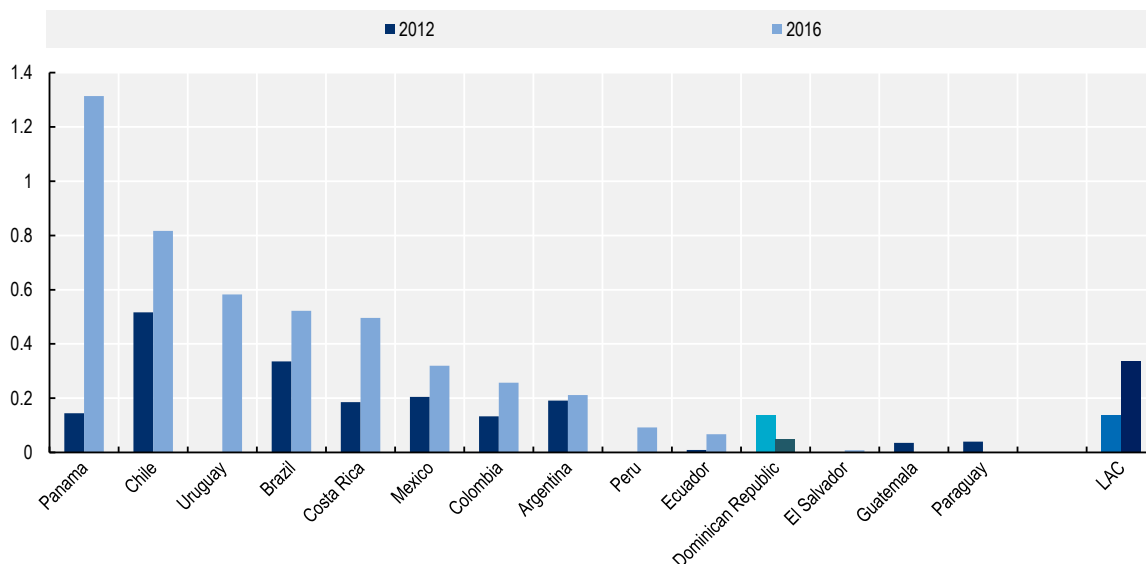
This tendency for new ICT to spread unevenly across companies and sectors poses a challenge to the digital transformation of the Dominican Republic’s economy, given that the productive sector of the country is dominated by low-producing MSMEs. MSMEs represent 98.2% of total companies in the Dominican Republic (SIPEN, 2021<sup>[43]</sup>). The large majority of microenterprises in the Dominican Republic are concentrated in less dynamic, less export-oriented sectors. In 2018, around 45% of microenterprises were in the wholesale and retail industries, 15% were conducting professional business activities, and 9% were in manufacturing (OECD/UNCTAD/ECLAC, 2020<sup>[42]</sup>).

Each new technology that is adopted in isolation creates certain benefits; however, the largest potential lies in the combination of multiple new technologies within a broader digital ecosystem. Developing a holistic digital ecosystem is essential to facilitating companies’ adoption of new technology and increasing the impact of the digital transformation on productivity growth. Successful digital transformation strategies for productivity depend on more than just increasing ICT use. Complementary investments are essential in a digital ecosystem and are key to enhancing the impact of ICT; these investments include: innovation, with investment in R&D and technology accelerating the benefits of digital technologies; infrastructure, not only related to digital connectivity but also to transport connectivity and logistics; skills and human capital, as digital skills can strengthen the link between the adoption of digital technology and productivity; sectoral sophistication, as digital technology adoption varies across sectors and sector-level structures, and productivity gains tend to be greater for sectors with standardised, routine-intensive activities; and organisation capabilities, including managerial abilities, which can magnify productivity gains (OECD et al., 2020<sup>[1]</sup>).

Having a strong innovation system is critical to making the most of the digital transformation and promoting productivity growth, yet the Dominican Republic underperforms in this area. R&D investment is low: the country reported R&D investment of 0.01% of GDP in 2015, lower than the LAC (0.7%) and OECD (2.34%) averages in 2018. Beyond the low levels of R&D, the Dominican Republic lacks officially reported data, which complicates the analysis of innovation. The country has two key financing bodies for promoting R&D: the National Fund for Innovation and Scientific and Technological Development (Fondo Nacional de Innovación y Desarrollo Científico y Tecnológico; FONDOCYT) and the National Fund for Agricultural and Forestry Research. In both cases, funding represents less than 0.05% of the budget, far below the share in countries such as Chile (0.4%) and Uruguay (0.35%) (OECD/UNCTAD/ECLAC, 2020<sup>[42]</sup>). Greater efforts in R&D and innovation could boost productivity as well as the quality of production (Pérez, De los Santos and Beinte, 2015<sup>[44]</sup>).

The Dominican Republic’s ICT patent applications under the Patent Cooperation Treaty (PCT) have decreased, ranking below the LAC average (Figure 5.18). Intangible assets such as patents help boost digital innovation in a country and should be prioritised (OECD, 2019<sup>[5]</sup>).

**Figure 5.18. Number of ICT PCT patent applications per 1 million people for the Dominican Republic and selected LAC countries**



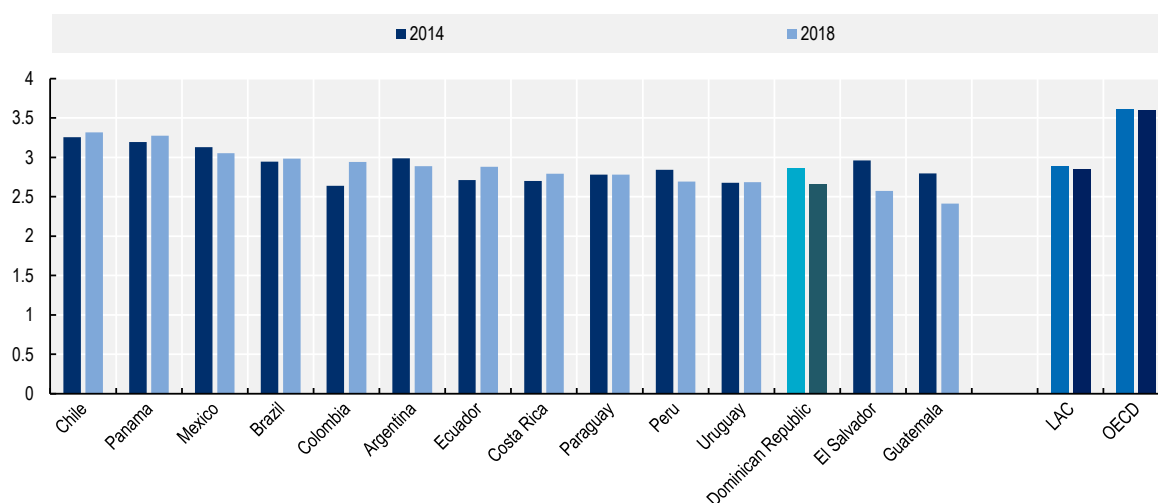
Source: Authors' elaboration based on (WIPO, 2020<sup>[45]</sup>).

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The past few years have seen some growth in the digital economy in the Central America, Panama and the Dominican Republic (CAPARD) sub-region. The digital economy is defined as the portion of total economic production derived from a series of broad digital inputs, such as digital skills, digital equipment and goods, and intermediate digital services used in production. Digital economy revenues amounted to 19% of GDP in the Dominican Republic in 2019, behind only Guatemala (22.5%) in the CAPARD sub-region. Fintech has been particularly important to the growth of the digital economy, growing on average by 23% in the CAPARD sub-region in 2019 and by 27% in the Dominican Republic (IDB, 2020<sup>[46]</sup>) in the same period.

A high-performing logistics system is another critical dimension of building a stronger digital ecosystem that is conducive to productivity growth. The Dominican Republic's score on the Logistics Performance Index has decreased in recent years and is currently below the LAC average (Figure 5.19). Digitalising a country's supply chain is a key component of improving its Logistics Performance Index score. Low levels of digitalisation in the Dominican Republic's land transport industry contribute to the gap between it and the OECD by creating a bottleneck in supply chain efficiency. In addition, land transport is more fragmented in LAC countries and consists primarily of small and medium-sized enterprises (SMEs), which produces further barriers to introducing digital processes as SMEs tend to have low investment capacity and limited implementation of digital technology (CAF, 2020<sup>[47]</sup>).

Figure 5.19. Logistics Performance Index scores, 2014 and 2018



Source: (CAF, 2020<sup>[47]</sup>).

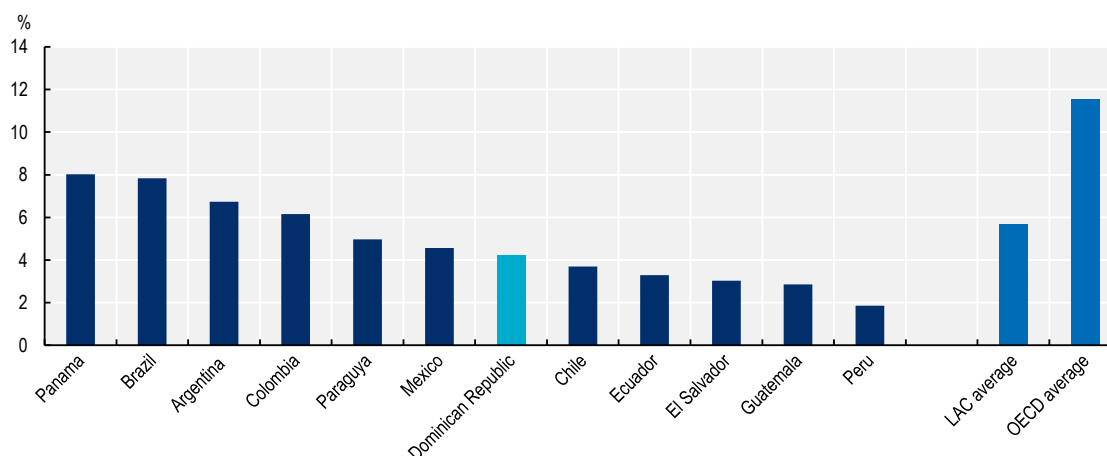
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### ***Moving the digital transformation of the economy forward involves supporting companies in adopting and adapting to new technologies***


Policies must be drafted in order to incentivise all MSMEs – not just those in digitally intensive sectors – to utilise the latest tools brought forth by digital innovation. In order for MSMEs to scale up and eventually internationalise, they will need to invest in in-house innovation, engage in e-commerce and participate in knowledge networks.

The Dominican Republic is below the LAC average for e-commerce use as a proportion of all retail (Figure 5.20). This highlights the low adoption of e-commerce by companies in the Dominican Republic, although adoption has increased slightly during the COVID-19 pandemic. E-commerce is an important component of the digital economy, only behind fintech in terms of percentage of revenues provided. With 22 million users (or 32% of the population) in 2019, demand for e-commerce is high in the CAPARD sub-region. A more developed e-commerce system will also enable companies to tap into regional markets without necessarily having a physical presence in multiple countries (IDB, 2020<sup>[46]</sup>). It is important to note that the UNCTAD B2C E-commerce Index 2020 ranks the Dominican Republic 67<sup>th</sup> overall and 4<sup>th</sup> in the LAC region, indicating that, in general, there is relatively high e-commerce use in the country (UNCTAD, 2020<sup>[48]</sup>).

**Figure 5.20. E-commerce usage as a proportion of all retail in the Dominican Republic, selected LAC countries and the OECD, 2020**

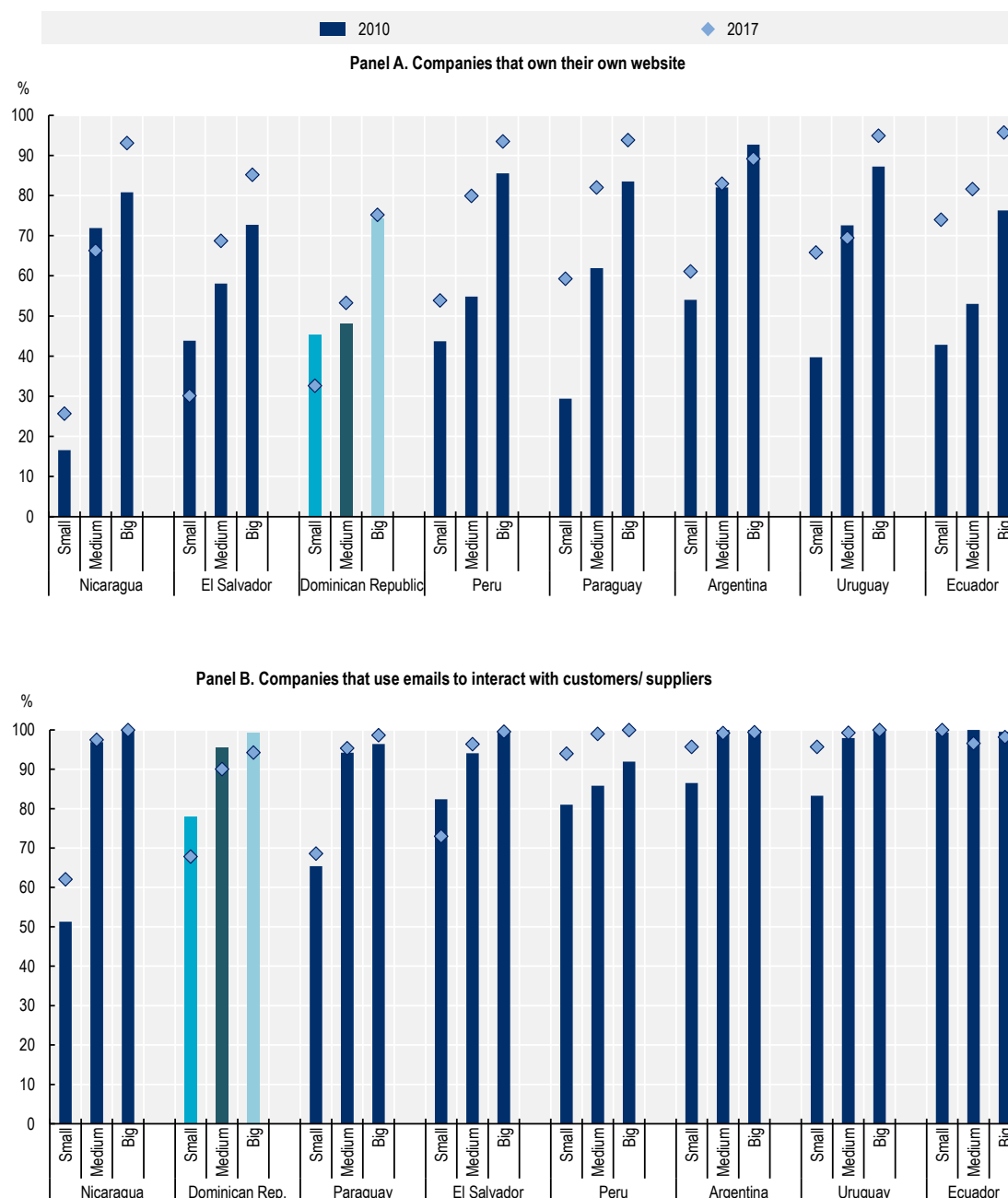


Source: Authors' elaboration based on (CAF, 2020<sup>[47]</sup>).

StatLink  <https://stat.link/6jn5uo>

Like other countries in the LAC region, there is a gap in the Dominican Republic between small and large companies in terms of owning a website and using email to interact with customers; this demonstrates discrepancies in the use of basic technology according to company size. While email has been widely adopted in medium-sized and large enterprises, small companies in the Dominican Republic actually reduced their use of email between 2010 (slightly less than 50%) and 2017 (30%) (Figure 5.21). Appropriate policies are needed in order to close this productivity gap between smaller and larger companies, as research suggests that the productivity paradox could be largely caused by the uneven adoption of technology by companies in a given country (OECD et al., 2020<sup>[1]</sup>). The digital agenda highlights the need to boost the adoption of basic technologies and digital services, especially by MSMEs.

**Figure 5.21. Use of basic digital technology by company size in selected LAC countries, 2010 and 2017**



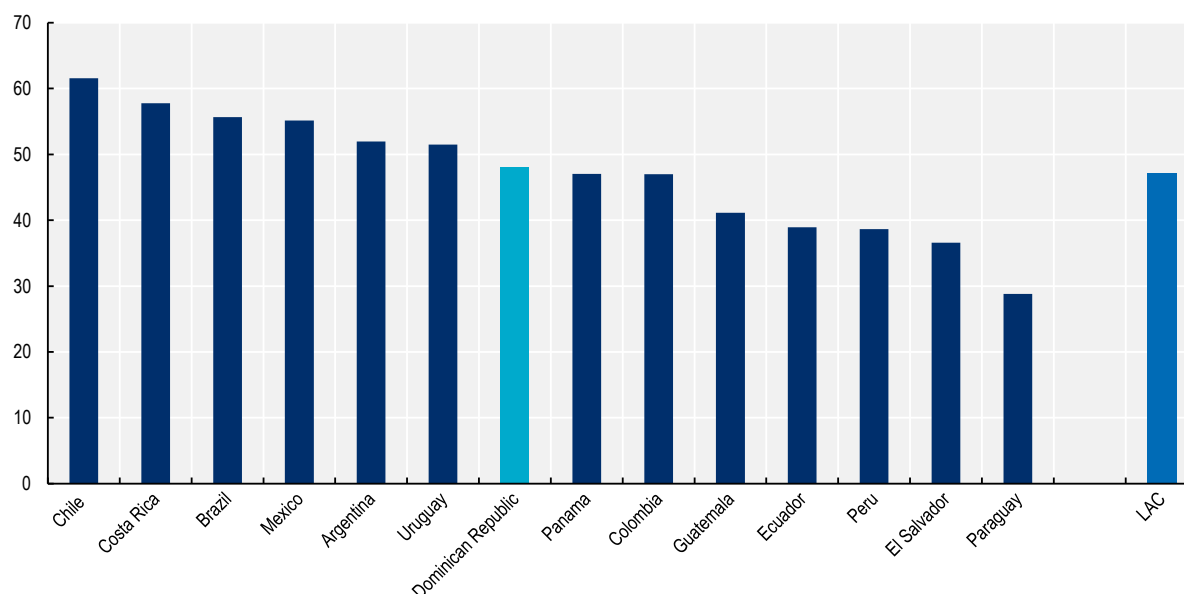
Source: Authors' elaboration based on (World Bank, 2020<sup>[49]</sup>).

StatLink  <https://stat.link/t53jdc>

The overall adoption of emerging technologies in the Dominican Republic is on par with the LAC average, but further policy support is needed in order to boost the adoption of ICT by MSMEs and to facilitate their digital transformation. The availability of cutting-edge technology is a necessary pre-condition for companies to transform themselves and increase their productivity (Figure 5.22).

**Figure 5.22. Adoption of emerging technology**

Adoption of emerging technology



Note: Adoption of emerging technology is measured as the standardised answer concerning the extent to which countries adopt five types of emerging technology (artificial intelligence; robotics; application- and web-enabled markets; big data analytics; and cloud computing) ranging from 1 (not at all) to 7 (to a great extent – on par with the most technologically advanced countries).

Source: Authors' elaboration based on (Network Readiness Index, 2020<sup>[37]</sup>).

StatLink  <https://stat.link/9pgu52>

In order to ensure the productive digital transformation of MSMEs, policy makers must create favourable conditions for the adoption of ICT. These changes include policies that foster ICT investment, skills development and business dynamism. Policies must also address specific challenges faced by MSMEs in the Dominican Republic. Policies that target companies by size must be carefully developed in order to avoid creating a disincentive for smaller companies to scale up. In terms of regulation, this could be seen as an SME choosing to remain small in order to avoid the regulatory burdens that larger enterprises face. Making an exception in certain rules for SMEs in order to facilitate compliance can help foster digital innovation. Finally, policies that raise awareness of opportunities for partnerships between SMEs and larger companies, both domestically and internationally, can help SMEs fully realise their potential (OECD, 2019<sup>[5]</sup>).

### ***The digital transformation for workers: A new world of work***

Digital technologies are deeply transforming the world of work, bringing about numerous opportunities – and challenges – for both companies and employees. The digital transformation affects the world of work in multiple ways, such as by changing the economic and labour market structure. New products, services, forms of production and business models have appeared, benefitting sectors that are related to technology and digital services (OECD, 2019<sup>[50]</sup>). Similarly, new forms of employment are emerging, as digital technologies have allowed the rise of the platform economy and the expansion of the digital economy and have generated new jobs and shifted demand for skills (e.g. to jobs related to ICT, artificial intelligence, big data and machine learning), as well as more flexible and non-standard forms of employment (e.g. teleworking regardless of the physical location of the company) (OECD et al., 2020<sup>[1]</sup>; OECD, 2019<sup>[50]</sup>).

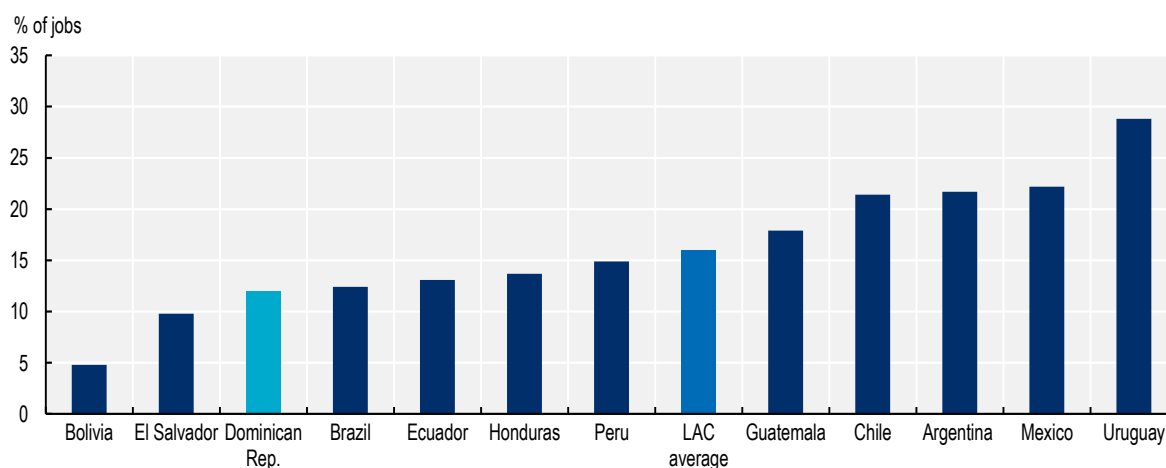


Notwithstanding the opportunities that the digital transformation brings to the world of work, the destruction and creation of jobs associated with it, as well as the shift in the skills demanded, can have a deep socio-economic impact and widen existing inequalities. Digital transformation and new technologies can simultaneously produce substitution and complementarity effects. Whereas routine and easily automated tasks tend to be replaced with technology, new technologies are expected to benefit workers who have the appropriate skills and who can incorporate them into their jobs in order to boost their productivity. The shift in skills demand and the production transformation associated with new technologies can generate a drain of workers from declining occupations and sectors where highly intensive tasks could be easily automated (OECD, 2019<sup>[50]</sup>).

The impact of new forms of employment on the Dominican Republic is uncertain but based on its current economic structure, 12% of jobs are at high risk of automation (OECD et al., 2020<sup>[11]</sup>). This is slightly below the impact on LAC countries overall, where 16% of jobs, on average, are at high risk of automation and another 16% of occupations may change substantially due to the digital transformation (Figure 5.23). The economic structure of the Dominican Republic can explain the limited impact of the digital transformation on jobs. With a large share of employment concentrated in low-skilled services and sectors like retail and construction (see chapter on labour markets), which are not easily automatable, job destruction may be less prevalent. However, this may also indicate low levels of sophistication in the productive structure, with a low penetration of ICT and an inability to shift the production structure towards higher-value-added sectors. This is, to a large extent, similar to what is observed more generally in the LAC region: non-automatable manual occupations have increased (e.g. cleaning staff and other services) and automation has not affected automatable knowledge occupations (e.g. administrative staff), perhaps because new technologies have not yet been implemented in these sectors (IDB, 2019<sup>[51]</sup>).

The impact of the digital transformation on jobs in the Dominican Republic could actually be greater, as technologies do not always affect employment (i.e. by creating or destroying jobs), but may instead transform and/or replace specific tasks within jobs. A job may not disappear, but some of the tasks it involves may be replaced or automated, while other new, more sophisticated tasks may need to be performed manually by a worker. As tasks are disappearing, evolving and emerging, the digital transformation is generating structural changes in the labour market and the demand for skills, for which the Dominican Republic must prepare.

**Figure 5.23. Percentage of jobs at high risk of automation**



Source: Authors' elaboration based on (Weller, Gontero and Campbell, 2019<sup>[52]</sup>).

The degree to which the opportunities presented by new technologies are exploited will depend to a greater or lesser extent on the ability of countries to develop policies that can adapt the world of work to these digital changes and equip workers with the necessary skills to thrive in the digital world.

Two policy areas stand out as particularly relevant to making the digital transformation a catalyst for better jobs. The first is skills: workers need a mix of skills, including strong cognitive and socio-emotional skills, as well as high-level ICT skills in technology-related occupations. The Dominican Republic ranks 106<sup>th</sup> in the world in terms of ICT skills, as shown in the previous section (Network Readiness Index, 2020<sup>[37]</sup>). This is an area where the entire LAC region lags behind, with only one-third of LAC workers using ICT tools, including computers and smartphones, at work at least weekly or more often, compared with one-half of the European workforce (OECD et al., 2020<sup>[1]</sup>).

Apart from digital skills, the digital economy increasingly demands a set of interdisciplinary and transferrable skills for different professions, preparing workers to be able to transition between occupations. These interdisciplinary skills include cognitive skills (such as learning skills) in addition to communication, creativity, critical thinking, teamwork, leadership and presentation skills, which are considered to be transferrable to multiple work contexts and occupations (IDB, 2019<sup>[51]</sup>; OECD, 2019<sup>[50]</sup>).

The second policy area is lifelong learning: these systems can enhance the accessibility and quality of education and provide training and learning opportunities throughout all stages of life, increasing workers' chances of acquiring the required skills to adapt to a rapidly changing labour market. These lifelong learning policies include a variety of formal, informal, on-the-job and unintentional types of learning that can support workers throughout their lives by providing them with the capacity to adapt, as well as with different types of skills, facilitating transitions from one occupation to another (OECD, 2021<sup>[6]</sup>). This will be of particular importance for reskilling adults who lose their jobs and may need specific training to adapt to new demands. While the Dominican Republic has a young population, those aged 50 years or over represented one-fifth (20.5%) of the total population in 2020, and will represent 29% of the total population by 2040 and more than one-third of the total population (33.8%) by 2050 (UN Population Division, 2021<sup>[53]</sup>).

### ***Challenges and opportunities to move from analysis to action***

**Table 5.3. Create a digital ecosystem to boost the development of the digital economy**

Policy recommendation	Challenges and opportunities for implementation
<b>1.1. Enable the use of digital tools and services by MSMEs and favour the emergence of a digital industry:</b>	
Put in place specific public programmes to support MSMEs in the adoption of digital technologies and to better connect with larger companies and global value chains through the use of digital tools.	Lack of productive articulation can be challenging. Facilitating access to ICT goods and services by MSMEs is crucial but not enough: training and technical assistance is fundamental.
Set up mechanisms to identify the demand for skills and, in particular, the emerging needs of the digital economy, in order to inform the development of adapted curricula and educational pathways.	Lack of financing could be a challenge.
Develop specific instruments and incentives for the development of the digital industry in the Dominican Republic.	Fiscal barriers and regulatory barriers are still important.
<b>1.2. Develop a holistic digital ecosystem in order to facilitate the digital transformation of production processes and productivity growth</b>	
Develop a strategic plan to enhance the digital ecosystem as a catalyst for greater productivity and growth, acknowledging that this must include key complementary investments, including in R&D; infrastructure and logistics; and skills and human capital, including organisational and managerial capabilities.	This coordinated perspective is seen as fundamental.

Note: Based on the workshop held in Santo Domingo on 20 June 2022, to discuss this draft and the policy recommendations with representatives from Ministry of Presidency; Ministry of Economy, Development and Planning; Ministry of Education; INDOTEL; OGTIC and CODOPYME.  
Source: Authors' elaboration.

## A strategic vision of the digital transformation: The importance of development planning and the role of a digital agenda

The digital transformation affects and creates opportunities in almost every dimension of public policy. Thus, embracing the digital transformation calls for policies and practices that address digital issues in a holistic and coherent manner. In this context, the success in moving towards a digital economy and society relies greatly on the capacity to develop a clear, ambitious and cross-cutting digital agenda (DA) that is also linked to a country's broader and longer-term development strategy (OECD et al., 2020<sup>[1]</sup>).

The Dominican Republic has benefitted from short- and medium-term digital strategies in the past, in particular the República Digital campaign, the main objectives of which were to improve infrastructure and access, e-government and digital services, skills development, productive development and the facilitation of environmental progress and innovation. In 2021, the Dominican Republic established the Gabinete de Transformación Digital (Digital Transformation Cabinet) to oversee the Digital Agenda 2030.

The Dominican Republic's Digital Agenda 2030 builds on previous digital strategies to address new technological challenges while incorporating a long-term vision that involves all social actors in its design and implementation. It is made up of five main axes: 1) governance and regulatory framework; 2) connectivity and access; 3) education and digital skills; 4) digital government; and 5) digital economy. Each of these axes responds to specific objectives through performance measurement indicators, as well as having a precise course of action to follow. By 2030, the Dominican Republic expects to have reduced the digital divide and ensured access to, and use of, digital technologies in a secure and sustainable environment.

There are several criteria that are relevant for the success of a DA, many of which are reflected in the design of the Digital Agenda 2030. Clear responsibility and adequate implementation powers are crucial for the success of DAs. A high-level body leading the strategy can be particularly helpful in co-ordinating a swift digital transformation. In addition, effective co-ordination among government bodies, beyond ICT-related ministries, is also essential for the implementation of a coherent DA, and must be complemented by a comprehensive data governance framework in order to ensure proper data management throughout the DA's life cycle. Similarly, as the digital transformation is promoted by multiple stakeholders, including businesses, individuals and other non-government stakeholders, it is important to ensure an open multi-stakeholder dialogue, which can help identify obstacles, exchange best practices and create opportunities for public-private partnerships. An effective oversight framework is important for monitoring the implementation of and evaluating DAs. These activities should enable learning and the prioritisation and improvement of policies over time. It is also important that DAs align with national development plans (NDPs) (OECD et al., 2020<sup>[1]</sup>).

The DA does not operate in isolation; rather, it involves close co-ordination with the broader development strategy, in particular with NDPs, the national bandwidth plan and ministry of education projects to improve ICT access and skills for students. The Dominican Republic's NDP has a time horizon of 2030; hence, the fact that the new DA was developed with an equivalent time horizon rather than being associated with the duration of a presidential term is a relevant step forward. However, the NDP was approved in 2011, and many digital challenges and opportunities have significantly evolved since then. In 2016 and 2017, the local, regional and provincial development plans were updated, in many cases citing the importance of creating a digital society (MEPYD, 2016<sup>[54]</sup>). It is therefore important that the Digital Agenda 2030 builds on this work and complements the progress that has already taken place.

Across LAC countries, attention to digital-related policies in NDPs and the level of integration of DAs in NDPs differ. Overall, NDPs in LAC countries focus more on digital policies for productivity enhancement and less on social, institutional and environmental issues (Figure 5.24). The Dominican Republic's National Development Strategy 2030 follows this trend, with a special focus on addressing productivity and social vulnerability concerns. Specifically, the country's NDP emphasises the digital dimension needed in

employment policies and the future of work, i.e. the digitalisation of labour markets and adapting to a new world of work, upgrading skills, and transitioning to more flexible working arrangements and labour market institutions (OECD et al., 2020<sup>[1]</sup>).

**Figure 5.24. Intensity of digital dimensions in NDPs in selected LAC countries, 2019**

	Access and use	Digital infrastructure	Future of work	Digital government	Digital economy	Regional integration
Argentina						
Bolivia						
Brazil						
Chile						
Colombia						
Costa Rica						
Dominican Republic						
Ecuador						
El Salvador						
Guatemala						
Honduras						
Mexico						
Panama						
Paraguay						
Peru						
Uruguay						

Note: This figure was created by compiling a list of keywords for each topic; intensity of topic was calculated based on relative frequency of keywords.

Source: (OECD et al., 2020<sup>[1]</sup>).

### ***Challenges and opportunities to move from analysis to action***

**Table 5.4. Adopt a strategic, well-co-ordinated vision of the digital transformation**

Policy recommendation	Challenges and opportunities for implementation
<b>1.1. Ensure a coherent and holistic approach to the digital transformation, as presented in the Digital Agenda 2030, that is well connected with other national strategies and with the broader National Development Strategy 2030</b>	
Assign clear responsibilities and adequate implementation powers to a high-level body leading the Digital Agenda 2030 (e.g. to the Gabinete de Transformación Digital).	This must be accompanied with clear budget allocations and incentives for articulation.
Ensure effective co-ordination among government bodies (beyond ICT-related ministries); a comprehensive data governance framework; open multi-stakeholder dialogue; and an effective oversight framework.	The Digital Agenda 2030 goes in this direction.
<b>1.2. Strengthen statistical digital capacities</b>	
Enhance the use of digital technologies to improve the collection and use of statistical data and to strengthen their potential to inform public policies (e.g. use of big data).	Technical capacities and financing are two key challenges. Lack of will for co-operation across institutions that produce data is still a barrier.
Develop mechanisms to regularly produce digital indicators that allow monitoring of progress in the Digital Agenda 2030 and a better understanding of emerging challenges and opportunities as the digital transformation continues to advance.	Technical capacities and financing are two key challenges. Lack of will for co-operation across institutions that produce data is still a barrier.

Note: Based on the workshop held in Santo Domingo on 20 June 2022, to discuss this draft and the policy recommendations with representatives from Ministry of Presidency; Ministry of Economy, Development and Planning; Ministry of Education; INDOTEL; OGTIC and CODOPYME.

Source: Authors' elaboration.

## Policy recommendations

### Box 5.1. Policy recommendations

**Policy objective 1: Increase connectivity throughout the Dominican Republic to ensure a successful and inclusive digital transformation**

**1.1 Design policies that continue to increase broadband Internet connections in the Dominican Republic and close the gap with LAC and the OECD:**

- Invest in communication networks, creating the conditions to attract private investment and to foster public–private partnerships.
- Expand the deployment of 4G networks across the country.

**1.2 Reduce gaps in access, particularly in rural areas and across low-income populations, as this is vital to reducing the digital divide:**

- Expand connectivity in rural areas by making full use of existing technologies.
- Expand connectivity through enhanced public networks, particularly in remote or less advantaged areas.
- Subsidise access to the Internet for low-income populations, making use of existing mechanisms such as conditional cash transfers, in order to better identify and target these transfers to vulnerable households.

**1.3 Improve affordability and availability of digital devices and services:**

- Continue to distribute digital devices to students, particularly those from less advantaged socio-economic backgrounds, accompanied by training for both teachers and students.
- Strengthen efforts to distribute digital devices among vulnerable populations, making use of existing mechanisms such as conditional cash transfers.
- Create conditions for affordable access to digital devices and services.

**Policy objective 2: Enhance digital skills and the use of digital tools in the education system and in the transition to the new world of work**

**2.1 Develop digital skills among students and teachers as well as across the adult population:**

- Mainstream digital skills and tools across the education system, starting from early childhood. This should involve engaging the whole community in a debate to reform educational curricula at all levels of education, with the objective of including digital skills as a core educational objective.
- Develop an ambitious programme of training current and future teachers in digital skills and innovative pedagogical methods that are adapted to the needs of the digital society.
- Develop specific programmes to train the adult population in digital skills.

**2.2 Reinforce the availability of digital tools within the education system:**

- Bridge the gap in ICT availability – including online educational resources and platforms, as well as digital devices for teaching and learning – across schools of different socio-economic backgrounds.
- Develop a national map that identifies the needs of schools in terms of connectivity, ICT and digital endowments in order to develop targeted actions in the most disadvantaged areas.

### **2.3 Strengthen linkages between the education system and the emerging digital economy:**

- Strengthen the digital component within the vocational education and training system, as well as in higher education, possibly with specific third-level degrees related to new/emerging professional profiles in the digital economy.
- Develop mechanisms to identify the demand for skills and, in particular, the emerging needs of the digital economy, in order to inform the development of adapted curricula and educational pathways and to favour the transition to the new world of work.

### **Policy objective 3: Create a digital ecosystem to boost the development of the digital economy**

#### **3.1 Enable the use of digital tools and services by MSMEs and favour the emergence of a digital industry:**

- Put in place specific public programmes to support MSMEs in the adoption of digital technologies and to better connect with larger companies and global value chains through the use of digital tools.
- Set up mechanisms to identify the demand for skills and, in particular, the emerging needs of the digital economy, in order to inform the development of adapted curricula and educational pathways.
- Develop specific instruments and incentives for the development of the digital industry in the Dominican Republic.

#### **3.2 Develop a holistic digital ecosystem in order to facilitate the digital transformation of production processes by all companies in order to promote productivity growth:**

- Develop a strategic plan to enhance the digital ecosystem as a catalyst for greater productivity and growth, acknowledging that this must include key complementary investments, including in R&D; infrastructure and logistics; and skills and human capital, including organisational and managerial capabilities.

### **Policy objective 4: Adopt a strategic, well-co-ordinated vision of the digital transformation**

#### **4.1 Ensure a coherent and holistic approach to the digital transformation, as presented in the Digital Agenda 2030, that is well connected with other national strategies and with the broader National Development Strategy 2030:**

- Assign clear responsibilities and adequate implementation powers to a high-level body leading the Digital Agenda 2030 (e.g. to the Gabinete de Transformación Digital).
- Ensure effective co-ordination among government bodies (beyond ICT-related ministries); a comprehensive data governance framework; open multi-stakeholder dialogue; and an effective oversight framework.

#### **4.2 Strengthen statistical digital capacities:**

- Enhance the use of digital technologies to improve the collection and use of statistical data and to strengthen their potential to inform public policies (e.g. use of big data).
- Develop mechanisms to regularly produce digital indicators that allow monitoring of progress in the Digital Agenda 2030 and a better understanding of emerging challenges and opportunities as the digital transformation continues to advance.



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# Multi-dimensional Review of the Dominican Republic

## TOWARDS GREATER WELL-BEING FOR ALL

The Dominican Republic has made strides on many socioeconomic fronts over the years. The country has been one of the leading economies in Latin America and the Caribbean in terms of GDP growth, reaching upper middle-income status in 2011. However, progress on the different dimensions of well-being has been insufficient. In particular, socioeconomic and territorial disparities are still important, and public institutions remain insufficiently solid. For the Dominican Republic to embark on a more prosperous development path, three critical dimensions must be tackled. First, providing quality jobs for all, with particular emphasis on boosting formalisation and productive transformation. Second, mobilising more public and private finance for development, with more progressive and effective taxation systems, more efficient public expenditure and deeper capital markets. Third, accelerating digital transformation to boost productivity, enhance inclusion and support job creation.

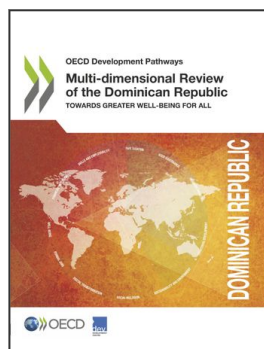


Co-funded by  
the European Union



PRINT ISBN 978-92-64-96154-8  
PDF ISBN 978-92-64-55191-6





From:

## Multi-dimensional Review of the Dominican Republic

Towards Greater Well-being for All

Access the complete publication at:

<https://doi.org/10.1787/560c12bf-en>

### Please cite this chapter as:

OECD (2022), “Achieving digital transformation for inclusive and sustainable development in the Dominican Republic”, in *Multi-dimensional Review of the Dominican Republic: Towards Greater Well-being for All*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/85ea6083-en>

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