PARAGUAY

Recent trends

Paraguay continues to improve in terms of shaping an inclusive digital economy and society. The country has made efforts to enhance digital access for all. Internet users, active mobile broadband and fixed broadband subscriptions increased in the last decade. Paraguay rose in the E-Government Development Index from 0.47 in 2008 to 0.53 in 2018, which is below the Latin America and the Caribbean (LAC) average (0.65) and the Organisation for Economic Co-operation and Development (OECD) average (0.82). The index measures national administrations' willingness and capacity to use information and communications technology (ICT) to deliver public services.

The country is below the LAC average in most of the digital innovation metrics, including R&D expenditures and the share of ICT service imports. However, high-technology exports as a percentage of total manufacturing exports stagnated at around 9.7% between 2008 and 2018, above the LAC average (8.6%). Finally, the UNCTAD B2C E-commerce Index increased between 2015 (43.8) and 2019 (50.5) and is just below the LAC average (51.5).

National strategies and international co-operation for digital transformation

The National Development Plan: Paraguay 2030 and the National Digital Agenda (DA) are the main reference documents for the development and digital policies of the country. The DA aims to achieve digital transformation through three axes: digital inclusion and ICT use, advancement of digital government, and innovation. Digital transformation policies link directly to the development plan's three overarching goals: poverty reduction and social development, inclusive economic growth, and deeper inclusion in the international economy.

Key activities include implementation of Law No. 6207/18, which created the Ministry of Information and Communication Technologies (MITIC). MITIC is the technical entity responsible for the formulation and implementation of public sector ICT plans and projects. It is also the administrative authority responsible for both the social and education aspects of the inclusion, innovation and implementation of technologies. Actions mainly focus on transparency, citizen participation, user rights protection and cybersecurity. MITIC emphasises the importance of the administration of communication infrastructure and the promotion of interoperability of public sector systems. To mitigate the impact of the coronavirus (Covid-19), MITIC is co-ordinating with digital service providers to offer free online access to the Ministry of Public Health and Social Welfare and World Health Organization websites. Users can also call the General Directorate of Health Surveillance for free. MITIC also introduced a digital telemedicine tool for citizens to access information, upload data and communicate with healthcare professionals (CAF, 2020).

In terms of international co-operation, Paraguay receives support from the Inter-American Development Bank to implement the DA. The DA has a six-year implementation plan, which will promote the competitiveness of the economy and the quality of public services to citizens and businesses. Country-level objectives include reducing the transactional costs of access to public services and increasing broadband by extending connectivity and improving quality of services. Paraguay is part of the Better than Cash Alliance, along with Colombia, Mexico, Peru and other countries around the world. The partnership of governments, companies and international organisations aims to accelerate the transition from cash to digital payment to reduce poverty and drive inclusive growth.

Paraguay also collaborates with the European Union (EU) through the EU-Mercosur Association Agreement. In the context of this agreement, Mercosur countries will seek to increase co-operation in digital economy and innovative research. Paraguay also forms part of the Open Government Partnership along with over 70 other countries. The 2018-20 action plan focuses on promoting digitalisation and reducing the digital divide.

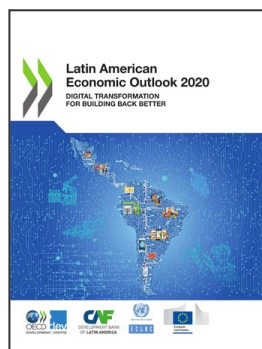|	Digital indicators - Paraguay[1]					
Enhancing access	**Paraguay**		**LAC[2]**		**OECD[3]**	
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
Fixed broadband subscriptions (per 100 inhabitants)[4]	0.21	4.6	4.1	13.9	22.7	32.9
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
Active mobile-broadband subscriptions (per 100 inhabitants)[4]	0.93	57.7	1.8	73.5	29.8	103.6
	2015	**2018**	**2015**	**2018**	**2015**	**2018**
Proportion of population covered by at least 3G network[5]	66.0	97.7	86.1	94.6	98.2	98.8
	2008	**2017**	**2008**	**2017**	**2008**	**2007**
Fixed broadband speed (in Mbit/s)[4]	0.26	3.0	0.58	5.1	2.2	27.7
Strengthening their effective use	**Paraguay**		**LAC**		**OECD**	
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
E-Government Development Index (EGDI)[6]	0.47	0.53	0.52	0.65	0.72	0.82
Share of Internet users (% of population)[4]	14.3	65.0	25.3	67.7	65.0	84.3
	2015	**2019**	**2015**	**2019**	**2015**	**2019**
UNCTAD B2C E-Commerce Index[7]	43.8	50.5	46.4	51.5	73.9	85.0
	2017		**2017**		**2017**	
Share of individuals engaging in online shopping[8]	13.2		14.8		N/A	
Enabling digital innovation	**Paraguay**		**LAC**		**OECD**	
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
High-technology exports (% of manufactured exports)[9]	9.6	9.7	9.3	8.6	15.6	15.1
Share of ICT service imports, as % of total trade in services[7]	0.17	0.08	3.1	3.9	4.6	6.7
	2012	**2016**	**2012**	**2016**	**2012**	**2016**
ICT patent applications filed under the Patent Cooperation Treaty (per million people)[10]	0.04	0.00	0.14	0.34	30.9	38.2
	2008	**2016**	**2008**	**2016**	**2008**	**2016**
R&D expenditures, as % of GDP[11]	0.05	0.15	0.34	0.42	1.8	1.9
	2019		**2019**		**2019**	
OECD OURdata Index[12]	0.52		0.43		0.61	
Ensuring quality jobs for all	**Paraguay**		**LAC**		**OECD**	
	2006-15		**2006-15**		**2006-15**	
Contributions to changes in total employment, by digital intensity of sectors, 2006-16[13]	N/A		6.9		4.8	
	2018		**2018**		**2018**	
Share of informal employment to total employment[14]	70.3		54.9		N/A	
	2007	**2010**	**2007**	**2010**	**2007**	**2010**
Tertiary gross enrolment rate (%)[9]	28.7	34.6	37.5	45.5	66.6	68.8
	2016		**2016**		**2016**	
Tertiary graduates by field (%) - Education[11]	N/A		16.0		9.8	
Tertiary graduates by field (%) - Health[11]	N/A		13.8		14.5	
Tertiary graduates by field (%) - Engineering[11]	N/A		12.5		14.6	
Promoting an inclusive digital society	**Paraguay**		**LAC**		**OECD**	
	2015	**2016**	**2015**	**2016**	**2015**	**2016**
E-waste generated, kilograms per inhabitant[15]	6.1	6.4	6.9	7.2	17.7	17.7
	2015	**2018**	**2015**	**2018**	**2015**	**2018**
Number of students per computer[16]	N/A	N/A	2.4	1.6	1.8	1.1
	2018		**2018**		**2018**	
Percentage of women scoring at Level 2 or 3 in problem solving in technology-rich environments[17]	N/A		7.7		27.7	
Strengthening trust	**Paraguay**		**LAC**		**OECD**	
	2020		**2020**		**2020**	
CAF GovTech Index[18]	3.4		4.4		N/A	
	2016	**2018**	**2016**	**2018**	**2016**	**2018**
Global Cybersecurity Index (ITU)[19]	0.21	0.60	0.36	0.43	0.56	0.79
	2018	**2019**	**2018**	**2019**	**2018**	**2019**
E-commerce safety (%)[20]	N/A	N/A	72.0	63.1	61.7	58.3
Trust in online privacy (%)[20]	N/A	N/A	52.8	54.9	41.7	45.6
Fostering market openness	**Paraguay**		**LAC**		**OECD**	
	2015	**2019**	**2015**	**2019**	**2015**	**2019**
OECD Digital Services Trade Restrictiveness Index[13]	N/A	N/A	0.24	0.24	0.13	0.15
	2018		**2018**		**2018**	
OECD FDI RRI[13]	N/A		0.07		0.06	

Sources, footnotes and technical details can be found at the end of the country notes.

Technical notes

1. The table as best as possible follows the seven key areas identified in the OECD Going Digital project: 1) enhancing access to digital technologies; 2) strengthening their effective use; 3) enabling digital innovation; 4) ensuring quality jobs for all; 5) promoting an inclusive digital society; 6) strengthening trust; and 7) fostering market openness (OECD, 2019a). Indicators are chosen depending on data availability for LAC countries. Potential bias exists from the way components have been aggregated on index indicators.

2. LAC average is a simple average. Composition of countries depends on availability of country data. Each average includes as many LAC countries as possible.

3. OECD average is a simple average that includes all OECD member countries as of May 2020.

4. Data from ITU (2020), *World Telecommunication/ICT Indicators Database 2020* (database). Fixed broadband speed in Mbit/s refers to the advertised maximum theoretical download speed guaranteed to users associated with a fixed broadband Internet monthly subscription.

5. Data from UN Statistics Division, UN Global SDG Database (database). Data for 2015 and 2018 or latest available year.

6. Data from UN E-government Knowledgebase (2019), *Data Center* (database). The E-Government Development Index is a composite indicator that consists of three indexes (Online Service Index, Telecommunication Infrastructure Index and Human Capital Index), which are equally weighted. It ranges from 0 to 1, with 1 being the most developed.

7. Data from UNCTAD (2020), *UNCTADSTAT* (database). The UNCTAD B2C E-commerce Index measures an economy's preparedness to support online shopping. It ranges from 0 to 100, with 100 being the highest support.

8. Own calculations based on data from Latinobarómetro (2019), *Libros de Códigos por País/Año* (database). Data for 2017. Data from public opinion surveys using randomly selected, nationally representative samples.

9. Data from World Bank (2020a), *World Bank DataBank* (database).

10. Data from World Bank (2020b), *TCdata360*. Data for 2012 and 2016 or latest available year.

11. Data from UNESCO (2019), *UNESCO Institute for Statistics* (database). R&D Expenditures, as % of GDP data from 2006 and 2016 or latest available year.

12. Data from OECD (2020a), *OECD.Stat* (database); and OECD (2020b). The OECD OURdata Index assesses governments' efforts to implement open data in three critical areas: openness, usefulness and re-usability of government data. It ranges from 0 to 1, with 1 being the highest score.

13. Data from OECD (2020a), *OECD.Stat* (database). The OECD Digital Services Trade Restrictiveness Index identifies, catalogues and quantifies barriers that affect trade in digitally enabled services across 46 countries. It ranges from 0 to 1, with 1 being the most restrictive. The Foreign Direct Investment Regulatory Restrictiveness Index (FDI RRI) measures four types of statutory restrictions on foreign direct investment: 1) foreign equity restrictions; 2) screening and prior approval requirements; 3) rules for key personnel; and 4) other restrictions on the operation of foreign enterprises. The FDI RRI is a composite index, which ranges from 0 to 1, with 1 being the most restrictive.

14. Data from ILOSTAT, data from 2018 or latest available year.

15. Data from the Global E-waste Statistics Partnership.

16. OECD calculations based on OECD (2020c), *Programme for International Student Assessment* (database). Data for 2015 and 2018.

17. Data from the OECD (2019d), *Survey of Adult Skills (2018)*. Percentages for problem solving in technology-rich environments are computed so that the sum of percentages for the following mutually exhaustive categories equals 100%: opted out of the computer-based assessment; no computer experience; failed ICT core test; below Level 1, at Level 1, at Level 2 and at Level 3.

18. Data from CAF (2020), *The GovTech Index 2020: Unlocking the Potential of GovTech Ecosystems in Latin America, Spain and Portugal*. The GovTech Index 2020 measures the maturity of the GovTech ecosystem. It is based on 28 indicators across 7 dimensions, which on aggregate form 3 equally weighted pillars: start-up industry, government policies and procurement systems.

19. The Global Cybersecurity Index measures countries' commitment to cybersecurity at a global level. It has five pillars: 1) legal measures; 2) technical measures; 3) organisational measures; 4) capacity building; and 5) co-operation. It ranges from 0 to 1, with 1 being the highest level of cybersecurity.

20. Data from The Economist Intelligence Unit (2019), *EIU Inclusive Internet Index* (database). Indicators present perceived e-commerce safety and trust in online privacy among randomly sampled individuals in selected countries. It ranges from 0% to 100%, with 100% indicating absolute confidence in e-commerce safety and trust in online privacy.

References

CAF (2020), *The GovTech Index 2020: Unlocking the Potential of GovTech Ecosystems in Latin America, Spain and Portugal*, Development Bank of Latin America, Caracas.

ECLAC (2018), *Observatorio Regional de Planificación para el Desarrollo de América Latina y el Caribe* (Regional Observatory of Planning for Development of Latin America and the Caribbean), Economic Commission for Latin America and the Caribbean, Santiago, https://observatorioplanificacion.cepal.org/es.

The Economist Intelligence Unit (2019), *EIU Inclusive Internet Index 2019* (database), the Economist Group, London, https://theinclusiveinternet.eiu.com/explore/countries/performance (accessed 11 December 2019).

Global E-waste Statistic Partnership, website, Global E-waste Statistic Partnership, Bonn, https://globalewaste.org/ (accessed 11 December 2019).

ILO (2019), *ILO Statistics* (database), International Labour Organization, Geneva, www.ilo.org/global/statistics-and-databases/lang--en/index.htm (accessed 11 December 2019).

ITU (2020), *World Telecommunication/ICT Indicators Database 2020* (database), International Telecommunication Union, Geneva, https://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx (accessed 21 August 2020).

Latinobarómetro (2019), *Libros de Códigos por País/Año* (database), Latinobarómetro, Providencia, www.latinobarometro.org/latCodebooks.jsp (accessed 11 December 2019).

OECD (2020a), *OECD.Stat* (database), OECD Publishing, Paris, https://stats.oecd.org/ (accessed 11 December 2019).

OECD (2020b), *Government at a Glance: Latin America and the Caribbean 2020*, OECD Publishing, Paris, https://doi.org/10.1787/13130fbb-en.

OECD (2020c), *Programme for International Student Assessment* (database), OECD Publishing, Paris, www.oecd.org/pisa/data/2018database/ (accessed 14 February 2020).

OECD (2019a), *Measuring the Digital Transformation: A Roadmap for the Future*, OECD Publishing, Paris, https://doi.org/10.1787/9789264311992-en.

OECD (2019b), *OECD Reviews of Digital Transformation: Going Digital in Colombia*, OECD Publishing, Paris, https://doi.org/10.1787/781185b1-en.

OECD (2019c), *Digital Government Review of Panama: Enhancing the Digital Transformation of the Public Sector*, OECD Digital Government Studies, OECD Publishing, Paris, https://doi.org/10.1787/615a4180-en.

OECD (2019d), *Survey of Adult Skills*, OECD Publishing, Paris, https://www.oecd.org/skills/piaac/data/.

Open Knowledge Foundation (2019), *Global Open Data Index* (database), Open Knowledge Foundation, Cambridge, United Kingdom, https://index.okfn.org/dataset/ (accessed 19 April 2020).

PIAAC Expert Group in Problem Solving in Technology-Rich Environments (2009), "PIAAC Problem Solving in Technology-Rich Environments: A Conceptual Framework", *OECD Education Working Papers*, No. 36, OECD Publishing, Paris, https://doi.org/10.1787/220262483674.

UN E-government Knowledgebase (2019), *Data Center* (database), United Nations Department of Economic and Social Affairs Public Institutions, New York, https://publicadministration.un.org/egovkb/en-us/Data-Center (accessed 11 December 2019).

UN Statistics Division (2018, 2015), *UN Global SDG* (database), United Nations Department of Economic and Social Affairs, New York, https://unstats.un.org/sdgs/indicators/database/ (accessed 20 May 2020).

UNCTAD (2020), *UNCTADSTAT* (database), United Nations Conference on Trade and Development, Geneva, https://unctadstat.unctad.org/EN/ (accessed 11 December 2019).

UNESCO (2019), *UNESCO Institute for Statistics* (database), UNESCO, Paris, http://data.uis.unesco.org/Index.aspx (accessed 20 May 2020).

World Bank (2020a), *DataBank* (database), World Bank Group, Washington, DC, https://databank.worldbank.org/home.aspx (accessed 11 December 2019).

World Bank (2020b), *TCdata360* (database), World Bank Group, Washington, DC, https://tcdata360.worldbank.org/ (accessed 4 August 2020).

World Economic Forum (2016), "The Global Information Technology Report 2016", World Economic Forum, Geneva, https://www.weforum.org/reports/the-global-information-technology-report-2016.

World Wide Web Foundation (2017), *OpenData Barometer* (database), World Wide Web Foundation, Geneva, https://opendatabarometer.org/ (accessed 19 April 2020).

From:

Latin American Economic Outlook 2020
Digital Transformation for Building Back Better

Access the complete publication at:
https://doi.org/10.1787/e6e864fb-en