CHILE

Recent trends

In the last decade, Chile has strengthened trust in digital technologies. In 2019, perceived e-commerce safety (73.1%) and trust in online privacy (59.6%) were above averages in Latin America and the Caribbean (LAC) (63.1% and 54.9%) and the Organisation for Economic Co-operation and Development (OECD) (58.3% and 45.6%). Performance in the Global Cybersecurity Index improved but remains below the OECD average. The country made progress in digital inclusion: Internet users and active mobile broadband and fixed broadband subscriptions increased.

Chile has the most mature digital ecosystem in LAC for start-ups catering to the public sector in the *Corporacion Andina de Fomento GovTech* index, which measures the development of the start-up industry, government policies and procurement systems. In terms of promoting an inclusive digital society, the number of students per computer fell from 1.7 in 2015 to 1.1 in 2018, which is in line with the OECD average (1.1) and below the LAC average (1.6). A gap persists in digital innovation metrics: high-technology exports represented 6.4% of total manufactured exports in 2018, compared with averages in LAC (8.6%) and the OECD (15.1%).

National strategies and international co-operation for digital transformation

The 2020 digital agenda (DA) *Chile Digital para Tod@s* (Digital Chile for everybody) is the main reference document for the digital transformation of the country. It looks at technology as a means to reduce inequalities, open new and better development opportunities, and advance human rights. The DA is based on six objectives: respecting human rights related to the Internet and information and communications technologies (ICTs); achieving universal connectivity; using ICT to improve quality of life; contributing to expanding the digital economy; using digital technologies for quality education; and supporting policies for the digital transformation that have a multi-sectoral approach.

Related policies include Law No. 21.180 of 2019 on the Digital Transformation of the State, which aims to digitalise and modernise public institutions' administrative procedures. Chile launched *ClaveÚnica* (SingleKey) in 2012, a state authentication system, used by more than 5 million Chileans in 2020, allowing access to public services on line with a unique identification number. Chile introduced the Cybersecurity Policy in 2018. Under the National Artificial Intelligence (AI) Policy, to be launched in 2020, the development and use of AI tools will empower citizens. The policy has three pillars: enabling factors (i.e. human capital, communication infrastructure and data); development and use of AI; and ethics, regulation and socio-economic impacts. The policy is being developed by an expert and an intergovernmental committee, along with a wide and unique participation process, including self-convocated roundtables, regional workshops, virtual meetings and a public consultation. To respond to the coronavirus (Covid-19) crisis on aspects related to telecommunications, the government launched the *Plan Solidario de Conectividad* (Solidarity connectivity plan), which allows families with limited resources to connect to the Internet for free. The Ministry of Education, along with the Ministry of Transport and Telecommunications, is promoting a plan that provides 3 million students with free access to education sites through mobile devices. The online platforms cater to students in pre-kindergarten to grade 4 (CAF, 2020).

Among Chile's initiatives, *Tu Empresa en Un Día 2.0* (Your firm in one day) is a digital platform, developed in 2013, to encourage entrepreneurship and facilitate firm registration. It allows entrepreneurs to carry out transactions in the lifecycle of firms in one place. *Estado Cero Filas* (Government without queues) aims to eliminate unnecessary public transactions and digitalise at least 80% of transactions by 2021 and 100% by 2023. Public institutions will be restricted from requesting citizen information that they already possess, encouraging interoperability within public administration. The Ministry of Economy, Development and Tourism's Digitalise your SME programme assists small and medium-sized enterprises (SMEs) to increase sales, lower costs and improve customer and supplier relations through digital technologies. *Hospital Digital* (Digital Hospital) consists in the digitalisation of the health-care system, with plans to offer e-health services and access to information on past medical examinations, vaccines and patient files through an electronic health record system.

In terms of international co-operation, Chile, New Zealand and Singapore finalised negotiations of the first Digital Economy Partnership Agreement in January 2020. The objective is to establish basic rules on digital trade and a friendly framework for ICT firms to enable more SMEs to enter the global economy.

Chile also collaborates with the European Union (EU) on High Performance Computing (HPC) as part of the European Commission's Future and Emerging Technologies programme. HPC initiatives develop technology and solutions to improve performance in scientific applications and services. It will identify key application areas and hardware and system requirements, identify international funding schemes and promote exchange of best practices between the EU and research communities in Chile and other LAC countries.

Digital indicators - Chile[1]						
Enhancing access	**Chile**		**LAC[2]**		**OECD[3]**	
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
Fixed broadband subscriptions (per 100 inhabitants)[4]	8.5	17.4	4.1	13.9	22.7	32.9
	2009	**2018**	**2009**	**2018**	**2009**	**2018**
Active mobile-broadband subscriptions (per 100 inhabitants)[4]	3.6	91.6	1.8	73.5	29.8	103.6
	2015	**2018**	**2015**	**2018**	**2015**	**2018**
Proportion of population covered by at least 3G network[5]	90.0	95.0	86.1	94.6	98.2	98.8
	2008	**2017**	**2008**	**2017**	**2008**	**2007**
Fixed broadband speed (in Mbit/s)[4]	1.0	30.0	0.58	5.1	2.2	27.7
Strengthening their effective use	**Chile**		**LAC**		**OECD**	
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
E-Government Development Index (EGDI)[6]	0.58	0.74	0.52	0.65	0.72	0.82
	2008	**2017**	**2008**	**2017**	**2008**	**2017**
Share of Internet users (% of population)[4]	37.3	82.3	25.3	62.9	65.0	83.4
	2015	**2019**	**2015**	**2019**	**2015**	**2019**
UNCTAD B2C E-Commerce Index[7]	60.3	67.0	46.4	51.5	73.9	85.0
	2017		**2017**		**2017**	
Share of individuals engaging in online shopping[8]	17.5		14.8		N/A	
Enabling digital innovation	**Chile**		**LAC**		**OECD**	
	2008	**2018**	**2008**	**2018**	**2008**	**2018**
High-technology exports (% of manufactured exports)[9]	6.8	6.4	9.3	8.6	15.6	15.1
Share of ICT service imports, as % of total trade in services[7]	3.64	4.14	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]	0.52	0.82	0.14	0.34	30.9	38.2
	2007	**2016**	**2007**	**2016**	**2007**	**2016**
R&D expenditures, as % of GDP[11]	0.31	0.36	3.7	0.42	1.7	1.9
	2019		**2019**		**2019**	
OECD OURdata Index[12]	0.41		0.43		0.61	
Ensuring quality jobs for all	**Chile**		**LAC**		**OECD**	
	2006-15		**2006-15**		**2006-15**	
Contributions to changes in total employment, by digital intensity of sectors, 2006-16[13]	12.1		6.9		4.8	
	2018		**2018**		**2018**	
Share of informal employment to total employment[14]	29.3		54.9		N/A	
	2007	**2017**	**2007**	**2017**	**2007**	**2017**
Tertiary gross enrolment rate (%)[9]	54.0	88.5	37.5	60.5	66.6	74.3
	2016		**2016**		**2016**	
Tertiary graduates by field (%) - Education[11]	15.1		16.0		9.8	
Tertiary graduates by field (%) - Health[11]	21.5		13.8		14.5	
Tertiary graduates by field (%) - Engineering[11]	15.5		12.5		14.6	
Promoting an inclusive digital society	**Chile**		**LAC**		**OECD**	
	2015	**2016**	**2015**	**2016**	**2015**	**2016**
E-waste generated, kilograms per inhabitant[15]	8.3	8.7	6.9	7.2	17.7	17.7
	2015	**2018**	**2015**	**2018**	**2015**	**2018**
Number of students per computer[16]	1.7	1.1	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]	12.4		7.7		27.7	
Strengthening trust	**Chile**		**LAC**		**OECD**	
	2020		**2020**		**2020**	
CAF GovTech Index[18]	5.4		4.4		N/A	
	2016	**2018**	**2016**	**2018**	**2016**	**2018**
Global Cybersecurity Index (ITU)[19]	0.38	0.47	0.36	0.43	0.56	0.79
	2018	**2019**	**2018**	**2019**	**2018**	**2019**
E-commerce safety (%)[20]	70.8	73.1	72.0	63.1	61.7	58.3
Trust in online privacy (%)[20]	46.0	59.6	52.8	54.9	41.7	45.6
Fostering market openness	**Chile**		**LAC**		**OECD**	
	2015	**2019**	**2015**	**2019**	**2015**	**2019**
OECD Digital Services Trade Restrictiveness Index[13]	0.26	0.26	0.24	0.24	0.13	0.15
	2018		**2018**		**2018**	
OECD FDI RRI[13]	0.06		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).