

# THE DIGITAL SPRINTERS: THE CASE OF CHILE

“ CHILE COULD UNLOCK AN ADDITIONAL USD96 BILLION OF ECONOMIC IMPACT FOR 2030 THROUGH SUPPORTIVE POLICIES THAT ENABLE FULL UTILIZATION OF DIGITAL TECHNOLOGIES. ”

Globally, there has been a large increase in policy focus on the digital transformation of economy, society and government. This has led to significant uptakes in internet penetration (as evidenced by rising internet use). For example, from 2010 until 2017 Chile has successfully brought an additional 37 percent of its population online.<sup>1</sup> Initiatives likely to have contributed to this include the Chilean government’s “Agenda Digital Imagina Chile (2013-2020)” plan launched in 2013 which involved the installation of more telecommunication infrastructure and expanding internet networks throughout the community, targeting to increase internet penetration to reach 80 percent of homes nationally by 2020.<sup>2</sup> Going forward however, more than providing access to the internet may likely be required to fully leverage digital technologies for economic development. Chile could capture a potential annual (year-on-year) economic impact of up to **USD96 billion in 2030** through supportive policies that enable full utilization of digital technologies.<sup>3</sup> Given the need to rebuild

economies following the impact of COVID-19, the importance of capturing this potential digital dividend becomes ever more crucial. This research by economic strategy firm AlphaBeta (commissioned by Google) aims to understand how emerging economies can fully take advantage of digital technologies to achieve gains in economic development. The report focuses on 16 important emerging economies (which we dub the “Digital Sprinters”). These economies are Argentina, Brazil, Chile, Colombia, Egypt, Israel, Kenya, Mexico, Nigeria, Peru, Saudi Arabia, South Africa, Russia, Turkey, the United Arab Emirates and Ukraine. Together, these “Digital Sprinters” account for 13 percent of GDP, 16 percent of population and 19 percent of internet users globally.

Based on this research, a number of insights across the Digital Sprinters emerged, that are of relevance to Chile and are summarized in this document. More details can be found in the full report.<sup>4</sup>

1. Based on World Bank, World Development Indicators.

2. Chilean Promotion Bureau (2013), “Chile launches plan to double Internet penetration by 2020”. Available at: <https://www.prochile.gob.cl/importers/news/chile-launches-plan-to-double-internet-penetration-by-2020/>

3. These estimates refer to the value generated by 39 technology applications across 10 sectors in 2030, quantified based on a “Full adoption” scenario (i.e. 100 percent adoption). This implies that these ten sectors will become “Digital leaders” with significant leap-frogging. A “Full adoption” scenario is unlikely to be realistic but useful as a thought experiment and to frame the total opportunity.

Estimates do not represent GDP or market size (revenue), but rather a combination of economic impacts such as productivity gains, increased revenues and cost savings. The relevant technology applications by sector and their sources of value (e.g. reduced wastage in production, enhanced consumer offerings) were identified based on a detailed review of the academic literature. The exact sizing methodology is unique to each of the 39 technology applications, but estimates use a series of international and country-specific case studies for each technology application to quantify estimates. Across the 39 estimations economic indicators sourced from international organizations such as the World Bank, International Labor Organization, OECD and national statistics offices were used.

Detailed data sources and estimation methodologies for each of the 39 applications are listed in the Appendix to the main report, linked here <https://alphabeta.com/our-research/the-digital-sprinters-capturing-a-us34-trillion-through-innovative-public-policy/>

4. This research was prepared by AlphaBeta for Google. All information in this summary and the main report was derived from AlphaBeta analysis using both proprietary and publicly available research, data and information. Google does not endorse any estimates.

In Chile, as in most of the Digital Sprinters, fast growth in internet penetration has not translated into a faster pace of economic growth.

Historically, economic growth in Chile has not kept pace with internet adoption. For example, since 2013, Chile's internet population has grown by 10.5 percent annually, but real GDP has only increased by 2.2 percent annually.<sup>5</sup> Labor productivity has also only risen by 1.0 percent annually during this same period.

If the transition from digital penetration to economic growth could be fully leveraged, digital technologies could transform economic development in Chile.

The research identifies eight groups of digital technologies with significant potential to enhance economic development. In the hypothetical scenario where applications based on the eight digital technologies in ten sectors are fully adopted, the combined annual economic impact in Chile could reach up to **USD96 billion in 2030**, which is about 22 percent of the country's estimated GDP in 2030 (see Exhibit 1). It is important to note that these benefits of digital technologies do not only the ICT or "tech" sector. In fact, about 46 percent of the **potential benefits of digital technologies accrue to traditional sectors, namely resources, infrastructure, and agriculture**. Globally and across the Digital Sprinters, firms have developed innovative applications of technology in these sectors that could capture this opportunity. In Chile, TIMining helps mining companies develop "digital twins" of their mining operations, driving efficiency.<sup>6</sup> Israel's ag-tech sector, is world leading on precision farming which can lead to drastic yield improvements.<sup>7</sup>

12 policy levers linked to four strategic imperatives are crucial to go beyond digital penetration and capture the digital benefits linked to economic development.

A review of impactful, innovative and practical digital policies identified a number of important levers for capturing the digital-led economic development opportunity (see Exhibit 2).

While it is unlikely that all 12 policy levers will be applicable to the Chilean context, a number of innovative policy levers could be considered.

#### POLICY LEVER 1:

##### ESTABLISH PLATFORMS TO INTERACT AND CROWD-SOURCE INNOVATION

Innovations to improve government services can come from anyone and anywhere; governments should engage and empower citizens to participate in this process. Chile could leverage the success of its world-leading Start-Up Chile (SUP) program to not only focus on building entrepreneurship in the private sector; but develop public service solutions and drive innovation in government.<sup>8</sup> One such example is Bangladesh's "Innovation for All (a2i)" fund. The fund provides financing for home-grown innovations to leverage digital innovation to solve policy problems.<sup>9</sup> Chile is already taking such an approach in its National AI Policy. Chile's Artificial Intelligence Policy and an Action Plan for 2020 will include initiatives in three main areas<sup>10</sup>: i) To promote and develop AI enabling factors which include advanced human capital, optic fiber networks, computational Infrastructure, large datasets; ii) To strengthen and connect all the stakeholders involved in the development and usage of AI; iii) To discuss and reach consensus about ethics, standards, cybersecurity and regulation between the private and public sectors.

#### POLICY LEVER 2:

##### INTRODUCE DIGITAL BOOTCAMPS

Short-term, focused education courses, which are run by employers can be crucial to fill in necessary skill gaps. For example, the "Generation Program" focuses on four sectors with teaching facilities in 119 cities in six continents. The program is offered to 18- to 29-year-olds.<sup>11</sup> Among the program's features are direct contact with potential employers, matching trainee attributes with employer needs, continuous monitoring and support during and after the program, and a strong alumni network. Since its inception, 31,600 people have gone through the training with 80 percent finding jobs within three months of finishing the program.<sup>12</sup> Employers also rate program graduates as higher performing than their peers.<sup>13</sup> Where attempts at such bootcamp based interventions can fall short is when national (or international) programs fail to focus on the local job market context and opportunities. Further, if the effort is led by one dominant local employer, the skills taught can end up being too firm-specific and non-transferrable.

**TO BE CONTINUED ON PAGE 4**

5. Based on World Bank, World Development Indicators.

6. Austmine (2019), "AI in the Chilean Mining Industry" Available at: <http://www.austmine.com.au/News/ai-in-the-chilean-mining-industry>

7. Leichman (2019), "The top 12 ways Israel is feeding the world", Israel 21c. Available at: <https://www.israel21c.org/the-top-12-ways-israel-feeds-the-world/>

8. Forbes (2018), "Start-Up Chile's Impact 2010-2018: Inside The Revolutionary Startup Accelerator",

Available at: <https://www.forbes.com/sites/jonathanmoed/2018/11/19/start-up-chiles-impact-2010-2018-inside-the-revolutionary-startup-accelerator/#1721df6bd5>

9. A2i "Innovation Lab is changing the scenario," Available at: <https://a2i.gov.bd/innovation-lab/>

10. OECD AI Public Policy Observatory (2019), Artificial Intelligence Working Plan. Available at: <https://oecd.ai/dashboards/policy-initiatives/2019-data-policy/initiatives-24840>

11. Generation Program (2019). Available at: <https://www.generation.org/>

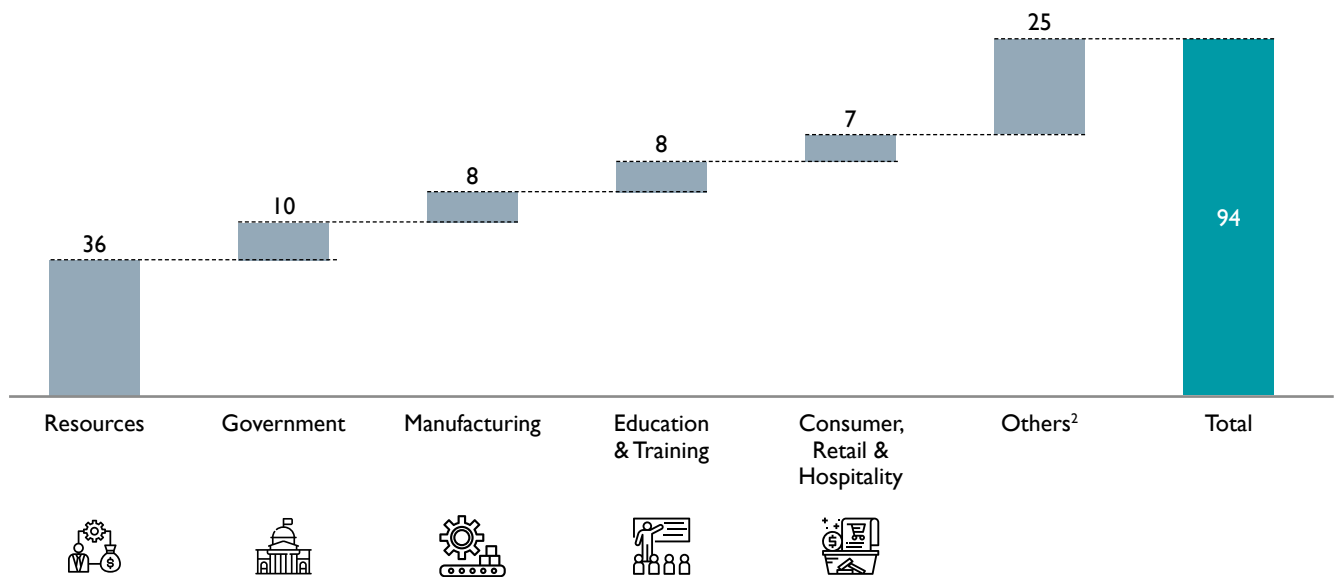
12. Generation Program (2019). Available at: <https://www.generation.org/>

13. Asia Philanthropy Circle (2017), Catalysing productive livelihood: A guide to education interventions with an accelerated path to scale and impact.

Available at: <http://www.edumap-indonesia.asiapphilanthropycircle.org/wp-content/uploads/2017/11/APC-Giving-Guide-Book-Final-Report-17112017.pdf>

## EXHIBIT 1: THE VALUE OF DIGITAL TECHNOLOGIES

## POTENTIAL ANNUAL ECONOMIC IMPACT IN THE FULL ADOPTION SCENARIO

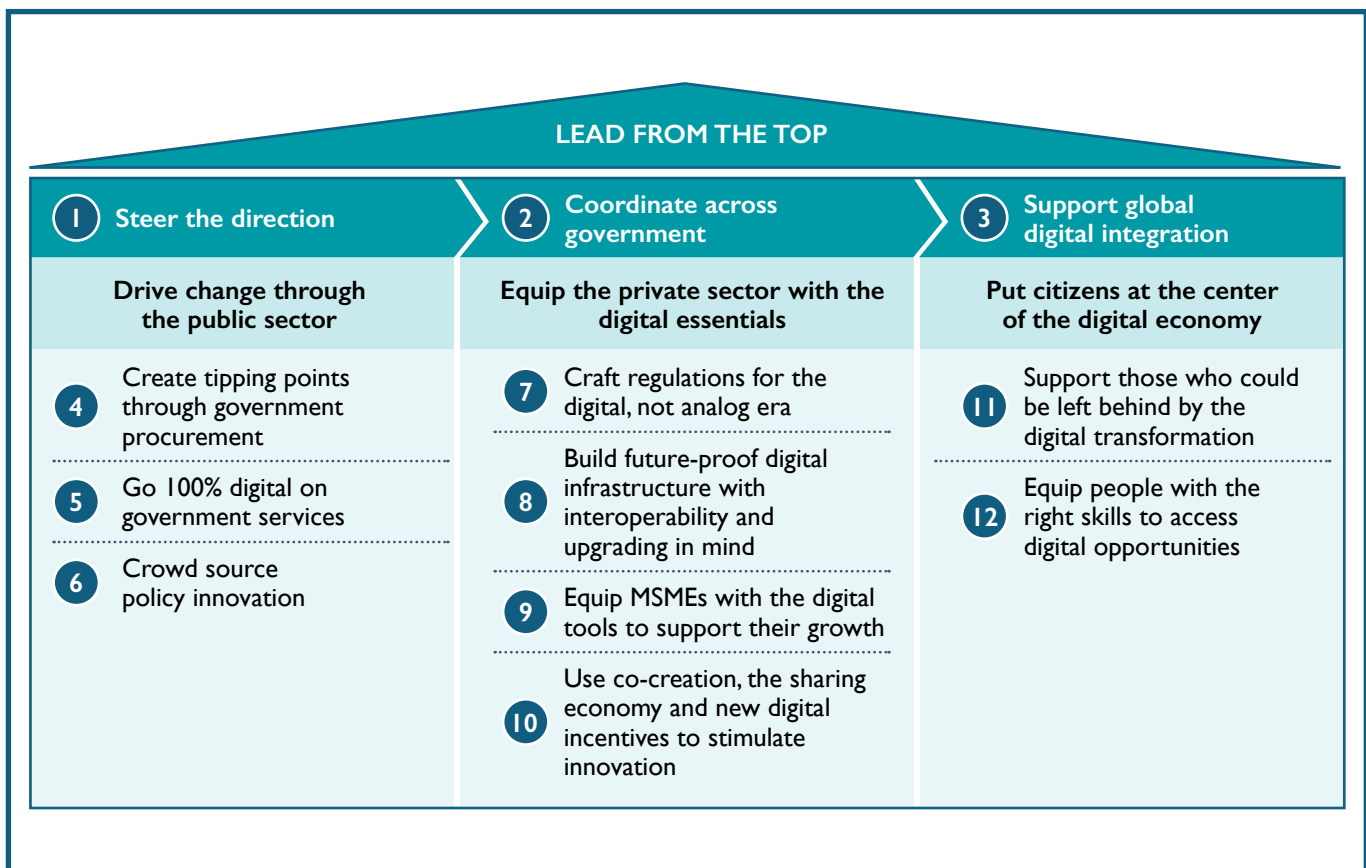
USD BILLION, 2030 (HIGH-END ESTIMATES)<sup>1</sup>

1. These estimates do not represent GDP or market size (revenue), but rather economic impact, including GDP increments, productivity gains, cost savings, time savings, increased revenues, increased wages and increased tax collection.

2. Others include Agriculture & Food; Financial Services; Health; Infrastructure, and Mobility.

SOURCE: AlphaBeta analysis

## EXHIBIT 2: POLICIES TO CAPTURE THE VALUE OF DIGITAL TECHNOLOGIES



While it is unlikely that all 12 policy levers will be applicable to the Chilean context, a number of innovative policy levers could be considered.

### POLICY LEVER 3:

#### DEVELOP DIGITAL TRANSFORMATION (INNOVATION) CENTERS AND MODEL (LEARNING) FACTORIES

These refer to physical places where entrepreneurs, business owners, researchers and innovators can come to try their hands at new technologies and digital applications. Often such places also provide training and skills development. Turkey, for example, has rolled out digital transformation centers where MSMEs can receive experimental training and consultancy services in real production environments.<sup>14</sup> Successfully implementing such initiatives requires strong industry engagement to ensure they see the benefits of the collaboration, a rigorous approach in identifying the key technologies and sectors to focus on, and must use clear frameworks governing the use of the intellectual property generated. Other examples of such initiatives include Chile's Digital Extension Centers and Germany's Mittelstand 4.0 Competence Centers.<sup>15</sup>

### POLICY LEVER 4:

#### LEVERAGE CLOUD COMPUTING FOR EFFICIENCY GAINS ACROSS THE GOVERNMENT

Cloud technology, in particular cloud storage and cloud computing power, is an enabling technology that could be utilized for different applications. Cloud computing technologies across government could lead to significant efficiency gains and cost savings for governments' ICT budgets. Cloud computing has also been leveraged in the planning and running of cities, often referred to as Smart Cities.<sup>16</sup> For example, Rio de Janeiro has begun to implement smart solutions to improve urban planning and operations.

### POLICY LEVER 5:

#### BE CLEAR ON WHO IS THE LEAD AGENCY IN EACH STRATEGY

It is important that there are clear government agency leads for different aspects of the digital agenda. Some of the common success factors include clear leadership from the highest levels of government and finding ways for different departments to lead relevant elements. In Chile, the Production Development Corporation (CORFO) leads the country's digital transformation undertaking all coordination efforts with different government bodies, for example with those overseeing the different industry sectors prioritized for I4.0.<sup>17</sup>

### POLICY LEVER 6:

#### DIGITIZE PAYMENTS TO CREATE INCENTIVES FOR ADOPTION AND PLUG LEAKAGES

Governments around the world are increasingly allowing for online and mobile payment methods for government services and distributions. Doing so can drive top-down adoption of FinTech products in the population which can reduce the cost of and handling carrying cash. Finally, using digital payments allows for better tracking and more efficient collection of payments which can reduce leakages. Chile already has the right infrastructure in place. Estimations by the Inter-American Development Bank using data from the Latinobarómetro suggest that completing a government transaction in Chile takes about 2.2 hours on average, the best time among countries in Latin America and the Caribbean.<sup>18</sup> However, adoption could be strengthened as the same study suggests that only 11 percent of the population started their last government transaction online and only 7 percent completed their last transaction digitally end-to-end.<sup>19</sup> One successful example is how Mexico introduced mandatory e-invoicing for all businesses in 2015, obligating businesses to issue electronic invoices to customers and retain digital records. The Monterrey Technology Institute estimates that this has led to growth in income tax collected, with 6 percent for collections from businesses and 21 percent from individuals.<sup>20</sup>

14. Gunes and Sahin (2018), "Turkey to establish digital transformation centers", Anadolu Agency.

Available at: <https://www.aa.com.tr/en/economy/turkey-to-establish-digital-transformation-centers/1258349>

15. OECD's and World Bank's The Innovation Policy Platform.

Accessible here: <https://www.innovationpolicyplatform.org/www.innovationpolicyplatform.org/digital-innovation-seizing-policy-opportunities/index.html>

16. IDB (2018), Cloud Computing: Opportunities and Challenges for Sustainable Economic Development in Latin America and the Caribbean.

Available at <https://publications.iadb.org/en/cloud-computing-opportunities-and-challenges-sustainable-economic-development-latin-america-and>

17. UNIDO (2018), You say you want a revolution: Strategic Approaches to Industry 4.0 in Middle-Income Countries.

Available at: <https://www.unido.org/api/loptext/documents/download/10031392/unido-file-10031392>

18. OECD (2019), Digital Government in Chile – A Strategy to Enable Digital Transformation. Available at: <https://www.oecd-ilibrary.org/docserver/177157e4-en.pdf?expires=1597564323&id=id&accname=guest&checksum=7E1FC6ECECBD977D4DD6E12CF25CAB15>

19. IDB (2018), Wait No More: Citizens, Red Tape and Digital Government.

Available at: [https://publications.iadb.org/publications/english/document/Wait\\_No\\_More\\_Citizens\\_Red\\_Tape\\_and\\_Digital\\_Government\\_Caribbean\\_Edition.pdf](https://publications.iadb.org/publications/english/document/Wait_No_More_Citizens_Red_Tape_and_Digital_Government_Caribbean_Edition.pdf)

20. OECD (2017), Technology tools to tackle tax evasion and tax fraud. Available at: <https://www.oecd.org/tax/crime/technology-tools-to-tackle-tax-evasion-and-tax-fraud.pdf>

FOR MORE DETAILED INFORMATION ON THE RESEARCH,  
PLEASE REFER TO THE FULL REPORT AT:

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