



THE DIGITAL SPRINTERS

Boosting exports through
digital technologies

October 2022

A Digital Sprinters focus report – Commissioned by Google

A Digital Sprinters¹ focus report – Commissioned by Google

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The financial figures in this report are estimated in US dollars. Conversions, where applicable, are based on the average exchange rates for the period from December 2020 to December 2021, unless otherwise stated.

1. Digital Sprinters is a framework for harnessing the digital transformation of emerging markets (EMs) into sustainable, inclusive growth that could ultimately have tremendous ramifications on the global economic balance of power. The concept of "Digital Sprinters" recognizes that—with the right strategies— EMs have tremendous potential to leapfrog more established markets. It's not a question of 'if' but rather where, when, and which markets.



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THE DIGITAL SPRINTERS

The US\$140 billion export opportunity from digital technologies

DIGITAL TECHNOLOGIES BOOST EXPORTS THROUGH THREE CHANNELS



Creating new exportable digital solutions

e.g., App developers, on average, **EARN 71% OF THEIR REVENUES** from app users abroad, facilitated by app distribution platforms such as Google Play



Reducing costs of access to overseas markets

e.g., Global digital advertising platforms increase export revenues of Latin American¹ firms by **US\$7.2 BILLION ANNUALLY**

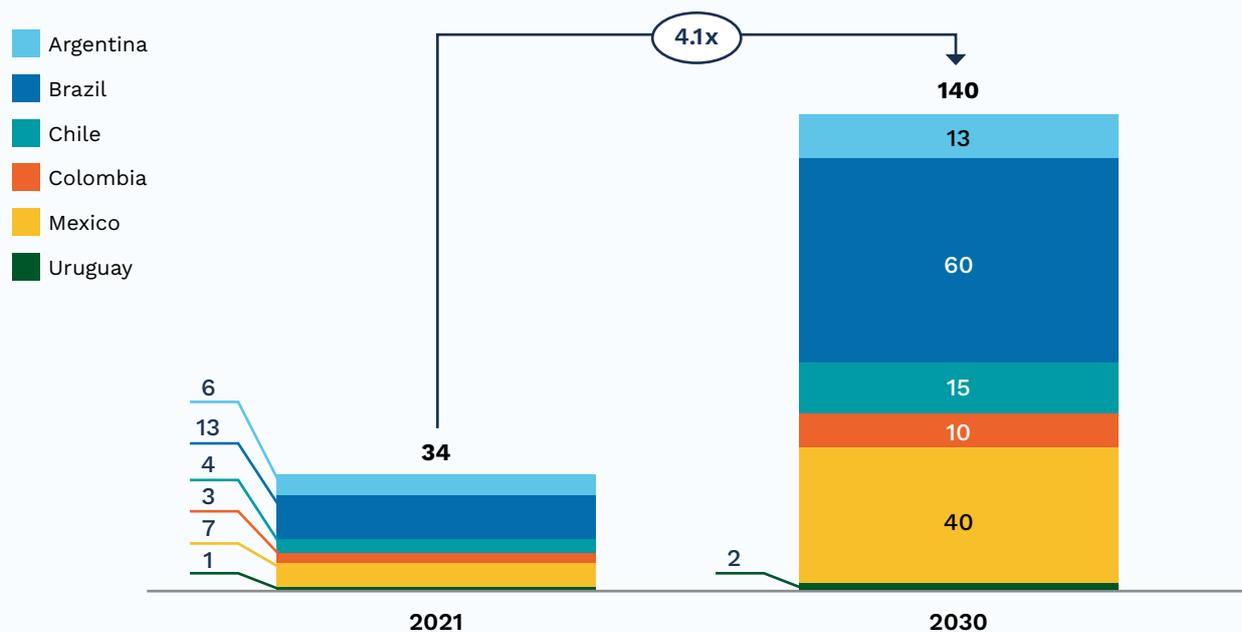


Supporting efficiency in exporting processes

e.g., E-invoicing is estimated to bring about cost savings in exporting processes ranging from **8-39%**

“SIZE OF THE PRIZE” FOR EXPORTS DUE TO DIGITAL TECHNOLOGIES, US\$ BILLIONS

Six key economies¹ in Latin America are already experiencing a **US\$34 BILLION** boost to their annual export value from digital technologies (**0.8%** of the total GDP in 2021), but this value could quadruple to reach **US\$140 BILLION** in 2030²



1. The six countries are Argentina, Brazil, Chile, Colombia, Mexico and Uruguay.

2. This is a conservative estimate as it does not include all the efficiency benefits that digital technologies can bring to export-related industries (e.g., through better tracking of goods in transit through Internet of Things technology). In addition, the 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only and will likely be much higher if we used global best-in-class countries as a reference point.

11 POLICY LEVERS CAN FOSTER A CONDUCIVE POLICY ENVIRONMENT TO CAPTURE THIS POTENTIAL BENEFIT

Legend | ● General enabler of digital technologies ● Critical enabler of digital exports



Lead from the top

● 1. Steer the direction

● 2. Coordinate across government

Build physical capital

- 3. Build future-proof digital infrastructure to facilitate e-payment and logistics
- 4. Enhance access to Internet

Develop human capital

- 5. Bridge digital skills gaps related to exports among public officials and wider population
- 6. Develop training programs for businesses to leverage digital tools for exports



Strategic imperatives for supporting exports through digital technologies

Enable technology usage

- 10. Facilitate adoption of digital tools amongst businesses, especially MSMEs
- 11. Lead the way in terms of adoption of digital technologies

Enhance competitiveness

- 7. Implement robust and clear regulatory frameworks for data storage, use and transfer
- 8. Promote digital security and build trust among businesses and consumers
- 9. Implement trade facilitation measures and policies, including border and documentary compliance



EXECUTIVE SUMMARY

“ THIS REPORT AIMS TO ADDRESS THIS GAP, WITH A FOCUS ON SIX LATIN AMERICAN ECONOMIES (ARGENTINA, BRAZIL, CHILE, COLOMBIA, MEXICO, AND URUGUAY). IT FINDS THAT FOR ALL SIX ECONOMIES, DIGITAL EXPORTS PRESENT A SIGNIFICANT US\$140 BILLION ANNUAL OPPORTUNITY BY 2030: EQUIVALENT TO 2.1 PERCENT OF THEIR 2030 PROJECTED NOMINAL GROSS DOMESTIC PRODUCT (GDP). ”

The digital economy is creating new large export markets for businesses, and digital technologies are also helping to lower the costs of exporting, particularly for micro, small, and medium-sized enterprises (MSMEs). Such firms tend to be disproportionately affected by trade barriers, resulting in reduced incentives to export.² As such, accelerated digitalization in recent years has enabled them to reap benefits such as reduced barriers to entry to overseas markets and the diversification of trade channels due to the adoption of data-driven solutions. But just how big this impact is on exports is still largely a mystery as national statistics have failed to keep pace with the rapid evolution of the digital economy. This report aims to

address this gap, with a focus on six Latin American economies (Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay). It finds that for all six economies, digital exports present a significant **US\$140 billion** annual opportunity by 2030: equivalent to 2.1 percent of their 2030 projected nominal gross domestic product (GDP). This is a conservative estimate as it does not include all of the efficiency benefits that digital technologies can bring to export-related industries (e.g., through better tracking of goods in transit through Internet of Things technology). This report also draws on international lessons to help inform how Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay can capture this large export opportunity.

2. ECLAC (2021), Digital and sustainable trade facilitation in Latin America and the Caribbean. Available at: https://repositorio.cepal.org/bitstream/handle/11362/47370/1/S2100582_en.pdf

Among the report's key findings:

Digital technologies boost exports through three channels:

1 Creating new exportable digital solutions.

Digital technologies have given rise to a range of new digital solutions that can be exported abroad. These include mobile applications, online video services, and digital services such as data processing rendered to overseas customers. For instance, Google Play has allowed application developers across Latin American economies to create new applications and make them available to a global mobile user base. In Brazil, the Brazilian Games Export Program was launched in 2022 to promote and support Brazilian app and game developers on app platforms so that they can reach the international stage.³

2 Reducing costs of access to overseas markets.

These include increases in the exports of goods and services through cross-border digital platforms (e.g., e-commerce) and cross-border digital advertising. For example, Google advertising tools allow MSMEs to advertise to an international audience that they would otherwise be unable to tap into, enhancing demand for Latin American products, content, and services. At the same time, ad publishers can earn additional income as Google AdSense helps match paid ads to their sites based on site content and visitors. Meanwhile, retail solutions such as Google Merchant Center (GMC) and Google Market Finder help local firms identify new international export opportunities.

3 Supporting efficiency in exporting processes.

There are various examples of how technologies can do this, such as paperless trade, emails and machine translations, machine-to-machine (M2M) tracking of exported goods, and the application of Internet-of-Things (IoT) technologies in ports. Cloud computing platforms can provide the compute, storage, database, and analytics capabilities needed to make use of the huge volume of data from these applications and drive resultant efficiencies. For instance, Google Cloud for supply chain and logistics provides solutions for customers to create digital supply chain platforms. This enables firms to leverage data to build more resilient supply chains that are able to respond to external risks by analyzing real time events.⁴ For MSMEs, this provides an easy-to-use and affordable way to manage and streamline logistics, making the process of exporting much simpler. In addition, the use of digital technologies in the agricultural sector can also build food security in the region by easing logistical bottlenecks and reducing food wastage.

3. Games Press (2021), "Brazil Games Ready to Kick off 2022 in Style with 25 Studios Headed to GDC", Available at: <https://www.gamespress.com/brazil-games-ready-to-kick-off-2022-in-style-with-25-studios-headed-to->

4. Google Cloud webpage (n.d.), "Google Cloud for supply chain and logistics". Available at: <https://cloud.google.com/solutions/supply-chain-logistics>

Exports facilitated by digital technologies are expected to more than quadruple by 2030 for the six focus economies in Latin America.

The six economies are already experiencing a US\$34 billion boost to their annual export values from applying digital technologies (about 0.8 percent of their combined GDPs). 64 percent of this comes from the reducing costs of access to overseas markets through digital advertising and e-commerce platforms which lowers costs (channel 2) while the remaining comes from the creation of new digital solutions (channel 1). This is a conservative estimate as it does not include the increased efficiency in exporting processes (channel 3) that has resulted

from the adoption of digital technologies. Google has contributed significantly to unlocking the benefits of digital technologies for exports, with its digital products representing 13 percent of the export boost in 2021.⁵ By 2030, this overall export opportunity can potentially quadruple to reach US\$140 billion given the growth in the digital economy and the opportunity for these countries to capture further upside. In particular, MSMEs are expected to see greater benefits given that they tend to lag larger firms, both in levels of digitalization and exports.

11 policy levers linked to five strategic imperatives are crucial for capturing the technology-enabled export opportunity among the focus countries.

Based on a review of international best practices and the current performance of each of the focus countries, several lessons have emerged to help capture the opportunity. Five strategic imperatives and 11 policy levers are crucial to capturing the export opportunity. The policy levers are actionable items that policymakers can consider in order to boost their country's digital export opportunity, and their detailed descriptions can be found in the Appendix section of this report. The five strategic imperatives and corresponding policy levers are:

STRATEGIC IMPERATIVE 1: LEAD FROM THE TOP.

This strategic imperative includes two policy levers: 1) Steer the direction, and 2) Coordinate across government.

Having a clear roadmap for digital transformation that effectively coordinates sectors with strong public and private sector champions is crucial. From the outset, governments can benefit from defining a clear plan, roadmap, or national strategy for digital transformation, covering key topics such as digital trade. A good example is Brazil, which issued an encompassing national Digital Transformation Strategy (E-digital) in 2018. The top-down policy framework established the Digital Government Secretariat, under the Ministry of Economy and Finance and the Modernization of State Secretariat, ensuring that

the suggested initiatives had political support and financial resources to be implemented. The strategy included six thematic axes, one of which ("International Dimension") laid out strategic actions to boost trade exports of goods and services.⁶ As of June 2022, Brazil has made significant progress with about 60 percent of the 3,500 public services becoming online, a 31 percent increase since 2017.⁷

STRATEGIC IMPERATIVE 2: BUILD PHYSICAL CAPITAL.

This strategic imperative includes two policy levers: 1) Build future-proof digital infrastructure to facilitate e-payment and logistics, and 2) Enhance access to the Internet.

To unleash the benefits of Internet-enabled trade, governments must issue policies to guarantee universal access to high-quality broadband and implement measures to tackle handset affordability. Storage and connectivity infrastructure, e.g., through data centers and subsea cables, increase security, reduce latency, and lead the way for further investments by the private sector. It is also worth mentioning the transformative impact that the expansion of 5G will trigger through the optimization of new processes, access to relevant information for decision-making, and enhancement of the end-user experience. In addition, there should be an increased focus on improving the supply chain through digital technologies

5. This estimate of Google's share of contribution to the export boost is calculated using three digital solutions: mobile app exports (Google Play), online video services (YouTube), and increased export revenue facilitated by cross-border digital advertising (Google Ads and AdSense). Refer to the Appendix for more details.

6. Brazil (2018), "Brazilian Digital Transformation Strategy".

Available at: <https://www.gov.br/mcti/pt-br/centrais-de-conteudo/comunicados-mcti/estrategia-digital-brasileira/digitalstrategy.pdf>

7. Inter-American Development Bank (2022), The Quest for Digital Government and the Implications for the Infrastructure & Transportation Sectors.

Available at: <https://blogs.iadb.org/transporte/en/the-quest-for-digital-government-and-the-implications-for-the-infrastructure-transportation-sectors/>



and/or digitalized processes, as well as an enabling framework to support the roll-out of an appropriate e-payments system infrastructure. A good example is the Brazilian digital platform system Pix, launched by the Central Bank in 2020, which enables P2P (peer-to-peer) and P2B (peer-to-business) instant payments. As of 2021, the platform has 118 million confirmed users, representing 55 percent of the population.⁸ Brazil also linked the payment system with important government transactions in support of the population during the COVID-19 pandemic, incentivizing mass adoption of the payment system.

STRATEGIC IMPERATIVE 3: DEVELOP HUMAN CAPITAL.

This strategic imperative includes two policy levers: 1) Bridge digital skills gaps related to exports amongst public officials and the wider population, and 2) Develop training programs for businesses, especially MSMEs, to leverage digital tools for exports.

The lack of digital skills amongst workers and government officials is a particular problem for Latin American economies.⁹ To address this gap, governments must have targeted actions to (i) increase the pool of Information Technology (IT) workers, (ii) equip the wider population with basic digital skills to use the Internet effectively, and (iii) promote specific initiatives to policymakers on how to enable and reap the benefits of digital exports. Indeed, public officials face an increasing number of issues that require extensive knowledge of technology for effective policy making, therefore training which covers different aspects of digital trade policy would enhance their technical knowledge and strengthen ties between political and technical communities. To engage in digital trade, businesses also need to possess a reasonably high level of awareness of the e-commerce and digital trade ecosystems and value chain. A good example is the Colombian program “Vende Digital” implemented by the Ministry of Information and Communications Technologies (MinTIC) which provides support and advice to 10,000 MSMEs and merchants to sell their products through e-commerce platforms.¹⁰ The program is designed to support

8. Ebanx (2021), The Pix revolution in Brazil.

Available at: https://business.ebanx.com/hubfs/ABM/APMs/Pix/English/PIX-Revolution-EBANX-EN.pdf?utm_medium=email&hsenc=p2ANqtz-8ZL7GJJYk9n8vFKKLRTexTal1qDZFMjyUWTOHlbczIC5Ak4J4o_xcA3u5xM4_mklyBMD4ULiOVeF-miKckGll5mU_jpys8u2O171C3av_UFgl3Ybl&hsmi=206763316&utm_content=206763316&utm_source=hs_automation&hsCtaTracking=5529a87a-3179-4fcd-94eb-bf706937d921%7Cf2d4b972-00a6-4aed-a46a-3d880e2cf259

9. OECD (2020), Making the Most of Technology for Learning and Training in Latin America.

Available at: https://www.oecd-ilibrary.org/education/making-the-most-of-technology-for-learning-and-training-in-latin-america_ce2b1a62-en

10. MinTIC (2022), “Cómo inscribirse en ‘Vende Digital’ y llevar su negocio al comercio electrónico”.

Available at: <https://www.mintic.gov.co/portal/inicio/Sala-de-prensa/Noticias/208823 Como-inscribirse-en-Vende-Digital-y-llevar-su-negocio-al-comercio-electronico>



businesses that have little to no experience in digital sales, with the purpose of advancing digital transformation in Colombia.

STRATEGIC IMPERATIVE 4: ENHANCE COMPETITIVENESS.

This strategic imperative includes three policy levers: 1) Implement robust and clear regulatory frameworks for data storage, usage and transfer, 2) Promote digital security and build trust among businesses and consumers and 3) Implement trade facilitation measures and policies.

Firstly, to address unnecessary obstacles to cross-border data flows and guarantee the safe cross-border movement of data, countries need strong privacy protection, interoperable standards and cross-border mechanisms aligned with international best practices. Secondly, governments need policies and international agreements that ensure online consumer and business rights.¹¹ This includes internationally recognized cybersecurity standards that minimize adverse trade

effects¹², adequate consumer protection frameworks and transparent intermediary liability regimes that strike the right balance between encouraging innovation, freedom of expression, privacy, and other user rights. This is important so as to avoid liability rules that may have unintended effects on variables such as prices, terms and conditions, business models, and investments. Finally, international agreements that promote global rules, norms, and standards to digital trade is also a key enabler for digital exports. A good example is the “Digital Economy Partnership Agreement” (DEPA) signed between Singapore, New Zealand, and Chile, which includes provisions that streamline trading procedures through digitizing trading documentation.¹³ Through the DEPA, businesses operating in the three signatory countries can transfer information seamlessly across borders, with the assurance that the data is protected by the relevant security mechanisms and requisite regulations. To maximize the benefits of digital exports, countries need to remain open to cross-border digital solutions and negotiate trade agreements that enable local businesses to use digital tools to reach foreign markets.

11. G20 Insights (2021), “Digital trade: Top trade negotiation priorities for cross-border data flows and online trade in services”. Available at: https://www.g20-insights.org/policy_briefs/digital-trade-top-trade-negotiation-priorities-for-cross-border-data-flows-and-online-trade-in-services/

12. G20 Insights (2021), “Digital trade: Top trade negotiation priorities for cross-border data flows and online trade in services”. Available at: https://www.g20-insights.org/policy_briefs/digital-trade-top-trade-negotiation-priorities-for-cross-border-data-flows-and-online-trade-in-services/

13. Government of New Zealand (2020), “NZ concludes digital economy trade talks with Singapore and Chile.” Available at: www.beehive.govt.nz/release/nz-concludes-digital-economy-trade-talks-singapore-and-chile

STRATEGIC IMPERATIVE 5: ENABLE TECHNOLOGY USAGE.

This strategic imperative includes two policy levers:

1) Facilitate adoption of digital tools among businesses, especially MSMEs, and 2) Lead the way in terms of adoption of digital technologies.

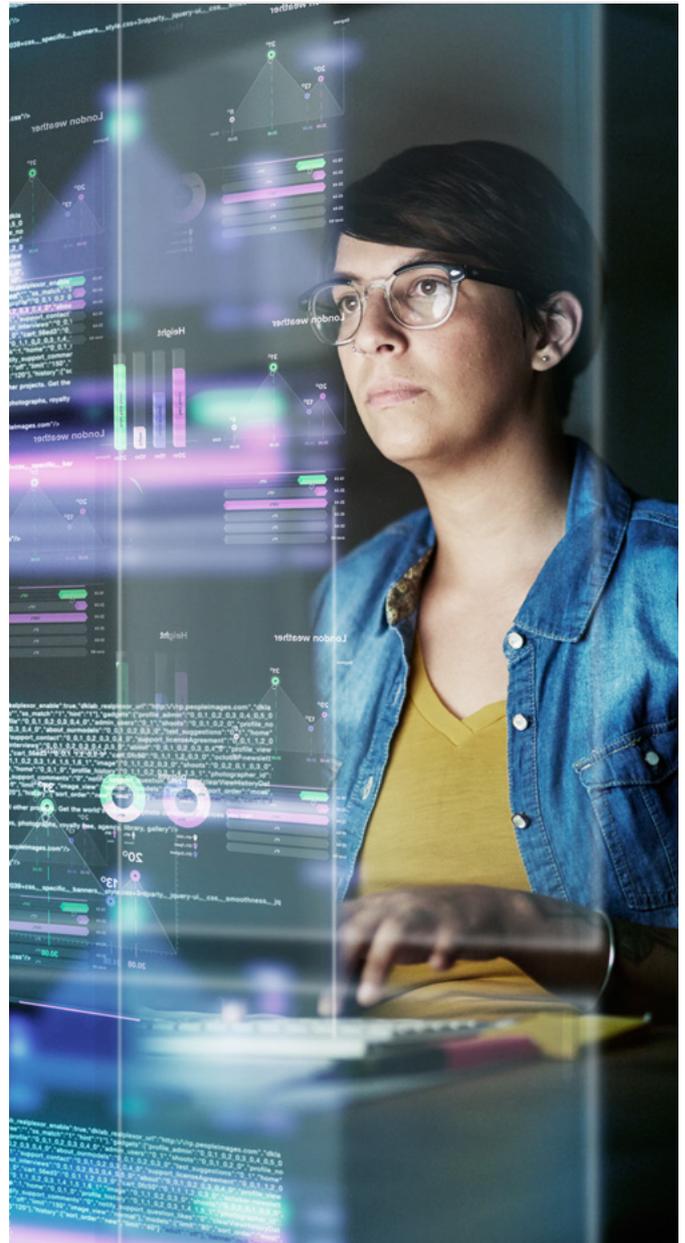
Considering that MSMEs are oftentimes resource-constrained with less extensive IT equipment, digital skills, and managerial and technical skills, governments should promote the diffusion of digital technologies through financial support (such as tax incentives or direct grants for R&D) and non-financial support, such as cooperative research ventures between universities and companies. A good example is Colombia, where individuals and MSMEs that make investments in eligible R&D projects are entitled to deduct 25 percent of the value invested in such projects from their income tax.¹⁴ Such initiatives strengthen the link between research centers and MSMEs, encouraging innovation and productivity growth while bridging the private spending gap. Although all the focus countries have implemented policies and programs to achieve this, public officials should consider further actions to support digital adoption by MSMEs. For example, governments should strive to lead digital transformation efforts, which could be achieved through digitalization of public services or implementing a policy of cloud-first services, which would subsequently stimulate adoption by the private sector.

FOUR POLICY LEVERS STAND OUT AS PARTICULARLY IMPORTANT AMONG THE FOCUS COUNTRIES

As shown in Exhibit E1, among the 11 policy levers, some are more relevant for certain countries than others. For instance, in Argentina, it is urgent for the government to work towards building future-proof digital infrastructure and coordinating efforts across agencies, while Chile needs robust and clear frameworks for data storage, use and transfer.

We have identified four policy levers which are most applicable to the six economies:

- **Policy Lever 3:** Build future-proof digital infrastructure
- **Policy Lever 5:** Bridge digital skills gaps related to exports



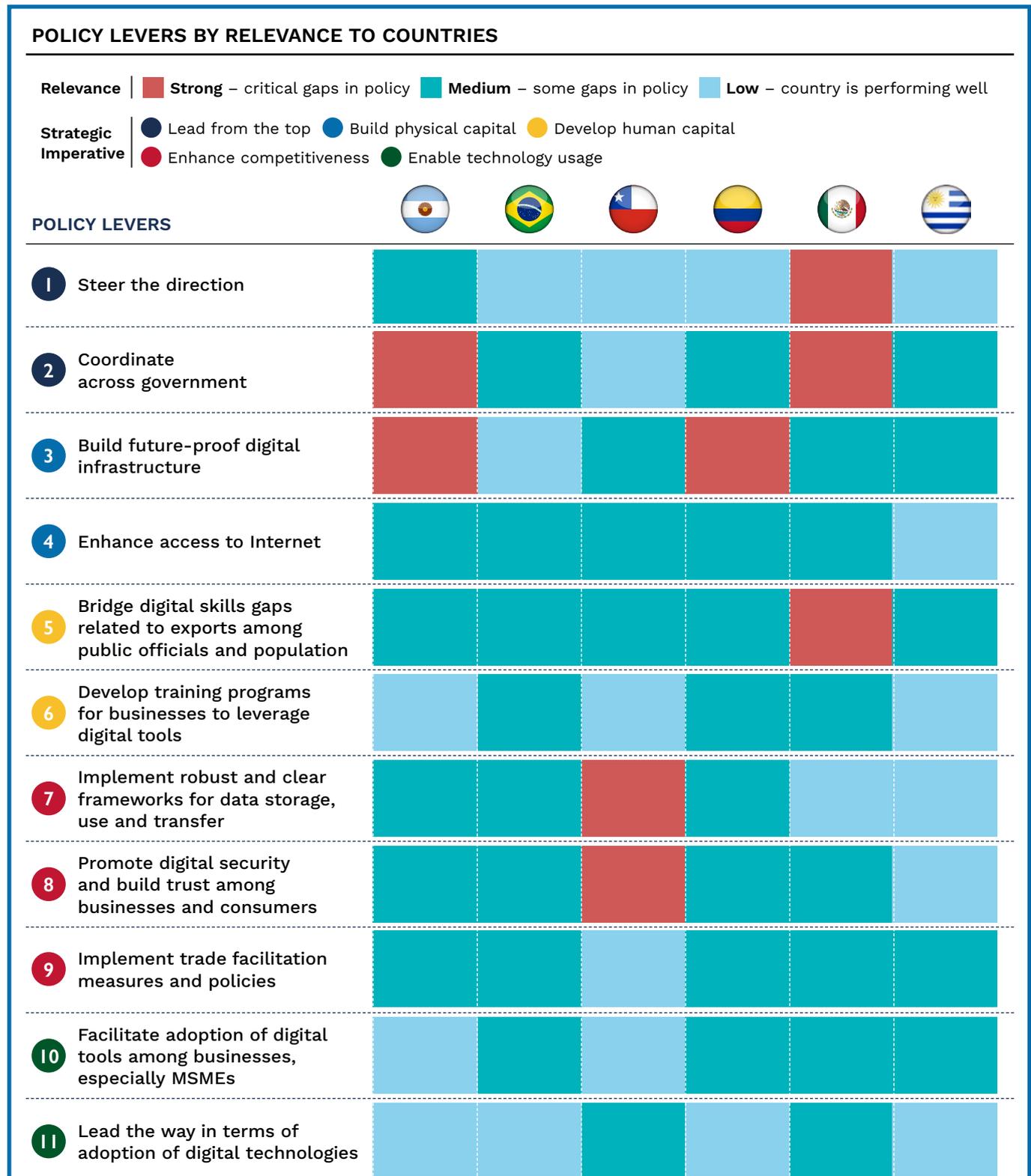
- **Policy Lever 8:** Promote digital security and build trust among businesses and consumers
- **Policy Lever 9:** Implement trade facilitation measures and policies

The above levers were selected based on a policy assessment of the six countries and an analysis of current gaps, that if addressed, would have the greatest potential to boost digital exports. These areas have also been highlighted in AlphaBeta's past work as being particularly important to increasing digital trade and will be elaborated on later in this report.

¹⁴ Bancolombia (2019), "Beneficios tributarios para las pymes". Available at: <https://www.bancolombia.com/negocios/actualizate/legal-y-tributario/beneficios-tributarios-para-pymes>

Exhibit E1:

SOME POLICY LEVERS ARE MORE RELEVANT FOR CERTAIN COUNTRIES THAN OTHERS



SOURCE: Literature review; Expert interviews; AlphaBeta-Access Partnership analysis



BOOSTING EXPORTS THROUGH DIGITAL TECHNOLOGIES

“ THERE ARE THREE CHANNELS THROUGH WHICH TECHNOLOGIES BOOST EXPORTS: BY SPURRING THE CREATION OF COMPLETELY NEW DIGITAL SOLUTIONS, BY REDUCING COSTS OF ACCESS TO OVERSEAS MARKETS, AND BY SUPPORTING THE EFFICIENCY AND TRANSPARENCY OF EXPORT PROCESSES.

”



1. How do digital technologies support exports and what are the potential economic benefits?

page 16

2. How can Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay capture the potential benefits?

page 29

1. HOW DO DIGITAL TECHNOLOGIES SUPPORT EXPORTS AND WHAT ARE THE POTENTIAL ECONOMIC BENEFITS?

Digital technologies are an increasingly important driver of global trade flows. Once dominated by tangible goods, global trade is increasingly going digital, with growth in global goods trade flattening while global data flows have surged (the amount of cross-border bandwidth has grown 45 times since 2005) and are now contributing more to growth than goods trade.¹⁵ Together with improved Internet infrastructures, these growing data flows are strong drivers of trade which are conducted via digital networks. As a result, the share of digital services trade in global services trade has increased significantly over the years, from 20 percent two decades ago to 50 percent in 2018.¹⁶

There are three channels through which technologies boost exports (Exhibit 1): by spurring the creation of completely new digital solutions (e.g., apps, online videos), by reducing costs of access to overseas markets (e.g., through digital advertising tools with global coverage), and by supporting the efficiency and transparency of export processes (e.g., automating trading paperwork, using IoT to track physical cross-border shipments).

There are significant benefits from leveraging digital technologies for exports. It is estimated that Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay are already experiencing a **US\$34 billion** boost¹⁷ to their annual export value from digital technologies (the equivalent of about 0.8 percent of their combined GDPs), driven mostly by cross-border e-commerce and digital services exports. If countries catch up to the 2021 best-in-class (in terms of 2021 performance as a share of GDP) for each component, this value could quadruple to reach **US\$140 billion** by 2030 (Exhibit 2).¹⁸

Google has been instrumental to unlocking this potential opportunity by developing digital products, such as Google Ads and Google Play, to facilitate transactions and activities in these channels. It is estimated that Google products support **US\$4.4 billion** (or 13 percent) of the export benefits in 2021.¹⁹ This is a conservative estimate as it does not include all of the efficiency benefits (Channel 3 in Exhibit 1) that digital technologies can bring to export-related industries (e.g., through better tracking of goods in transit through Internet of Things technology).

15. McKinsey Global Institute (2016), Digital globalization: The new era of global flows. Available at: www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows

16. The World Bank (2021), World Development Report 2021. Available at: <https://wdr2021.worldbank.org/stories/crossing-borders/>

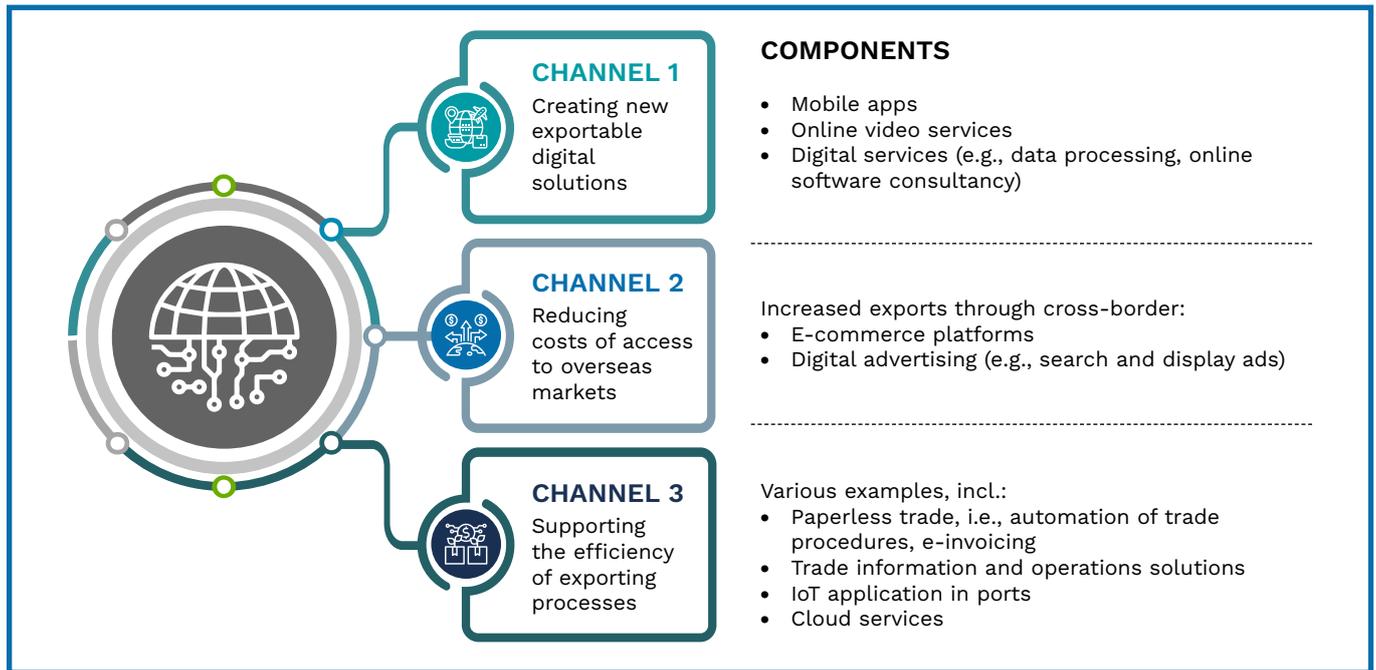
17. Channel 1 (Creating new exportable digital solutions) and Channel 2 (Reducing costs of access to overseas markets) are sized. As there are numerous ways in which technology applications drive efficiencies in the exporting process (e.g., overseas shipping, streamlining trade paperwork), rather than sizing this value (which can turn out to be less than comprehensive), Channel 3 (Supporting the efficiency of exporting processes) is assessed through case studies. Refer to the Appendix for detailed methodology of how each digital solution was sized.

18. This is a conservative estimate as it does not include all the efficiency benefits that digital technologies can bring to export-related industries (e.g., through better tracking of goods in transit through Internet of Things technology). In addition, the 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only, and will likely be much higher if we used global best-in-class countries as a reference point.

19. Only the following three digital solutions were sized for Google: mobile app exports, online videos, and digital advertising. Refer to the Appendix for the detailed methodology of how each digital solution was sized.

Exhibit 1:

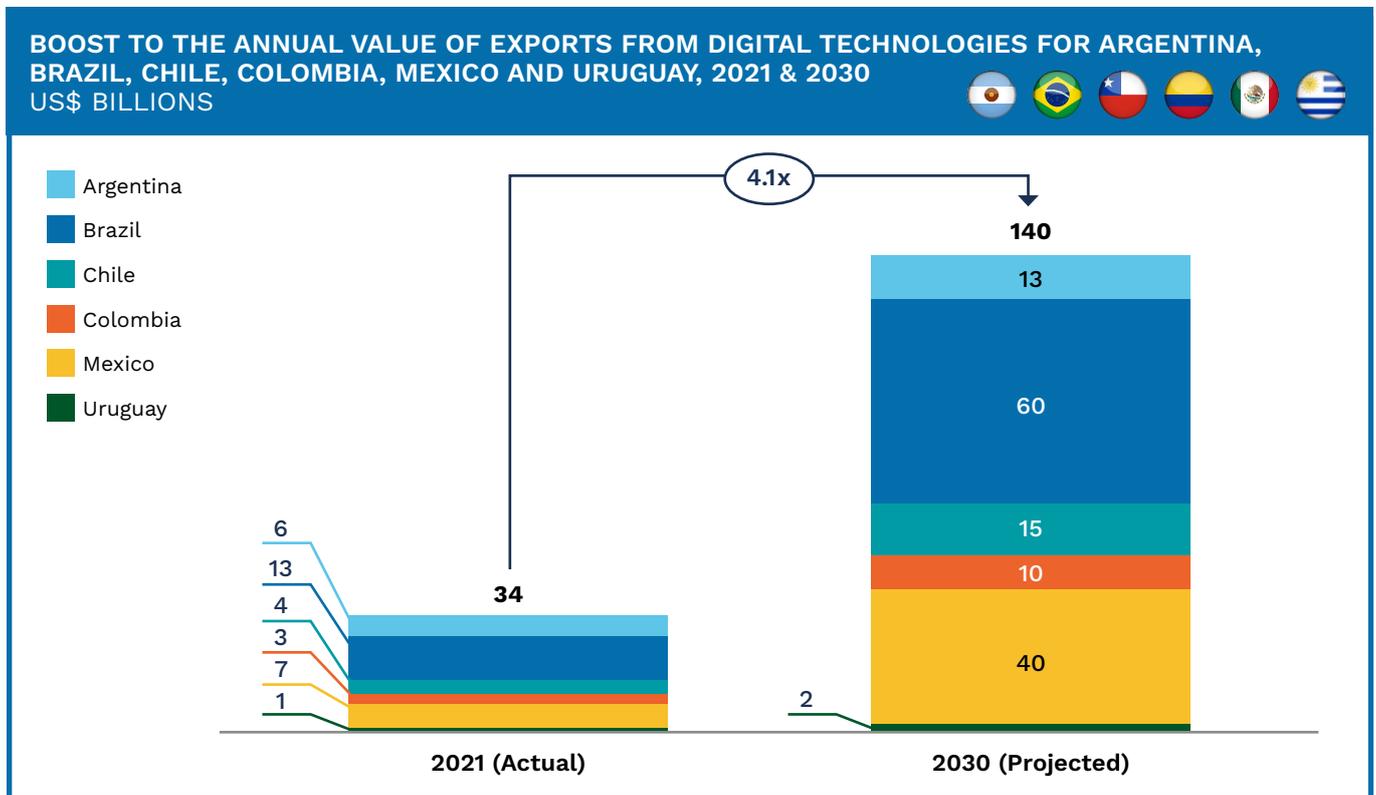
DIGITAL TECHNOLOGIES BOOST EXPORTS THROUGH THREE CHANNELS



SOURCE: AlphaBeta-Access Partnership analysis

Exhibit 2:

BY 2030, THE TECH-ENABLED BOOST TO THE ANNUAL EXPORT VALUE OF THE SIX FOCUS ECONOMIES COULD QUADRUPLE FROM 2021 TO REACH US\$140 BILLION



NOTE: These estimates are conservative as they do not include all the efficiency benefits that digital technologies can bring to export-related industries (e.g., through better tracking of goods in transit through Internet of Things technology). In addition, the 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only and will likely be much higher if we used global best-in-class countries as a reference point.

SOURCE: AlphaBeta-Access Partnership analysis

Channel 1: Creating new exportable digital solutions

Digital technologies have given rise to a range of new digital solutions that can be exported abroad. With their digital nature, cross-border transactions of these digital solutions can occur instantaneously, allowing local firms to generate revenues from the sale of these digital solutions in overseas markets. These include mobile applications (i.e., revenue generated from overseas application users through paid downloads or in-app purchases), online video services (i.e., advertising revenue earned based on overseas views of videos); and digital services such as data processing and online software consultancy services rendered to overseas customers. Direct services make up the bulk of digital services exports for Latin America, comprising more than 90 percent. For example, the real estate start-up market in Colombia has been experiencing rapid growth, and real-estate firms have developed and exported new digital solutions to streamline processes of selling, financing and buying real estate. Despite that, there is a lot of potential for growth in this area, given that most of the ICT services value-added produced in Colombia is currently being captured domestically, rather than exported.²⁰ Through the use of this channel, smaller businesses are able to explore new export categories, enabling them to tap into more revenue streams and a much wider target audience.

Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay are currently reaping US\$12 billion from utilizing this channel (0.3 percent of their combined GDP in 2021).²¹ Brazil is benefiting the most due to its significant digital service exports (driven by a strong orientation towards ICT services exports), coupled with a comparatively strong presence of Brazilian mobile applications in local and international markets.²² In 2021, about 71 percent of revenues earned by local application developers facilitated by app distribution platforms such as Google Play in the focus countries —US\$604 million—came from abroad. Of all digital solutions in channel 1, digital services exports contribute the most to Latin America's GDP in 2021 (0.3 percent share of GDP).

“

**CHANNEL 1:
THE CREATION OF NEW
DIGITAL SOLUTIONS, NAMELY
MOBILE APPS, ONLINE VIDEO
SERVICES AND DIGITAL
SERVICES, COULD UNLOCK
US\$78 BILLION OF BENEFITS
BY 2030.**

”

While this is already significant, it is expected that these countries could capture a significant export opportunity of US\$78 billion by 2030 (Exhibit 3).²³ Component-wise, digital services are expected to reap the most benefits in 2030, at US\$73 billion. Despite already being the largest component in 2021, digital services are estimated to continue its strong growth trajectory of 22.8 percent annually as the focus countries catch up to Uruguay (the best-in-class country)'s development of digital services exports.

The growth potential by 2030 also varies by country. For example, Colombia is expected to further benefit from digital services exports, which are expected to grow at a compound annual growth rate (CAGR) of 31.2 percent to reach US\$5.3 billion by 2030, a large opportunity especially if Colombia can invest in digital infrastructure, bridge skill gaps, and develop new public-private partnerships on tech-enabled export categories. Meanwhile, Uruguayan content creators are expected to benefit significantly from online video services such as YouTube, being able to reach out to a much larger Spanish-speaking viewership outside of Uruguay, thus generating more overseas export revenue through advertising income, projected at a CAGR of 22 percent from 2021 to 2030.

Supporting activities in this channel, Google supports content creators and local businesses by giving them

20. OECD (2019), "OECD Reviews of Digital Transformation: Going Digital in Colombia".

Available at: https://www.oecd-ilibrary.org/science-and-technology/oecd-reviews-of-digital-transformation-going-digital-in-colombia_781185b1-en

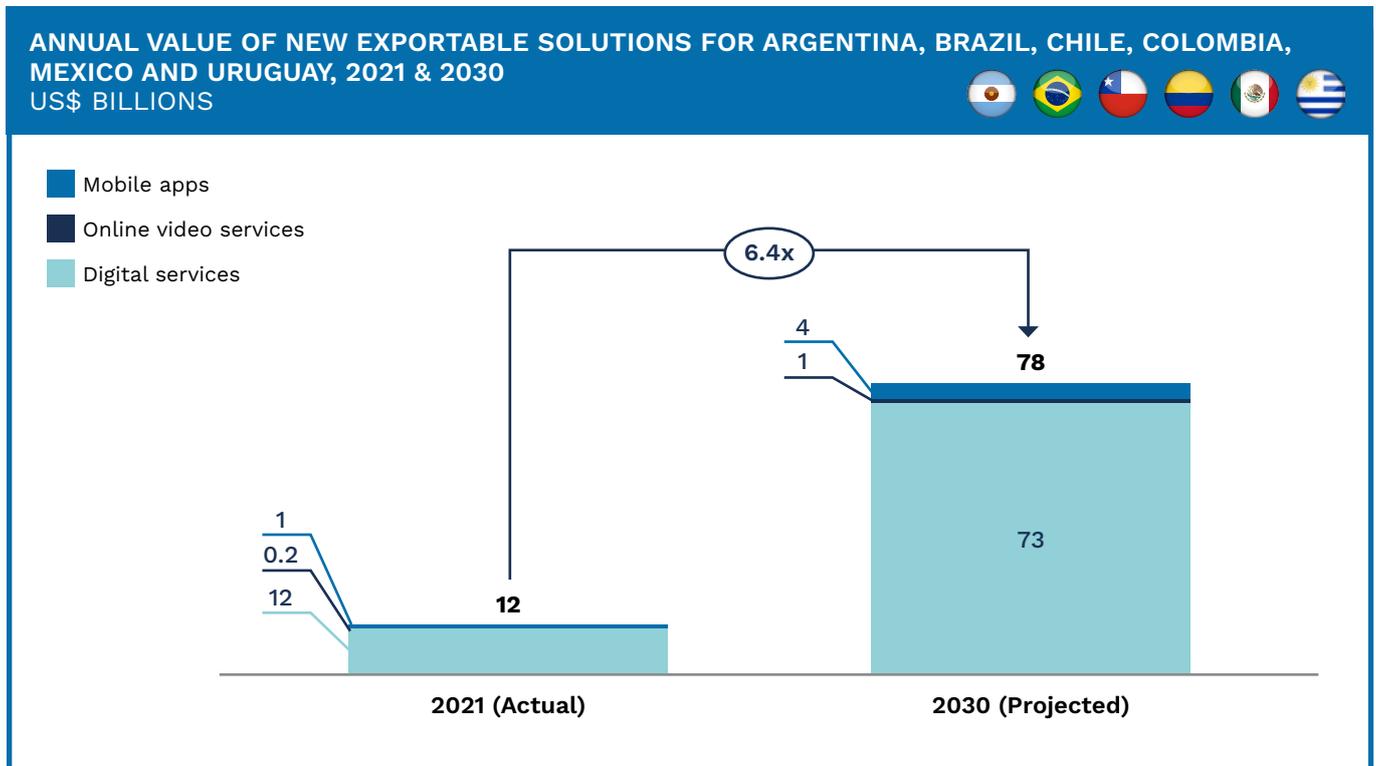
21. These benefits include revenue earned from overseas consumption of apps developed by firms or individuals within the country (Mobile app exports), revenue earned by video content creators in the country, from overseas views of their videos (Online video services), and export of services provided using digital technologies (Direct and Indirect digital service exports).

22. World Bank (2021), "ICT service exports (BoP, current US\$)—Latin America & Caribbean". Available at: https://data.worldbank.org/indicator/BX.GSR.CCIS.CD?locations=ZJ&most_recent_value_desc=true. ZDNet (2022), "Brazil ICT sector sees growth in 2021, represents 6.9% of GDP". Available at: www.zdnet.com/article/brazil-ict-sector-sees-growth-in-2021/. AppsFlyer and AppAnnie (2021), LATAM 2021 App Marketing Insights. Available at: www.data.ai/en/insights/market-data/latam-state-of-app-marketing-2021/

23. This scenario looks at the full potential value in 2030 based on an accelerated use of digital technologies for exports (i.e., digital exports contribute to the gross domestic product or GDP as much as the share observed in the best-in-class countries). This is a conservative estimate as it was projected based on the 2021 performance of the best-in-class within the six focus countries only and will likely be much higher if we used global best-in-class countries as a reference point. Refer to Appendix for more details of the methodology used to forecast this.

Exhibit 3:

THE FOCUS ECONOMIES ARE ALREADY BENEFITING FROM A US\$12 BILLION EXPORT OPPORTUNITY AND COULD POTENTIALLY UNLOCK US\$78 BILLION BY 2030



NOTE: Components may not sum due to rounding.

NOTE: The 2030 estimate is a conservative one as it was projected based on the 2021 performance of the best-in-class within the six focus countries only and will likely be much higher if we used global best-in-class countries as a reference point.

SOURCE: AlphaBeta-Access Partnership analysis

a platform to publish videos and mobile apps through YouTube and Google Play.²⁴ For instance, the Google Play Console supports developers who are looking to publish and export their games by providing tools and features that improve app quality and improve user engagement.²⁵ YouTube benefits content creators in the six focus economies by allowing them to export their created videos to reach international audiences. In 2021, overseas consumption of YouTube videos was estimated to bring content creators US\$183 million in annual advertising revenue. Google Play, an application distribution platform with over 111.3 billion

application downloads, allows application developers to publish their apps and reach overseas users with minimal cost.²⁶

Besides mobile gaming, the gaming export opportunity in Latin America can be further unlocked by modern technologies such as cloud gaming across mobile, consoles, and personal computer (PC) platforms. Latin American players have been restricted in their access to traditional PCs and console hardware due to high import tariffs, a fact that has impacted their clear preference for mobile gaming; in 2021, mobile gaming

24. Google Play is a digital distribution service operated and developed by Google. It serves as the official app store for the Android operating system, which refers to the mobile operating system developed by Google for touchscreen mobile devices such as smartphones and tablets. Google Play users are able to browse and download applications developed with the Android software development kit.

25. Google Play Console (n.d.). Available at: <https://developer.android.com/distribute/console>

26. Google Play. Available at: <https://support.google.com/paymentscenter/answer/7159343?hl=en>

BOX 1. CHILEAN YOUTH LEVERAGES YOUTUBE TO ENTERTAIN GLOBAL AUDIENCE AND DEVELOP OWN BRAND

In 2011, at the age of 21, Germán Alejandro Garmendia Aranís followed his friend's encouragement to start his YouTube career. On HolaSoyGerman, he started to gain a strong following by creating comedy sketches and commenting on everyday unusual topics but in a fast-paced and quirky manner. By 2014, Germán had generated more than one billion total views and amassed over 14 million subscribers worldwide. While the HolaSoyGerman account has been inactive since 2016, its past videos are still being played by active subscribers up till today. Germán also created a secondary gaming-focused channel, JuegaGerman. With more than 43 million and 45 million subscribers on HolaSoyGerman and JuegaGerman respectively as of April 2022, Germán has carved out a niche for himself through YouTube.²⁷ Parlaying his YouTube fame into other fields, Germán had produced a best-selling book in 2016, forayed into voice work in the Spanish version of Ice Age: Collision Course, music and possibly into Hollywood as well.²⁸



Photo Source: <https://www.mejorinfluencer.com/youtuber/german-garmendia/>

accounted for 49 percent of the Latin American gaming market, which is higher than the 45 percent mobile share globally.²⁹ However, the increase in cloud gaming services' presence in the region, such as Google Cloud, is expected to buck this trend and promises to improve access to high-fidelity game content for players without the need to own expensive hardware such as graphics processing units (GPUs).

Google Cloud is supporting the Latin American gaming export opportunity through two of its services: Google Stadia and "Immersive Stream for Games." Google Stadia is a cloud gaming platform that allows

anyone with a fast Internet connection to play graphically demanding games even on devices that do not have powerful graphics processing (e.g., phones, tablets, Chromebooks). Similarly, "Immersive Stream for Games" is a cloud gaming back-end environment that allows video game publishers to license Google's Stadia technology to power their own cloud gaming services, allowing them to run their own game trials and their own libraries of games, branding, and custom user interfaces.³⁰ As these digital technologies become increasingly accessible across the Latin America region, exports are set to grow for game developers and other associated services such as music, scriptwriting, and rendering.

27. SocialBlade (2022), "Top 250 YouTubers in Chile Sorted by Video Views." Available at: <https://socialblade.com/youtube/top/country/cl/mostviewed>

28. Hall, K (2019), German Garmendia: Star Chilean Gamer with 10 Billion+ Views. Rosen Central.

29. Sources include NewZoo (2021), Beyond 2021: Where does gaming go next?. Available at: <https://kstatic.googleusercontent.com/files/bc63e7bfc3c96725630ca97a6e768e4ee7f6f8e36ba64d97657aaba3000c57584b969b6bc46dfc8a92782cab2d58e762968b1493422c598c7ac3a23451a36de>; and NewZoo (2021), Global Games Market Report: The VR & Metaverse Edition. Available at: https://newzoo.com/insights/trend-reports/newzoo-global-games-market-report-2021-free-version/?utm_campaign=GGMR%202022&utm_source=ppc&utm_content=free%20report%20download&utm_term=newzoo%20global%20games%20market&utm_campaign=Games+Market+Report&utm_source=adwords&utm_medium=ppc&hsa_acc=3787860576&hsa_cam=16914003266&hsa_grp=136827210618&hsa_ad=593106299701&hsa_src=g&hsa_tgt=kwid-636107049502&hsa_kw=newzoo%20global%20games%20market&hsa_mt=e&hsa_net=adwords&hsa_ver=3&gclid=Cj0KCQjw8O-VBhCpARIsACMvVLNzryREcFujsEitzhMGNjO10Jx9pFILHOPUBQRoMVTlzzX_2XbLzDUaApjQEALw_wcB

30. Forbes (2022), "Google Unveils Its B2B Cloud Gaming Platform Built With Stadia Tech".

Available at: www.forbes.com/sites/krisholt/2022/03/15/google-stadia-cloud-gaming-tech-b2b-details-features-immersive-stream-for-games/?sh=78cf65504d72

Channel 2: Reducing costs of access to overseas markets

Digital technologies reduce costs and facilitate access to overseas markets for local firms and increase their exports of goods through cross-border digital platforms (e.g., e-commerce platforms) and digital advertising (e.g., global search and display advertising). For instance, e-commerce platforms have broadened MSMEs' reach to international markets at considerably lower costs than before. A past AlphaBeta study in 2019 estimates that digital tools helped MSMEs across Asia reduce export costs by 82 percent, with 65 percent of these cost savings coming from a more efficient marketing solution.³¹

Similarly, a study showed that the effect of trade costs, proxied by distance, was smaller by more than 60 percent when they were conducting trade online compared to offline.³² This highlights the fact that using e-commerce platforms for digital trade can enable them to export beyond their borders without incurring significant time or monetary costs. This benefit has become especially crucial in recent years when COVID-19 restrictions affected footfall in traditional brick-and-mortar retail stores, resulting in altered consumer behavior and increasing online sales. Digital advertising tools that are global in

nature have also allowed local firms to conduct targeted advertising, bringing their goods and services to the right audiences and growing their customer bases. This, in turn, enables MSMEs to boost their internalization efforts at an affordable cost, as they are given similar visibility as their larger competitors.

The six focus countries are currently reaping US\$22 billion from utilizing this channel (about 0.5 percent of their combined GDPs in 2021). The digital advertising market makes up US\$7.2 billion of the benefit, with Brazil gaining the most due given that it has one of the largest digital advertising spending across all six focus countries, accounting for around half of all Internet advertising spending in Latin America in 2021.³³ Cross-border e-commerce makes up the remaining US\$14 billion, with Brazil's cross-border e-commerce as the highest at US\$5.2 billion, more than that of the next two countries combined (Argentina and Mexico). While the total export benefit from reduced costs of access to overseas markets is already significant, it is expected that these countries could work towards a significant export opportunity of US\$62 billion by 2030 (Exhibit 4).³⁴ For instance, increased sales from cross-border digital advertising for Argentine content creators and businesses are projected to grow at a projected 12 percent CAGR, from US\$581 million in 2021 to US\$1.6 billion by 2030. Overall, cross-border advertising is expected to increase by close to three times for the six focus countries combined, from US\$7.2 billion in 2021 to US\$17.5 billion in 2030.

Google's online advertising platforms, Google Ads and AdSense, help businesses internationalize their marketing outreach efforts, generating an estimated US\$4 billion annually in the form of net returns to businesses from exports in the six focus countries. These include benefits from advertising

“

**CHANNEL 2:
THE REDUCED COST OF
ACCESS TO OVERSEAS
MARKETS, THROUGH
E-COMMERCE PLATFORMS
AND CROSS-BORDER DIGITAL
ADVERTISING, COULD UNLOCK
US\$62 BILLION OF BENEFITS
BY 2030.**

”

31. AlphaBeta (2019), Micro-Revolution: The New Stakeholders of Trade in APAC. Available at: <https://alphabeta.com/wp-content/uploads/2020/06/singles-msme-report-apac.pdf>

32. Olarreaga (2012), "There Goes Gravity: How eBay Reduces Trade Costs". Available at: www.researchgate.net/publication/254400967_There_Goes_Gravity_How_eBay_Reduces_Trade_Costs

33. These benefits include the annual export value achieved from selling goods in overseas markets via cross-border e-commerce platforms (Cross-border e-commerce exports) and the increment in export revenue from using cross-border digital advertising tools such as search and display advertising (Digital advertising). Statista (2021), "Digital advertising spending in selected countries in Latin America in 2020". Available at: www.statista.com/statistics/1028587/latin-america-advertising-expenditures/

34. This scenario looks at the full potential value in 2030 based on an accelerated use of digital technologies for exports (i.e., digital exports contribute to the GDP as much as the share observed in the best-in-class countries). This is a conservative estimate as it was projected based on the 2021 performance of the best-in-class within the six focus countries only and will likely be much higher if we used global best-in-class countries as a reference point.

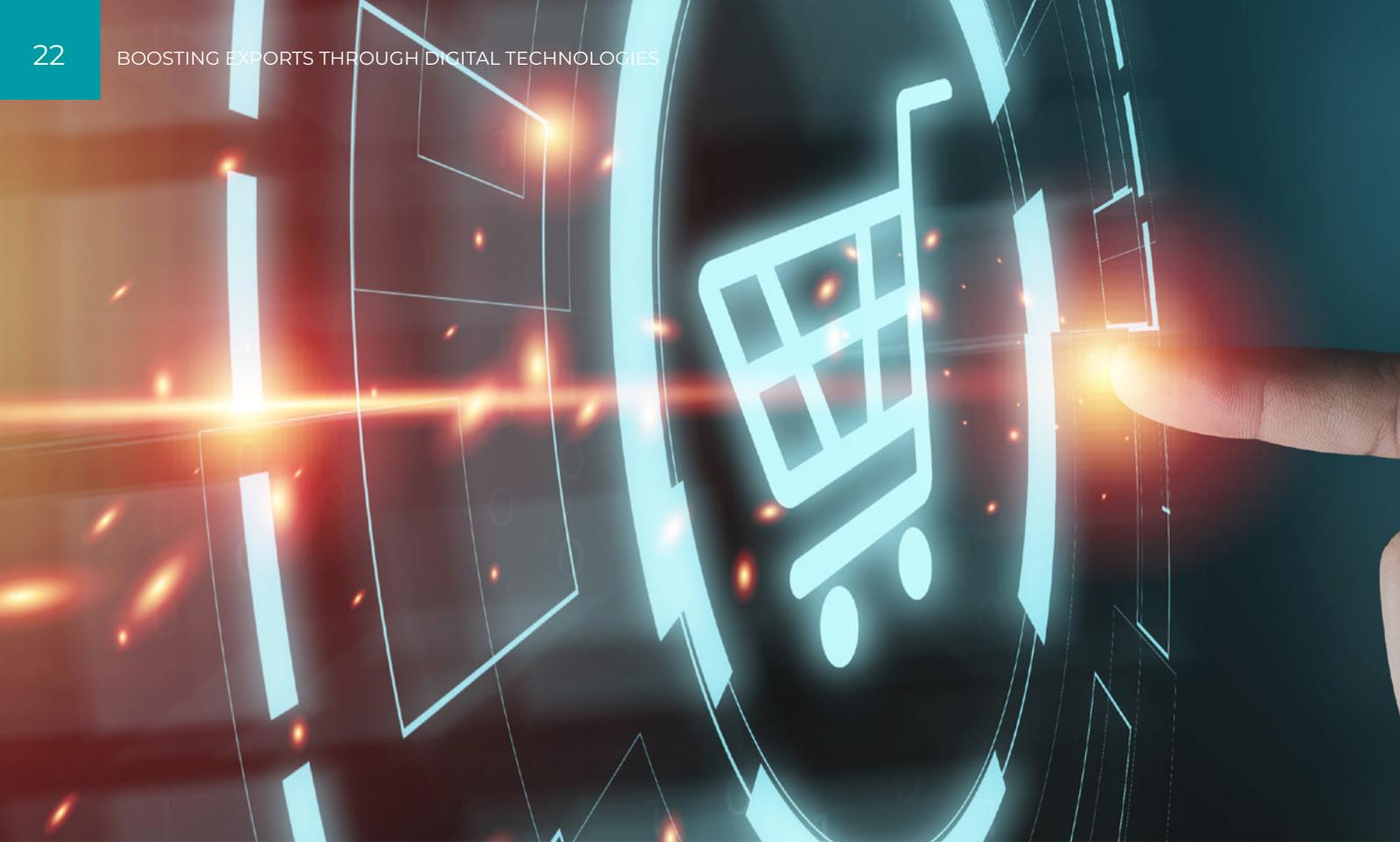
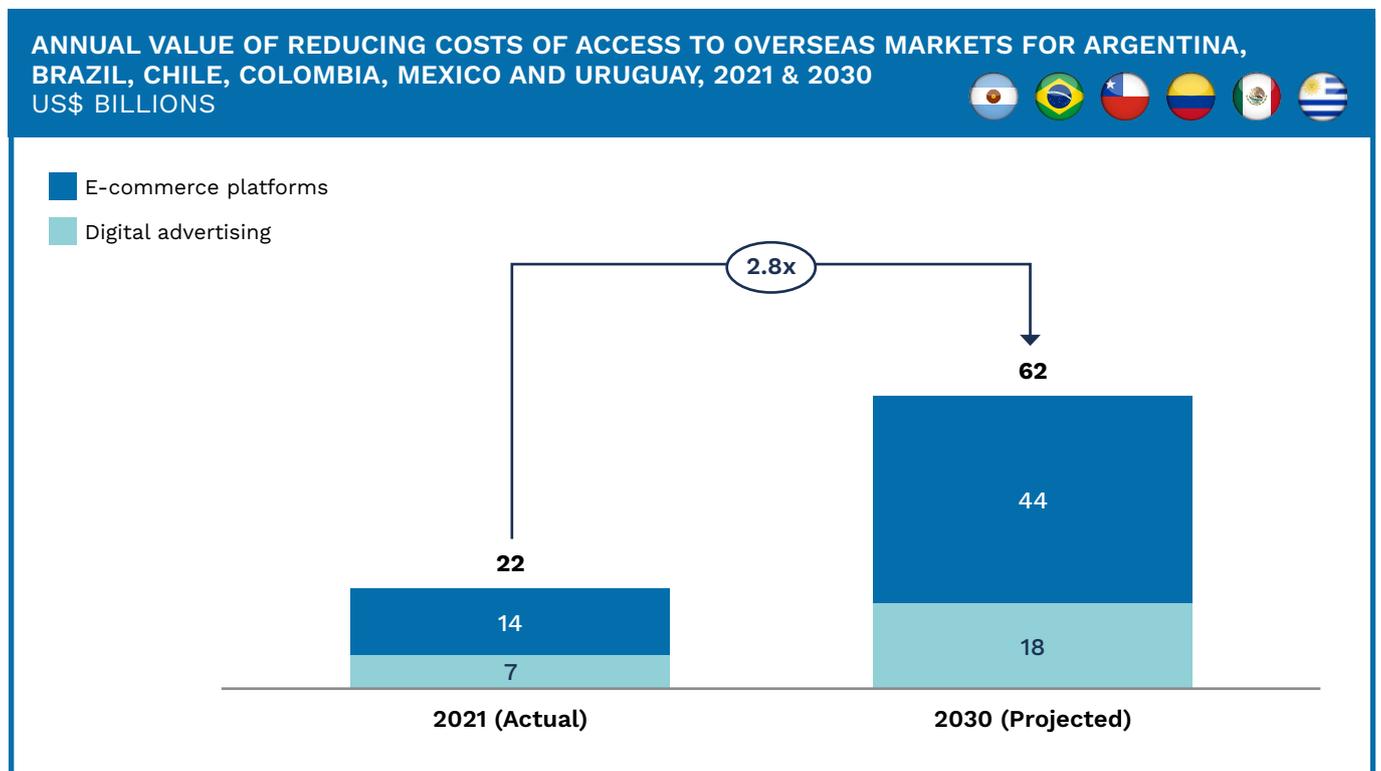


Exhibit 4:

THE FOCUS ECONOMIES ARE ALREADY BENEFITING FROM A US\$22 BILLION EXPORT OPPORTUNITY AND COULD POTENTIALLY UNLOCK US\$62 BILLION BY 2030



NOTE: Components may not sum due to rounding.

NOTE: The 2030 estimate is a conservative one as it was projected based on the 2021 performance of the best-in-class within the six focus countries only and will likely be much higher if we used global best-in-class countries as a reference point.

SOURCE: AlphaBeta-Access Partnership analysis



on Google Search results using relevant keywords and displaying advertisements on Google's network of publisher sites such as websites, blogs, and forums. Box 2 highlights an example of how a small business in Argentina was able to leverage Google Ads to increase customer visibility and expand into other markets.

In addition to advertising tools, Google also supports local Latin American businesses in terms of building an e-commerce presence and informing decision-making regarding exports. Google Business Profile (previously Google My Business) allows businesses to set up a profile to be displayed on Google Search and Maps, while Google Merchant Center is geared towards managing and optimizing product listing on Google Shopping and other services.³⁵ In terms of exports decision-making, a key challenge when growing globally is determining which markets would deliver the highest return on investment.

While a company's domestic market may be well-understood, new territories can be challenging due to differing language and localization requirements. Google's Market Finder, a free platform provided by Google, identifies the markets with the highest export potential for each business based on their product or service and various factors such as search traffic volumes, advertising costs and purchasing power of consumers.³⁶ After the initial market shortlist, the platform guides businesses to plan its internationalization operations and market their goods and services in new countries. For instance, Recarga Pay, Brazil's leading mobile payment portfolio, implemented digital marketing campaigns within Market Finder to expand the number of potential users for the app, in particular driving qualified traffic and high-value users to their app. Through its use of Market Finder to identify and enter promising markets including Mexico and Argentina, RecargaPay reported a 100 percent rise in its users' investment budgets, a 40 percent increase in the number of conversions, 14 times increase in installs.³⁷

35. Google (n.d.), "Business Profile". Available at: www.google.com/business/. See also, Google (n.d.), "Merchant Center". Available at: www.google.com/retail/solutions/merchant-center/

36. Google (n.d.), "Market Finder". Available at: <https://marketfinder.thinkwithgoogle.com/int/en/>

37. Google (n.d.), "App Campaigns drive high-value user installations for Recarga Pay". Available at: <https://marketfinder.thinkwithgoogle.com/int/en/case-study/recargapay-appdev-casestudy>

BOX 2. CAPTURING A SHARE OF THE TOURIST CAR RENTAL MARKET THROUGH GOOGLE ADS CAMPAIGNS IN ARGENTINA

Growing up in Salta, Juan Jose Quiroga's family ran a vehicle rental business, CDO Rent a Car.³⁸ With a desire to expand the business into a market-leading role in car rental, Juan Jose leveraged two free Google Ads training sessions held in Salta. Campaigns implemented afterward increased reservations by 60 percent, generating a larger fleet of cars and a need to double the business headcount. Juan Jose also directed the company's ads to the European public, especially France, Spain and the Netherlands. Through its online presence, CDO Rent a Car has provided confidence to overseas tourists to rent a vehicle even before they set foot in Argentina. To date, CDO Rent a Car has a fleet of 46 rental vehicles and an annual average of 500 reservations.



Photo Source: https://storage.googleapis.com/qweb-econ-impact-report.appspot.com/reports/2018/es_ar/ei-report-2018.pdf

38. Google (2018), Relatório de Impacto Econômico, Argentina 2018.

Available at: https://storage.googleapis.com/qweb-econ-impact-report.appspot.com/reports/2018/es_ar/ei-report-2018.pdf

Channel 3: Supporting the efficiency of exporting processes

There are various examples of how digital technologies can support the exporting processes, such as paperless trade, trade information and operations solutions, M2M tracking of exported goods, and the application of IoT technologies in the supply chain (Box 3).

These technology applications are facilitated by cloud services such as Google Cloud. Google Cloud is a comprehensive suite of cloud computing services which includes Google Workspace, a collection of productivity and collaboration tools and software such as Gmail, Google Drive, Sheets and Docs, and Google Cloud Platform (GCP)— which provides a range of cloud computing services. These include storage, networking, and data analytics which can be used to develop, test, and deploy new applications and features quickly.³⁹

In addition to streamlining business processes, the use of digital technologies in the agricultural sector also helps to address food security issues in the region by improving food production and facilitating agricultural exports. For instance, the use of big data can help farmers make more precise decisions on resource management, allowing small-scale producers to increase food supply for domestic and foreign sales.⁴⁰ For example, Ciencia Pura, a Chilean startup, has created a software that illuminates plants throughout their different growth



stages when natural light is unavailable, ensuring that farmers are able to produce sufficient yield despite climate-related volatilities.⁴¹ Furthermore, the adoption of digital tools can help to build supply chain resilience by reducing wastage of food during the export process. For instance, IoT technology allows exporters to monitor operations in real-time along the entire supply chain from manufacturing to packaging, transport and delivery, reducing the time needed for food to reach distributors or consumers.⁴² One example is Agrofy, a regional start-up that aims to simplify and digitalize the agribusiness sector in Latin America. Its offerings include technological solutions provided for each stage of the agriculture distribution chain, enabling producers to improve export processes through enhanced tracking and logistics management.⁴³ This is crucial given that in the region, food losses occur mainly during post-harvest production, storage and transport, highlighting the significant benefits that the use of technologies can bring to strengthening the food supply chain when products are handled more efficiently across the supply chain.⁴⁴

“ CHANNEL 3: TECHNOLOGIES SUCH AS M2M TRACKING AND IoT IN THE SUPPLY CHAIN HAVE HELPED TO DIGITIZE SUPPLY CHAIN PROCESSES, SIMPLIFYING EXPORT PROCESSES FOR COMPANIES, ESPECIALLY MSMEs. ”

39. Other digital products include Chrome Enterprise and Google Maps Platform. Google Cloud (2021), “Products”. Available at: <https://cloud.google.com/products#section-21>

40. FAO (2020), “Strong support for innovation and digital technologies in Latin America and the Caribbean”. Available at: <https://www.fao.org/newsroom/detail/Strong-support-for-innovation-and-digital-technologies-in-Latin-America-and-the-Caribbean/en>

41. TechCrunch (2021), “Latin America’s food paradox”. Available at: https://techcrunch.com/2021/11/13/latin-americas-food-paradox/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAF2gBzpfML-aGhsmCYxd8Ldw62MaSybdVF6MuLILVv2gqe9zuHs6GssaFbOv7qKYferiBhLWk65aRFWqhHOv27JPFzAI3sS4akNYkXtNxSpuaXeYKmAAGwHiwKBfKh_NUHdoGb08auV2KMUBDfnWZIAeyyw2WndltTFDIUBZuf8D

42. Digi (2022), “IoT and the Supply Chain: How Machine Learning Eases Bottlenecks”. Available at: <https://www.digi.com/blog/post/iot-supply-chain#~:text=IoT%20supply%20chain%20technology%20can,in%20critical%20supply%20chain%20networks>

43. Agrofy (n.d.). Available at: <https://www.agrofy.com.ar/>

44. FAO (2016), Food losses and waste in Latin America and the Caribbean. Available at: <https://www.fao.org/3/i5504e/i5504E.pdf>

BOX 3.

EXAMPLES OF HOW DIGITAL TECHNOLOGIES IMPROVE EFFICIENCY AND LOWER THE COST OF TRADE PROCESSES, BOOSTING EXPORTS



E-INVOICING

E-invoicing is a form of electronic billing where invoices are automatically generated in a supplier's accounting system and transmitted electronically to recipients. E-invoicing boosts exports by helping businesses to automate and streamline transactions, eliminating errors that could delay payment processing. This technology is estimated to bring about tax compliance cost savings in exporting processes ranging from 8 percent to 39 percent, as compared to paper invoicing.⁴⁵

TRADE INFORMATION AND OPERATIONS SOLUTIONS

Trade information and operations solutions are digital tools helping businesses to navigate the complexities of international trade. One major issue is the technical legal language of commercial policies, where overlapping preferential trading agreements (multilateral, bilateral, plurilateral) can enact high informational and operational barriers for smaller enterprises lacking the know-how to determine which specific rules are in effect or applicable in a given context.⁴⁶ Digital solutions (e.g., tariff finders, trade information portals, national single window systems) can be an effective bridge to introduce entrepreneurs to new markets, without needing advisory input from human legal experts.⁴⁷

IoT TECHNOLOGIES

IoT-enabled networks provide real-time traceability across the supply chain, facilitating use cases such as the real-time rerouting of urgent shipments (through a combination of cloud-based Global Positioning System (GPS) and radio frequency identification technology) to reduce inventory holding costs, ensuring expedient insurance claim filings to free up working capital, and autonomous detection and monetization for unutilized container capacity using IoT sensors to reduce container costs. A blockchain-tracked network like this can potentially reap cost savings worth 0.6 percent of annual revenue.⁴⁸

45. Billentis (2017), E-Invoicing / E-Billing: Significant Market Transition Lies Ahead. Available at: www.opentext.com/file_source/OpenText/en_US/PDF/2017%20Billentis%20Report%20on%20E-Invoicing%20-%20sponsored%20by%20OpenText.pdf

46. United Nations Conference on Trade and Development (2018), The Use of the EU's Free Trade Agreement: Exporter and Importer Utilisation of Preferential Tariffs. Available at: www.kommerskollegium.se/globalassets/publikationer/rapporter/2018/publ-the-use-of-the-eus-ftas.pdf

47. Atkinson & Schubert (2021), Augmenting MSME Participation in Trade with Policy Digitalisation Efforts: Chile's Contribution to "An Internet of Rules". Available at: <http://tradelawdevelopment.com/index.php/tld/article/view/9/8>

48. Boston Consulting Group (2018). "Pairing Blockchain with IoT to Cut Supply Chain Costs." Available at: www.bcg.com/publications/2018/pairing-blockchain-with-iot-to-cut-supply-chain-costs

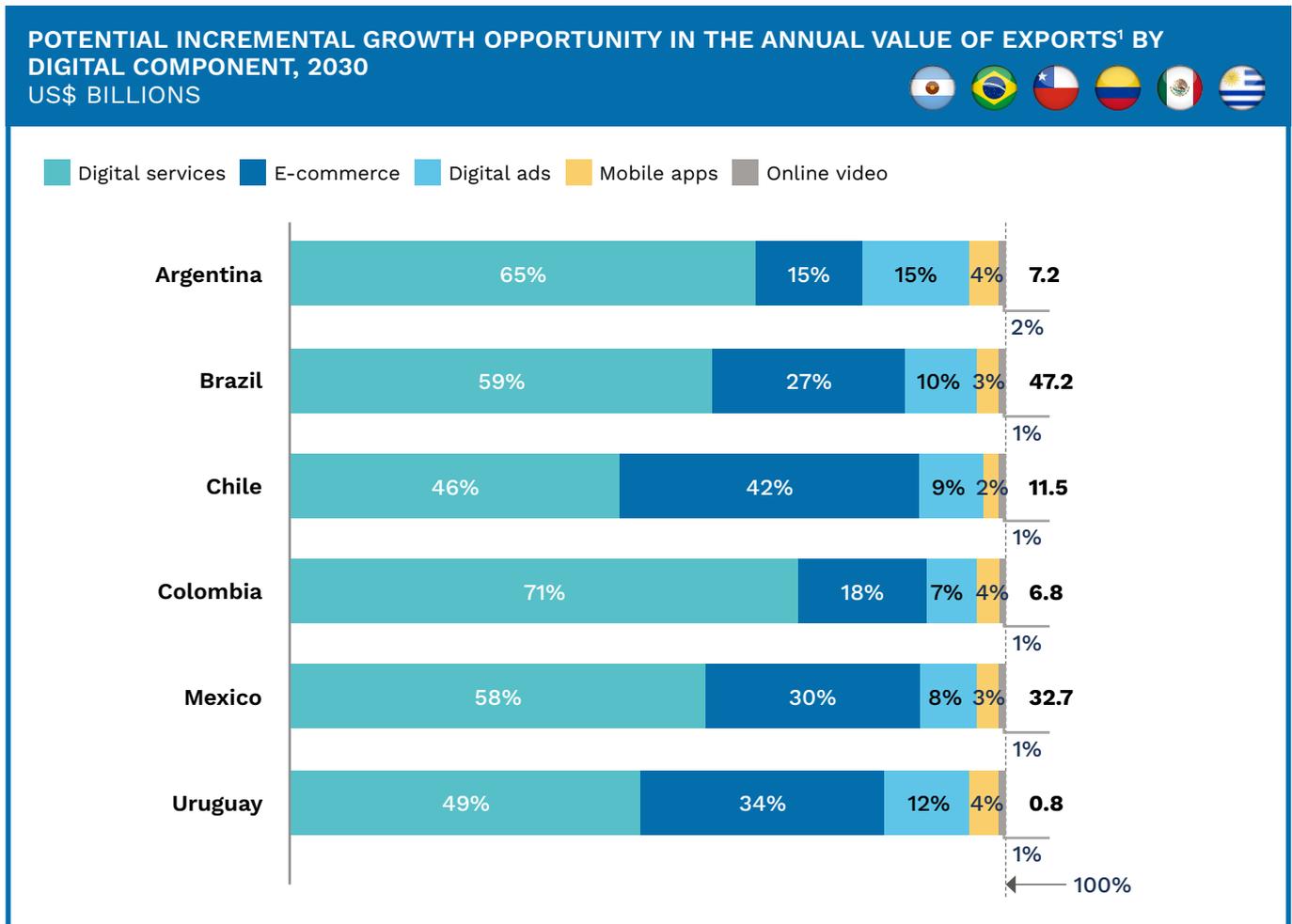
Growth opportunities by focus countries

There is an abundance of opportunities for each of the six focus Latin American countries to capture the export potential across the five digital solutions measured in this study which either constitute new digital solutions, or reduce the cost of access to overseas markets.⁴⁹ Collectively, the six Latin American countries can increase their export value by more than **US\$100 billion** annually, from **US\$34 billion** today

to **US\$140 billion** in 2030, if each country is able to catch up from its current level of performance to the best-performing country for that digital solution, by 2030.⁵⁰ Among these, digital services and e-commerce exports opportunities continue to be the most critical across all six focus countries, but the relative size of these opportunities vary across the six countries (Exhibit 5).

Exhibit 5:

THOUGH THERE ARE SIMILAR TOP COMPONENTS ACROSS THE FOCUS COUNTRIES, THERE ARE VARIATIONS IN THE SIZE AND SHARE OF EACH COMPONENT



1. This is based on the scenario where each country improves from its current level of export performance for each component (in 2021), to match the best-in-class performance among all six countries for the component (based on percentage of GDP) by 2030. The incremental growth opportunity is measured by the difference between 2021 and 2030 export values for each component for each country.

SOURCE: AlphaBeta-Access Partnership analysis

49. The five digital solutions measured are mobile app exports, online video services, digital services exports, cross-border e-commerce exports, and cross-border digital advertising benefits. Please see Appendix for more details on the definitions and methodology used.

50. This is based on the scenario where each country improves from its current level of export performance for each digital solution (in 2021), to match the best-in-class performance among all six countries for the digital solution (based on percentage of GDP) by 2030. The incremental growth opportunity is measured by the difference between 2021 and 2030 export values for each digital solution for each country. This is a conservative estimate and will likely be much higher if we used global best-in-class countries as a reference point. Please see Appendix for more details on the definitions and methodology used to size each of the five digital solutions.

BOX 4. IDENTIFYING MARKETS FOR INTRA-REGIONAL EXPORT OPPORTUNITIES

The World Bank estimates that the digital economy in Latin America has grown 2.5 times faster than global GDP over the past 15 years, and is now equivalent to 15.5 percent of global GDP.⁵¹ The COVID-19 pandemic has further accelerated businesses' adoption in digital technologies in their operations, including using e-commerce platforms.⁵² Therefore, demand in digital solutions is expected to increase, and so will intra-regional trade opportunities.

To fully capture the benefits of intra-regional digital trade, it is crucial that each country identifies their existing comparative advantages within the five digital solutions. Comparative advantage is determined by a country's ability to provide the digital solution more efficiently than the other five countries, based on the component export's share of GDP in 2021 for the country in comparison to that of the other five countries. These comparative advantages vary by country, showing the potential for varied and robust intra-regional trade (Exhibit 6).

Countries with comparative advantage in each digital solution should specialize in exporting that solution and identify key markets where the demand for that solution will be highest among the population. For instance, Brazil would specialize in mobile apps, and export primarily to Colombia given that Colombia has a high mobile app revenue as a share of GDP and high share of mobile connections within the population, both of which are determining factors of the demand of mobile apps. The last column of Exhibit 6 summarizes how supply and demand could be matched for each digital solution.

Exhibit 6:

EACH COUNTRY SHOULD FOCUS STRATEGICALLY ON INTRA-REGIONAL OPPORTUNITIES FOR EXPORTS BASED ON THEIR COMPARATIVE ADVANTAGE

COUNTRY	COMPARATIVE ADVANTAGE	ECONOMIC BENEFIT IN 2021 (US\$ MILLION)	POTENTIAL EXPORT MARKETS
	Online video services	62	Costa Rica, Ecuador, Mexico
	Mobile apps	319	Colombia, Argentina
	E-commerce	1,452	Argentina, Mexico, Panama
	Digital advertising	763	Brazil, Argentina
	Online video services	42	Costa Rica, Ecuador, Argentina
	Digital services	577	Brazil, Chile, Costa Rica

SOURCE: Literature review; AlphaBeta-Access Partnership analysis

51. White & Case (2021). "Latin America Focus: Fall 2021". Available at: <https://www.whitecase.com/publications/insight/latin-america-focus/bridging-digital>

52. Wilson Center (2021). "Going Digital: The Future of Digital Trade in Latin America". Available at: <https://www.wilsoncenter.org/event/going-digital-future-digital-trade-latin-america>

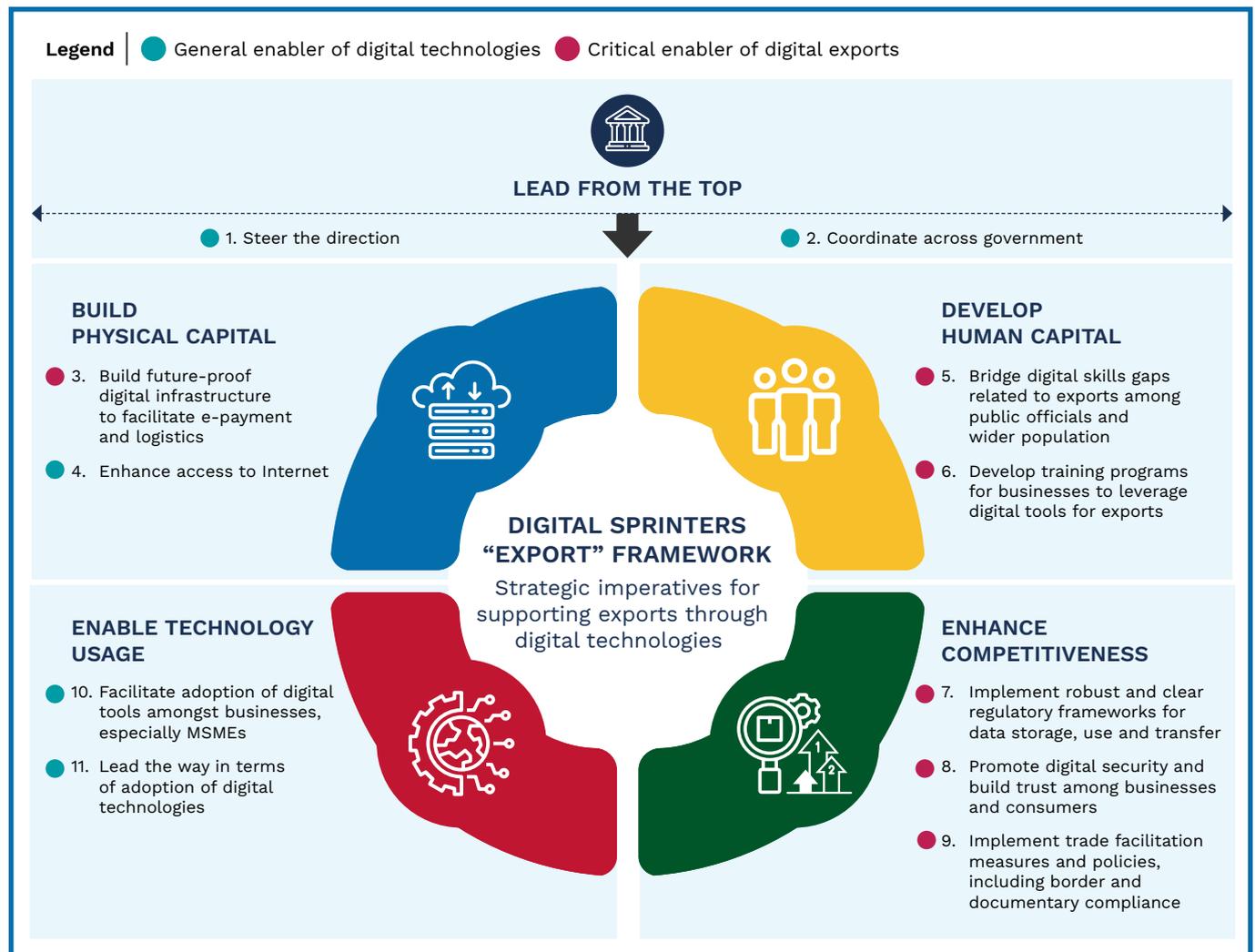
2. HOW CAN ARGENTINA, BRAZIL, CHILE, COLOMBIA, MEXICO, AND URUGUAY CAPTURE THE POTENTIAL BENEFITS?

A review of international best practices in developing digital exports has identified 11 policy levers linked to five strategic imperatives (Exhibit 7).⁵³ Each policy lever has also been classified as a general or critical enabler of digital exports.

In this context, general enablers refer to those which contribute to the broader digitalization of the country, whereas critical enablers are specific and crucial to the achievement of digital exports.

Exhibit 7:

11 POLICY LEVERS CAN HELP UNLOCK THE BENEFITS OF THE TECHNOLOGY-ENABLED EXPORT OPPORTUNITY AND ADDRESS POTENTIAL CONCERNS



SOURCE: Google; AlphaBeta-Access Partnership analysis

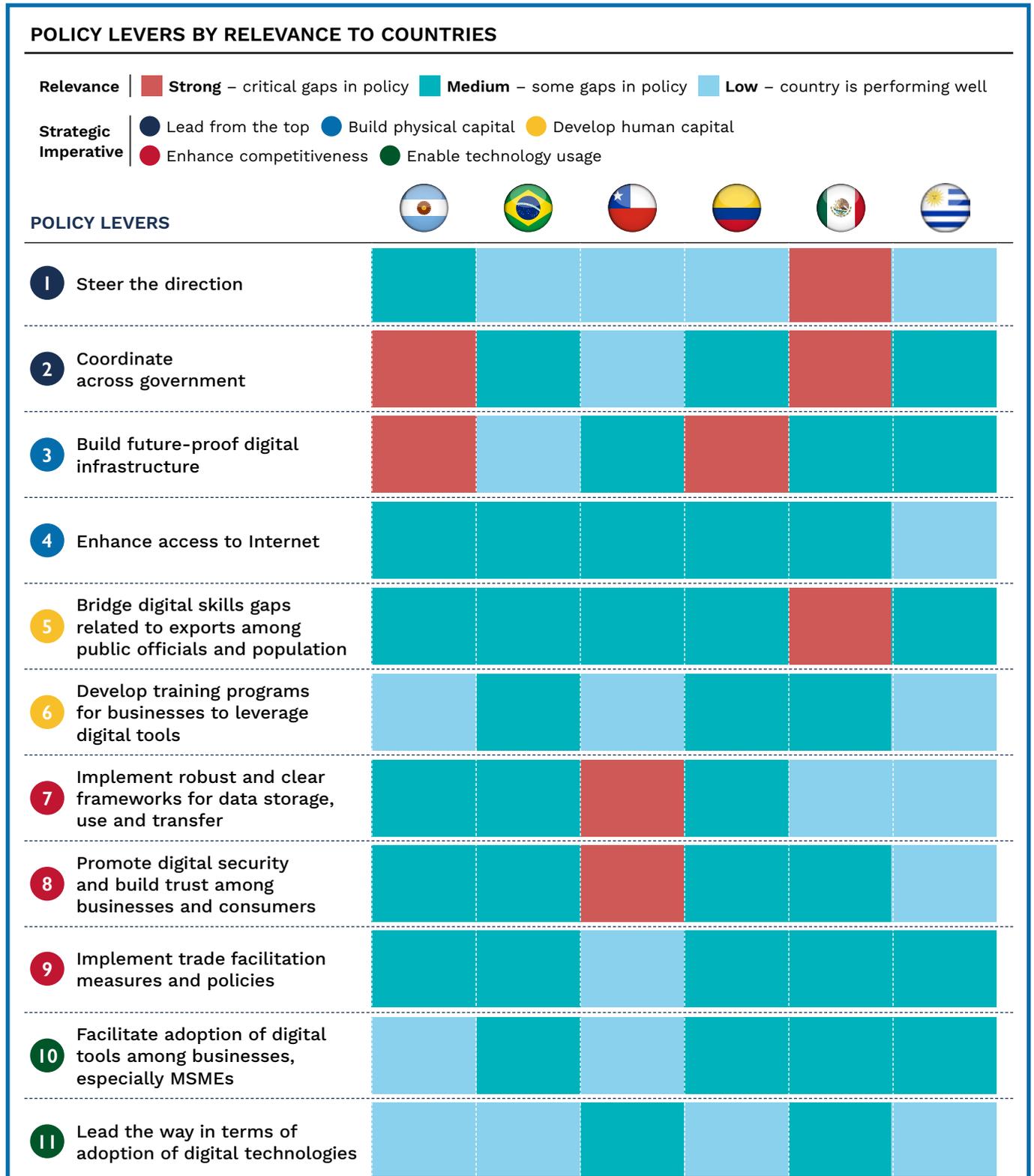
53. The Digital Sprinters Framework focuses on key areas such as physical capital, human capital, technology innovation and competitiveness. Google (2020), The Digital Sprinters: Driving Growth in Emerging Markets. Available at: https://blog.google/documents/94/The_Digital_Sprinters_FINAL.pdf/

However, a policy assessment of the six countries reveals that there are gaps across the countries (Exhibit 8). For instance, in Mexico, there is a clear lack of top-down

frameworks to support and steer the direction in terms of developing ICT-driven initiatives. In Argentina, there is a need for future-proof digital infrastructure.

Exhibit 8:

SOME POLICY LEVERS ARE MORE RELEVANT FOR CERTAIN COUNTRIES THAN OTHERS



SOURCE: Literature review; Expert interviews; AlphaBeta-Access Partnership analysis

Four recommendations that apply to the six focus economies

Out of the 11 policy levers, we identified four areas with common gaps across the six economies, and these areas have also been highlighted in AlphaBeta's past work as being particularly important to increasing digital trade.⁵⁵

1. **Policy Lever 3: Build future-proof digital infrastructure.** There should be an increased focus on improving the supply chain through digital technologies and/or digitalized processes, as well as an enabling framework to support the roll-out of an appropriate e-payments system infrastructure.
2. **Policy Lever 5: Bridge digital skills gaps related to exports among public officials and the wider population.** The lack of digital skills amongst existing employees, both in the public and private sector, is a particular problem for Latin American economies. To address this shortage, governments must have targeted actions to (i) increase the pool of Information Technology (IT) workers; (ii) equip the wider population with basic digital skills to use the Internet effectively, and (iii) promote specific initiatives to policymakers on how to enable and reap the benefits of digital exports.
3. **Policy Lever 8: Promote digital security and build trust among businesses and consumers.** To harness the opportunities of the digital economy

and support the trade of goods and services, governments must enact policies that protect the rights of consumers through internationally interoperable cybersecurity frameworks and adoption of security standards. Other areas that could be considered include consumer protection frameworks and improved liability protection that strikes the right balance between protecting innovation and building trust.

4. **Policy Lever 9: Implement trade facilitation measures and policies.** With growing interconnectedness and greater demand for just-in-time delivery, trade needs to be faster and more reliable than ever before. To cut red tape and enable more businesses to engage in digital trade, governments should strive to use digital solutions for trade facilitation, helping goods move faster across borders. This means, for instance, promoting the issuance of electronic contracts (e-invoicing) and digital trading systems (e.g., automated customs systems, paperless trade), as well as Trade Facilitation Agreements (TFAs) that promote global rules, norms, and standards to digital trade.

To address these gaps, we propose four recommendations, which are outlined on the next page (Exhibit 9).



55. In order to evaluate the relevance of the 11 policy levers outlined above and determine the recommendations which are the most applicable to the six focus economies, we used a two-step process. First, we assessed the relevance of the 11 policy levers in all six economies by looking at the existing policies and initiatives in place for each country. The policies identified were then ranked on a scale of one (low level of progress) to three (high level of progress). Second, we identified which were the common policy areas ranked as "medium level of progress" or "low level of progress" (that is, those which received a score from one to two) across the largest number of countries to determine their relevance for each of the six countries. Four policy areas were identified here, and these areas represent gaps which are present in most of the six countries. We drafted our recommendations after considering the data and literature available to support the arguments put forward, the cost-effectiveness of each measure, and their priority and level of urgency (e.g., whether they act as structural bottlenecks to other policy gaps). More details on any other country-specific critical gaps will be addressed in the respective country reports, which are available on the AlphaBeta website.

Exhibit 9:

AT A REGIONAL LEVEL, FOUR RECOMMENDATIONS CAN HELP THE FOCUS COUNTRIES ADDRESS CURRENT GAPS HINDERING EXPORT-LED GROWTH



Recommendation	Country	From...	...To	Best practice
Build future-proof digital infrastructure	Mexico/ Colombia	Lack of programs to boost low digital payment adoption	Better Fintech legislative safeguards, and initiatives to raise awareness for digital payments	NIDI platform provided for free in Costa Rica during the COVID-19 pandemic
	Argentina/ Uruguay	Limited government efforts to improve supply chain through the use of technology	Investments in digital infrastructure, trade facilitation, and trainings for MSMEs' on supply chain modernization	Callaghan Innovation's digital adoption subsidies in New Zealand
Bridge digital skills gaps related to exports	Brazil	Historical gap in IT skills programs	Implementation of free or subsidized nationwide digital bootcamps	UK's E-Business Support Program
	Chile/ Colombia/ Mexico/ Uruguay	Lack of digital trade trainings within current digital government topics	Support for public officials and policymakers to learn digital trade tools and policies	ECLAC's online courses organized for policymakers
Promote digital security and build trust	Brazil/ Chile	Lack of general cybersecurity law	Development of a robust cybersecurity law to guide businesses and consumers	UK's Streetwise and Cyber Essentials Plus initiatives
	Argentina	Ineffectiveness of current regulations to stop cyberattacks	Establishment of industry-wide cybersecurity standards	UK's Cyber Assessment Framework
	Mexico	Inadequate cybersecurity frameworks	Enhancements to cybersecurity legal frameworks	German IT Security Act 2.0
	Colombia	Lack of awareness on fostering a culture of data protection	Multi-stakeholder approach to protect consumers and help companies harness data	UK's Streetwise and Cyber Essentials Plus initiatives
Implement trade facilitation measures and policies	All countries	Knowledge gaps on how to reap benefits of trade agreements	Firms well-equipped with knowledge on who they can export products to	Japan's Online International Business Matching Platform
	Mercosur countries	Regulatory barriers that hinder export processes	Improved regulatory environment that facilitates efficient exporting processes	South Korea's u-Trade Hub 2.0
	Brazil	Data laws not aligned with rest of region	Harmonized regulations in areas such as data portability	Digital Economy Partnership Agreement

NOTE: Country-specific gaps and best practices which are not covered in this report will be fleshed out in the individual country reports, which are available on the AlphaBeta website.

1. BUILD FUTURE-PROOF DIGITAL INFRASTRUCTURE TO FACILITATE E-PAYMENT AND LOGISTICS

A solid and modern digital payment infrastructure is a driver of digital trade by allowing businesses to diversify and expand to foreign markets.^{56, 57} In Latin America, however, less than 50 percent of the population aged over 15 has access to the formal financial system.^{58, 59} In Mexico, only 47 percent of the population has a bank account,⁶⁰ and, in Colombia, cash transactions still account for about 85 percent of all transactions.⁶¹ Current infrastructure has not kept pace with the speed of digitalization and there is a need for further policy action to develop digital infrastructure at the right speed and with the appropriate flexibility.

To overcome the barriers to digital payment in the region, different policy actions could be considered. Frameworks that ensure the adoption of internationally accepted standards and policies that reduce market barriers and promote innovation, such as Open Banking regulations, are possible approaches to foster public-private collaboration (allowing for greater investment and incentives for innovation) and the adoption of good regulatory practices that promote interoperable cross-border payment platforms. Collaborations between the public and private sectors underscore the government's commitment to strengthening digital infrastructure and encouraging businesses to explore the use of digital technologies. An example of a good practice is in Costa Rica, where the National Bank partnered with Nidux, a company offering e-commerce solutions, to offer the NIDI electronic payments platform free of charge for 90 days to MSMEs during the pandemic.⁶²

Moreover, poor logistics remain a barrier to e-commerce growth of cross-border e-commerce of physical goods in countries like Argentina and Uruguay. Against such a background, harnessing the potential of ICT to streamline the supply chain could be key to



overcome some transport services bottlenecks and also reduce costs.⁶³ To achieve this, targeted policies in the form of financial support or technology extension programs in areas like diagnosis, self-assessment tools, e-business solutions, and learning material specifically for digital supply chains, should be considered. For instance, New Zealand's Callaghan Innovation (a government agency) is working with NZTech (a group of technology industry associations) to create and nurture a pipeline of Kiwi companies to be global-ready. End-to-end support is provided for companies to scale globally in the form of "Getting Started Grants", "Founder" incubators, tax incentives for R&D efforts, subsidies for digital adoption ("capability vouchers"), and knowledge sharing platforms.⁶⁴

56. World Economic Forum (2022), "Accelerating Digital Payments in Latin America and the Caribbean".

Available at: https://www3.weforum.org/docs/WEF_Accelerating_Digital_Payments_in_Latin_America_and_the_Caribbean_2022.pdf

57. "In LAC, online MSME exporters reach on average 20 foreign markets, while offline exporters only reach two to five".

Available at: https://www3.weforum.org/docs/WEF_Accelerating_Digital_Payments_in_Latin_America_and_the_Caribbean_2022.pdf

58. Economic Commission for Latin America and the Caribbean (2022), "Digital technologies for a new future".

Available at: https://www.cepal.org/sites/default/files/publication/files/46817/S2000960_en.pdf

59. The banking penetration rate in Latin America contrasts sharply with North America and Western Europe banking user penetration, which is close to 90 percent.

60. Investor Latam (2021), "Según cifras del INEGI, sólo el 47% de los mexicanos tienen una cuenta bancaria".

Available at: <https://inversorlatam.com/segun-cifras-del-inegi-solo-el-47-de-los-mexicanos-tienen-una-cuenta-bancaria/>

61. Pymts.com (2021), "Deep Dive: How Colombia Can Provide a Blueprint for Latin American Digital Payments Growth".

Available at: <https://www.pymts.com/digital-payments/2021/deep-dive-how-colombia-can-provide-a-blueprint-for-latin-american-digital-payments-growth/>

62. Inter-American Development Bank (2021), Post Pandemic Covid—19 Economic Recovery: Enabling Latin America and the Caribbean to Better Harness E-commerce and Digital Trade. Available at: <https://publications.iadb.org/publications/english/document/Post-Pandemic-Covid-19-Economic-Recovery-Enabling-Latin-America-and-the-Caribbean-to-Better-Harness-E-commerce-and-Digital-Trade.pdf>

63. Secretaría de Internacionalización CONVM (2021), Economic impact of the Covid-19 crisis on the SMEs in Argentina.

Available at: http://si.unvm.edu.ar/wp-content/uploads/2021/10/informe_PYME_siunvm.pdf

64. Ministry of Business, Innovation and Employment (2020), Digital technologies Industry Transformation Plan. Progress update for industry.

Available at: www.mbie.govt.nz/dmsdocument/11638-digital-technologies-industry-transformation-plan



2. BRIDGE DIGITAL SKILLS GAPS RELATED TO EXPORTS AMONG PUBLIC OFFICIALS AND THE WIDER POPULATION

The expansion of digital trade is taking place in a regional context of structural inequality which influences the countries' ability to fully harness the benefits of digital tools and services.⁶⁵ In Brazil, for instance, the shortage in digital skills is a key bottleneck for industry and will create an allocation gap of around half a million vacancies between 2022 and 2025.⁶⁶

Across many of the focus countries, policy efforts have been made to address such a gap, with different government initiatives in place aimed at improving

access to digital skills training for the general public. However, further action is required to adapt the labor markets and skills requirements at the appropriate speed.⁶⁷ Nationwide, large-scale, and export-focused digital bootcamps could be a strategic way to pair the industry's hands-on experience and best practice with a government-led national development program, ensuring that they are efficiently scalable and employment-focused. The region could take inspiration from the United Kingdom's Skills Bootcamp organized by the Department of Education, which offers free, flexible courses of up to 16 weeks, at the end of which, an interview with an employer is guaranteed. The courses cover areas such as cybersecurity, software development and data science.⁶⁸

65. "Digitally deliverable services still account for a significantly lower share of exports in the least developed countries and in Africa and Latin America and the Caribbean than in other parts of the world". Available at: https://unctad.org/system/files/official-document/presspb2021d10_en.pdf

66. Brasscom (2021), Demanda de Talentos em TIC e Estratégia. Available at: https://brasscom.org.br/estudo-da-brasscom-aponta-demanda-de-797-mil-profissionais-de-tecnologia-ate-2025/?utm_source=ActiveCampaign&utm_medium=email&utm_content=Apag%C3%A3o+de+profissionais%2C+Vagas+para+iniciantes+e+um+Manifesto&utm_campaign=%5BIMERS%C3%95ES%5D+%28Newsletter%29+%2344

67. ECLAC (2021), Digital and sustainable trade facilitation in Latin America and the Caribbean. Available at: https://repositorio.cepal.org/bitstream/handle/11362/47370/1/S2100582_en.pdf

68. Gov.uk (2022), "Find a Skills Bootcamp". Available at: <https://www.gov.uk/guidance/find-a-skills-bootcamp>

We also found that while Uruguay, Mexico, Chile, and Colombia have digital training programs for public officials, these currently lack a focus on digital trade. In Mexico, for instance, the National Institute of Public Administration (*Instituto de Administración Pública A.C. - INAP*), which is a public entity in charge of developing training programs and offering academic degrees for public officials, has no specific program focused on digital exports.⁶⁹ In Colombia, the ICT Ministry offers 11 sessions of courses to officials and contractors of public entities on topics such as Open Data, Security and Digital Risks, Price Framework Agreements, among others, but none are export-focused.⁷⁰ Similarly, in Uruguay, the eGovernment Agency (*Agencia de Gobierno electrónico y Sociedad de la Información y del Conocimiento - Agesic*) has training to promote Digital Government capabilities



in State agencies. However, no specific training on digital exports has been found.⁷¹ These countries can take reference from The United Nations Economic Commission for Latin America and the Caribbean (ECLAC)'s online trade-oriented courses organized for policymakers.⁷²

3. PROMOTE DIGITAL SECURITY AND BUILD TRUST AMONG BUSINESSES AND CONSUMERS

When it comes to Internet-enabled exports, trust and confidence is founded upon privacy, transparency, cybersecurity, adherence to standards and regulations, and governance for digital products and services. Without these, consumers will not buy, and businesses will not trade.

In Brazil and Chile, addressing the lack of investment and enhanced cybersecurity legislation could help protect consumers against cyberattacks and spam, as well as foster trust between economic stakeholders. In Brazil, other than sectoral regulations providing for cybersecurity requirements issued by regulatory agencies, there is a need for greater cybersecurity resilience through public-private collaboration that promotes training on cyber skills and campaigns that raise risk awareness.⁷³ Chile could consider expanding its current cybersecurity framework, including standards for digital exports' growth.⁷⁴ In Argentina, the need to establish industry-wide standards was also identified. While the country has a diverse set of regulations in place, they appear to be fragmented in nature, which is corroborated by how the rate of cyberattacks in the country is constantly increasing.⁷⁵ This highlights the need for comprehensive, national-level standards which help to foster a trust-based digital ecosystem. As for Colombia, the country has already issued regulations aimed at protecting users' data by imposing a series of obligations on companies.⁷⁶ Despite this, there is no clear evidence of campaigns fostering a data protection culture and raising awareness and understanding of the importance of personal data protection laws and

69. Instituto Nacional de Administración Pública (n.d.). Cursos. Available at: <https://inap.mx/centro-virtual/cursos/>

70. MinTIC (2019), "MinTIC ofrece 11 capacitaciones gratuitas a servidores públicos sobre Gobierno Digital". Available at: <https://mintic.gov.co/portal/inicio/Sala-de-prensa/Noticias/101538-MinTIC-ofrece-11-capacitaciones-gratuitas-a-servidores-publicos-sobre-Gobierno-Digital>

71. Agencia de Gobierno Electrónico y Sociedad de la Información y del Conocimiento (n.d.), "Capacitación a funcionarios públicos". Available at: <https://www.gub.uy/agencia-gobierno-electronico-sociedad-informacion-conocimiento/node/2691>

72. ECLAC (2021), "Opportunities and challenges for MSMEs in Caribbean cross-border e-commerce". Available at: <https://www.cepal.org/en/courses/opportunities-and-challenges-msmes-caribbean-cross-border-commerce>

73. Dentons (2021), "Brazilian General Data Protection Law (LGPD) entered into force and requires attention". Available at: <https://www.privacyandcybersecurity.com/brazilian-general-data-protection-law-lgpd-entered-into-force-and-requires-attention/>

74. Chambers and Partners (2022), "Cybersecurity 2022". Available at: <https://practiceguides.chambers.com/practice-guides/cybersecurity-2022/chile#~:text=In%20Chile%2C%20there%20is%20no,by%20the%20Financiera%20Market%20Commission.>

75. TechRobot (n.d.), "Statistics of Cyberattacks in Argentina". Available at: <https://techrobot.com/statistics-of-cyberattacks-in-argentina/>

76. Congreso de Colombia (2012), Ley 1581 de 2012. Available at: www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=49981; Ministerio de Comercio, Industria y Turismo (2022). Decreto 255/2022. Available at: <https://dapre.presidencia.gov.co/normativa/normativa/DECRETO%20255%20DEL%2023%20DE%20FEBRERO%20DE%202022.pdf>



regulations that satisfy international standards, principles and guidelines. The country can take reference from the UK's Streetwise and Cyber Essentials Plus initiatives to raise awareness.⁷⁷

4. IMPLEMENT TRADE FACILITATION MEASURES AND POLICIES

Intra-regional trade provides a large opportunity but is currently undermined by the lack of awareness among MSMEs, and a range of regulatory bottlenecks. Collaborations between technology platforms, combined with efforts to remove regulatory issues increasing the cost and time to trade across borders, could provide a practical approach to helping businesses boost exports.

Although Latin America has some e-commerce leaders, the region still lags in terms of its domestic and international e-commerce. This can be attributed to limited knowledge among businesses, especially MSMEs,

on how they can leverage existing trade agreements to engage the international economy.⁷⁸ It is therefore crucial to provide market-specific advice to bridge knowledge gaps. For instance, Google's Market Finder which helps to identify the markets with the highest export potential for each business based on factors such as their product or service offering and the purchasing power of potential customers.⁷⁹ An international best practice that governments can take reference from in this area is Japan's Online International Business Matching Platform, which connects Japanese businesses with international buyers looking to purchase specific products or services.⁸⁰

In the implementation of the Mercosur agreement, companies cited regulatory challenges relating to intellectual property (IP) protections, over-the-top (OTT) rules, copyright rules, and other legal liability issues. These have hindered them from engaging in domestic and cross-border e-commerce, significantly

77. Gov.uk (2018), "Cyber Essentials Scheme: overview". Available at: <https://www.gov.uk/government/publications/cyber-essentials-scheme-overview>

78. IDB (2018), A Digital Trade Policy for Latin America and the Caribbean.

Available at: <https://publications.iadb.org/publications/english/document/A-Digital-Trade-Policy-for-Latin-America-and-the-Caribbean.pdf>

79. Think with Google webpage (n.d.), Market Finder. Available at: <https://marketfinder.thinkwithgoogle.com/int/en/>

80. JETRO homepage (n.d.). Available at: https://e-venue.jetro.go.jp/bizportal/s/?language=en_US



reducing the benefits brought about by concessions made in the Mercosur agreement.⁸¹ As such, it would be beneficial for governments to provide protections that enable platforms to facilitate trade at scale. Currently, small businesses and consumers are taking advantage of user review sites, customer support and feedback mechanisms, digital marketing platforms, and other new tools for online trade to reach far beyond local markets. However, for these trade-enabling tools to function, intermediary services need some level of assurance that they will not be held liable for communications that arise between businesses and consumers using these tools. Creating broad new liability risks and ambiguous content monitoring requirements would significantly decrease the incentives of online services to host and process this type of content. Predictable safe harbors for intermediaries would allow online services to serve this trade-enabling function while encouraging companies to work with public authorities to ensure a safe online environment that facilitates digital exports.⁸²

A best practice here is South Korea's u-Trade Hub 2.0, which supports export procedures and reduces the time spent by businesses on navigating export-related regulatory processes.⁸³

Governments should also look to foster collaborations across the region to ensure greater harmonization of digital trade standards. Issues such as cybersecurity, personal data protection and IP rights have been cited as key reform areas which have the potential to boost digital trade.⁸⁴ In Latin America, one example of an area where greater harmonization should be explored is in the right to portability, which entails the right of users to take their data from a service provider and transfer it elsewhere. Currently, only Brazil, Panama and Barbados grant users the right to do so, and even so, these three countries have different approaches in outlining laws relating to the movement of data.⁸⁵ A good example of an agreement which seeks to harmonize regulations is the Digital Economy Partnership Agreement (DEPA).⁸⁶

81. IDB (2018), Fueling Digital Trade in Mercosur: A Regulatory Roadmap.

Available at: <https://publications.iadb.org/publications/english/document/Fueling-Digital-Trade-in-Mercosur-A-Regulatory-Roadmap.pdf>

82. Frosio (2017), "Reforming Intermediary Liability in the Platform Economy". Available at: <https://osf.io/w7fxv/download/?format=pdf>

83. uTradeHub webpage (n.d.), "Introduction". Available at: https://www.utradehub.or.kr/porgw/english/html/eng_about_01.html

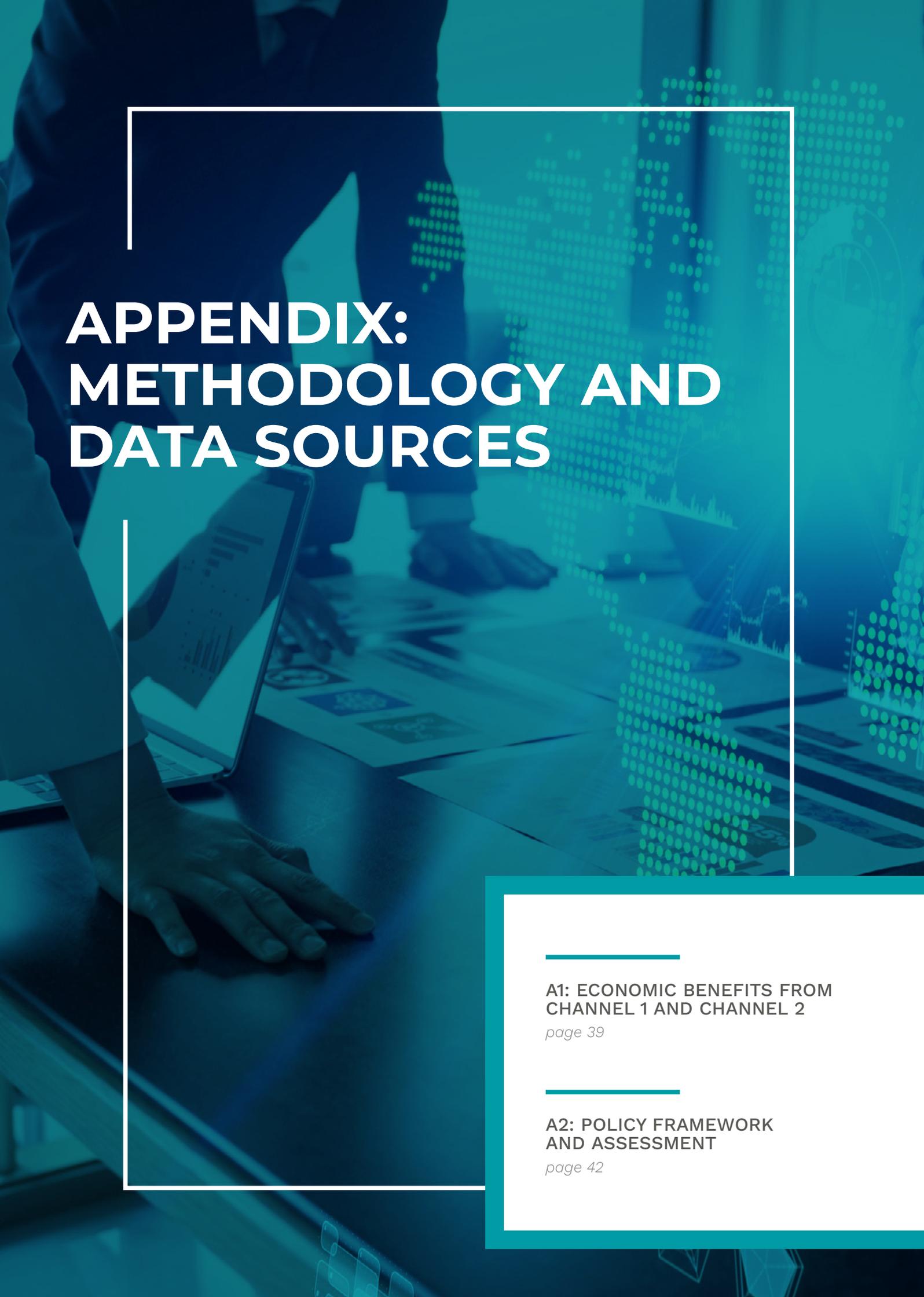
84. OECD (2020), 2020 Policy Note on Latin America: Leveraging the Impact of New Technologies.

Available at: www.oecd.org/dev/EMnet-Latin-America-Policy-Note-2020.pdf

85. EFF (2020), "A Look-Back and Ahead on Data Protection in Latin America and Spain". Available at: [https://www.eff.org/deeplinks/2020/09/look-back-and-ahead-data-protection-latin-america-and-spain#~:text=In%20Latin%20America%2C%20Chile%20was,%2C%20and%20Panama%20\(2019\).](https://www.eff.org/deeplinks/2020/09/look-back-and-ahead-data-protection-latin-america-and-spain#~:text=In%20Latin%20America%2C%20Chile%20was,%2C%20and%20Panama%20(2019).)

86. Asian Trade Centre (2020), "Unlocking the Digital Economy Partnership Agreement".

Available at: <http://asiantradecentre.org/talkingtrade/unpacking-the-digital-economy-partnership-agreement-depa>



APPENDIX: METHODOLOGY AND DATA SOURCES

A1: ECONOMIC BENEFITS FROM CHANNEL 1 AND CHANNEL 2

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A2: POLICY FRAMEWORK AND ASSESSMENT

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AI: Economic benefits from Channel 1 (Creating new exportable digital solutions) and Channel 2 (Reducing costs of access to overseas markets)

Channel 1: Mobile application exports. These relate to revenue earned from overseas consumption of applications developed by firms or individuals within the country, from paid application downloads to in-app purchases and advertisements. The analysis was performed for the App Store and Google Play, and scaled up by the revenue share of third-party Android stores for the full industry sizing.⁸⁷ To estimate the revenue earned by a country's application developers worldwide, we multiplied global consumer spending on each respective platform by the share of global revenue attributed to the focus country, proxied using the 'power law' curve, a well-established empirical approach to approximate the dynamics of winner-take-all markets like mobile apps.⁸⁸ We then applied the revenue-sharing arrangements to developers specific to the platform (e.g., developers on Google Play get 70 to 85 percent of customer payments) and scaled this value up to include advertising revenue from in-app advertisements, thereby arriving at global revenue attributable to the country's developers.⁸⁹ To arrive at mobile application exports for 2021, we replicated the above method but for the domestic market and subtracted the estimated domestic revenue by the global revenue. We estimated the untapped potential of mobile application exports by 2030 for each country using a 'distance-to-frontier' approach, where we identified the 'best-in-class' performance based on the 2021 'mobile application exports to GDP' ratio and assumed a best-case scenario that every country would reach this level of performance by 2030, and thus applied this ratio to each country's forecasted 2030 GDP.⁹⁰ The 2030 estimate was projected based on the 2021 performance of

the best-in-class within the six focus countries only, and will likely be much higher if we used global best-in-class countries as a reference point. Meanwhile, mobile application exports for the best-in-class country itself were projected according to consensus industry estimates.

Channel 1: Online video services. These relate to revenue earned by video content creators in the country, from overseas views of their videos, computed using a bottom-up approach. To obtain total revenue going to content creators on each platform, we multiplied the number of views of each country's top 250 channels on each major online video platform by the average cost per thousand views (CPM) paid by advertisers and the share of revenue going to creators.⁹¹ We then measured the percentage of organic traffic coming from overseas for a stratified representative sample of online video channels for this country, to derive the exported video revenue attributable to overseas markets.⁹² We estimated the untapped potential of online video services exports by 2030 for each country using a 'distance-to-frontier' approach, where we identified the 'best-in-class' performance based on the 2021 'video exports to GDP' ratio and assumed that every country would reach this level of performance by 2030, and thus applied this ratio to each country's forecasted 2030 GDP.⁹³ The 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only, and will likely be much higher if we used global best-in-class countries as a reference point. Meanwhile, video exports for the best-in-class country itself were projected according to consensus industry estimates.

87. NewZoo (2021), "Insights into Latin America's \$3.5 Billion Mobile Games Market: Players, Payers, Revenues, Esports & Market Dynamics". Available at: <https://newzoo.com/insights/articles/insights-into-latin-americas-3-5-billion-mobile-games-market-players-payers-revenues-esports-market-dynamics/>

88. Sensor Tower (2021), "Global Consumer Spending in Mobile Apps Reached \$133 Billion in 2021, Up Nearly 20% from 2020". Available at: <https://sensortower.com/blog/app-revenue-and-downloads-2021/>. Google (2022). Available at: <https://support.google.com/googleplay/android-developer/answer/112622?hl=en>. The power law curve methodology is also adopted in Caribou Digital (2016), *Winners and Losers in the Global App Economy*. Available at: www.cariboudigital.net/wp-content/uploads/2016/02/Caribou-Digital-Winners-and-Losers-in-the-Global-App-Economy-2016.pdf. Rankings of top parent companies by revenue were obtained from the data.ai database, available at: <https://data.ai/en/>. We analyzed the ranking of the country's app developers within the top 1,000 parent companies by revenue in the global market, using a simple power-law coefficient of -1, which implies that app revenues decrease in relative value the lower they are ranked. This means that the top ranked company by revenue is accorded a relative weight of 1, the second rank has a value of 1/2, the third rank 1/3, fourth 1/4, and so on. Summing up the weights for the country's developers and dividing that by the summed weights for all 1,000 global developers, we arrive at a share of global revenue attributed to the focus country. The same method was applied for the domestic market, in order to subtract domestic revenue and arrive at an export value.

89. AdColony (2021), *Mobile App Monetization Survey: 2021 Edition*. Available at: <https://drive.google.com/file/d/1-DXQzWix5ZMC6bbSxKePjArWFKr1xoul/view>

90. This assumes that the country with the lowest mobile app export share of GDP will see its share grow by the most over 2021-30 in order to "catch up" to the best-in-class country. This analysis is also based on current and forecasted economic conditions in the six focus countries in 2021, and could be changed if these economic conditions are changed.

91. Viewcount totals for YouTube and DailyMotion were obtained from the SocialBlade database, available at: <https://socialblade.com>. Where granular data was not available for certain video platforms (e.g., Twitch and TikTok), we proxied the number of views by comparing the total number of hours spent monthly on that platform in that country compared to YouTube. Sayari Media (2022), "Countries ranked by YouTube CPM/RPM for content creators". Available at: <https://sayarimedia.com/2022/04/countries-ranked-by-youtube-cpm-rpm-for-content-creators.html>. Reasonable ranges for CPM and creator share of revenue for other major platforms (DailyMotion, Twitch, TikTok etc) are well-known, and will not be listed here.

92. Analysis of organic traffic for video channels was conducted on the SEMrush database, available at: <https://semrush.com>

93. This assumes that the country with the lowest online video export share of GDP will see its share grow by the most over 2021-30 in order to "catch up" to the best-in-class country. This analysis is also based on current and forecasted economic conditions in the six focus countries in 2021, and could be changed if these economic conditions are changed.

Channel 1: Direct digital service exports. These refer to the export of services provided using digital technologies—or ‘digitally-enabled services.’ The challenge with measuring the value of digitally enabled service exports is that export statistics do not distinguish digitally enabled and non-digitally enabled exports. For example, the UN COMTRADE’s classification of education services (under the ‘personal, cultural and recreational services category’) comprises ‘services relating to all levels of education whether delivered through correspondence courses, via television, satellite, or the Internet, or by teachers, among others, who supply services directly in host economies.’ The challenge with this definition is that there is a lack of robust data sources which distinguish the share of these education services done through digital channels versus teachers working abroad. A similar challenge occurs in other key areas of service exports, such as health, legal, professional services, and travel. To address these issues, we recommend the focus to be limited to only those sectors that are likely to have a large share of exports being digitally enabled. This includes the direct exports of digital infrastructure services. This relates to the export of digital services such as Voice over Internet Protocol (VOIP), enterprise software products, and email or cloud computing solutions. The export value of telecommunications and computer-related services can be used as proxies to measure the export value from this category. Data for these services is sourced from the OECD-WTO Trade in Value-Added (TiVA) database. From the TiVA database, historical data on gross exports is obtained for the two relevant industries: (i) telecommunications and (ii) IT and other information services. For the 2021 scenario, the estimation was based on the historical CAGR of the gross exports for each industry. We estimated the untapped potential of direct digital services exports by 2030 for each country using a ‘distance-to-frontier’ approach, where we identified the ‘best-in-class’ performance based on the 2021 ‘direct digital services exports to GDP’ ratio and assumed that every country would reach this level of performance by 2030, and thus applied this ratio to each country’s forecasted 2030 GDP.⁹⁴ The 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only, and will likely be much higher if we used global best-in-class countries as a reference point. Meanwhile, direct digital services exports

for the best-in-class country itself were projected using its historical growth rate up to 2024, and the projected IMF GDP growth rate is used for 2025-2030.

Channel 1: Indirect digital services (embedded in other exports). These refer to imported digital services that get used in the export of goods and services. Examples include telecommunication services such as imported email, video conferencing, digital file sharing, and VOIP services that get used by companies when exporting overseas. Most of the literature has largely ignored this indirect component and therefore has potentially significantly underestimated the contribution of digital trade to a country’s exports (in some countries, this component accounts for up to 40 percent of the value of total digital exports). Where attempts have been made to proxy for this indirect component in the past literature, the analysis has often failed to distinguish between the sources of such services by domestic and foreign origins. The TiVA database provides data on the contributions of value added by imports—broken down by source country and source industry—to gross exports—broken down by exporting country and exporting industry. This data allows us to compute the indirect value-added impact that imports of digital services have on the gross exports of the focus countries. However, some double-counting will occur as some of the value of direct exports of these industries (i.e., telecommunications and computer-related services) calculated in the component ‘direct services’ (discussed earlier), will originate from imports in those industries. To avoid this, the indirect value-added sourced from imports in the telecommunications and computer-related services on exports in these two industries was removed. For the 2021 scenario, the estimation was based on the historical CAGR of the gross exports contributed by imports of digital services. We estimated the untapped potential of indirect digital services exports by 2030 for each country using a ‘distance-to-frontier’ approach, where we identified the ‘best-in-class’ performance based on the 2021 ‘indirect digital services exports to GDP’ ratio and assumed that every country would reach this level of performance by 2030, and thus applied this ratio to each country’s forecasted 2030 GDP.⁹⁵ The 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only, and will likely be much higher

94. This assumes that the country with the lowest direct digital services share of GDP will see its share grow by the most over 2021-30 in order to “catch up” to the best-in-class country. This analysis is also based on current and forecasted economic conditions in the six focus countries in 2021, and could be changed if these economic conditions are changed.

95. This assumes that the country with the lowest indirect digital services export share of GDP will see its share grow by the most over 2021-30 in order to “catch up” to the best-in-class country. This analysis is also based on current and forecasted economic conditions in the six focus countries in 2021, and could be changed if these economic conditions are changed.



if we used global best-in-class countries as a reference point. Meanwhile, indirect digital services exports for the best-in-class country itself were projected using its historical growth rate up to 2024, and the projected IMF GDP growth rate is used for 2025-2030.

Channel 2: Cross-border e-commerce exports. Despite its growing significance, the literature on cross-border e-commerce flows is surprisingly scarce. We recommend this analysis to focus on business-to-consumer (B2C) exports, as this is the main component of e-commerce goods. Our approach employs two major data points: (i) historical data on e-commerce sales revenue for B2C consumer products and (ii) the share of e-commerce sales that are exported. Data for (i) is sourced from Statista. For (ii), we based our estimates on multiple industry reports analyzing cross-border e-commerce and export trends in Latin America. This includes the EBANX Beyond Borders Report 2020, the PPRO Latin America Payments and E-commerce Report 2021, and the AMI Latin America E-Commerce Market Projections 2022-2024 Report. For the 2021 scenario, the estimation was based on (i) Statista's estimated e-commerce sales revenue data multiplied by (ii) the share of e-commerce sales exported. To avoid double counting the value of exports already counted elsewhere (e.g., e-commerce exports facilitated by digital advertising), we removed the share of digital advertising-enabled export value increments that go to the retail sector. We estimated the untapped potential of e-commerce exports by 2030 for each

country using a 'distance-to-frontier' approach, where we identified the 'best-in-class' performance based on the 2021 'e-commerce exports to GDP' ratio and assumed that every country would reach this level of performance by 2030, and thus applied this ratio to each country's forecasted 2030 GDP.⁹⁶ The 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only, and will likely be much higher if we used global best-in-class countries as a reference point. Meanwhile, e-commerce exports for the best-in-class country itself were projected using its historical growth rate up to 2024, and the projected IMF GDP growth rate was used for 2025-2030. Similarly, to avoid double counting the value of exports facilitated by digital advertising, the share of digital advertising-enabled export value increments that go to the retail sector is removed.

Channel 2: Increased export revenue facilitated by cross-border digital advertising. To estimate the annual increment to revenue through the use of global digital advertising tools by local firms, we multiplied search and display advertising spending (excluding video platforms like YouTube, to prevent double-counting) by a composite Return on Investment (ROI) ratio across various advertising platforms, to obtain the net increase in sales as a result of the use of these advertising tools.⁹⁷ We then applied an 'export ratio' measuring the share of overseas traffic on search and display advertisements by firms in the focus country, to derive the returns coming from overseas markets.⁹⁸ We estimated the untapped potential of net increased sales from cross-border digital advertising by 2030 for each country using a 'distance-to-frontier' approach, where we identified the 'best-in-class' performance based on the 2021 'ad-driven exports to GDP' ratio and assumed that every country would reach this level of performance by 2030, and thus applied this ratio to each country's forecasted 2030 GDP.⁹⁹ The 2030 estimate was projected based on the 2021 performance of the best-in-class within the six focus countries only, and will likely be much higher if we used global best-in-class countries as a reference point. Meanwhile, ad-driven exports for the best-in-class country itself were projected according to consensus industry estimates.

96. This assumes that the country with the e-commerce export share of GDP will see its share grow by the most over 2021-30 in order to "catch up" to the best-in-class country. This analysis is also based on current and forecasted economic conditions in the six focus countries in 2021, and could be changed if these economic conditions are changed.

97. Advertising spending statistics were largely retrieved from Statista and DataReportal respectively. The composite ROI ratio was derived from academic literature and platform variance, in line with the assumptions present in the Google US Economic Impact Methodology. Varian, H. R. (2009), "Online Ad Auctions". The American Economic Review, Vol. 99, No. 2, pp. 430-434. Jansen, B. J., & Spink, A. (2009), "Investigating customer click through behaviour with integrated sponsored and non-sponsored results." International Journal of Internet Marketing and Advertising, Vol. 5, No. 1-2, pp. 74-94. Google DoubleClick (2012). What's trending in display for publishers? Available at: www.slideshare.net/RFOONIER/display-business-trends-publisher-edition-google-2012. Gupta, S., Pauwels, K., & Kireyev, P. (2015), "Do display ads influence search? Attribution and dynamics in online advertising." International Journal of Research in Marketing.

98. Representative and stratified sampling of firms' paid traffic into overseas and domestic channels was conducted on the SEMRush database. Available at: <https://semrush.com>

99. This assumes that the country with the lowest online advertising export share of GDP will see its share grow by the most over 2021-30 in order to "catch up" to the best-in-class country. This analysis is also based on current and forecasted economic conditions in the six focus countries in 2021, and could be changed if these economic conditions are changed.

A2: Policy Framework and Assessment

FIVE STRATEGIC IMPERATIVES AND 11 LEVERS

Strategic Imperative 1: Lead from the top. This imperative and its associated policy levers are concerned with setting the right direction for the digital transformation of the economy. They entail elevating digitization to be a top national agenda item, developing concrete sector-level plans to guide progress, and improving coordination. As a result, these levers tend to be cross-cutting across sectors. Specific policy levers include:

1. **Steer the direction (General enabler):** From the outset, governments should create a clear plan, roadmap, or national strategy for digital transformation, covering key topics such as digital trade. There should also be legislation further regulating those areas and linking the national vision to sector-specific roadmaps and laws, as well as broader international law in order to ensure interoperability.
2. **Coordinate across government (General enabler):** The government should identify champions and leaders as part of its digital policy development process, ensuring the policy obtains goodwill and buy-in from both public and private sector stakeholders when it is launched. It is also key for national plans to be effectively coordinated across sectors and different agencies. At the same time, governments would benefit from defining the lead agency responsible for implementing the country's digital strategy, ensuring its proper enforcement.

Strategic Imperative 2: Build physical capital.

This imperative and its associated policy levers focus on the infrastructural capital that provides the technical foundation for digital exports. It includes reliable communications infrastructure as the backbone of digital transformation and a key enabler for digital trade; digital payment system infrastructure, which enables transactions of all sizes and between any entities (especially cross-border ones); and enhanced logistics considering that the region is highly fragmented with weak transport infrastructure and significant levels of traffic in the bigger cities. Specific policy levers include:

3. **Build future-proof digital infrastructure to facilitate e-payment and logistics (Critical enabler):** There should be increased focus

on improving the supply chain through digital technologies and/or digitalized processes, as well as an enabling framework to support the roll-out of an appropriate e-payments system infrastructure. The support could be targeted as financial support or technology extension programs in areas such as diagnosis, self-assessment tools, e-business solutions and learning material specifically for digital supply chains.

4. **Enhance access to the Internet (General enabler):** To unleash the benefits of Internet-enabled trade, governments have to issue policies to guarantee universal access to high-quality broadband and implement measures to tackle handset affordability. Storage and connectivity infrastructure, e.g., through data centers and subsea cables, increase security, reduce latency and lead the way for further investments by the private sector.

Strategic Imperative 3: Develop human capital. This imperative and its associated policy levers capture the countries' investments in knowledge-based capital for the effective use of digital tools to boost exports. They assess the policies and initiatives aimed at developing digital skills, as well as capacity-building initiatives to government officials on digital trade policy enablers. Specific policy levers include:

5. **Bridge skills gaps related to exports among public officials and wider population (Critical enabler):** The lack of digital skills amongst existing employees in both the public and private sectors is a particular problem for Latin American economies. To address this shortage, governments must have targeted actions to (i) increase the pool of Information Technology (IT) workers; (ii) equip the wider population with basic digital skills to use the Internet effectively, and (iii) promote specific initiatives to policymakers on how to enable and reap the benefits of digital exports. Today, public officials face an increasing number of issues that require extensive knowledge of technology for effective policy making, therefore trainings covering different aspect of digital trade policy, including best practices on paperless trade processes, data flows, cloud, privacy & security, digital shipping, fast-tracking process of shipments, digital signature, e-contracts, and e-payments,

and emerging technologies systems would enhance the technical knowledge of policy makers and strengthen ties between political and technical communities.

6. *Develop training programs for businesses on new, tech-enabled export categories (Critical enabler):*

To engage in digital trade, businesses also need to possess a reasonably high level of awareness of the e-commerce and digital trade ecosystems and value chain. As such, governments need to provide resources, as well as research and innovation incentives, to equip businesses (especially MSMEs) with the necessary knowledge and skills to promote digital trade. In this vein, partnerships between the public and private sector could help governments to better understand the needs of businesses and the challenges they face in exporting.

Strategic Imperative 4: Enhance competitiveness.

This imperative and its associated policy levers include a broad range of policies that guarantee important components of digital trade, such as fostering trust and reducing non-tariff barriers to trade. They also include the protection of privacy and the free flow of data, given the role data plays in global value chains. Specific policy levers include:

- 7. *Implement robust and clear regulatory frameworks for data storage, use, and transfer (Critical enabler):*** To address unnecessary obstacles to cross-border data flows, while continuing to address privacy and data protection, countries need enforceable standards and international agreements to guarantee the free and safe cross-border movement of data. Data flows and privacy go hand in hand and countries should enact strong privacy protections that further enable data flows and trust among trading partners.
- 8. *Promote digital security and build trust among businesses and consumers (Critical enabler):*** To harness the opportunities of the digital economy and support the trade of goods and services, governments must enact policies that protect the rights of consumers, e.g., through eID and build trust in the marketplace through internationally interoperable cybersecurity frameworks and adoption of security standards. Other areas that could be considered include improved liability protection that strikes the right balance between protecting innovation, improving consumer protection and building trust.

- 9. *Implement trade facilitation measures and policies, including border compliance (customs and other inspection regulations) and documentary compliance (Critical enabler):*** With growing interconnectedness and greater demand for just-in-time delivery, trade needs to be faster and more reliable than ever before. To cut red tape and enable more businesses to engage in digital trade, governments should strive to use digital solutions for trade facilitation, helping goods move faster across borders. This means, for instance, promoting the issuance of electronic contracts (e-invoicing) and digital trading systems (e.g., automated customs systems, paperless trade), as well as Trade Facilitation Agreements (TFAs) that promote global rules, norms, and standards to digital trade.

Strategic Imperative 5: Enable technology usage. This imperative and its associated policy levers involve two different policy categories: firstly, it analyzes the efforts put into promoting digital tools uptake amongst businesses. Secondly, it identifies ways in which governments can champion new areas of digital trade and stimulate demand for new technologies. This can be achieved, for instance, through government procurement (as a lever to pull through innovation from idea to market), and policy of cloud-first services, stimulating adoption by the private sector.

- 10. *Facilitate adoption of digital tools among businesses, especially MSMEs (General enabler):*** Considering that MSMEs are oftentimes resource-constrained with less extensive IT equipment, digital skills, and managerial and technical skills, governments should promote the diffusion of digital technologies through financial support (such as tax incentives or direct grants for R&D) and non-financial supports, such as cooperative research ventures between universities and companies. Some examples of digital tools that can help to boost exports here include emerging technologies such as AI, blockchain and robotics.
- 11. *Lead the way in terms of adoption of digital technologies (General enabler):*** Governments should strive to lead digital transformation efforts, which could be achieved through the digitalization of public services or implementing a policy of cloud-first services, which could subsequently stimulate adoption by the private sector. The support could be provided by defining guidelines on the evaluation and preferential adoption of cloud services by the organs of the State administration.

ASSESSMENT CRITERIA

Evaluation of country readiness. We conducted a rapid diagnostic of each country's readiness for adopting digital technologies for exports. This diagnostic would focus on the extent to which each country has sufficient policy focus in each identified lever in the framework (Table A1 and A2). Each policy lever has also been classified as a general or critical enabler of digital exports. In this context, general enablers refer to those which contribute to the broader digitalization of the country, whereas critical enablers are specific and crucial to the achievement of digital exports.



TABLE A1

Strategic Imperative to boost exports (Five imperatives)	Levers (11 levers)	Type of digital trade enabler (General/ critical)	KPIs/Metrics (22 policy actions)
Lead from the top	Steer the direction	General	<ul style="list-style-type: none"> • Adopt a long-term strategic National Plan which identifies high-level objectives and principles for digital transformation, e-commerce & digital trade. • Link the National vision to sector-specific roadmaps and laws.
	Coordinate across government	General	<ul style="list-style-type: none"> • Implement a National Digital Strategy, which establishes the leadership for coordination across government and with the private sector. • Ensure there are public and private sector digital champions.
Build Physical Capital	Build future-proof digital infrastructure to facilitate e-payment and logistics	Critical	<ul style="list-style-type: none"> • Develop appropriate payment system infrastructure and e-payment regulatory framework. • Improve supply chains using digital technologies and/or digitalized processes that facilitate the movement of goods.
	Enhance access to Internet	General	<ul style="list-style-type: none"> • Implement policies to subsidize and lower costs of the Internet to expand connectivity. • Make Internet-enabled devices affordable for all.

TABLE A1 (CONT'D)

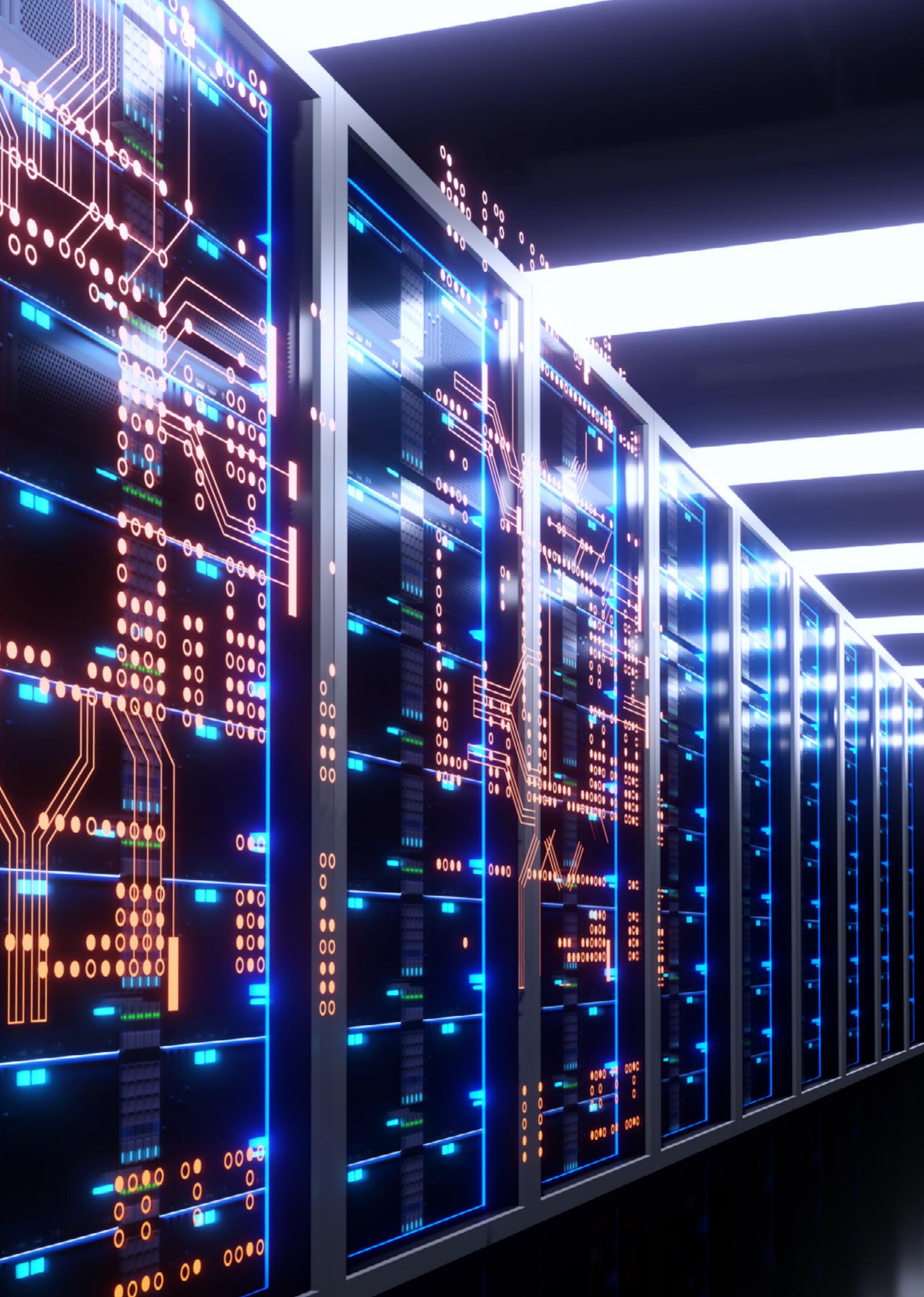
Strategic Imperative to boost exports (Five imperatives)	Levers (11 levers)	Type of digital trade enabler (General/ critical)	KPIs/Metrics (22 policy actions)
Develop Human Capital	Bridge digital skills gaps related to exports among public officials and the wider population	Critical	<ul style="list-style-type: none"> • Provide public officials with trainings on policies and programs to facilitate digital exports. • Implement education programs which facilitate the use of technologies to equip students and digitally excluded social groups with necessary digital skills.
	Develop training programs for businesses. These include programs on (i) new, tech-enabled export categories; as well as how to (ii) better harness the potential of digital tools to boost exports	Critical	<ul style="list-style-type: none"> • Develop online resources and training materials focused on tech-enabled tools, such as online marketplaces, to leverage exports. • Encourage business innovation and the supply of new digital solutions through a range of research and innovation policies.
Enhance competitiveness	Implement robust and clear regulatory frameworks for data storage, use and transfer, guaranteeing privacy protection while facilitating international personal data flows	Critical	<ul style="list-style-type: none"> • Introduce a robust cross-border data transfer framework which includes data privacy measures. • Ensure international cooperation to facilitate cross-border data flows.
	Promote digital security and build trust among businesses and consumers	Critical	<ul style="list-style-type: none"> • Implement a cybersecurity framework and set standards for the industry to support growth of digital exports. • Build a data-driven culture, by increasing awareness and capacity to manage and protect data. • Ensure online consumer and business rights (e.g., reinforcing efforts to harmonize legislations on trade secrecy and intellectual property rights protection across jurisdictions).
	Implement trade facilitation measures and policies, including border compliance (customs and other inspection regulations) and documentary compliance	Critical	<ul style="list-style-type: none"> • Promote electronic contracts (e-invoicing) and digital trading systems (e.g., automated customs systems, paperless trade). • Adopt and implement TFAs that promote global rules, norms, and standards to digital trade.

TABLE A1 (CONT'D)

Strategic Imperative to boost exports (Five imperatives)	Levers (11 levers)	Type of digital trade enabler (General/ critical)	KPIs/Metrics (22 policy actions)
Enable technology usage	Facilitate adoption of digital tools among businesses, especially MSMEs	General	<ul style="list-style-type: none"> Scale up MSMEs' capacity through technology and financial supports (e.g., subsidize costs associated with digital exports). Connect MSMEs with knowledge networks (e.g., digital transformation centers and model factories) to provide them with access to data and technology.
	Lead the way in terms of adoption of digital technologies	General	<ul style="list-style-type: none"> Implement policies for the acquisition of ICT products and services, including a policy of cloud-first services, stimulating adoption by the private sector.

TABLE A2

Level of progress by policy analysis	Level of relevance of policy lever	Description	Corresponding score
High	Low	<ul style="list-style-type: none"> Country has enacted relevant policy actions under the policy lever and is implementing them with high degree of success 	3
Medium	Medium	<ul style="list-style-type: none"> Country is implementing relevant policy actions under the policy lever with still low/moderate degree of success. Country has implemented relevant policy actions under the policy lever, but there is no evidence/KPIs enough to evaluate implementation success rate 	2
Low	High	<ul style="list-style-type: none"> Country has not considered policy action under the policy lever with little or no indication of future enactment 	1





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