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THE DIGITAL SPRINTERS

Boosting exports through digital technologies in Brazil

October 2022

A Digital Sprinters focus report – Commissioned by Google

A Digital Sprinters[1] 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 rate for the period from December 2020 to December 2021.

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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CONTENT

THE DIGITAL SPRINTERS

The US$60.2 billion export opportunity from digital technologies for Brazil

DIGITAL TECHNOLOGIES BOOST EXPORTS THROUGH THREE CHANNELS

Creating new exportable digital solutions

e.g., Brazilian app developers earn

US$319 MILLION ANNUALLY

from app users outside the country

Reducing costs of access to overseas markets

e.g., Global digital advertising platforms increase export revenues of Brazil-based firms by

US$2.7 BILLION ANNUALLY

Supporting efficiency in exporting processes

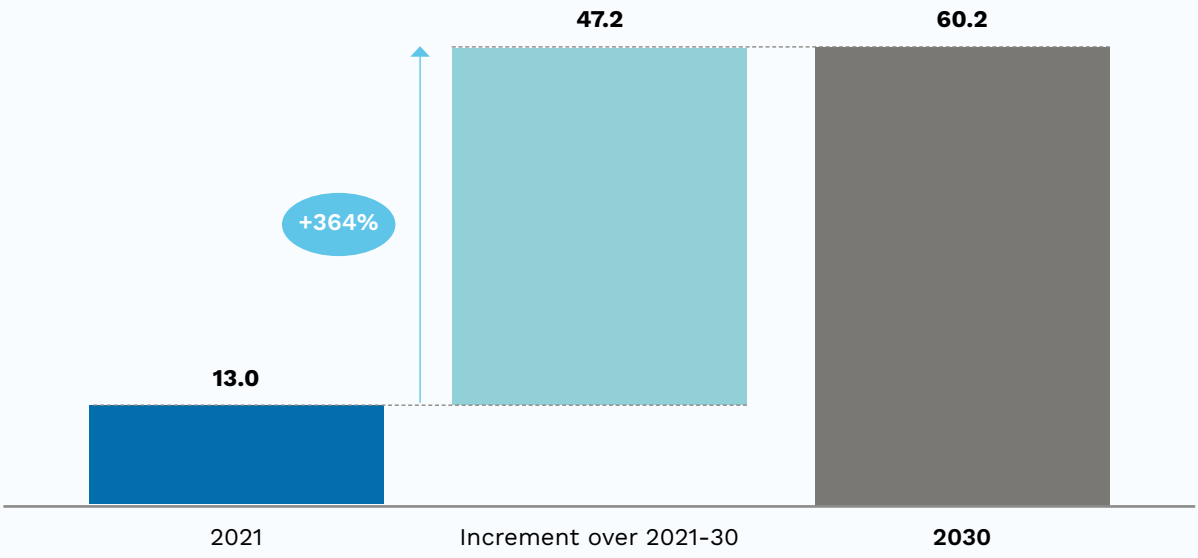
e.g., Around

1.6 MILLION BUSINESSES

in Brazil issue electronic invoices for goods, shortening payment processing time and cutting transaction costs for businesses

"SIZE OF THE PRIZE" FROM DIGITAL TECHNOLOGIES FROM EXPORTS, US$ BILLIONS

Brazil is already experiencing a **US$13 BILLION** boost to its annual export value from digital technologies, but this value could more than quadruple to reach **US$60.2 BILLION** in 2030[1]



1. 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.

A CONDUCIVE POLICY ENVIRONMENT IS NEEDED TO CAPTURE THIS US$60.2 BILLION POTENTIAL BENEFIT FOR BRAZIL

Close digital gap

Bridge the digital divide by adapting local laws to ease infrastructure deployment and streamline permit processes

Promote nationwide digital bootcamps

Partner with private companies to implement digital bootcamps to increase pool of skilled IT workers and capitalize on potential of digital trade

This includes:

Enhance cybersecurity resilience

Invest in training and cyber risk awareness campaigns

Boost internationalization of MSMEs

Partner with private companies to implement digital bootcamps to increase pool of skilled IT workers and capitalize on potential of digital trade

Provide tax incentives

Support digital innovation of MSMEs through tax incentives

SOURCE: AlphaBeta-Access Partnership analysis

UNLOCKING THE DIGITAL EXPORT OPPORTUNITY IN BRAZIL

The largest in population among all six focus Latin American economies, Brazil has the highest number of cellphone ownership and ranks second in the world in terms of intensity of cellphone use, at 5.4 hours a day on average.[2] As Latin America's largest market in terms of mobile game players and revenue, Brazil's mobile game market in 2021 is expected to generate over US$1 billion in revenues.[3] With 10,734 app publishers (one percent of all app publishers) and 946,013 apps (2 percent of all apps) on Google Play as of 1 August 2022, Brazil is well positioned to be Latin America's regional hub for mobile applications. Brazil's mobile app exports are expected to grow by a compound annual growth rate (CAGR) of 20.8 percent to reach US$1.7 million by 2030.

Yet, much of the value generated by mobile apps, as well as by other forms of digital technologies, in boosting exports in Brazil goes unreported as national statistics have failed to keep pace with the rapid evolution of the digital economy. This report aims to address this gap.[4] It finds that Brazil is already experiencing a **US$13 billion[4]** boost (4.1 percent of total exports) to its annual export value from applying digital technologies today (with Google facilitating up to 12.9 percent), and by 2030, this value can grow by more than four times to become **US$60.2 billion[6]**. To fully capture this significant prize, there are five policy recommendations for Brazil to focus on:

1. Bridge the digital gap;
2. Promote nationwide digital bootcamps;
3. Enhance cybersecurity resilience;
4. Boost the internationalization of micro, small and medium enterprises (MSMEs) and
5. Provide tax incentives to boost digital adoption among MSMEs.

2. ZDNet (2021), "Brazilians spend more time on smartphones than rest of the world".
Available at: *https //www.zdnet.com/article/brazilians-spend-more-time-on-smartphones-than-rest-of-the-world/*

3. New Zoo (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*

4. In our methodology to size the 2030 market, the country with the lowest digital export share of GDP for a particular component will see its share grow by the most over 2021-2030 in order to "catch up" to the best-in-class country for that component. 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. See Appendix in the overall regional report 'The Digital Sprinters: Boosting exports through digital technologies' for more details on the methodology.

5. 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).

6. This 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.

> AS LATIN AMERICA'S LARGEST MARKET IN TERMS OF MOBILE GAME PLAYERS AND REVENUE, BRAZIL'S MOBILE GAME MARKET IN 2021 IS EXPECTED TO GENERATE OVER US$1 BILLION IN REVENUES. WITH 10,734 APP PUBLISHERS AND 946,013 APPS ON GOOGLE PLAY AS OF 1 AUGUST 2022, BRAZIL IS WELL POSITIONED TO BE LATIN AMERICA'S REGIONAL HUB FOR MOBILE APPLICATIONS.

1. THE VALUE OF DIGITAL PRODUCTS AND SERVICES FOR BRAZIL'S EXPORTS IN 2021

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. In 2020, Brazil was ranked 133rd out of 158 countries in terms of export intensity (measured as a percentage of Gross Domestic Product or GDP), one of the lowest among G20 countries.[7] Digital exports, such as mobile apps and online videos, however, still have the ability to unleash a deep untapped potential in Brazil's mobile-first population and creator economy. For instance, Brazil has established itself as a major developer and exporter of mobile, computer, and console video games. Across all types of apps, Brazilian app developers are currently estimated to be earning US$319 million annually from app users outside the country.[8] Additionally, over US$53 million in games were shipped by the country last year, with the United States, Canada, and Europe as the principal destinations.[9] This strong position is the result of a concerted collaboration by the Apex-Brasil, the Brazilian Trade and Investment Promotion Agency, and the Brazilian Game Companies Association, ABRAGAMES, to promote and support Brazilian app and game developers on the international stage.[10] In addition, Brazil is strong in providing ICT services as part of direct digital services, contributing to more than 90 percent of all digital services exports.

7. World Bank (2021), Exports of goods and services (% of GDP). Available at: *https //data.worldbank.org/indicator/NE.EXP.GNFS.ZS*

8. AlphaBeta-Access Partnership analysis. See Appendix in the overall regional report 'The Digital Sprinters: Boosting exports through digital technologies' for more details on the methodology.

9. ArabBrazilian Chamber of Commerce (2021), "Brazil exported over USD 53 million in games in 2020". Available at: *https //anba.com.br/en/brazil-exported-over-usd-53-million-in-games-in-2020/*

10. Brazil Games (2021), "Brazilian Delegation Rocks the July 2021 Game Events: GDC, Game Connection Online, MeetToMatch San Francisco and Shanghai". Available at: *https //www.brazilgames.org/our-actions/brazilian-delegation-rocks-the-july-2021-game-events-gdc-game-connection-online-meettomatch-san-francisco-and-shanghai*

2 Reducing costs of access to overseas markets.

These include increases in the exports of goods through cross-border digital platforms (e.g., cross-border e-commerce) and digital advertising. Many Brazilian e-commerce sellers are leveraging e-commerce marketplaces such as Mercado Livre and Shopee to reach out to regional consumers. For instance, Shopee already has more than one million Brazilian sellers registered on its marketplace platform as of February 2022.[11] Cross-border digital advertising is also an opportunity for Brazilian companies to leverage digital technologies to promote their products and services beyond its already large domestic market. Due to Brazil's large population and size compared to its Latin American peers, the number of companies incorporated here has already surpassed 19 million.[12] While Brazilian companies have not yet capitalized on this cross-border opportunity in significant scale on a relative basis (with cross-border digital advertising benefits to overseas consumers smaller as a percentage of GDP in Brazil compared to the other five focus Latin American economies), this benefit is expected to grow with increased use of digital market access tools and payment platforms.[13] Currently, Brazil-based firms are estimated to reap US$2.7 billion annually in additional export revenues from digital advertising targeted at overseas customers, demonstrating how digital advertising platforms are able to enhance access to a larger export audience.[14] In particular, MSMEs in Brazil see sizable benefits as they are able to access overseas audiences at an affordable price, giving them the same amount of visibility as their larger competitors.

3 Supporting efficiency in exporting processes.

There are various examples of how technologies can do this, such as paperless trade, digital solutions for trade information and operations, machine-to-machine (M2M) tracking of exported goods, and the application of Internet-of-Things (IoT) technologies in ports. Among the early adopters in e-invoicing, Brazil is considerably advanced in its invoicing processes.[15] With very few exceptions, e-invoicing is required for all firms in Brazil, with around 1.6 million businesses issuing e-invoices for goods, due to the country's rigorous implementation of its e-invoicing usage mandate over the years. The digitalization of invoices has simplified bureaucratic procedures as businesses now process their tax requirements digitally, lowering tax compliance costs and critical time spent reviewing and checking paperwork. E-invoicing has also facilitated the creation of associated digital solutions to support exporting processes. For instance, the Brasil-ID system enables for the tracking of commodities using radio-frequency identification (RFID) technology.[16] Such real-time remote monitoring of cargo transportation can help control the payment of corresponding taxes, especially facilitating cross-border exports. These benefits are especially significant for MSMEs, which may not have as much financial capabilities as their larger counterparts to invest in complex logistical networks. In such cases, the use of digital technologies can help to streamline and simplify exporting processes.

11. LABS (2022), "Shopee sees the number of Brazilian sellers on marketplace jump 600% by 2021". Available at: *https //labsnews.com/en/news/business/shopee-sees-the-number-of-brazilian-sellers-on-marketplace-jump-600-by-2021/*

12. Ministry of Economy Brazil (2022), "Painel Mapa de Empresas." Available at: *https //www.gov.br/governodigital/pt-br/mapa-de-empresas/painel-mapa-de-empresas*

13. AlphaBeta-Access Partnership analysis based on Statista projections and World Bank data. The six Latin American economies analyzed are Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay.

14. AlphaBeta-Access Partnership analysis. See Appendix in the overall regional report 'The Digital Sprinters: Boosting exports through digital technologies' for more details on the methodology.

15. Billentis (2019), The e-invoicing journey 2019-2025. Available at: *https //www.billentis.com/The_einvoicing_journey_2019-2025.pdf*

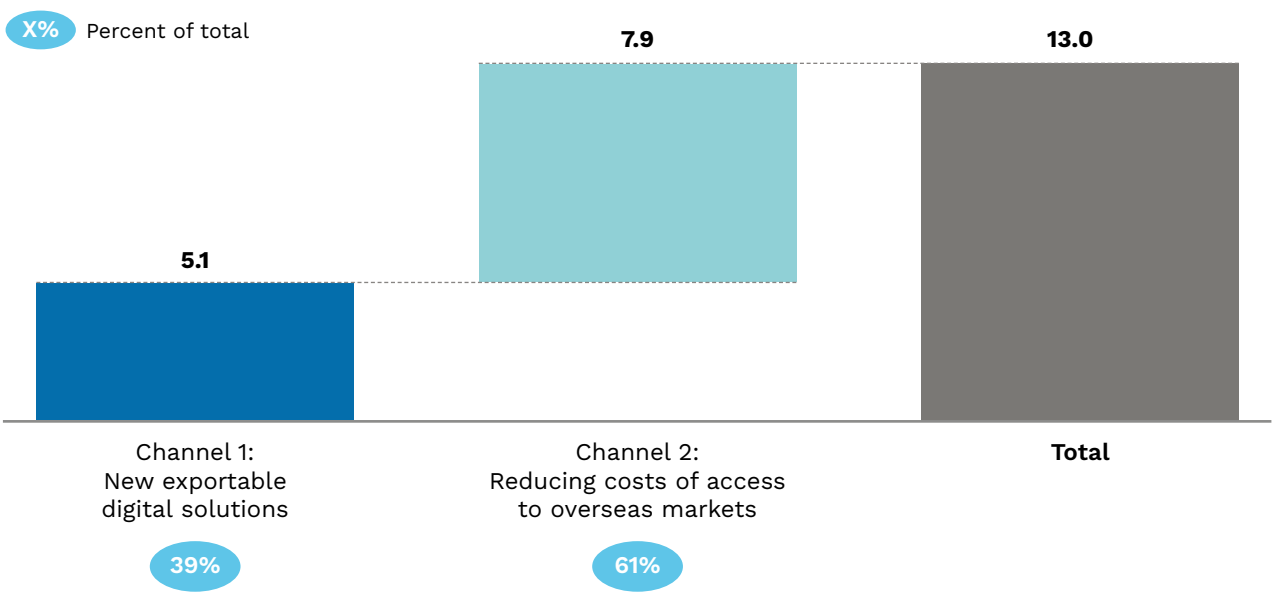
16. Brasil ID (n.d.) Available at: *http //brasil-id.org.br/*

Brazil is already experiencing a **US$13 billion** boost to its annual export value from applying digital technologies today (Exhibit 1), making digital exports Brazil's 5th largest export sector behind agriculture and food, resources and mining, manufacturing, and infrastructure and logistics.[17] 61 percent of this comes from the reduced costs of access to overseas markets (channel 2) through digital advertising and e-commerce platforms, representing 2.5 percent of total exports, while the remaining comes from the creation of new exportable digital solutions (channel 1), representing 1.6 percent of total exports. 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. Cross-border e-commerce sales of US$5.2 billion constitutes a large bulk of this benefit. This is driven by a confluence of factors, such as increasing e-commerce sales, high exports of Brazilian merchandise goods,[18] and the rise of regional Brazilian e-commerce marketplaces facilitating domestic sellers in exporting goods. For instance, e-commerce sales in Brazil have been growing at a CAGR of more than 29 percent from 2017-2021. In terms of total gross merchandise value (GMV) transacted, Brazilian marketplaces with presence mostly in Latin America like Casas Bahia (US$2 billion in 2020) and Magalu (US$4 billion in 2020) are exhibiting some of the fastest growth in Latin America at 128 percent and 82 percent for 2020 respectively, supporting many Brazilian e-commerce sellers in reaching more regional consumers.[19] Electronics and technological products make up the bulk of e-commerce export revenues for Brazil, at an estimated 42 percent, especially in recent years, facilitated by an increase in demand for products related to education technology, e-health and connected homes due to the COVID-19 pandemic.[20]

Exhibit 1:

BRAZIL IS ALREADY EXPERIENCING A US$13 BILLION BOOST TO ITS ANNUAL EXPORT VALUE FROM DIGITAL TECHNOLOGIES TODAY

BOOST TO THE ANNUAL VALUE OF BRAZIL'S EXPORTS FROM DIGITAL TECHNOLOGIES, 2021
US$ BILLIONS



NOTE: Figures may not sum due to rounding. Figures are conservative estimates as they do not include all the efficiency benefits that digital technologies can bring to export-related industries under channel 3 (e.g., through better tracking of goods in transit through Internet of Things technology).

SOURCE: AlphaBeta-Access Partnership analysis

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. See Appendix in the overall regional report 'The Digital Sprinters: Boosting exports through digital technologies' for more details. For comparison, merchandise and services exports were segmented into eight key sectors: healthcare, financial services, agriculture and food, education and training, consumer and retail, resources and mining, manufacturing, and infrastructure. This analysis assumed that we are able to define digital trade as a sector. OEC (2020), Yearly Exports. Historical Data. Available at: https://oec.world/en/profile/country/bra?depthSelector1=HS2Depth.

18. This refers to customs reports of goods moving into or out of an economy or reports of financial transactions related to merchandise trade recorded in the balance of payment. Source: World Bank (2022), "Metadata Glossary – Merchandise Imports".
Available at: https://databank.worldbank.org/metadataglossary/world-development-indicators/series/TM.VAL.MRCH.CD.WT

19. EcommerceDB (2021), "South America's top online marketplaces". Available at: https://ecommercedb.com/en/blogPost/3248/south-americas-top-online-marketplaces. LABS (2022), "Shopee sees the number of Brazilian sellers on marketplace jump 600% by 2021".
Available at: https://labsnews.com/en/news/business/shopee-sees-the-number-of-brazilian-sellers-on-marketplace-jump-600-by-2021/

20. Bnaericas (2020). "Brazil's main electronics manufacturer sees opportunities in the post-pandemic".
Available at: https://www.bnamericas.com/en/news/brazils-main-electronics-manufacturer-sees-opportunities-in-the-post-pandemic

2. THE VALUE OF GOOGLE'S PRODUCTS FOR BRAZIL'S EXPORTS IN 2021

Google has been instrumental to advancing Brazil's digital export journey through its products such as Google Play, YouTube, Google Ads and Google Cloud. For instance, Google Play, an app distribution platform with over 111.3 billion app downloads in 2021, allows app developers in Brazil to reach overseas users with minimal cost. According to data.ai and AppsFlyer, Google Play represented 57 percent of all app store consumer spend in Q1 2021 in Brazil, up six percentage points from 2020, underlining the growing opportunity for Brazilian app and game developers through Google's platforms.[21]

It is estimated that Google's products helped to facilitate US$1.7 billion (or 12.9 percent) of Brazil's digital export opportunity in 2021. Box 1 lists examples of how Brazilian businesses have benefited from exports facilitated by Google's products.

In addition to advertising tools, Google also helps businesses in Brazil build their e-commerce presence and make better decisions regarding exports. 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.[22] After the initial market shortlist, the platform guides businesses to plan its internationalization operations and market their products and services in new countries.

For instance, Recarga Pay, Brazil's leading mobile payment portfolio, implemented application Campaigns in its digital marketing 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. RecargaPay reported a 100 percent rise in its users' investment budgets, a 40 percent increase in the number of conversions, and 14 times increase in installs, by entering several new markets including Mexico and Argentina.[23]

21. App Annie & Apps Flyer (2021), "The State of App Marketing in Latin America". Available at: https //www.data.ai/en/insights/market-data/latam-state-of-app-marketing-2021/
22. Google (n.d.), "Market Finder". Available at: https //marketfinder.thinkwithgoogle.com/intl/en/
23. Google (n.d.), "App Campaigns drive high-value user installations for Recarga Pay". Available at: https //marketfinder.thinkwithgoogle.com/intl/en/case-study/recargapay-appdev-casestudy

BOX 1.
GOOGLE'S TOOLS HELP BUSINESSES IN BRAZIL REACH OVERSEAS CUSTOMERS AND OPTIMIZE BUSINESS PROCESSES

CLOSET CLOTHING: SELLING SWIMWEAR BEYOND BRAZIL WITH GOOGLE ADS DURING THE PANDEMIC[24]

Since his childhood, Paulo always had an enterprising mind, visualizing business possibilities everywhere he went. After attending a friend's wedding in Italy in 2010, he brought back swimwear apparel to resell in Brazil and sold everything within a week. Realizing the potential for a business back home in Salvador, Brazil, in the same year Paulo founded his beachwear brand Closet Clothing.

Always cognizant of needing a presence in both brick-and-mortar and digital spaces, Paulo started using advertising through Google Ads. In his words, "the brand sells R$40,000 to R$60,000 (approximately US$8,300 to US$12,400) more through the site when we invest in ads. Google directly impacts customer acquisition and loyalty, after-sales and, of course, increased revenue." This investment in digital marketing was particularly crucial for Closet Clothing during the coronavirus pandemic, enabling them to maintain the business through online sales as its physical stores and franchises were forced to close. Even through the pandemic, Google Ads enabled Paulo to expand his business internationally, even to customers in Europe and the United States through his online website.

EVINO (BRAZIL): BRAZILIAN WINE E-TAILER INCREASES REGIONAL INSTALLS WITH GOOGLE PLAY INSTANT AND DRIVES CONVERSIONS WITH GOOGLE PAY[25]

Brazilian online wine merchant Evino aims to make high-quality wine affordable and accessible to everyone. The team was intent on reaching mobile device users as a key target audience, even for those with limited mobile device storage, to allow them to learn about Evino's extensive wine collection. Through their internal product development process, the team identified that the payment process was unnecessarily complex and that the increase in application size from adding excessive lines of code could pose a barrier for users with device storage restrictions. Google Play Instant, which allows people to use a game or game without installing it, turned out to be the solution for Evino. By switching to Google Play Instant and streamlining the payment process with Google Pay, Google's in-built payment system, Evino yielded a 51-percent purchase conversion rate for new buyers. Now, with more than a million application customers regionally, Evino is not only evolving the wine-buying experience, but also helping a growing community of passionate enthusiasts outside of Brazil discover Brazilian wines.

24. Google (2020), Relatório de Impacto Econômico. Brasil 2020. Available at: https //services.google.com/fh/files/misc/google_2020_report_3.pdf

25. Google Play (2019), How Google Play Works: 2019 Google Play Public Policy Report. Available at: https //kstatic.googleusercontent.com/files/de5640816a4d4099f246b64864c038fee1eac9a9e944b3f31e993e9a315d9f49aa813f27b92be0fe1070f52975476b8fa15529cc2ec314bebcde73f91331f77e

COCATREL:
LEVERAGING GOOGLE CLOUD TO DRIVE EFFICIENCIES WHEN EXPORTING TO OTHER CONTINENTS[26]

The Cooperative of Coffee Growers of the Três Pontas Zone (Cocatrel) operates in 11 municipalities in southern Minas Gerais, Brazil, providing logistical, financial, and long-term solutions to support its members, numbering more than 7,000 families. The cooperative set up a special branch for exports, Cocatrel Direct Trade (CDT), which has helped members to grow their customer base across various continents.

For the cooperative to continue supporting its members' businesses and keeping them connected, a key priority was to streamline its enterprise database and improve working processes. Cocatrel had been managing its own enterprise resource planning (ERP) system based on the Common Business-Oriented Language (COBOL), which was a programming language for processing enterprise databases. As COBOL was an older language, it was difficult for Cocatrel to find employees with knowledge of that language to maintain and customize the system.

As such, the cooperative was seeking out services solving technical infrastructure issues, with security, confidentiality, and storage capacity as priorities. By modifying the internal system and migrating to Google Cloud, the Cocatrel team could ensure a close relationship with its members and support their business needs across 11 municipalities. The cooperative was able to cut its costs by 50 percent while maintaining production performance by connecting all its teams in an optimal manner. Google Cloud hosts every server running the SAP infrastructure in virtual machines in Compute Engine, ensuring performance and speed, while guaranteeing scalability to keep up with business demand. This has enabled the organization to improve its time-to-market process for exports, while low latency has also supported performance for e-invoicing integration.

26. Google (n.d.), "Cocatrel: Cost savings and high performance combining SAP and Google Cloud". Available at: *https://cloud.google.com/customers/cocatrel*

3. THE DIGITAL EXPORT POTENTIAL OF US$60.2 BILLION BY 2030

Brazil could still work towards a significant "size of the prize" for exports in the next few years. By 2030, the boost to its annual export value from digital technologies could grow by more than four times to reach **US$60.2 billion** by 2030 (Exhibit 2).[27] In particular, digital services are expected to grow at a CAGR of 23.9 percent, from US$4.7 billion in 2021 to US$33 billion by 2030. Cross-border sales currently represent only about 11 percent of total Latin America retail e-commerce volume, and can outpace overall e-commerce growth (31 percent growth till 2025) by about 10 percentage points annually as the market gets more mature.[28] Another fast-growing, though nascent, area is online video services. The average Brazilian spends more than ten hours a day online, three hours longer than the global average.[29] Monetization among Brazilian content creators is still low, with more than three quarters earning less than US$100 per month. The current situation is possibly attributable to historical trends of television dominating an already small ad budget for Latin America (one-tenth of North America) and the presence of a very nascent creator market with lack of standardization around pricing and business models. However, as the content creator market matures to become a serious growth driver and monetization opportunity, the influx of digital advertising spending and tech platforms that integrate media and monetization is expected to drive significant growth for Brazil.[30] It is estimated that revenue through online video services for Brazilian content creators could grow at a CAGR of 27.1 percent, from US$47 million today to more than US$400 million by 2030.

27. 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.

28. EBANX (2021), Beyond Borders: 2021/2022.
Available at: *https //business.ebanx.com/hubfs/EBANX-Beyond-Borders-2021.pdf?hsCtaTracking=19f7c7df-10ea-469a-994e-127eec84c12a%7Cf8f27894-5e13-491c-ad93-94e462e0e268*

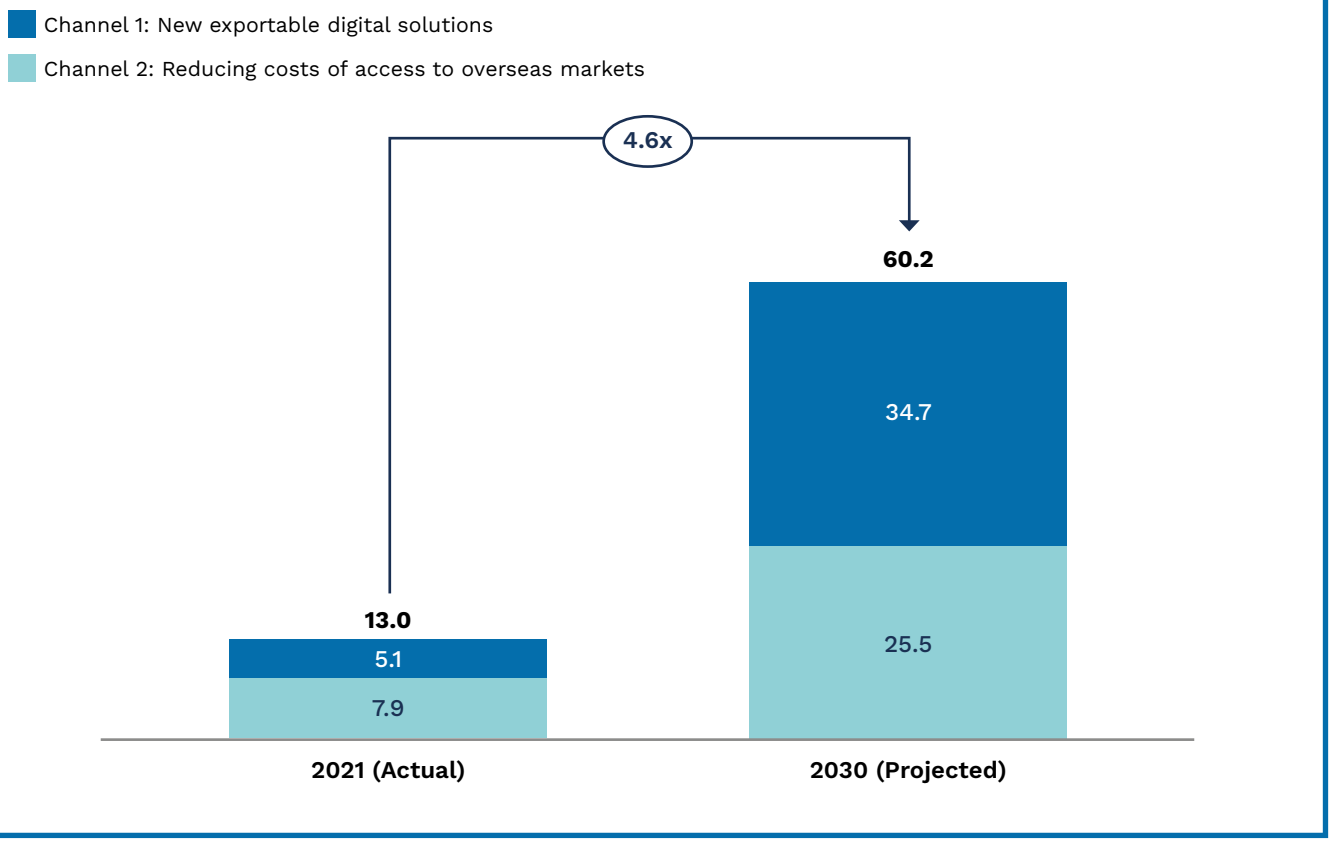
29. GWI (2021), The global media landscape. Available at: *https //www.gwi.com/reports/global-media-landscape*

30. Future (2021), "Inside Lain America's Creator Economy: Rich in Influence, Poor in Cash". Available at: *https //future.a16z.com/latin-america-creator-economy/*

Exhibit 2:

BY 2030, THE TECH-ENABLED BOOST TO BRAZIL'S ANNUAL EXPORT VALUE COULD MORE THAN QUADRUPLE FROM 2021 TO REACH US$60.2 BILLION

BOOST TO THE ANNUAL VALUE OF BRAZIL'S EXPORTS FROM DIGITAL TECHNOLOGIES, 2021 & 2030
US$ BILLIONS



NOTE: Figures may not sum due to rounding. Figures are conservative estimates as they do not include all the efficiency benefits that digital technologies can bring to export-related industries in channel 3 (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

4. POLICY RECOMMENDATIONS AND MEASURES TO ACHIEVE GOALS

A review of impactful, innovative, and practical digital policies, using the Digital Sprinters Framework with an export focus, identified 11 policy levers linked to five strategic imperatives that are crucial for capturing the technology-enabled export opportunity identified earlier in this report (Exhibit 3).[31] 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.

Five of these policy levers were identified as being most relevant to Brazil, and translated into the five core recommendations outlined below (Exhibit 4). We used a two-step process to identify the policy gaps and determine the most applicable recommendations for Brazil. First, we identified which policies and initiatives linked to the 11 policy levers have already been enacted or are currently in place. The policies identified were then ranked following a scoring protocol (a set of questions that serve as parameters to ensure a consistent scoring methodology across all six country reports). This allowed us to rank the policies on a scale of one (low level of progress) to three (high level of progress) and identify areas where further policy action is required. We then drafted our recommendations after considering the data and literature available to support the proposed arguments, 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).

These recommendations are designed to support Brazil in alleviating the bottlenecks currently hindering its export growth to move forward in capturing the potential digital export opportunity, and are regarded as the most

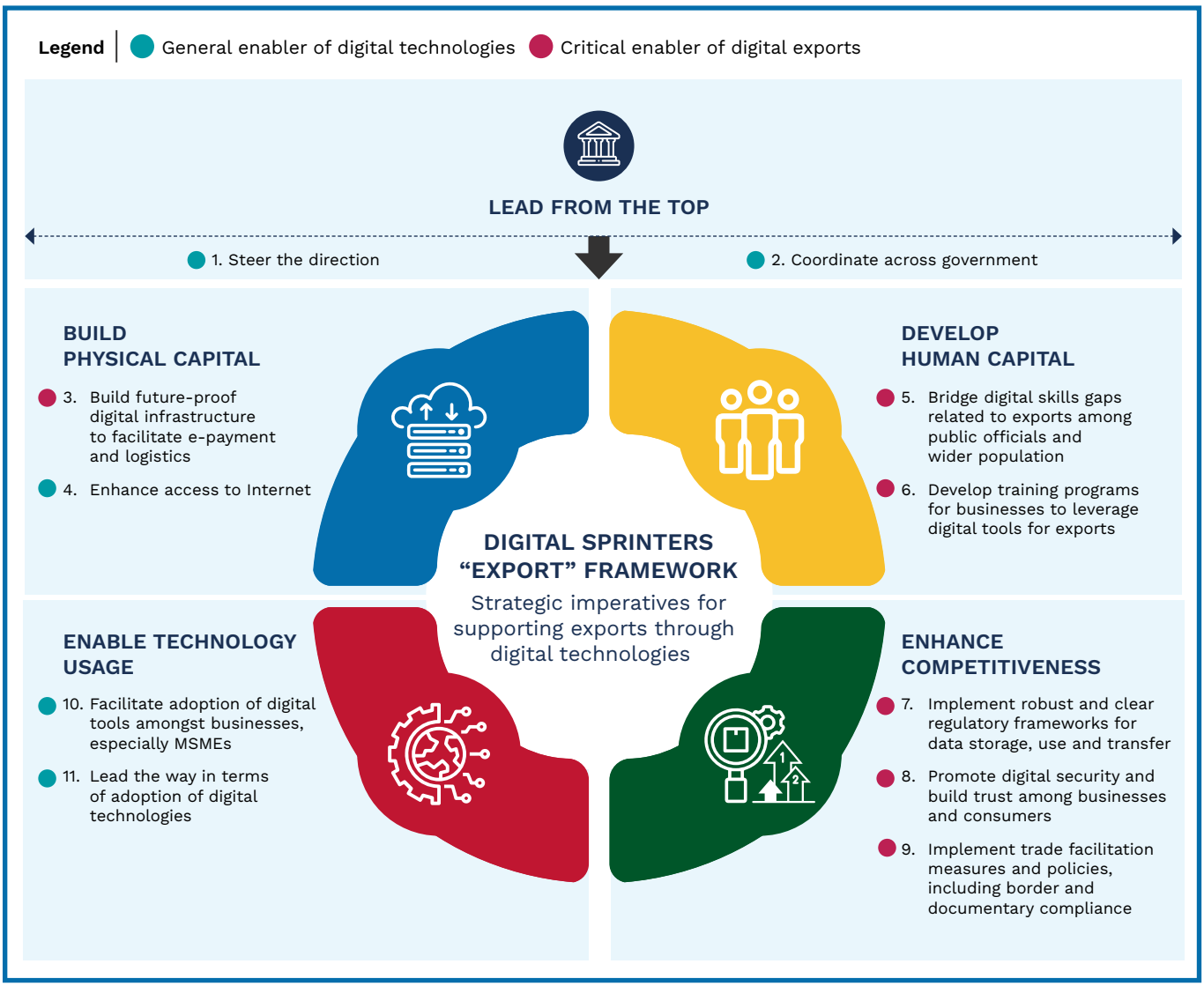
actionable in the short and medium term compared to other possibilities that would require more time or depend on extraordinary political conditions.

For Brazil to achieve the US$60.2 billion “size of the prize” for digital exports by 2030, it will require policymakers to find ways to integrate the implementation of the five policy recommendations highlighted above. Crucially, these five policy recommendations are cross-cutting in nature, and are targeted at strengthening the enabling environment for the respective digital components to unlock higher export growth for Brazil (Exhibit 5). If leveraged and implemented well, it would go a long way in helping Brazil capture its digital export opportunity.

31. 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/*

Exhibit 3:

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



SOURCE: Google; AlphaBeta-Access Partnership analysis

Exhibit 4:

FIVE RECOMMENDATIONS CAN HELP BRAZIL ADDRESS CURRENT GAPS HINDERING EXPORT-LED GROWTH

Policy Lever	Recommendation	From...	...To	Best Practice
Enhance access to Internet	Enhance connectivity by adapting local laws to the changes introduced by Decree 10.480/2020, aimed at easing infrastructure deployment and streamlining permitting processes	Lack of meaningful access to broadband connection which impedes access to digital services	Expanded digital connectivity, with broadband made available and affordable for the lower-income population	Poland's Codes of Practice on telecommunications
Bridge digital skills gaps related to exports	Promote nationwide, large-scale, and employment-focused digital bootcamps	Shortage of skilled workers, with insufficient workers to meet market demand	Pipeline of digitally-trained skilled workers who can engage in knowledge-intensive activities	UK's E-Business Support Program
Promote digital security and build trust	Enhance cybersecurity resilience through further investment in training and campaigns to raise cyber risk awareness	High incidence of cyberattacks in Brazil, with efforts by government agencies compartmentalized	Strong cyber landscape that is resilient to cyber threats, through multi-stakeholder engagement and collaboration between sectors	US' Federal Virtual Training Environment
Implement trade facilitation measures and policies	Promote the full implementation of WTO's 2017 Agreement through a National Strategy focused on enhancing the international position of MSMEs	No specific systems capable of fostering cross-border paperless trade	Implement more TFAs with regional and international counterparts	Singapore's Multichannel E-commerce Platform
Facilitate adoption of digital tools	Provide tax incentives for micro, small and medium enterprises (MSMEs) in order to promote digital innovation	No favored treatment for MSMEs in subsidizing costs of digital tools	Reformed law that makes it easier for MSMEs to access research and development tax incentives	Colombia's income tax deduction for individuals and MSMEs

Exhibit 5:

THE POLICY RECOMMENDATIONS CAN HELP BRAZIL CAPTURE THE FAST-GROWING DIGITAL COMPONENTS

RELEVANCE OF POLICY RECOMMENDATIONS FOR EACH DIGITAL COMPONENT

Relevance[1] | **Strong** **Moderate**

Strategic Imperative | Build physical capital | Develop human capital | Enhance competitiveness | Enable technology usage

POLICY RECOMMENDATIONS	MOBILE APPS	ONLINE VIDEO	E-COMMERCE	DIGITAL SERVICES	DIGITAL ADS
Enhance connectivity by local laws to the changes introduced by Decree 10.480/2020, aimed at easing infrastructure deployment and streamlining permitting processes	✓	✓	✓	✓	✓
Promote nationwide, large-scale, and employment-focused digital bootcamps	✓	✓	✓	✓	✓
Enhance cybersecurity resilience through further investment in training and campaigns to raise cyber risk awareness	✓		✓	✓	✓
Promote the full implementation of WTO's 2017 Agreement through a National Strategy focused on enhancing the international position of MSMEs			✓	✓	
Promote digital innovation among businesses by providing R&D tax incentives specifically designed for MSMEs in order to promote digital innovation	✓		✓	✓	

1. "Strong": Policy lever is extremely relevant to help capture the digital component as it pertains directly to the component or strongly enables its growth; "Moderate": Lever is relevant for the country as it indirectly enables its growth. In the absence of "Strong" or "Moderate", the policy lever does not directly affect the digital component nor provide a critical enabling environment.

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

Recommendation 1: Enhance connectivity by adapting local laws to the changes introduced by Decree 10.480/2020, aimed at easing infrastructure deployment and streamlining permitting processes

In line with *Policy Lever 4: Enhance access to Internet (General enabler)*, more policy effort is required at a local level to update legislation related to infrastructure deployment and reduce barriers to connectivity in Brazilian cities.[32] The need to secure and expand digital connectivity is a key enabler for digital trade in Brazil and, according to Brazil's telecom authority (Anatel), the difficulty in obtaining local licenses to install telecommunications towers and antenna sites is an issue that hinders the expansion of network coverage and the quality of services.[33] Lowering barriers to entry and easing infrastructure deployment lowers barriers for Internet service providers (ISPs) to expand networks by reducing construction costs, which in turn, leads to more competition and more affordable broadband plans. The availability of high-quality and fixed and mobile communication services at competitive prices is thus crucial to unlock and boost the economic benefits of digital exports.[34]

Despite recent improvements, Brazil still faces connectivity hurdles and persistent affordability gaps. The lack of meaningful access to broadband connection impedes access to certain digital services. For example, as reported by the United Nations Economic Commission for Latin America and the Caribbean (CEPAL), the main platforms offering streaming services are not accessible to most Internet users in Brazil because of poor network quality, either because they cannot afford a higher quality or the service itself is deficient.[35] Recent data shows that only 22 percent of households have daily access to streaming services, a number that could grow should high-quality broadband become more widely available and affordable amongst the lower-income population.

Furthermore, even though recent ITU data shows that access to data-only mobile broadband (2GB) is affordable compared to other countries across the world, when it comes to fixed-broadband connection (5GB), Brazil's affordability rate is considerably below average.[36] Most of the population relies on cellular networks and reduced data plans as they are cheaper. However, streaming high definition (HD) videos, gaming and downloading large files use up the most bandwidth, and a monthly 2GB plan would only allow users to browse the Internet and watch four hours of standard-definition video.[37]

To secure and expand digital connectivity, one of the most important challenges the country still needs to tackle is the expansion of quality broadband to rural and remote areas.[38] To achieve that, the federal government has issued a Decree (Decree 10.480/2020) aimed at easing infrastructure deployment and streamlining permitting processes. The Decree modifies the General Law Antenna (Law No. 13,116/2015) and simplifies the licensing procedures at the federal level, especially concerning access to rights of way and the installation of cellular sites, which will speed up the implementation of 5G in the country. The decree also regulates the issue of passive infrastructure sharing across sites to bring in synergies and reduce network build costs. This makes infrastructure deployment more economically viable and leads to enhanced competition and reduced broadband cost.[39]

However, despite the abovementioned decree and the government's effort in lowering barriers to entry, more effort is required at the local level. Indeed, Brazil's telecom authority (Anatel) has long recognized the importance of broadband and the need for local governments to update their framework, but as of April 2022, it was reported that only one percent of all 5,568 Brazilian municipalities – about 78 – have adapted their local legislation to the changes introduced by Decree 10.480/2020.[40] To address the main obstacle to equipment installation and thus improve access to meaningful connectivity, local governments should consider adapting their legislation to the welcome changes introduced by the referred decree thereby simplifying permitting processes and promoting infrastructure-sharing.

32. Agência Nacional de Telecomunicações (n.d.), Antenas nos Municípios. Available at: https://www.gov.br/anatel/pt-br/dados/infraestrutura/antenas-nos-municipios

33. OECD Library (2020), Going Digital in Brazil. Available at: https://www.oecd.org/publications/oecd-reviews-of-digital-transformation-going-digital-in-brazil-e9bf7f8a-en.htm

34. OECD Library (2020), Going Digital in Brazil. Available at: https://www.oecd.org/publications/oecd-reviews-of-digital-transformation-going-digital-in-brazil-e9bf7f8a-en.htm

35. ECLAC (2021), Post Pandemic COVID-19 Economy Recovery. Enabling Latin America and the Caribbean to better harness e-commerce and digital trade. Available at: https://repositorio.cepal.org/bitstream/handle/11362/46858/1/S2100269_en.pdf

36. International Telecommunications Union (n.d.), ICT Price Baskets (IPB) – A unique data set about the affordability of ICT services around the world. Available at: https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx

37. International Telecommunications Union (n.d.), ICT Price Baskets (IPB) – A unique data set about the affordability of ICT services around the world. Available at: https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx

38. Agência Nacional de Telecomunicações (n.d.), Antenas nos Municípios. Available at: https://www.gov.br/anatel/pt-br/dados/infraestrutura/antenas-nos-municipios

39. Although infrastructure sharing was already provided by the General Law Antenna, active and passive infrastructure-sharing was a topic that required further regulation.

40. Congresso em Foco (2022). "Apenas 1% Dos Municípios Brasileiros Já Tem Legislação Pronta Para Antenas Do 5g". Available at: https://congressoemfoco.uol.com.br/area/pais/apenas-1-dos-municipios-brasileiros-ja-tem-legislacao-pronta-para-antenas-do-5g/# ~ text=De%20acordo%20com%20dados%20do,possuem%20leis%20de%20antena%20atualizadas.

An additional action to support the easier roll-out and sharing of infrastructure could take the form of "codes of practice" that describes how cross sectoral collaboration should be conducted. This would help investors navigate Brazil's divergent regulations regarding infrastructure deployment and the use of land – a result of the country's federal structure and the high level of autonomy of local and regional authorities.[41] Regarding this supporting action, Brazil could take reference from Poland's "Codes of Practice" which provides practical guidance through very specific and comprehensive descriptions and non-legal terms, thereby eliminating space for interpretation and clarifying responsibilities.[42] For instance, "to put that into practice in the case of collaboration between electricity providers and telecommunications companies, the codes of practice explain and harmonize the main processes, starting from the application for access, through the installation of telecommunications infrastructure on the substructure, up to the operational phase".[43]

Recommendation 2: Promote nationwide, large-scale, and employment-focused digital bootcamps to bridge digital skills gaps related to digital trade

In line with ***Policy Lever 5: Bridge digital skills gaps related to exports (Critical enabler)***, Brazil should encourage public-private partnerships to share best practices and knowledge of successful programs and training schemes strategically focused on technical skills required for the development of new digital services. Such skills are needed if Brazil is to compare favorably with other nations in relation to ICT investment and utilization.

As an example, given that there are currently no nationwide projects with the aim of addressing, in the near-term, the shortage of digital talents, initiatives that produce immediate results and rapidly increase the pool of skilled IT workers, such as free or subsidized large-scale bootcamps focused on IT skills (coding, cloud computing and data analytics, cyber technologist, DevOps, etc.) are highly recommended.

Human capital is indeed the most important asset for establishing a strong ICT sector. Without the necessary skillsets, the benefits of digital technologies cannot be accessed. The shortage in digital skills in Brazil is a key bottleneck for industry and is linked to one in five of all vacancies. Surveys carried out recently by Brasscom and SOFTEX indicate that there is a shortage of skilled IT workers in Brazil, which will create an allocation gap of around half a million vacancies between 2022 and 2025.[44] Furthermore, the lack of skills of the working population and the low quality of the education system also hinders the development of more knowledge-intensive activities.

To address those issues, Brazil has implemented policies aimed at increasing digital skills in educational institutions, such as the National Education Plan 2014-2024 which includes goals for the development of digital skills, amongst other things. However, the benefits of programs such as these would only be seen in the long term.

To meet the short-term need, Brazil can also consider implementing programs similar to the United Kingdom's E-Business Support Program, which provides support for businesses looking to develop and grow their online presence.[45] Such programs can help to bridge digital skills gaps by training businesses and employees in areas such as digital marketing, website improvements and search engine optimization, which would enable them to reach out to an international target audience.

In short, there is a clear mismatch in the types of skills offered by the pool of existing workers and the market's demand. In different ways and to different extents, this trend is likely to be holding back the country's ability to harness the benefits of digital trade.

41. WebbSearch (2019). Obstacles to deploying a denser mobile network - With a focus on the Americas.
Available at: *https //www.readkong.com/page/obstacles-to-deploying-a-denser-mobile-network-with-a-8124333*

42. International Telecommunication Union (2020). Background Paper - Infrastructure sharing and co-deployment in Europe: good practices based on collaborative regulation.
Available at: *20-12-21 Background Paper_Infrastructure sharing and co-deployment in Europe_final_v2_(clean).pdf* (*itu.int*)

43. International Telecommunication Union (2020). Background Paper - Infrastructure sharing and co-deployment in Europe: good practices based on collaborative regulation.
Available at: *20-12-21 Background Paper_Infrastructure sharing and co-deployment in Europe_final_v2_(clean).pdf* (*itu.int*)

44. 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*

45. Gov.uk (2022), "E-business Support Programme – Greenwich and Bexley". Available at: *https //www.gov.uk/business-finance-support/e-business-support-programme-greenwich*

BOX 2.
GOOGLE'S INITIATIVES AND PROGRAMS CONTRIBUTE TO THE DIFFERENT POLICY RECOMMENDATIONS FOR BRAZIL

RECOMMENDATION 1:
GOOGLE CONTRIBUTES TO THE ENHANCEMENT OF CONNECTIVITY THROUGH EXTENSIVE INVESTMENTS IN BRAZIL'S SUBSEA CABLE INFRASTRUCTURE[46]

Google recently announced intentions to build a new subsea cable, Firmina, which will connect the United States' East Coast to Las Toninas, Argentina, with landings in Brazil and Uruguay. It aims to give people in South America faster and low-latency access to Google's suite of consumer and cloud services, including Search, Gmail and Cloud. SubCom will design and install the cable, which should be operational by the end of 2023.

Once the Firmina cable is completed, Google will have a total of four international subsea cables spanning Brazil. The Tannat cable, a joint venture between Antel Uruguay and Google, connects the same areas, the Monet cable connects the United States and Brazil, while Google's Junior cable connects various parts of the country.

Owning its own cables instead of leasing bandwidth from other providers is also a cost-saving measure for Google, which it can pass on to consumers while simultaneously improving service coverage and reducing latency across geographies.

RECOMMENDATION 2:
GOOGLE'S TRAINING PROGRAMS HELP TO BRIDGE DIGITAL SKILLS GAPS IN THE COUNTRY[47]

Google helps to provide access to digital skilling opportunities in Brazil through the Grow with Google initiative. Through this program, Google provides free courses to equip small business owners and job seekers with soft and digital skills. Some of its initiatives include Grasshopper, a free app that teaches coding to beginners, and Primer, a mobile application by Google, designed to teach digital marketing and business skills to small and medium business owners, startups, and job seekers using 5-minute interactive lessons.

In 2021, Grow with Google's initiatives trained more than 787,000 people across Brazil. Such training programs help to ensure that Brazilians are well-equipped with the relevant skills needed to capture opportunities offered by digital trade.

46. TechCrunch (2021), "Google announces the Firmina subsea cable between the US and Argentina".
Available at: *https://techcrunch.com/2021/06/09/google-announces-the-firmina-subsea-cable-between-the-u-s-to-argentina/*

47. Google Keyword (2018), "Grow with Google: helping Brazilians succeed in a digital world".
Available at: *https://blog.google/outreach-initiatives/grow-with-google/grow-google-helping-brazilians-succeed-digital-world/#~text=For%2020%20years%2C%20Google%20has,and%20training%20available%20for%20everyone*

Recommendation 3:
Enhance cybersecurity resilience through further investment in training and campaigns to raise cyber risk awareness

In line with ***Policy Lever 8: Promote digital security and build trust among businesses and consumers (Critical enabler)***, Brazil could look to enhance its cybersecurity resilience through public-private collaboration that promotes training on cyber skills and campaigns that raise risk awareness. Cybersecurity is a cross-cutting issue, and therefore a common objective of every successful cyber security strategy is collaboration between public and private cyber actors. Multi-stakeholder approaches such as public-private partnerships are therefore key strategies to govern cyberspace. Moreover, to be successful, it is important for these initiatives to be multisectoral, given that they comprise a plethora of sub-topics, such as policy, strategy, and legal frameworks, critical infrastructure protection, cybersecurity awareness, cybercrime, and standards.

Brazil has sectoral regulations providing for cybersecurity requirements issued by regulatory agencies such as the central bank (BACEN), the Securities and Exchange Commission (CVM), the National Telecommunications Agency (ANATEL), and the Brazilian Private Insurance Authority (SUSEP). Moreover, since 2020, the country has an all-encompassing data protection law which regulates the handling of personal information and protects it from being subject to misuse by a third party for fraud, identity theft, or phishing scams. As a result of a stronger framework and greater investment in cybersecurity governance, the country has jumped up 53 positions in the Global Cybersecurity Index, a report supported by the International Telecommunication Union (ITU).

However, in addition to an appropriate legal framework, other policy actions are required to enhance cybersecurity resilience at a national level. Indeed, despite the recent efforts put into strengthening the country's framework, the debate in Brazil continues to be compartmentalized, even if the impacts and consequences of cyberattacks and crimes are systemic.[48] A report developed by Igarape Institute which ranks the top five digital risks present in Brazil shows that "lack of training" is the most frequent threat according to the survey's respondents.[49] As a result, according to a study produced by company Surfshark, Brazil was the fourth most breached country in the world in the second quarter of 2022. Given this scenario, cybersecurity has become a high-profile issue in the country and there is an increasing demand for further policy action.[50]

48. Valor Econômico (2022). "Conscientização sobre cibersegurança impulsiona desenvolvimento do país".
Available at : *https //valor.globo.com/patrocinado/microsoft/ciber-seguranca/noticia/2022/06/28/conscientizacao-sobre-ciberseguranca-impulsiona-desenvolvimento-do-pais.ghtml*

49. Instituto Igarapé (2021). Mapeamento de Riscos Digitais: Uma agenda multissetorial para a segurança digital no Brasil.
Available at: *https //igarape.org.br/wp-content/uploads/2021/04/Agenda-Seguranca-Digital.pdf*

50. Tilt Uol (2022). Brasil é 6º país com mais ataques; tentativas de fraude chegaram a 1 milhão. Available at: *https //www.uol.com.br/tilt/noticias/redacao/2022/02/08/dia-internacional-da-internet-segura-brasil-tem-o-que-comemorar-veja.htm?adlt=strict&toWww=1&redig=B68F760061B7456896B848C7803F4EF9&cmpid=copiaecola*

To address those issues and create a cybersecurity culture, enhancing stakeholder engagement through investment on cyber-related capacity-building initiatives is recommended. Equipping the broader population with basic cyber skills is necessary and can be achieved through periodic campaigns that convey target-specific messages, foster collaboration between all sectors and is developed in a multi-stakeholder process, involving government officials, private companies and civil society representatives. Brazil could take reference from the study on "Raising Awareness of Cybersecurity" put together by European Union Agency for Cybersecurity (ENISA), which sets forth recommendations on the key elements of a successful campaign, including the need of "sufficient, consistent and continuous funding", which can be achieved through public-private partnerships.[51]

ICT industry and civil society-led initiatives can also enhance cyber capabilities of businesses through training and capacity-building sessions. The private sector has a unique understanding of the cyber threats businesses face, products and services being developed to address them, and the market impact of policy proposals. In this context, training sessions run by larger companies to smaller ones on the importance of leveraging the best of what technologies like cloud, artificial intelligence and analytics can deliver and the need to adopt best practices like zero trust frameworks can be effective tools for improving security systems.

For instance, in the United States, there are cybersecurity training programs for government officials such as the Federal Virtual Training Environment (FedVTE). This online program is available for government personnel, and contains training on topics such as ethical hacking and surveillance, risk management, and malware analysis. There are also training resources which connect the public with over 2,800 cybersecurity-related courses, educating citizens on how they can strengthen their cyber resilience. These programs help to foster a conducive business environment in the country through the cultivation of business trust that is necessary to facilitate exports.[52]

Recommendation 4: Promote the full implementation of WTO's 2017 Agreement through a National Strategy focused on enhancing the international position of MSMEs

In line with ***Policy Lever 9: Implement trade facilitation measures and policies (Critical enabler)***, more policy effort is required to fully implement the World Trade Organization (WTO) 2017 agreement, which aims to improve trade efficiency worldwide and encourage economic growth by leveraging on digital technologies.[53]

Despite recent national efforts to digitally transform Brazil's trading system,[54] several policy gaps continue to hinder the country's potential to fully harness the benefits of digital trade. According to a study launched by Brazilian National Confederation of Industry (CNI) in 2020, Brazil ranks second to last in the overall Competitiveness Brazil index, when compared to other 18 selected economies, ahead only of Argentina.[55] This highlights that there remain barriers which prevent Brazil from leveraging on its competitive advantages. For instance, in international logistics, which accounts for, among other things, the time and cost to export and import as computed by the World Bank, Brazil ranks 14th out of the 18 countries.[56]

According to a dashboard launched by the CNI which analyzes the status of WTO's 2017 implementation commitments by Brazil, the country has only fully

51. European Union Agency for Cybersecurity (2021). Raising Awareness of Cybersecurity. Available at: *https //www.enisa.europa.eu/publications/raising-awareness-of-cybersecurity*

52. NICCS (n.d.), Federal Virtual Training Environment (FedVTE). Available at: *https //niccs.cisa.gov/education-training/federal-virtual-training-environment-fedvte*

53. World Trade Organization (2017). "WTO's Trade Facilitation Agreement enters into force". Available at: *https //www.wto.org/english/news_e/news17_e/fac_31jan17_e.htm*

54. In terms of paperless trade, Brazil has implemented working policies which have made a difference to their national trading system, such as the implementation of electronic application for costumes refunds, e-payment of customs duties and fees, and electronic single window systems. An example of policies that have addressed those issues are "Porto Sem Papel", implemented in the region of Paranaguá in 2009 to reduce the documentation which circulates in Brazilian ports, and the digital platform called "Portal Unico", which was launched in 2014

55. World Economic Forum (2015), Brazil's Approach to Facilitating Trade.
Available at: *https //reports.weforum.org/enabling-trade-catalysing-trade-facilitation-agreement-implementation-in-brazil/brazils-approach-to-facilitating-trade/*

56. Brazilian National Confederation of Industry (2020). Brazil Competitiveness Report.
Available at: *https //static.portaldaindustria.com.br/media/filer_public/8e/5a/8e5a50d5-0529-417a-bfe0-c76194bed833/brazilcompetitivenessreport_2019-2020.pdf*

implemented 20 percent of the provisions laid out in the agreement.[57] Based on the latest available data, the platform showcases that to boost digital exports, the country still needs to make progress on some policies such as improving transparency regarding the charges and fees related to importation and exportation (Article 6) and adopting streamlined processes to reduce the time for the release of goods destined for foreign trade (Article 7.5).[58]

To address such gaps and ensure that the country has a roadmap of actions that leads to the full implementation of commitments provided in the WTO agreement, the government could look into issuing a National Strategy for International Trade. This strategy should build on the existing gaps and have clear goals and milestones to address them.

One particular group which will benefit from this recommendation is the MSMEs. Currently, the lack of easily available information regarding the entire export process severely hinders the ability of companies and, in particular, MSMEs to engage in digital trade.[59, 60] While MSMEs represent almost 99 percent of all companies in Brazil and are also responsible for approximately 52 percent of formal jobs, they make up for less than one percent of the country's export value. The lack of technical information on internationalization has been identified as an obstacle to their expansion into other markets.[61]

Against such a background, the National Strategy could focus on measures that promote MSMEs at various stages of the internationalization process. To this end, the strategy should lay down mechanisms and tools that provide MSMEs with clear, updated information on how to expand into foreign markets. This includes comprehensive instructions on the many different taxes levied on the export of services and goods, the different administratives processes for export and marketing on foreign markets; access to contact networks of international organizations, commercial counselors abroad, distributors and wholesalers, trade representatives; inquiries and offers from foreign companies; foreign trade and economic statistics.

On top of this, to achieve the overall goal of WTO's agreement, which is to improve trade efficiency, Brazil could look into implementing a unified platform to seek markets, partners and investors, which would serve as an efficient tool for searching and finding up-to-date investment projects, appropriate business partners, producers and traders from different fields.

57. Comex do Brasil (2021). "Infraestrutura e burocracia são desafios para o comércio exterior apesar do superávit recorde, analisa especialista".
Available at: https //www.comexdobrasil.com/infraestrutura-e-burocracia-sao-desafios-para-o-comercio-exterior-apesar-do-superavit-recorde-analisa-especialista/

58. Currently, Brazil takes about 13 days to export products.
More available at: https //static.portaldaindustria.com.br/media/filer_public/8e/5a/8e5a50d5-0529-417a-bfe0-c76194bed833/brazilcompetitivenessreport_2019-2020.pdf

59. BAR – Brazilian Administration Review (2021). "Export Barriers for SMEs from Emerging Market: A Model of Analysis for Non-Tech Companies".
Available at: https //www.scielo.br/j/bar/a/Y9TdBmBNQN3JQtwB6JwbyYx/?format=pdf&lang=en

60. World Trade Organization (n.d.). Trade obstacles to SME participation in trade. Available at: https //www.wto.org/english/res_e/booksp_e/wtr16-4_e.pdf

61. Ministério da Economia (2022). "Debates sobre Comércio Exterior buscam soluções para micro e pequenas empresas".
Available at: https //www.gov.br/economia/pt-br/assuntos/noticias/2022/agosto/desafios-de-comercio-exterior-buscam-solucoes-para-pequenas-e-medias-empresas

Recommendation 5:
Promote digital innovation among businesses by providing research and development (R&D) tax incentives specifically designed for MSMEs

In line with ***Policy Lever 10: Facilitate adoption of digital tools (General enabler)***, Brazil should provide tax incentives for MSMEs in order to promote digital innovation. Brazil should work on reforming the law to make it easier for MSMEs to access R&D tax incentives, thereby promoting innovation and enabling digital trade. To address such gaps and the lack of resources to fund direct investment in the form of grants, an effective solution to increase innovation is by implementing R&D tax subsidies. This has been implemented in countries such as France, Portugal, and Chile, who cut the cost of R&D spending by around 30 percent.[62]

In 2018, more than 80 percent of The Organization for Economic Co-operation and Development (OECD) members used some form of tax relief for the purpose of encouraging businesses to invest in innovative projects. Furthermore, Ernst & Young (EY) has listed a total of 48 nations that have adopted a tax scheme that favors innovation and R&D-related activities.[63] Bearing no exception, in 2005, Brazil implemented Law 11,196/05, the "Fiscal Incentives Law",[64] which provides tax relief for companies focused on innovation. This raised the share of tax incentives in government support for R&D from less than a quarter in 2004 to approximately a third in 2014.

However, unlike the United Kingdom and the United States for example, Brazil does not adopt any favored treatment for granting tax incentives for MSMEs for this purpose. In fact, the policy design actually makes it more difficult for small firms to benefit from the incentives as the requirement that companies operate under the real profit tax regime work as an entry barrier.[65]

MSMEs account for almost 99 percent of all legally constituted companies in the country, being responsible for about one third of Brazil's GDP.[66] In spite of MSMEs' importance to the Brazilian national economy, these companies face severe constraints in internal resources, such as capital (funding) and human resources. Therefore, considering that innovation is a key engine to the development of ICT-related trade, policy intervention is key to close the gaps between actual and desired R&D levels within MSMEs.[67]

Brazil has several policies aimed at promoting innovation. For instance, the federal government implemented a Strategy of Technology, Research, and Innovation[68] in 2016, which had a target to increase R&D expenditure to two percent of GDP by 2022. However, this target was not met, because the new fiscal rule in the federal government (which establishes zero real growth for federal discretionary spending for 20 years) maintains those expenditures at 2016 levels, with adjustments only allowed for inflation. There is also the National Innovation Policy (NIP) which sets out plans to encourage and develop innovative products, processes, and services across the country.[69] Following the Policy, a Strategy was also enacted which lays down specific initiatives and legislative amendments which would contribute to fostering innovation in Brazil.[70]

Despite those efforts, according to the 2021 Global Innovation Index (GII), Brazil obtained an overall GII score of 34.2 out of 100, ranking 57th out of a total of 130 countries. According to the OECD, creating an environment which nurtures innovation aids in boosting digital exports.[71] The Brazilian government should therefore take a stronger stance in favor of innovation in order to allow MSMEs to keep up to date with the constantly changing technology environment and compete with established companies who can afford to adopt new technologies straight away.[72]

62. OECD (2022), Mapping Business Innovation Support (MABIS). Available at: https //www.oecd.org/sti/rd-tax-stats-database.pdf

63. Emerald (2021), Impact assessment of innovation tax incentives in Brazil. Available at: https //www.emerald.com/insight/content/doi/10.1108/INMR-11-2020-0167/full/html#sec002

64. Government of Brazil (2005), Lei Nº 11.196, de 21 de Novembro de 2005. Available at: http //www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/l11196.htm

65. The challenges related to lack of funding is recognized as the main obstacle hindering SMEs ability to innovate. The main bottleneck for such companies to develop innovations is, besides the absence of skilled human capital, the financial aspect. Available at: pequenas-empresas-brasil.pdf (eumed.net)

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BOX 3.
BEST PRACTICES FOR RELEVANT POLICY RECOMMENDATIONS

RECOMMENDATION 4:
PROMOTE THE FULL IMPLEMENTATION OF WTO'S 2017 AGREEMENT THROUGH A NATIONAL STRATEGY FOCUSED ON ENHANCING THE INTERNATIONAL POSITION OF MSMES [SINGAPORE]

Singapore's "Multichannel E-commerce Platform" (MEP) program has helped to support SMEs in exporting products overseas digitally.[73] As part of the "Grow Digital" joint initiative by Enterprise Singapore and Infocomm Media Development Authority (IMDA), the Singapore government launched partnerships with business-to-business (B2B) platforms and business-to-consumer (B2C) platforms that cover major markets with growing e-commerce presence such as Hong Kong, China and India. The "Multichannel E-commerce Platform" (MEP) program aims to support the onboarding of SMEs, with little resources to invest in establishing a physical presence in foreign markets, on these B2C platforms and maximize their reach and networks across multiple countries and seize new business opportunities. Under the MEP program, SMEs receive end-to-end support, including enterprise resource planning (ERP) and a network of ecosystem partners for custom clearance and bonded warehouses, provided by appointed MEP providers to gain rapid entry to new markets via multiple overseas e-marketplaces.

RECOMMENDATION 5:
PROMOTE DIGITAL INNOVATION AMONG BUSINESSES BY PROVIDING R&D TAX INCENTIVES SPECIFICALLY DESIGNED FOR MSMES [NEW ZEALAND, COLOMBIA, CHILE]

One example of this is in New Zealand, where the New Zealand government agency, Callaghan Innovation, 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 research and development (R&D) efforts, subsidies for digital adoption ("capability vouchers"), and knowledge sharing platforms.[74] Another government agency, New Zealand Trade and Enterprise (NZTE), also recently launched "myNZTE", a free online platform offering businesses detailed guidance on leveraging digital trade platforms.[75]

New Zealand also offers an R&D tax incentive for businesses and individuals, offering 15 percent tax credit for eligible R&D and a total R&D expenditure of up to US$120 million annually.[76] Such incentives serve to encourage businesses, especially smaller ones which may be financially constrained, to engage in constant innovation and R&D.

In Colombia, 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.[77] Such initiatives strengthen the link between research centres and MSMEs, encouraging innovation and productivity growth while bridging the private spending gap.

Another example is Chile, where the government offers businesses and individuals investing in R&D a maximum tax credit of 35 percent of the value invested, provided that such amount does not represent more than 15 percent of their annual gross income.[78] Enabling tax incentives for MSMEs reduces entry barriers to competitive markets and stimulates technology developments.

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