THE DATA REVOLUTION:

HOW THE PHILIPPINES CAN CAPTURE THE DIGITAL TRADE OPPORTUNITY AT HOME AND ABROAD

promoting sustainable global trade

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Important Notice on Contents

This research employs a broad definition of "digital trade" which covers the production, distribution, marketing, sale or delivery of goods and services – domestically and abroad – supported by cross-border data flows. As international trade increasingly spills into the digital sphere with potentially huge economic benefits for economies, developing a knowledge base around the topic of digital trade becomes ever critical. This report serves to inform:

- **Governments and policymakers** to take into account the importance of digital trade for both the external and domestic economies when formulating trade and economic policy;
- **Businesses** in harnessing the opportunities afforded by digital trade in the form of increased exposure to overseas markets and uplifting productivity at home;
- **Industry groups** in recognizing the nature and magnitude of economic benefits that digital trade could bring about to different sectors, and champion these in their outreach efforts.

This report was prepared by the Hinrich Foundation with analytical support from AlphaBeta. All information in this report is derived from AlphaBeta analysis using both proprietary research and publicly available data. Where information has been obtained from third-party sources, this is clearly referenced in the footnotes.

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The Hinrich Foundation believes sustainable and mutually beneficial global trade creates positive engagement between people and nations, and supports sustainable development. The Foundation initiates and supports factual, balanced research that advances the understanding of sustainable global trade.

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VALUE OF DIGITAL TRADE FOR THE PHILIPPINES'S DOMESTIC ECONOMY

Digital trade currently enables
UP TO ₱160 BILLION
of economic impact in the Philippine domestic economy.

By 2030, digital trade will enable an estimated
₱1.9 TRILLION
of economic impact in the Philippine domestic economy.

Potential benefits are spread across all sectors of the Philippine economy, but particularly relevant in
FINANCIAL SERVICES, INFRASTRUCTURE, AND AGRICULTURE & FOOD.

VALUE OF DIGITAL TRADE FOR THE PHILIPPINES'S EXPORTS

The Philippines's Information Technology-Business Process Outsourcing (IT-BPO) sector
ACCOUNTS FOR AT LEAST 12%
of the global industry.

If digital goods and services were a sector, it would be the
6TH LARGEST EXPORT SECTOR
for the Philippines.

By 2030, the Philippines's digital exports could
GROW BY 218%.

THREE IMPERATIVES FOR CAPTURING THE OPPORTUNITY

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EXECUTIVE SUMMARY

The Philippines has undergone a remarkable economic transformation in recent years. The former "sick man of Asia" is now growing at one of the fastest rates in Asia, at around 7 percent per annum. The digital economy, and particularly digital trade (see Box 1 for the definition), will be crucial for the Philippines to maintain this strong economic momentum.

Though trade was once dominated by tangible goods, growth in global goods trade has flattened as global data flows have surged, with the amount of cross-border bandwidth having grown 45 times since 2005.[1] This is projected to increase by an additional nine times over the next five years as flows of information, searches, communication, video, transactions, and intra-company traffic continue to rise.[2] Digital trade is crucial not only as a way to increase and diversify the Philippines's export base, but also for helping Philippine firms leverage digital technologies across every sector of the economy. More attention should be dedicated to this endeavor. The Philippines is already a world leader in business process outsourcing (BPO), accounting for at least 12 percent of the global industry.[3] The good news is that the Philippines has the potential to harness much greater benefits from digital trade.

However, traditional economic metrics have failed to keep pace with the rapid growth of the digital economy and there is currently a lack of robust data measuring the importance of digital trade for exports or for the domestic economy. This report aims to address these gaps by providing new data on the importance of digital trade, both for the Philippines's domestic economy and exports, and recommendations on how the Philippines can fully exploit the benefits of digital trade as it seeks to become a leading digital nation.

Our key findings include (Exhibit 1):

- **Digital trade can create huge positive impact for the Philippines' domestic economy, representing a ₱1.9 trillion (US$37 billion) opportunity.** Digital trade enables Philippine firms to achieve cost efficiencies (from storage of data), enter new markets and generate richer insights from data. It supports collaboration, enables adoption of efficient business practices (such as consumers from abroad making online travel bookings for trips in the Philippines), and supports optimization of global supply chains (e.g. tracking of export containers using Internet of Things). Today, the economic value of digital trade-enabled benefits to the Philippines's economy is estimated to be worth ₱160 billion (US$3.2 billion), which is equivalent to 1.8 percent of its Gross Domestic Product (GDP). By 2030, it is estimated that this value could grow by almost 12- fold to reach ₱1.9 trillion (US$37 billion).

- **Digital exports account for 5.4 percent of the Philippines's total export value today, and this value could grow by more than three times in 2030.** The export value of virtual goods and services enabled by the digital economy, such as

1. *McKinsey Global Institute (2016), Digital globalization: The new era of global flows.*
Available at: https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows
2. *McKinsey Global Institute (2016), Digital globalization: The new era of global flows.*
Available at: https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows
3. *Oxford Business Group (2018), "BPO firms are expanding into secondary and tertiary cities in the Philippines".*
Available at: https://oxfordbusinessgroup.com/analysis/bpo-firms-are-expanding-secondary-and-tertiary-cities-philippines

e-commerce, amounts to ₱187 billion (US$3.7 billion) in exports today, accounting for 5.4 percent of its total export value. While this is largely driven by the Philippines's large Information Technology-Business Process Outsourcing (IT-BPO)[4] sector, the country has room to grow in terms of its other digital exports. If the Philippines fully leverages the opportunities afforded by digital trade, its digital exports could grow even more rapidly by 218 percent to reach ₱594 billion (US$11.8 billion) by 2030.

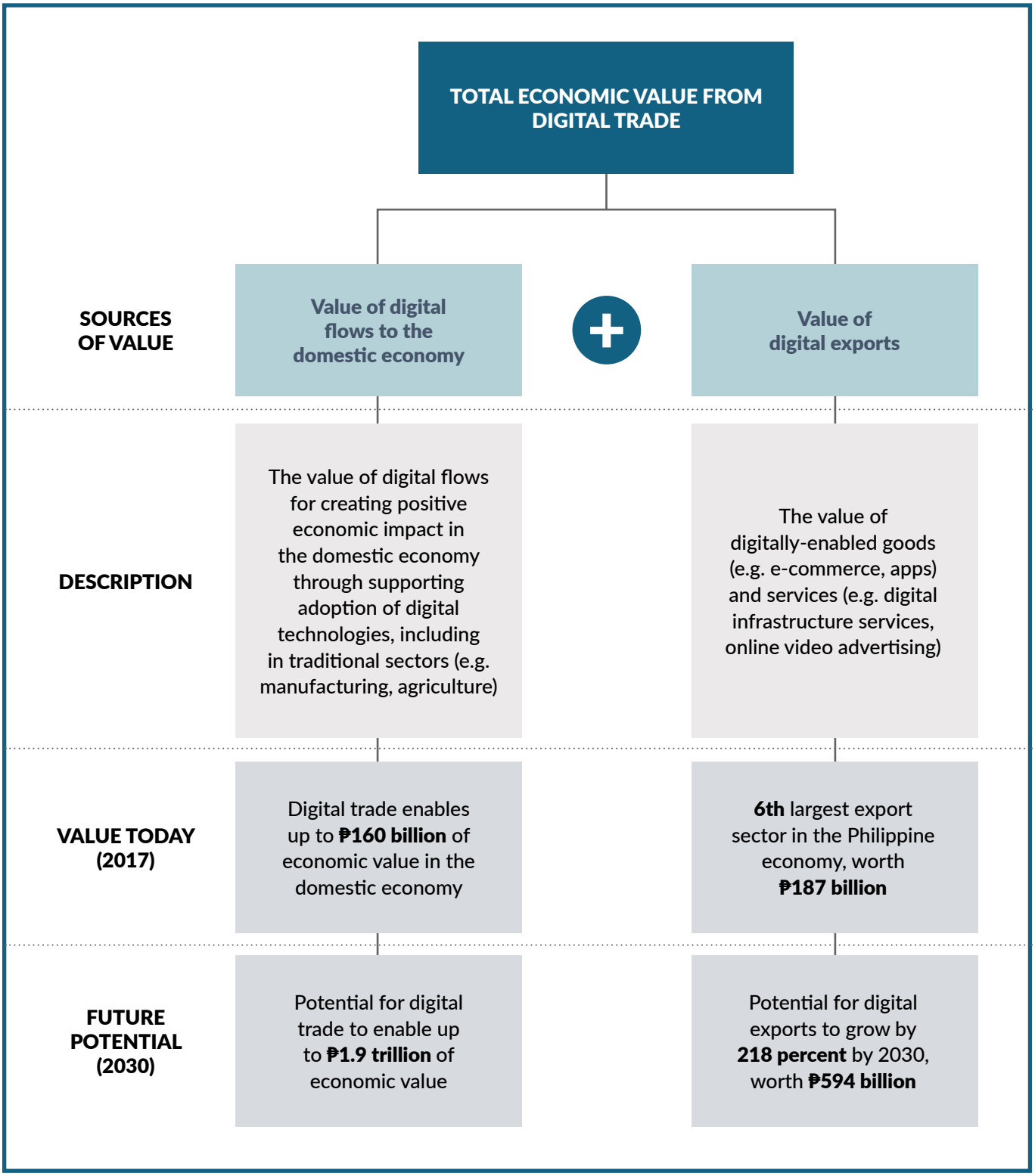
- **The digital trade dividend may yet prove elusive if digital trade is not fully facilitated abroad.** Policymakers in the Philippines and across Asia Pacific are rushing to develop regulations for the digital economy. While the Philippines overall has a strong environment for digital trade, to fully harness the potential of digital trade for its economy, the Philippines has a strong role to play abroad in pushing for facilitative digital trade rules in its various bilateral and multilateral trade negotiations.

The report is structured into three chapters. Chapter 1 examines the current and potential impact of digital trade at home and quantifies the economic value of technological gains enabled by digital trade. Chapter 2 assesses the current and future potential value of digital exports for the Philippines's economy. Chapter 3 highlights some of the concerns related to digital trade and how they can be addressed, and identifies the priorities for the Philippines to capture the digital trade opportunity.

4. Information Technology-Business Process Outsourcing (IT-BPO) refers to the organizational practice of contracting non-primary business activities and functions with digital components to a third-party provider or an in-house unit of the same organization. Examples of IT-BPO services include payroll administration, data management and customer/call centre relations.

EXHIBIT 1:

THE PHILIPPINES IS ALREADY REAPING SIGNIFICANT VALUE FROM DIGITAL TRADE, BUT THE FUTURE VALUE COULD BE SIGNIFICANTLY HIGHER



SOURCE: AlphaBeta analysis

BOX 1.
DEFINING DIGITAL TRADE AND ITS COMPONENTS

At present, there is no consensus about the meaning of digital trade. Part of what makes defining digital trade difficult is the rapidly changing nature of the digital economy. Different definitions have been used by various international organizations. The World Trade Organization (WTO) has generally employed the term "electronic commerce" rather than "digital trade", defining it as "the production, distribution, marketing, sale or delivery of goods and services by electronic means".[5] The definition used by the United States International Trade Commission (USITC) is broader and includes the provision of e-commerce platforms and related services, but excludes the value of sales of physical goods ordered online, as well as physical goods that have a digital counterpart (such as books, movies, music, and software sold on CDs or DVDs).[6] The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) recognizes that while the narrowest definition of "digital trade" is "trade in digitized products" (i.e. trade in products with digital elements such as films and e-books, and in digital services such as IT and telecommunication services), a broader definition relates to "the use of digital technologies (ICTs) to conduct business".[7]

This research employs a broad definition of "digital trade" which covers the production, distribution, marketing, sale or delivery of goods and services – domestically and abroad – supported by cross-border data flows. This consists of (a) trade in digitally-enabled products and services, and (b) cross-border data flows that create economic value in the domestic economy. Both components of digital trade are analyzed in this report:[8]

- **Trade in digitally-enabled products and services.** There are three components to this: a) Digitally-enabled products; b) digitally-enabled services; c) indirect digital services. For the purpose of this research, the value of exports in these components are estimated:

1. **Digitally-enabled products.** These refer to physical and digitized products that are traded electronically via the Internet, e.g. overseas digital downloads of local apps, or sales of physical products to overseas markets through cross-border e-commerce platforms.[9]

2. **Digitally-enabled services.** These refer to services that are provided using digital technologies. This is a large category because most industry sectors have adopted digital technologies and sell e-services to varying degrees. This includes online advertising (viewed from abroad), digital IT-BPO services and the export of data processing and online software consultancy services. It also includes trade in other direct e-services such as online tourism booking and electronic banking; however, these categories are currently not able to be measured in a robust manner due to the lack of granularity in available data.

3. **Indirect digital services (embedded in other exports).** These refer to imported digital services that get used in the export

5. UNESCAP (2016), Internal trade in a digital age. Available at: http://www.unescap.org/sites/default/files/aptir-2016-ch7.pdf
6. U.S. International Trade Commission (2017), Global Digital Trade 1: Market Opportunities and Key Foreign Trade Restrictions. Available at: https://www.usitc.gov/publications/332/pub4716.pdf.
7. UNESCAP (2016), Internal trade in a digital age. Available at: http://www.unescap.org/sites/default/files/aptir-2016-ch7.pdf
8. The detailed methodology is explained in an accompanying methodology document, which can be found on the Hinrich Foundation website (http://hinrichfoundation.com/trade-research/).
9. This research defines cross-border e-commerce platforms as Internet-enabled platforms that facilitate the selling and buying of products and services across national borders, where the seller and buyer are in different countries. This includes both B2B and B2C e-commerce. However, the analysis in this research focuses largely on B2C e-commerce due to the availability of existing data.

of other products and services. Examples include telecommunication services such as email, video conferencing, digital file sharing, and Voice Over Internet Protocol (VOIP) services that are used by a mining firm exporting overseas.

- **Cross-border data flows.** This does not reflect "international trade" in its conventional sense, i.e. transactions involving the exchange of goods and services for money, that are conducted between two parties located in different countries. Rather, cross-border data flows entail the exchange of data across national borders that create economic value, but which may not necessarily be associated with monetary transactions nor interaction between two parties (in some cases, it involves exchanges within the same company). Cross-border data flows take place for a variety of reasons including business processing (e.g. consumer demand data used to guide inventory stocking decisions at a company's retail stores worldwide) and operational efficiency improvements (e.g. data flows enabling Internet banking functions overseas so that consumers wishing to access bank accounts from abroad can do so). This research estimates the economic value that cross-border data flows create for the domestic economy. These are not represented in terms of GDP or market size, but in terms of consumer surplus, productivity gains and cost savings. Six key channels (which are discussed further in Chapter 1) have been identified by which digital trade supported by cross-border data flows is important for boosting productivity, creating new revenue streams and lowering costs in the domestic economy.

THE VALUE AT HOME FROM DIGITAL TRADE

Digital trade is supporting up to ₱160 billion (US$3.2 billion) of economic benefits in the Philippines today through enabling digital technologies that increase worker productivity, lower costs, and create new sources of revenue. This value is equivalent to 1.8 percent of its GDP. The relatively low penetration rates of these digital technologies today suggest potential for higher impact in the future. If digital trade is fully leveraged, it is estimated that by 2030, the value to the Philippines's domestic sectors could grow by almost 12-fold to reach ₱1.9 trillion (US$37 billion).

UNDERSTANDING HOW DIGITAL TRADE IMPACTS DAY-TO-DAY OPERATIONS

This research adopts a broad definition of "digital trade" which relates to cross-border data flows, i.e. the exchange of data across national borders that create economic value (see Box 1 for the detailed definition). In this chapter, the economic value which cross-border data flows create for the Philippines's domestic economy is estimated. To do this, six key channels have been identified through which digital trade is important for boosting productivity or lowering costs for Philippine sectors (Exhibit 2).

- **Identifying and entering new markets.** New digital tools ranging from simple internet search engines to cloud computing, which is heavily reliant on cross-border data flows, can boost the export capabilities of firms, particularly micro, small and medium-sized enterprises (MSMEs). This allows these firms to operate with ease across geographies and tap into international supply chains, compete with larger exporters, and connect with consumers, suppliers, and investors across the globe. Analysis by the Asia Pacific MSME Trade Coalition (AMTC) estimates that digital tools could lower the export costs of an average MSME by as much as 82 percent and reduce the time involved in exporting for MSMEs by up to 29 percent.[10]

- **Reducing cost and increasing speed of data storage, processing and access.** High data generation is more likely to lead to cross-border flows, in part due to storage requirements. For example, data processing is 5 to 7 percent of the total input costs in sectors such as financial services.[11] Related to this, storing data in a number of geographic locations can enhance recovery management.

- **Supporting collaboration.** Some activities may be particularly complex, and the sharing of data across borders enables better collaboration between talents. This could include talent for the analysis of data or it could relate to the use of human-guided robotics. For example, remote robotic surgery allows complex operations to be completed even when those surgeons may not be in the same country. A further example is how cross-border data flows can enable researchers around the world to share insights, design experiments and analyze the results in a collaborative and real-time manner.[12]

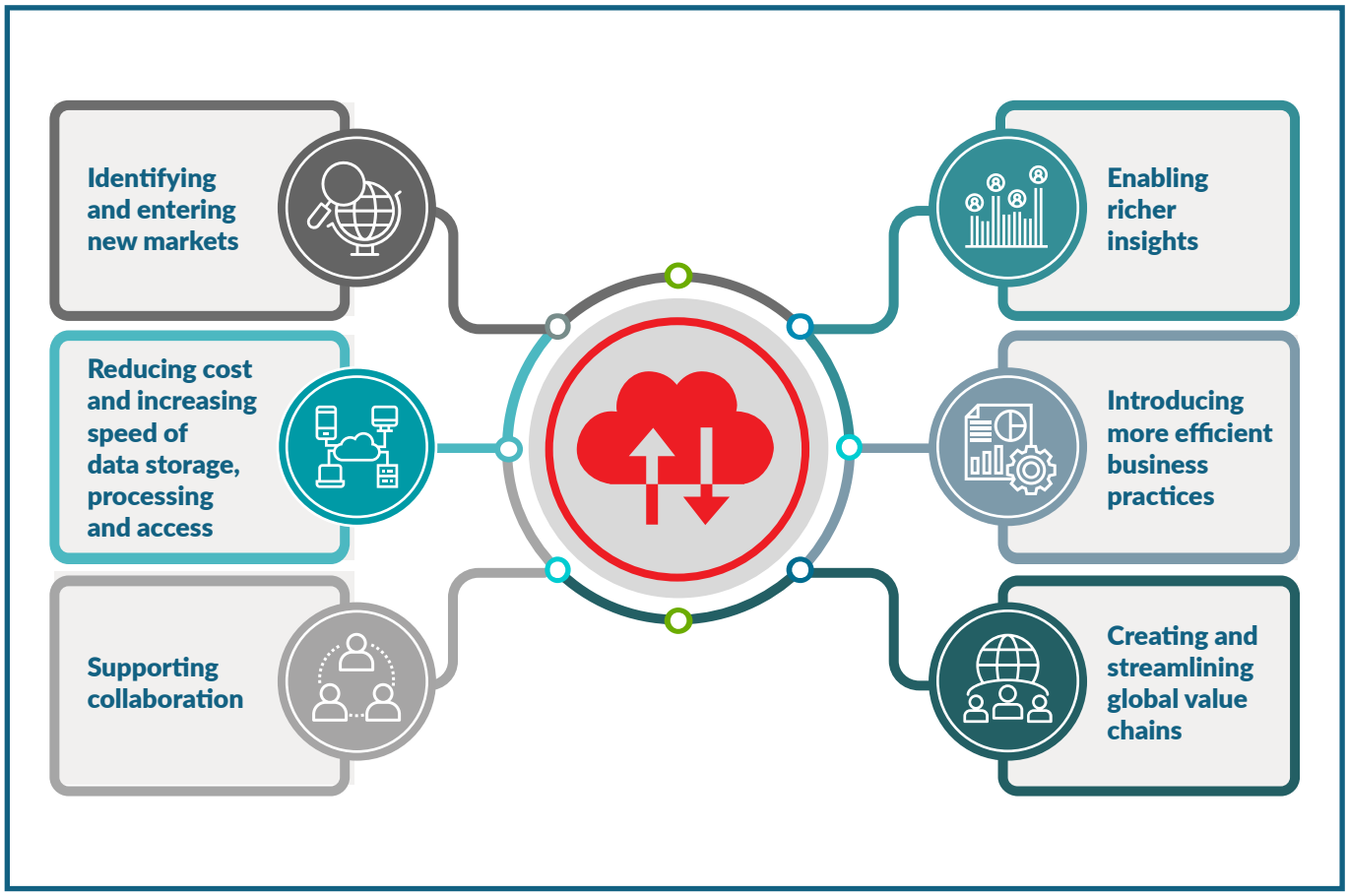
- **Enabling richer insights.** Used the right way, data can help companies improve products and make more informed business decisions. Analysis of the simplest datasets can lead to robust insights that inform important business decisions. For example, data on warehouse and point-of-sales inventory can allow retailers to optimize re-stocking through better forecasting of production and shipment needs, which could lead to increased sales.

- **Introducing more efficient business practices.** Digital trade can be a critical enabler of greater operational efficiency for businesses. This could include providing greater accessibility of data for clients across geographies (for example, consumers from abroad making online travel bookings for trips in the Philippines), enabling digital platforms to conduct routine operations such as collection and exchange of data, and outsourcing operations to locations with a comparative advantage in the provision of required services.

10. Asia Pacific MSME Trade Coalition (2018), Micro-Revolution: The new stakeholders of trade in APAC.
11. Matthias Bauer et al. (2014), The costs of data localization: Friendly fire on economic recovery, European Centre for International Political Economy (ECIPE). Available at: http://www.ecipe.org/app/uploads/2014/12/OCC32014__1.pdf
12. Joshua Paul Meltzer (2014), "The Internet, Cross-Border Data Flows and International Trade", Asia & the Pacific Policy Studies, vol. 2, no. 1. Available at: https://onlinelibrary.wiley.com/doi/epdf/10.1002/app5.60

EXHIBIT 2:

DIGITAL TRADE SUPPORTS PRODUCTIVITY, GROWTH AND COST EFFICIENCY THROUGH SIX MAIN CHANNELS



- **Creating and streamlining global value chains.** Digital data flows can help create efficiencies in real-time monitoring and decision-making to support global value chains. For example, businesses are able to receive customer orders in real time and adjust production processes accordingly. Likewise, Internet of Things (IoT) monitoring of the transit of goods across countries enables better control over supply chains, creating significant logistical benefits.

> "This research adopts a broad definition of 'digital trade' which relates to cross-border data flows, i.e. the exchange of data across national borders that create economic value."

THE ECONOMIC VALUE OF DIGITAL TRADE FOR DOMESTIC SECTORS

To understand the economic value of digital trade for the Philippines's domestic sectors, a set of relevant technological applications for different sectors of the Philippine economy were identified based on an extensive review of the academic literature (Exhibit 3).[13] The importance of digital trade was then assessed for each technological application, based on factors related to the six channels highlighted above, including (a) the volume of data generated (requiring more efficient storage requirements); (b) the scale requirements to draw insights (which cross-border data flows can facilitate by enabling pooling of data); (c) the complexity of the activity (and hence the potential need for cross-border collaboration); and (d) whether the activity to which the technology is being applied is itself cross-border in nature.

The value of these applications was sized both for 2017 and 2030 (see Exhibit 4). Economic value supported by digital trade across the major sectors in the Philippines's economy is estimated to have been up to ₱160 billion (US$3.2 billion), which is equivalent to 1.8 percent of its GDP. Low penetration rates today for some of the assessed technologies reflect untapped potential. It is estimated that by 2030, this value could increase almost twelve-fold to as much as ₱1.9 trillion (US$37 billion) (Exhibit 4).

Some of the main opportunities and examples by sector include:[14]

- **Financial Services.** Thanks to friendly government policies, high mobile penetration rate and close partnerships between telecommunications companies and financial institutions, the Philippines is one of the world's pioneers in developing mobile financial services for the unbanked.[15] Launched in the early 2000s, mobile money services SMART Money and GCash have been instrumental in increasing financial inclusion in the country.[16] Besides their e-wallet feature which allows users to securely store and use money, these services further improve the degree of financial integration for the unbanked by partnering with utility companies, the government and international money transfer services such as Western Union to allow customers to pay for their bills, participate in conditional cash transfer programs, as well as send and receive remittances.[17] GCash's ancillary platform, GCredit, even avails its financially-excluded customers of loans, insurance, and investment through automated features that build up "trust scores" based on individuals' credit histories.[18] It also partnered with Alipay Hong Kong, leveraging its blockchain technology to develop a first-of-its-kind blockchain-based digital wallet remittance service, offering overseas Filipino workers in Hong Kong a secure, low-cost and convenient way to send families back home money online in seconds using the GCash app.[19] Digital trade is critical for this sector given

13. The detailed methodology is explained in an accompanying methodology document, which can be found on the Hinrich Foundation website (http://hinrichfoundation.com/trade-research/).
14. The descriptions below only include a subset of the total technologies analyzed in this research. See the methodology document for a more extensive discussion of the analysis, which can be found on the Hinrich Foundation website (http://hinrichfoundation.com/trade-research/).
15. Tovar, M.E.L., et al (2014), Financial inclusion, mobile banking, and remittances in Mexico and the Philippines. Journal of Political Risk, Volume 2, No. 1.
16. Gilberto Llanto and Maureen Rosellon (2017), "What determines financial inclusion in the Philippines? Evidence from a national baseline survey", Filipino Institute for Development Studies. Available at: https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdps1738.pdf
17. Lito Villanueva (2014), "10 things you need to know about the Philippine mobile money market", Mobile Ecosystem Forum.
Available at: https://mobileecosystemforum.com/2014/05/30/10-things-you-need-to-know-about-the-philippine-mobile-money-market/
18. Catherine Talavera (2018), "Digital platforms leading Philippines to greater financial inclusion", PhilStar Global.
Available at: https://www.philstar.com/business/2018/07/10/1832041/digital-platforms-leading-philippines-greater-financial-inclusion#1RgZhwKxkslShlfx.99
19. Lisbet Esmael (2018), "Mobile money to drive financial inclusion", The Manila Times.
Available at: https://www.manilatimes.net/mobile-money-to-drive-financial-inclusion/419506/

EXHIBIT 3:
EXAMPLES OF RELEVANT TECHNOLOGIES BY SECTOR IN THE PHILIPPINES

Resources	• Smart exploration • Predictive safety • Performance monitoring • Autonomous mining equipment
Financial Services	• Big data analytics • Digitizing marketing, distribution, and service • Reg tech • Financial inclusion through mobile payments
Agriculture & Food	• Precision farming • Supply chain management • Food safety • Real-time market information
Manufacturing	• Big data analytics • Additive manufacturing • IoT-enabled supply chain management
Health	• Remote patient monitoring • Telehealth • Data-based public health Interventions • Detection of counterfeit drugs • Smart medical devices • AI-enabled diagnostics
Infrastructure	• Smart grids • 5D BIM & project management technologies • Predictive maintenance • Smart buildings • Smart roads • Smart ports
Consumer & Retail	• Digitizing channels • Inventory management • Analytics-driven products and services
Education & Training	• E-career centres and digital jobs platforms • Personalized learning • Online retraining programmes

its heavy reliance on cross-border data flows and the need for local mobile money services to link up with international networks for seamless payments and remittances experiences. This is especially significant since remittances are the country's biggest source of foreign exchange income, growing by more than 5 percent annually in 2017, accounting for about 10 percent of the country's GDP.[20]

- **Infrastructure.** Digital technologies that enhance the efficiency of constructing and maintaining infrastructure are gaining great traction in the Philippines, where an ambitious infrastructure agenda to "build, build, build" in order to transform the Philippines's economy is underway.[21] A key project is the Clark Green City. Designed to be the country's first smart city, the state developers signed an agreement with Japan-based Hitachi on building the city-wide smart grid solution.[22] Digital trade is crucial for this sector due to the need for cross-border collaboration and data exchanges. For example, this is required for the international benchmarking of infrastructure performance levels and low-cost and secure storage solutions for the large amount of data generated.

- **Agriculture & Food.** To improve low productivity and enhance self-sufficiency in this sector, the Philippine government and private sector have been making efforts to introduce technologies such as precision farming.[23] A significant project is the government-developed interactive online map which guides local farmers on the crops that are best grown within different areas of Philippines, together with data on climate conditions, soil adaptability and the amount of fertilizer required to make up for lacking nutrients.[24] This service was developed through a rigorous process of data collection, aggregation and dissemination using the Google maps platform.[25] Philippine agrochemicals conglomerate Calata Corporation partnered with Austrian firm Pessl Instruments to develop an instrument that monitors soil characteristics and forecasts localized weather changes. Measured data are conveyed in real-time to local farmers via SMS on an hourly basis seven days a week, allowing them to save costs through the more efficient application of fertilizers, pesticides and irrigation thanks to knowledge of precise ground and atmospheric conditions.[26] Digital trade is essential for such cross-border collaboration and data exchanges to improve farming processes. For example, the ability to leverage international expertise in analytics of crop information, the need for low-cost data storage solutions and the exchange of relevant data (e.g. international crop prices and demand).

- **Education & Training.** The government of the Philippines is a great proponent of the power of digital technologies in enhancing the quality of education and raising employability among Filipinos. Testament to this is their enactment of the Philippines Open Distance Learning Act in 2014 to facilitate the access of Filipinos to accredited online and hybrid Massive Open Online Courses (MOOCs) through an integrated national online platform.[27] This initiative found great success, with the number of students increasing from 100 in its first year

20. World Bank data (2018). Available at: https://data.worldbank.org/indicator/bx.trf.pwkr.dt.gd.zs
21. Richard Javad Heydarian (2018), "Duterte's ambitious 'Build, Build, Build' project to transform the Philippines could become his legacy", Forbes. Available at: https://www.forbes.com/sites/outofasia/2018/02/28/dutertes-ambitious-build-build-build-project-to-transform-the-philippines-could-become-his-legacy/#fa089b71a7f4
22. OpenGovAsia (2017), "Building the first sustainable smart city in Philippines in collaboration with private sector and international agencies". Available at: https://www.opengovasia.com/articles/7583-exclusive-building-the-first-sustainable-smart-city-in-philippines-in-collaboration-with-private-sector-and-international-agencies
23. Anna Mogato (2018), "In the Philippines, technology is seeping into agriculture", Business World. Available at: http://www.bworldonline.com/in-the-philippines-technology-is-seeping-into-agriculture/
24. Rhaydz Barcia (2017), "Pinol urges farmers to use guide map for crop planning", Rappler. Available at: https://www.rappler.com/nation/165277-pinol-farmers-color-coded-guide-map-crop-planning
25. Department of Agriculture, Philippines (2018), "Farmers guide map". Available at: http://www.farmersguidemap.gov.ph/
26. Angel Palpal-latoc and Ronnel W. Domingo (2016), "Internet of Things ushers precision farming", Business Inquirer. Available at: http://business.inquirer.net/211667/internet-things-ushers-precision-farming
27. Technical Education and Skills Development Authority (TESDA) Philippines (2018), "TVET trends". Available at: http://www.tesda.gov.ph/Download/Tvet_trends

of launch to over 2 million in 2016, of whom 95 percent completed their courses (as compared with 10 to 15 percent amongst MOOC users in the US and Europe).[28] A study found that in addition to increasing employability, many MOOC users took them to perform better at their existing jobs.[29] Digital trade is important for such opportunities given that the majority of these courses are conducted remotely from overseas universities and learning centers.

- **Manufacturing.** Embracing the fourth industrial revolution, the Philippines is taking steps towards the digitalization of the country's manufacturing sector to improve labor productivity and stay globally competitive.[30] For example, Philippine electronics manufacturing services provider Ionics partnered with global technology giant IBM to develop Internet of Things-based "smart factory" capabilities for their manufacturing clients.[31] Making use of IBM's open-cloud architecture, Ionics will deliver big data and analytics-driven solutions ranging from predictive maintenance to asset performance management which optimize machinery performance.[32] Given the importance of global collaboration in facilitating real-time information relay and response, digital trade is essential to unlocking opportunities in this sector for the Philippines.

- **Health.** Technology applications enabled by digital trade can improve the Philippines's healthcare quality and coverage tremendously. The Philippine government's National Telehealth Center forged a partnership with American telecommunications service provider Qualcomm to develop its "Wireless Access for Health" initiative. Leveraging the country's high mobile penetration rate,

28. Jason Schmitt (2016), "The Philippines and other developing countries ramp up online education culture", Forbes.
Available at: https://www.forbes.com/sites/schmittjason/2016/08/25/the-philippines-and-other-developing-countries-ramp-up-online-education-culture/#6efc735175eb
29. Maria Garrido and Lucas Koepke (2016), The Advancing MOOCs for Development Initiative: An examination of MOOC usage for professional workforce development outcomes in Colombia, the Philippines and South Africa.
Available at: https://www.irex.org/sites/default/files/node/resource/examination-mooc-usage-professional-workforce-development-outcomes.pdf
30. Ian Nicolas Cigaral (2018), "Philippines seen making all the right moves in adopting Industry 4.0", PhilStar Global. A
vailable at: https://www.philstar.com/business/2018/08/22/1844884/philippines-seen-making-all-right-moves-adopting-industry-40
31. Doris Dumlao-Abadilla (2018), "Ionics, IBM team up on high-tech products", Business Inquirer.
Available at: http://business.inquirer.net/204332/ionics-ibm-team-up-on-high-tech-solutions
32. Doris Dumlao-Abadilla (2018), "Ionics, IBM team up on high-tech products", Business Inquirer.
Available at: http://business.inquirer.net/204332/ionics-ibm-team-up-on-high-tech-solutions

this program seeks to expand and expedite the collection of electronic medical records, allowing health workers to track patient data, generate reports and record outbreaks.[33] Philippine start-up mClinica partnered with the government to create an app which connects drug companies, their distributors, pharmacies and patients on a common platform. With a footprint also in Vietnam and Indonesia, mClinica has pooled data from the largest pharmaceutical companies, over 5,000 pharmacies and 70 million patients, which allows for the optimal deployment of a program to improve Filipino patients' health outcomes and access to affordable medicine.[34]

- **Consumer & Retail.** With over 67 million Internet users accompanied by the proliferation of e-wallets and mobile payments, the Philippines's e-commerce market is the second-fastest growing market in Southeast Asia, after Indonesia.[35] However, the country's low credit card penetration (8 percent) and high proportion of unbanked individuals mean that cash-on-delivery (COD) is still the most preferred means of Electronic Retailing (e-tailing), setting back the country's progress in this area.[36] To address this, the government is pushing through the "Philippine E-Commerce Roadmap", which aims for e-commerce to contribute at least 25 percent of the country's GDP by 2020.[37] Local start-up Payo has also leveraged big data analytics to address problems experienced with COD transactions by developing a system in which once consumers place their orders, data from their previous transactions will be retrieved and analyzed to identify potentially problematic accounts to help merchants minimize cancellation rates and increase revenues.[38] Data gathering and analytics is key to this process. Where e-commerce merchants, particularly small-to-medium enterprises, would tend to manually compile this data from different sources, Payo helped to make this experience seamless, automated and at low cost to them. This was possible through the company's integration with cross-border consumer data-rich platforms like Facebook and Shopify, and their development of development of an Application Programing Interface (API) that allowed relevant consumer data streams to be automatically collated and analyzed.

- **Resources.** The Philippines has made some headway in digitalizing this sector through the application of technologies such as drones and thermal sensors to conduct mineral surveys on land.[39] [40] However, big-data driven smart exploration approaches which rely on cross-border data transfers and analytics have the potential to uncover more opportunities in the Philippines's resource landscape – estimated at US$840 billion worth of untapped mineral wealth as of 2012[41] – while technologies such as autonomous drills as well as predictive maintenance and safety applications will augment productivity in drawing from existing reserves.

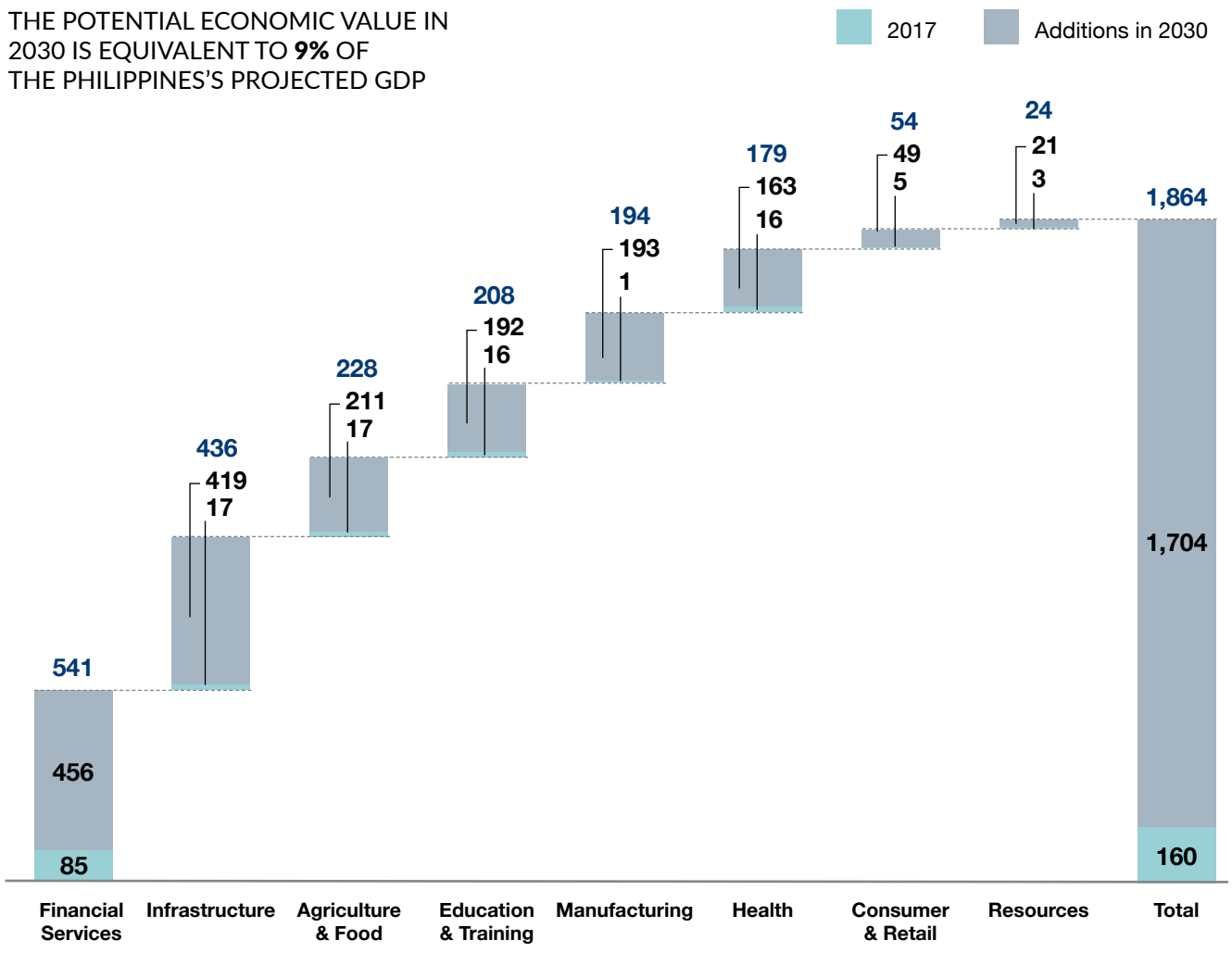
33. Jof Enriquez (2014), "How digital health is bridging the healthcare gap in the Philippines", Innovatemedtec. Available at: https://innovatemedtec.com/content/how-digital-health-is-bridging-the-healthcare-gap-in-the-philippines
34. Judith Balea (2017), "mClinica raises $6.3m to transform global health data", TechinAsia. Available at: https://www.techinasia.com/mclinica-series-a-funding
35. Sources include: Internet World Statistics (2018). Accessed at: https://www.internetworldstats.com/top20.htm; NewsBytes Philippines (2018), "PH now has 67million Internet users, all active on social media". Available at: http://newsbytes.ph/2018/01/30/ph-now-has-67-million-internet-users-all-active-on-social-media/
36. Cora Llamas (2018), "Reimagining e-commerce: How PAYO helps Filipino merchants cater to more shoppers online". Available at: https://www.marketing-interactive.com/features/reimagining-e-commerce-how-payo-helps-philippine-merchants-cater-to-more-shoppers-online/
37. Department of Trade & Industry, Philippines (2018), Philippines E-Commerce Roadmap 2016-2020. Available at: https://www.dti.gov.ph/roadmap
38. Cora Llamas (2018), "Reimagining e-commerce: How PAYO helps Filipino merchants cater to more shoppers online". Available at: https://www.marketing-interactive.com/features/reimagining-e-commerce-how-payo-helps-philippine-merchants-cater-to-more-shoppers-online/
39. Filipino Resources (2018), "Leveraging drone technology for mining exploration and development". Available at: http://philippine-resources.com/2018/03/13/leveraging-drone-technology-for-mining-exploration-and-development/
*40. Aero360 International (201*0. Accessed at: http://aero360intl.com/drones4mining/*
41. Jasmin Quintans (2017), "Mining industry in the Philippines", The Manila Times. Available at: https://www.manilatimes.net/mining-industry-philippines/348610/

EXHIBIT 4:

DIGITAL-TRADE IS SUPPORTING UP TO ₱160 BILLION OF ECONOMIC BENEFITS IN THE PHILIPPINES, WHICH COULD GROW TO ₱1.9 TRILLION BY 2030

POTENTIAL ANNUAL ECONOMIC VALUE[1,2]
PHP ₱ BILLION, 2017 AND 2030 (HIGH-END SCENARIO)

THE POTENTIAL ECONOMIC VALUE IN 2030 IS EQUIVALENT TO **9%** OF THE PHILIPPINES'S PROJECTED GDP



1. These estimates do not represent GDP or market size (revenue), but rather economic value, including consumer surplus. The sizing includes the economic value that is both "somewhat enabled" and "highly enabled" by digital trade.
2. Due to rounding to the nearest billion, the numbers in this table may not add up precisely to the totals indicated.

SOURCE: AlphaBeta analysis

THE VALUE OF DIGITAL EXPORTS FOR THE PHILIPPINES

The Philippines's digital exports in 2017 are estimated to be worth over ₱187 billion (US$3.7 billion), making it the country's 6th largest export sector and accounting for 5.4 percent of its total export value. Although this is significant compared to neighbouring economies such as Malaysia and Vietnam (whose digital exports in 2017 constitute 2 to 3.3 percent of their respective total export values), it is primarily driven by the Philippines's large IT-BPO sector. The country has more room to grow in terms of other digital exports, such as those driven by e-commerce. If the Philippines fully leverages the opportunities afforded by digital trade, it is estimated that its digital exports would grow even more rapidly by a massive 218 percent to reach ₱594 billion (US$11.8 billion) by 2030.

THE VALUE OF THE PHILIPPINES'S DIGITAL EXPORTS

The Philippines's digital exports are estimated to be currently worth ₱187 billion (US$3.7 billion), making it the country's 6th largest export sector, accounting for 5.4 percent of its total exports. While this appears substantial and is indeed higher than the equivalent shares for neighboring countries such as Vietnam and Malaysia, it is primarily driven by the Philippines's large IT-BPO sector. By contrast, digital export revenues from e-commerce are significantly low – although the Philippines's economy is 1.4 times the size of Vietnam's in terms of GDP[42], the latter's e-commerce export revenues are estimated to be 110 times that of the Philippines in 2017. This is attributable in part to Philippines's inadequate Information and Communications Technology (ICT) infrastructure – in 2016, the country had the slowest reported internet speeds in Asia Pacific.[43]

Nevertheless, there are signs of an upturn, with the Philippines's rapidly increasing Internet and smartphone penetration rate[44] and a national roadmap to advance e-commerce.[45] If the Philippines fully leverages digital trade, it is estimated that its value of digital exports could grow by a massive 218 percent to reach ₱594 billion (US$11.8 billion) by 2030 (Exhibit 5).

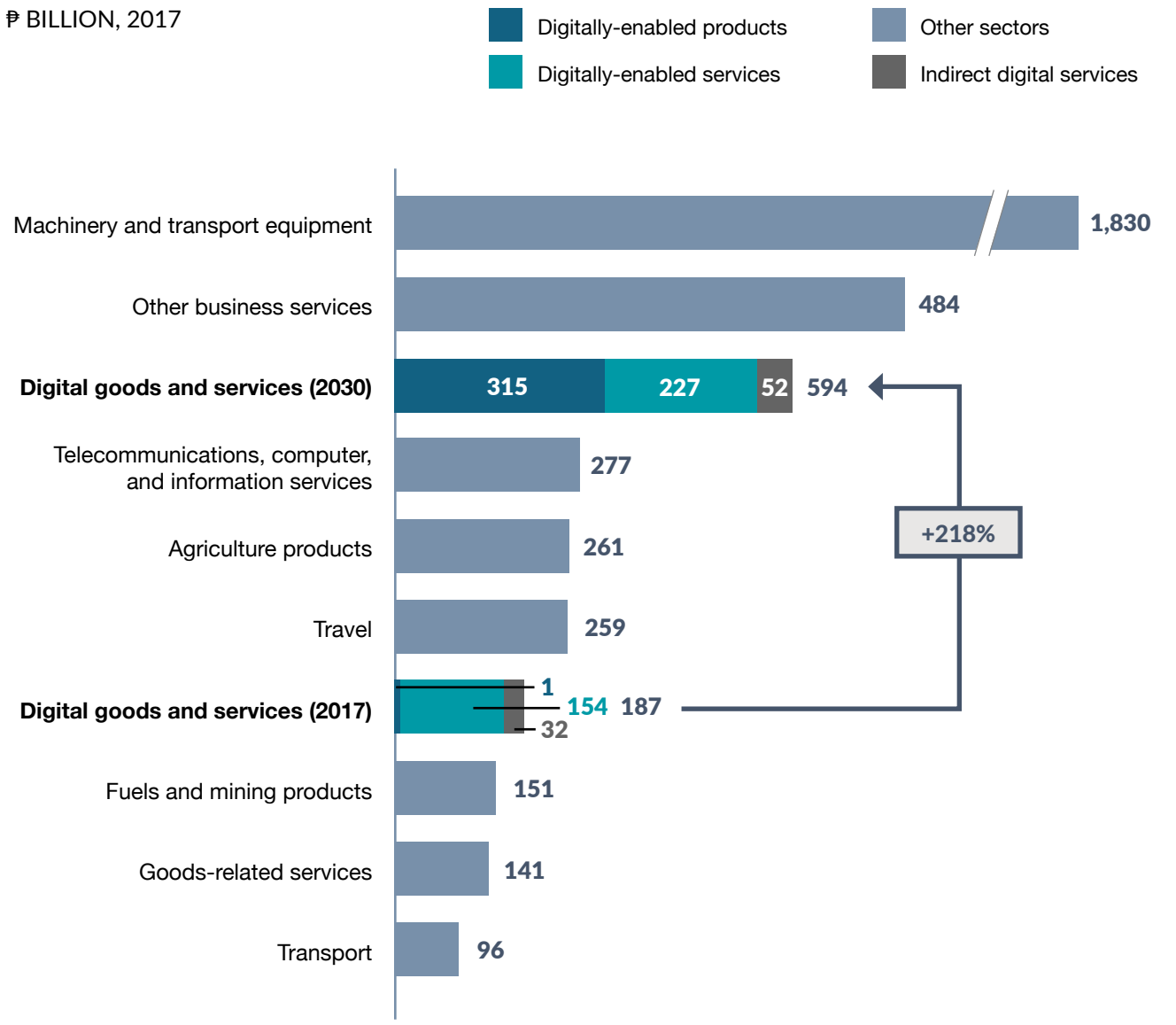
It should be noted that this report's estimate of the value of digital exports is conservative due to data constraints. For digitally-enabled products, the value of products exported via cross-border e-commerce platforms only focuses on Fast Moving Consumer Goods (FMCG) and not other categories of goods where e-commerce could be important, due to the availability of data. Since a large proportion of FMCG goods are B2C in nature, the estimate of e-commerce exports would likely approximate the value of B2C e-commerce. Similarly, the value of digitally-enabled services only focuses on a subset of services where robust data is available.

42. World Bank statistics (2018). Available at: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD
43. Export.gov (2017), Philippines Country Commercial Guide: Philippines – Ecommerce. Accessed at: https://www.export.gov/article?id=Philippines-ecommerce
44. NewsBytes Philippines (2018), "PH now has 67million Internet users, all active on social media". Available at: http://newsbytes.ph/2018/01/30/ph-now-has-67-million-internet-users-all-active-on-social-media/
45. Department of Trade & Industry, Philippines (2018), Philippines E-Commerce Roadmap 2016-2020. Available at: https://www.dti.gov.ph/roadmap

EXHIBIT 5:

IF DIGITAL WERE A SECTOR, IT WOULD REPRESENT THE PHILIPPINES'S 6TH LARGEST EXPORT SECTOR, AND COULD INCREASE BY 218 PERCENT BY 2030

VALUE OF EXPORTS FOR THE PHILIPPINES[1]



1. Due to rounding to the nearest billion, the numbers in this table may not add up precisely to the totals indicated.

SOURCE: WTO (data on 19 other sectors); AlphaBeta analysis

DIGITALLY-ENABLED PRODUCTS

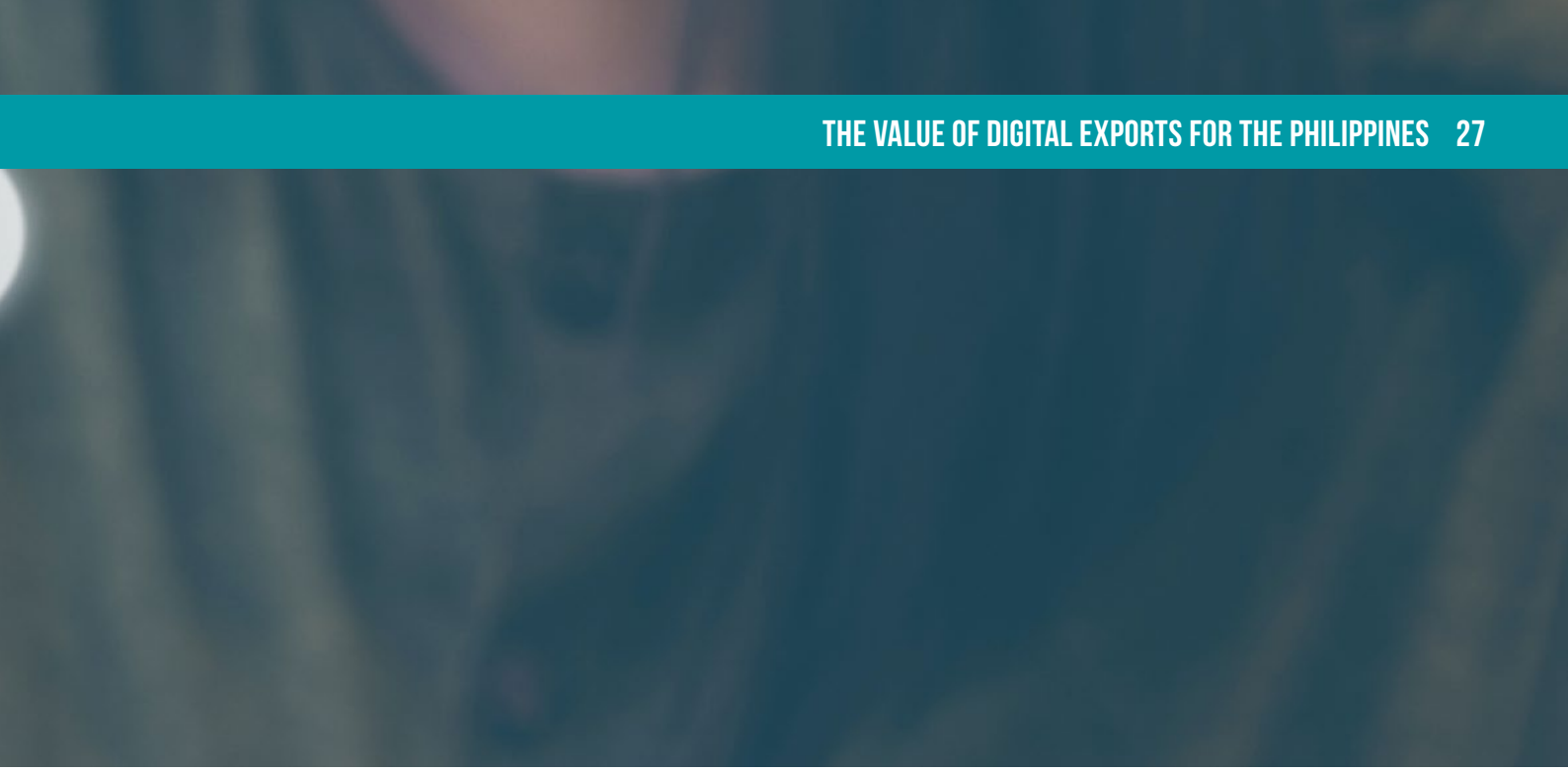
The value of these exports is estimated to be ₱1 billion (US$21 million) in 2017 and could grow almost 300 times to reach ₱315 billion (US$6.2 billion) by 2030.[46] This growth is expected to be largely driven by expanding e-commerce exports, which currently have a very small base in the country.

- **E-commerce.** E-commerce platforms can be crucial gateways to connect local merchants to overseas markets and provide a new source of future growth for traditional sectors such as manufacturing. Approximately 12 percent of the global goods trade is now conducted via international e-commerce.[47] According to the Philippines Statistics Authority, the Philippine e-commerce market in 2015 accounted for only 0.5 percent of retail transactions in the country, reflecting an immense export potential for Philippine businesses.[48]

  However, most Philippine businesses have yet to tap the export opportunity, with less than 8 percent of businesses currently engaged in direct exporting (versus 16 percent in East Asian and Pacific economies on average).[49] Philippine businesses, particularly Small and Medium Enterprises (SMEs), still face substantial challenges in bridging the gap to global markets. They often lack the resources to research international sales opportunities, build global business networks and promote their products overseas.

Based on average export revenue data and proxies on the proportion of sellers on their platform who export, it is estimated that e-commerce generated over ₱1 billion (US$21 million) of export revenues for the Philippines in 2017, which could grow to over ₱314 billion (US$6.2 billion) by 2030 based on the forecasted growth of e-commerce markets in nearby countries.[50] One example of a Philippine company taking advantage of the e-commerce export opportunity is the AVA Online Group (See Box 2).

46. Based on AlphaBeta analysis.
47. McKinsey Global Institute (2016), Digital globalization: The new era of global flows. Accessed at: https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Digital%20globalization%20The%20new%20era%20of%20global%20flows/MGI-Digital-globalization-Full-report.ashx
48. World Bank Enterprise Survey (2015). Accessed here: http://www.enterprisesurveys.org/Custom-Query
49. World Bank Enterprise Survey (2015). Accessed here: http://www.enterprisesurveys.org/Custom-Query
50. Based on AlphaBeta analysis.



BOX 2.
FASHION E-COMMERCE START-UP AVA

Founded in 2012, AVA started out as a fashion flash sales site. Recognizing that local designers could take up to three years to find retail space in Manila and that there was a huge market for newly-discovered independent brands, AVA evolved into a platform for launching new brands into both the domestic and overseas markets.

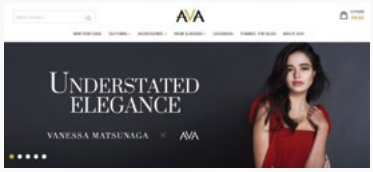


Photo source: TechShake

Besides its consumer division which designs, distributes and markets women's apparel and accessories online, AVA also has an enterprise division which functions as a digital consultancy that seeks to accelerate the growth and outreach of promising local fashion brands. With its growing partner base of local fashion designers, AVA currently markets more than 120 brands through its online platform, and exports to ten overseas markets including the US and UK.[51]

- **Digital apps.** While the Philippines's app development market is still relatively nascent, some local apps are already doing well on the world stage.[52] For example, the mobile app game Streetfood Tycoon developed by Filipino game developer Erick Garayblas was one of the first Philippine games to become a global hit.[53] Within a few months of its launch in 2012, it had over 2.7 million downloads globally, with more than 80,000 users playing daily.[54]

51. AVA Group. Available at: https://www.ava.ph
52. The report does not quantify the total revenues from app exports for Philippines as due to the small size of app export market robust data is not available.
53. Kuyi Mobile. Available at: http://kuyimobile.com/about.php
54. Tech in Asia (2012), StreetFood Tycoon: Philippine-Made iOS Game Hits 2.7M Downloads. Available at: https://www.techinasia.com/streetfood-tycoon-philippines-ios

DIGITALLY-ENABLED SERVICES

The value of these exports is estimated to be ₱153 billion (US$3 billion) in 2017 and could grow by forty-eight percent to reach ₱227 billion (US$4.5 billion) in 2030.[55] This growth is expected to be largely driven by expanding digital infrastructure services.

- **Digital infrastructure services.** This includes telecommunication services such as the export of email, video conferencing, digital file sharing, and Voice Over Internet Protocol (VOIP) services as well as data processing. These exports are boosted by the Philippines's large IT-BPO sector, which accounts for over 12 percent of the global IT-Business Process Management market.[56] The Philippines's digital exports of infrastructure services in 2017 are estimated to have been around ₱153 billion (US$3 billion).

- **Online video advertising.** Thanks to the advent of video-sharing platforms such as YouTube, Vimeo and Facebook, Philippine stories and voices are finding new global audiences.

  The demand for Philippine content and the economic opportunities associated with them are significant. In 2017, it is estimated that there were over 22 billion views on Philippine YouTube channels. For example, the siblings Ranz Kyle and Niana Guerrero (who each have their own YouTube channel) have more than 7 million subscribers between the two of them (Exhibit 6). Most well known for his dance videos but also for other features such as vlogs, pranks and challenges, Ranz Kyle has over 526 million views globally on his channel.

  It is estimated that online video platforms supported over ₱368 million (US$7 million) in advertising revenues from foreign markets in the Philippines in 2017.[57] These benefits reflect the income earned by Filipinos from advertising displayed on their content. This could potentially grow to over ₱4 billion (US$79 million) by 2030 based on forecasted growth of the digital advertising market.[58] This is in addition to the large, but difficult to size, value of direct digital services exports in industries such as tourism (including online ticket booking), financial services, accounting, law, education and even medicine.

55. Based on AlphaBeta analysis.
56. Oxford Business Group (2018), "BPO firms are expanding into secondary and tertiary cities in the Philippines". Available at: https://oxfordbusinessgroup.com/analysis/bpo-firms-are-expanding-secondary-and-tertiary-cities-philippines
57. Based on AlphaBeta analysis.
58. Based on AlphaBeta analysis.

EXHIBIT 6:

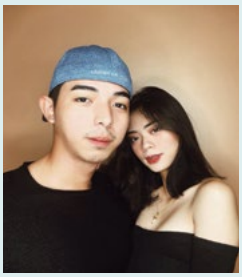
DANCE

- **Who:** Ranz Kyle Viniel Evidente Ongsee
- **Channel:** Ranz Kyle
- **Detail:** Dance
- **Subscribers:** >4.8 million
- **Views:** >526 million

CHILDREN

- **Who:** Donna Christa Serrano
- **Channel:** Donna the Explorer
- **Detail:** Travel, toy unboxing, slice of life
- **Subscribers:** >3.2 million
- **Views:** >770 million

SLICE OF LIFE



- **Who:** Jayzam and Camille
- **Channel:** Ja Mill
- **Detail:** Video logs
- **Subscribers:** >2 million
- **Views:** >152 million

MUSIC

- **Who:** fliptopbattles
- **Channel:** fliptopbattles
- **Detail:** Rap battle videos
- **Subscribers:** >2.8 million
- **Views:** >1.1 billion

INDIRECT DIGITAL SERVICES

Imported digital services are crucial for enabling the growth of the exports of non-digital sectors. In traditional sectors such as manufacturing, imported digital services such as email, video conferencing, Voice Over Internet Protocol (VOIP), digital file sharing and data processing help Philippine firms in reaching new markets. In 2017, the impact of imported digital services on exports in all other sectors in the Philippines is estimated at about ₱32 billion (US$642 million).[59]

> "In 2017, the impact of imported digital services on exports in all other sectors in the Philippines is estimated at about ₱32 billion (US$642 million)."

59. Based on AlphaBeta analysis.

CAPTURING THE DIGITAL TRADE OPPORTUNITY

In order to realize the full potential of digital trade, policymakers will need to address four areas of potential concern surrounding digital trade. The good news is that all of them are addressable without needing to unduly restrict digital trade flows. It is in the Philippines's interest to ensure a strong domestic ecosystem for digital trade and to also play a role in advocating strongly for digital trade to remain open in the Asia Pacific to safeguard the potential benefits for Philippine firms.

PERCEIVED CONCERNS RELATED TO DIGITAL TRADE

Digital trade has unfortunately faced increasing barriers from other countries in various forms in recent years, ranging from data localization requirements through to local registration mandates. The barriers exist in four main forms:

1. PRIVACY
Protecting the privacy of citizens

2. SECURITY
Enabling rapid access to data for law enforcement and safeguarding national security as well as the security of users

3. ECONOMIC
Supporting the growth of domestic digital firms and local jobs

4. FISCAL
Protecting the local tax base

These barriers require critical examination. Some overlook the fact that the same end objective could be achieved more efficiently through technological measures or modernized regulations without jeopardizing the benefits of digital trade.

CONCERN 1:

PROTECTING THE PRIVACY OF CITIZENS AND SAFEGUARDING THEM FROM INAPPROPRIATE CONTENT

Digitized information requires appropriate privacy safeguards in order to protect citizens and safeguard against nefarious use or interference. There are different ways of addressing data privacy concerns and many can achieve the same objective of safeguarding privacy, without unduly impeding data flows. For example, the United States has adopted an approach of self-regulation enforced with heavy fines if companies are found not to be safeguarding privacy appropriately.

In a positive step, the Philippines has demonstrated its commitment to participate in the Cross-Border Privacy Rules (CBPR) and Privacy Recognition for Processors (PRP) systems, established by the Asia-Pacific Economic Cooperation (APEC) forum, which requires participating businesses to implement data privacy policies.[60] [61] These forms of privacy protections are solutions that allow cross-border data flows while safeguarding privacy through interoperable enforcement mechanisms, providing an ideal international framework that Asia Pacific policymakers should seek.

CONCERN 2:

ENABLING RAPID ACCESS TO DATA FOR LAW ENFORCEMENT AND SAFEGUARDING NATIONAL SECURITY AS WELL AS THE SECURITY OF USERS

While there are no economy-wide data localization requirements in the Philippines, these have arisen elsewhere in the region due to the cybersecurity concerns of governments, posing constraints on cross-border digital trade. Such requirements have tended to limit the scale of cloud providers (thus potentially impacting their ability to ensure appropriate investment in data safeguards) by concentrating data in few locations (as opposed to maintaining redundant datasets at multiple data centers spread across countries).

Modern data storage systems take advantage of "sharding", a type of database partitioning that separates very large databases the into smaller, faster, more easily managed parts called data shards. Sharding assists the intelligent transmission and storage of data, enabling the movement and replication of data between data centers and across borders in the interests of integrity, efficiency and security.

Cloud providers balance factors ranging from internet bandwidth and the likelihood of power outages over available networks to network throughput in order to optimize systems.[62] As one set of researchers found, "Requirements to localize data do nothing on their own to make data safer; in fact, they will only make it impossible for cloud service providers to take advantage of the Internet's distributed infrastructure and use sharding."[63]

60. Joshua Meltzer and Peter Lovelock (2018), "Regulating for a digital economy: Understanding the importance of cross-border data flows in Asia". Available at: https://www.brookings.edu/wp-content/uploads/2018/03/digital-economy_meltzer_lovelock_web.pdf
61. For further information, see: http://www.cbprs.org/
62. Urs Holzle (2018), "Freedom of data movement in the cloud era" (Google Blogs). Available at: https://www.blog.google/products/google-cloud/freedom-data-movement-cloud-era/
63. Patrick Ryan, Sarah Falvey, and Ronak Merchant (2013), "When the cloud goes local: The global problem with data localization". IEEE Computer Society, Issue 12, Vol. 46. Available at: https://www.computer.org/csdl/mags/co/2013/12/mco2013120054-abs.html

Moreover, research has shown that local storage providers, in fact, apply less rigor to data security than global providers as a result of fewer financial resources, less technological expertise, lower competitive need to draw customers and technological restrictions (e.g. on sharding and the distributed storage of backup copies).[64] There are also numerous examples of data localization creating issues for the resilience and security of data by making it susceptible to a single point of failure. For example, in 2012, a small explosion in a data center in Calgary, Canada, led 30,000 people to lose landline phone services (including to emergency services) and interruptions to the functioning of radio stations, fire authorities, taxi services, and even some local government functions for several days.[65] National-level events such as flooding, earthquakes, tornadoes, and wildfires could create resiliency issues even for data stored at multiple points within a country.

There are valid issues when it comes to law enforcement officials requiring timely access to data in other countries; however, these issues are best addressed by tackling the specific requirements of law enforcement agencies through inter-governmental data sharing agreements, rather than constricting data flows.[66]

CONCERN 3:
SUPPORTING THE GROWTH OF DOMESTIC DIGITAL FIRMS AND LOCAL JOBS

It has been argued that free digital trade will result in a select number of large multinationals (with the necessary scale) capturing the economic benefits, while local firms receive limited benefits and local economies miss out on employment opportunities. The economic literature has debunked the notion that trade protectionism spurs the creation of highly-productive domestic champions,[67] and the same is even more true for the digital sector for several reasons.

First, digital multinationals make important contributions to the local digital ecosystem. A survey of start-ups across Asia found that 88 percent considered it crucial to attract foreign technology investment to the country, with some of the most important channels including start-up financing, investments in the digital ecosystem, and knowledge transfer.[68] In the Philippines, such examples of the importance of digital multinationals to the local digital industry are plentiful:

- **Investment in research.** Samsung established a research and development institute in Manila to develop cloud, web and data intelligence solutions as part of the company's vision to become a "center of excellence" in these technologies.[69] The institute aims to contribute to the Philippine economy through exhibiting innovation and projects that are relevant to the country, such as mobile apps for disaster response in the local context.[70]

64. James Arlen and Brendan O'Connor (2015), "Xenophobia is hard on data: Forced localization, data storage, and business realities", Sector. Available at: http://www.sector.ca/Program/Sessions/Session-Details/xenophobia-is-hard-on-data-forced-localization-data-storage-and-business-realities/
65. Leviathan Security Group, "Comparison of Availability Between Local and Cloud Storage". Available at: https://static1.squarespace.com/static/556340ece4b0869396f21099/t/559dad9ae4b069728afca34a/1436396954508/Value+of+Cloud+Security+-+Availability.pdf
66. Joshua P. Meltzer and Peter Lovelock (2018), Regulating for a digital economy: Understanding the importance of cross-border data flows in Asia. Available at: https://www.brookings.edu/wp-content/uploads/2018/03/digital-economy_meltzer_lovelock_working-paper.pdf
67. For a literature review, see Arvind Panagariya, "A Re-examination of the Infant Industry Argument for Protection", Journal of Applied Research, February 18, 2011. Available at: http://journals.sagepub.com/doi/abs/10.1177/097380101000500102
68. AlphaBeta (2017), Digital Nation: Policy levers for investment and growth. Available at: http://www.alphabeta.com/digital-nation-policy-levers-investment-growth/
69. Samsung Research (2018), "Samsung R&D Institute Philippines". Available at: https://research.samsung.com/srph
70. Jhoanna Ballaran (2018), "PNP and Samsung develop mobile app for emergency assistance". Available at: https://newsinfo.inquirer.net/991252/pnp-and-samsung-develop-mobile-app-for-emergency-assistance

- **Support for innovation.** IBM's "Smarter Cities Challenge" is a competitive grant program in which IBM partners cities who have put forth the most compelling proposals by leveraging IBM's technical expertise in cloud computing, analytics and artificial intelligence to achieve their visions – fully funded by IBM.[71] Two Philippine cities, Cebu and Makati City, have received such support, particularly in the areas of transport and urban planning.[72]

- **Support for small business.** With only 1 percent of small businesses in the Philippines having an online presence, Google launched a tool called "Google My Business (GMB) Websites" to help small businesses in the Philippines create free, mobile-optimized websites in minutes.[73]

- **Support for the education system.** Microsoft partnered with the provincial government of Cavite in distributing tablets to over 2,000 teachers, and training them in the use of this technology, as part of a campaign to incorporate technology into its education sector.[74]

Second, digital constraints not only negatively affect the digital sector itself, but also the broader economy. In fact, the larger impact is on non-digital sectors. The macroeconomic costs of forced data localization range between 0.7 percent and 1.1 percent of GDP.[75] In addition, data localization has been associated with investment decreases of up to 4 percent.[76]

Third, digital trade constraints bring about significant additional operational costs which often fall hardest on SMEs. While a major company may have sufficient revenues and scale to justify building data centers in multiple locations, smaller firms can be shut out of the domestic and international internet economy completely if they cannot access affordable computing and data services. Past research has found that local companies would be required to pay 30 to 60 percent more for their computing needs from strictly enforced data localization policies.[77] Indeed, it has been observed that not only does the fragmentation of global online networks by data localization laws result in delays, inefficiencies and higher costs from building or renting physical infrastructure in each jurisdiction, it also imposes the need to operate in a "complex array of different jurisdictions imposing conflicting mandates and conferring conflicting rights".

Fourth, protectionism could encourage retaliatory behavior in other jurisdictions with the potential to shut out local firms from these foreign markets. McKinsey Global Institute estimates that data flows accounted for US$2.8 trillion of economic value in 2014 and any impediment to these flows could create significant economic headwinds.[78]

Finally, the perceived benefit of data localization requirements for domestic employment is typically much smaller than expected. Data centers, for example, are "capital-heavy" but "job-light" investments that are likely to create few local jobs.[79]

71. IBM (2017), "Smarter Cities Challenge aims to make lasting urban improvements".
Available at: https://www.ibm.com/blogs/cloud-computing/2017/02/17/smarter-cities-challenge-improvements/
72. IBM Smarter Cities Challenge (2018). Available at: https://www.smartercitieschallenge.org/cities
73. Cora Llamas (2017), "Filipino business owners can create their own website for free with Google My Business", Marketing Interactive.
Available at: https://www.marketing-interactive.com/philippine-business-owners-can-create-their-own-website-for-free-with-google-my-business/
74. Rappler (2015), "2,000 Cavite teachers get tablets as part of education initiative".
Available at: https://www.rappler.com/technology/news/101501-cavite-teachers-tablets-education-initiative
75. Matthias Bauer et al. (2014), The costs of data localisation: Friendly fire on economic recovery, European Centre for International Political Economy (ECIPE).
Available at: http://www.ecipe.org/app/uploads/2014/12/OCC32014__1.pdf
76. Martina Ferracane et al (2018), Digital Trade Restrictiveness Index, European Centre for Political Economy (2018).
Available at: http://globalgovernanceprogramme.eui.eu/wp-content/uploads/2018/09/DTRI-final.pdf
77. Leviathan Security Group (2014), Quantifying the costs of forced localization. Available at: https://static1.squarespace.com/static/556340ece4b0869396f21099/t/559dad76e4b0899d97726a8b/1436396918881/Quantifying+the+Cost+of+Forced+Localization.pdf
78. McKinsey Global Institute (2016), Digital globalization: The new era of global flows.
Available at: https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-globalization-the-new-era-of-global-flows
79. TechRepublic (2016), "Why data centers fail to bring new jobs to small towns".
Available at: https://www.techrepublic.com/article/why-data-centers-fail-to-bring-new-jobs-to-small-towns/

CONCERN 4:
PROTECTING THE LOCAL TAX BASE

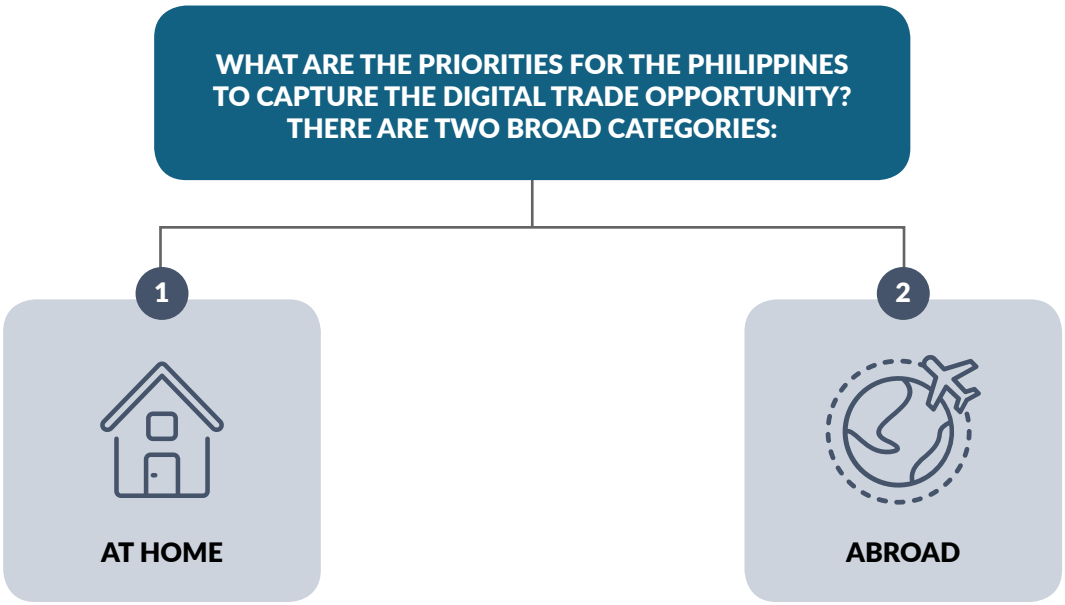
A fear of many policymakers is that digital trade makes it easier for companies to shift profits to low tax jurisdictions and hence avoid paying taxes. This perception, however, is not necessarily backed by data. Research by the European Centre for International Political Economy (ECIPE) shows that the taxes paid by the world's largest Internet firms are on average commensurate with leading businesses across the Asia Pacific region.[80] As government officials have increasingly acknowledged, the international approach to tackling Base Erosion and Profit Shifting (BEPS) and US tax reform have together been largely successful at addressing the issue of double-non-taxation and indefinitely deferred taxation respectively.

The conversation has now moved on to how that tax should be allocated among countries, particularly countries with large consumer markets. At present, digital multinationals (like non-digital multinationals) pay the majority of their tax where their product development takes place. Some countries have expressed their desire for the presence of large consumer markets to play a stronger role in how profit (and therefore taxing rights) is allocated, but it is no longer accurate to suggest that there is a broad problem of digital multinationals not paying enough tax at a global level.

Surveys of digital multinational enterprises conducted by AlphaBeta in past research found that investors are more concerned about the unpredictability of the tax environment, as opposed to the rate itself.[81] For example, over 40 percent of respondents in Deloitte's latest "Asia Pacific Tax Complexity Survey" considered the tax compliance and fiscal requirements in the Philippines to be "complicated".[82] The early lessons from BEPS reforms in the region highlight the importance of a strong consultation process with industry and of enforceable mechanisms that do not discriminate against the digital sector.[83]

80. Martina Ferracane and Hosuk Lee-Makiyamahe (2018), Geopolitics of Online Taxation in Asia-Pacific - Digitalisation, Corporate Tax Base and The Role of Governments. Available at: http://ecipe.org/publications/the-geopolitics-of-online-taxation-in-asia-pacific/
81. AlphaBeta (2017), Digital Nation: Policy levers for investment and growth. Available at: http://www.alphabeta.com/digital-nation-policy-levers-investment-growth/
82. Deloitte (2017), Shifting sands: risk and reform in uncertain times. 2017 Asia Pacific Tax Complexity Survey. Available at: https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/tax/deloitte-cn-tax-2017-ap-tax-complexity-survey-en-170424.pdf
83. AlphaBeta (2017), The Screen Evolution: How video-on-demand boosts Asia's economies and generates value for viewers, business and society. Available at: http://www.alphabeta.com/the-screen-evolution/

PRIORITIES FOR ACTION



CATEGORY 1: ACTION AT HOME

The Philippines generally has a strong environment for supporting digital trade and does not have significant restrictions on cross-border data flows.

However, in the "Digital Trade Restrictiveness Index" developed by the European Centre for International Political Economy (ECIPE), the Philippines is noted to have "significant restrictions in place" with regard to its openness to foreign investment in digital sectors. These stem primarily from the country's regulation that foreign equity ownership in public utilities, including telecommunications companies and value-added services, must not exceed 40 percent.[84] In addition, the Philippines Securities and Exchange Commission requires that only Filipino nationals may own the commercial operation of an online platform to market or sell third-party products and services.[85] Such regulations may impede the set-up of foreign-owned digital operations that could potentially add value and investments into the domestic economy.

84. Martina Ferracane et al (2018), Digital Trade Restrictiveness Index, European Centre for Political Economy (2018). Available at: http://globalgovernanceprogramme.eui.eu/wp-content/uploads/2018/09/DTRI-final.pdf
85. Martina Ferracane et al (2018), Digital Trade Restrictiveness Index, European Centre for Political Economy (2018). Available at: http://globalgovernanceprogramme.eui.eu/wp-content/uploads/2018/09/DTRI-final.pdf

CATEGORY 2: ACTION ABROAD

The Philippine government is taking a proactive role in advocating for a "unified ASEAN Digital Marketplace", with a particular emphasis on advancing the benefits of digital trade for MSMEs.[86]

The Philippines is also currently engaged in a number of bilateral and multilateral free trade agreements. These include the Regional Comprehensive Economic Partnership (RCEP), a proposed free trade agreement (FTA) between the ten-member states of ASEAN and the six states with which ASEAN has existing free trade agreements (Australia, China, India, Japan, South Korea and New Zealand).

To maximize the potential of digital trade for Philippine firms, there are three crucial areas for the Philippines to advocate for in the region:[87]

- **Ensuring open data flows and interoperability.** There is a considerable opportunity to improve transparency on data management requirements across Asia and to identify areas to enhance performance. Data privacy laws and regulations have been introduced in many Asian countries in recent years, but many areas of uncertainty remain.

  Clarity is required around the type of data that can be shared, the boundaries of sharing, and the type of consumer consent that is required. A useful first step would be for countries to adopt the APEC Privacy Framework and join the APEC Cross Border Data Privacy Rules System as well as adopt ISO Standards such as ISO27018 that specifies controls to protect personal data.

  A related opportunity is to encourage interoperability between digital frameworks, particularly on payment gateways, to avoid the costs of companies having to customize their approaches to every single market. One opportunity for the Philippines is to support the implementation of the data management initiative under the Master Plan on ASEAN Connectivity 2025 (MPAC 2025), which aims to improve transparency and accountability on data regulation requirements in ASEAN and identify areas to enhance performance and coordination.[88]

- **Promote innovation-oriented approaches to copyright and intermediary liability regulations.** A strong environment for digital trade is one in which the development of innovative digital content is facilitated in a manner that does not undermine the interests of rights holders. While addressing copyright concerns and removing undesirable content (such as hate speech) are clearly important priorities for stimulating innovation and protecting consumers, the challenge is to balance such objectives with a system that is sufficiently flexible that it does not impose undue burden on firms, particularly MSMEs.

  Ensuring clarity on issues such as the "fair use doctrine", which aims to balance the interests of content creators on the one hand, and society's competing interest in the free flow of ideas, information, and commerce on the other hand, will be an important part of this. In this regard, with a fair use regime in place, the Philippines is

86. Department of Trade and Industry (2018). Available at: https://www.dti.gov.ph/1058-main-content/asean-msme-development-summit
87. These same issues have been identified in past research supported by AlphaBeta (2018), Micro-revolution: The new stakeholders of trade in APAC. Available at: http://www.alphabeta.com/micro-revolution-new-stakeholders-trade-apac/
88. ASEAN Secretariat (2016), Master Plan on ASEAN Connectivity 2025. Available at: http://asean.org/storage/2016/09/Master-Plan-on-ASEAN-Connectivity-20251.pdf

advanced as compared to some of its Southeast Asian peers.[89]

Similarly, well-balanced internet Intermediate Liability (ILL) regulations can help to ensure the effective removal of illegal content without constraining the free flow of information. It is imperative that regulations define clear and cost-efficient requirements for intermediaries to comply with legislation and provide clarity on any potential liability.

- **Minimizing border frictions.** Cross-border trade would be greatly enhanced by reducing restrictiveness on digital trade, particularly related to ownership regulations.

  A further concern is low customs thresholds, which impose significant administrative costs. Countries should aspire to raise de minimis thresholds and remove customs duties on digital products.[90] A de minimis threshold of US$200 could generate over US$30 billion in economic benefits for all 21 APEC members.[91]

  Finally, an emerging issue of concern is around governments requiring the transfer of or access to software source code as a condition for the import, distribution, sale or use of software.[92] Often framed in the context of technology transfer in the case of emerging economies, or to support government regulation in a variety of areas such as preventing anticompetitive conduct and enforcing tax law, this requirement could unduly restrict the business operations and potential expansions of Philippine enterprises by influencing their decision to trade and invest. There is thus a strong need to balance competing domestic policy issues against safeguarding the flexibility for domestic enterprises to flourish in the global trade environment.

89. Martina Ferracane et al (2018), Digital Trade Restrictiveness Index, European Centre for Political Economy (2018). Available at: http://globalgovernanceprogramme.eui.eu/wp-content/uploads/2018/09/DTRI-final.pdf
90. This does not preclude governments from applying local consumption or sales taxes, but these cannot discriminate against international designers or developers.
91. Stephen Holloway and Jeffrey Rae (2012), "De minimis thresholds in APEC", World Customs Journal, Vol.6 # 1.
92. World Trade Organization 11th Ministerial Conference, Buenos Aires, 10-13 December 2017, Some preliminary implications of WTO source code proposal. Available at: https://www.twn.my/MC11/briefings/BP4.pdf

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