FROM RESOURCE BOOM TO DIGITAL BOOM:

CAPTURING AUSTRALIA'S DIGITAL TRADE OPPORTUNITY AT HOME AND ABROAD

promoting sustainable global trade

hinrich foundation

Export Council of Australia

Important Notice on Contents

Digital trade refers to the distribution, marketing, sale or delivery of goods and services to overseas markets – and the reception of these by domestic markets from abroad – by electronic means. 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 policy makers** when formulating trade and economic policy to take into account the importance of digital trade for both the external and domestic economies;
- **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 recognising 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, in collaboration with the Export Council of Australia with analysis from AlphaBeta and support from Google. 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.

promoting sustainable global trade

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THE DIGITAL TRADE OPPORTUNITY FOR AUSTRALIA

VALUE OF DIGITAL TRADE FOR AUSTRALIA'S DOMESTIC ECONOMY

Digital trade currently enables
UP TO A$43 BILLION
of economic value in Australia's domestic economy.

By 2030, digital trade will enable an estimated
A$192 BILLION
of economic value in Australia's domestic economy.

Potential benefits of digital trade are spread across all sectors of Australian economy, but particularly relevant in
HEALTH, RESOURCES AND INFRASTRUCTURE.

VALUE OF DIGITAL TRADE FOR AUSTRALIA'S EXPORTS

AUSTRALIA RANKS 2ND
among 10 leading APAC countries in terms of number of paid apps (developed by Australians) downloaded from abroad.

If digital goods and services were a sector, it would be the
4TH LARGEST EXPORT SECTOR
for Australia.

By 2030,
Australia's digital exports are estimated to
GROW BY 210%.

THREE IMPERATIVES FOR CAPTURING THE OPPORTUNITY

1 ENSURING OPEN DATA FLOWS

2 BUILDING FLEXIBILITY INTO COPYRIGHT AND INTERMEDIARY LIABILITY REGULATIONS

3 MINIMISING BORDER FRICTIONS

EXECUTIVE SUMMARY

The digital economy and the so-called 4th industrial revolution holds enormous promise for Australia's future prosperity. However, Australia's strong track record of economic success is no guarantee that we will realise this potential. Understanding the cross-cutting role of digital trade (see Box 1 for a definition) in both the domestic economy and export markets, and optimising the regulatory environment is crucial if Australia is to realise new sources of growth and continue the improvements in standards of living achieved over the 27 years since Australia's most recent recession.

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 also supporting large productivity improvements in domestic sectors, underpinning production and quality improvements, and international competitiveness. Yet, traditional economic measures fail to adequately measure the value of digital trade to exports and Australia's economy. This creates risk that the value of digital trade is not fully appreciated and taken into account when formulating policy.

This report aims to quantify the economic value of digital goods and services exports, as well as the value of digital trade in enabling productivity improvements in the domestic economy.

Among our key findings (Exhibit 1):

- **Some of digital trade's biggest beneficiaries are outside the digital sector. While digital trade already contributes significantly to Australia's domestic economy, there is a A$192 billion opportunity for the country's domestic sectors - with the right settings.** Digital trade enables Australian firms to achieve cost efficiencies (from storage of data), enter new markets and generate richer insights with the help of data. It supports collaboration (particularly where Australia may have skill gaps), enables adoption of efficient business practices (such as allowing consumers real-time access to their bank accounts even when abroad), and supports management of global supply chains (e.g. tracking of export containers using Internet of Things technology). Today, the economic value of digital trade-enabled productivity benefits to the Australian economy is estimated to be worth A$43 billion. By 2030, this could grow more than five-fold, reaching A$192 billion.

- **Digital exports represent the 4th largest export sector for Australia today, and have the potential to grow even further.** The export value of virtual goods and services enabled by the digital economy, such as e-commerce, account for A$6 billion in exports today, making this Australia's 4th largest export sector. By 2030, Australia's digital exports could grow by 210 percent from today's levels, to reach A$19 billion.

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

- **The digital trade dividend may yet prove elusive, if digital trade is not fully facilitated abroad.** Policymakers in Australia and across the Asia Pacific are rushing to develop regulations for the digital economy. Sensible regulatory frameworks are essential to address related issues such as privacy and cybersecurity, but many countries are adopting digital trade rules that could undermine Australian companies and the country's overall digital trade opportunity. Issues such as imposing undue red tape on the data-driven operations of Australian companies, restricting cross-border data flows, and imposing imbalanced copyright and intermediary liability regulations, need to be addressed. Given Australia's economic prominence in the region, there is a strong opportunity for the Australian Government to show leadership by seeking balanced digital trade rules in bilateral and multilateral trade agreements across the region, and unlocking billions of dollars of economic value for Australian companies.

" Given Australia's economic prominence in the region, there is a strong opportunity for the Australian Government to show leadership by seeking balanced digital trade rules in bilateral and multilateral trade agreements across the region, and unlocking billions of dollars of economic value for Australian companies. "

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 Australian economy. Chapter 3 highlights some of the perceived concerns related to digital trade and how they can be addressed, and identifies the priorities for Australia to capture the digital trade opportunity.

EXHIBIT 1:

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

TOTAL ECONOMIC VALUE FROM DIGITAL TRADE

	Value of digital flows to the domestic economy	+	Value of digital exports
SOURCES OF VALUE			
DESCRIPTION	The value of digital flows for creating positive economic impact in the domestic economy through supporting adoption of digital technologies, including in traditional sectors (e.g. manufacturing, agriculture)		The value of export of virtual goods (e.g., apps, digital content) and of physical products enabled by digital technologies (e.g., e-commerce)
VALUE TODAY (2017)	Digital trade enables up to **A$43 billion** of economic value in the domestic economy		**4th** largest export sector in the Australian economy, worth **A$6 billion**
FUTURE POTENTIAL (2030)	Potential for digital trade to enable up to **A$192 billion** of economic value		Potential for digital exports to grow by **210 percent** by 2030, worth **A$19 billion**

SOURCE: AlphaBeta analysis

BOX 1.
DEFINING DIGITAL TRADE

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 are used by various organisations. In the World Trade Organisation (WTO), the term “electronic commerce” has generally been employed rather than “digital trade”, and is understood to mean “the production, distribution, marketing, sale or delivery of goods and services by electronic means”.[3] The definition used by the United States International Trade Commission (USITC) 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).[4] UNESCAP takes a broad approach to measuring the value of digital exports, seeking to capture digital infrastructure related to exports, as well as digital goods and services.[5] The research presented here focuses on two main categories of digital trade[6]:

- **Digital imports.** This reflects digital flows that create economic value in the domestic economy. These estimates do not represent GDP or market size (revenue), but rather economic value, including consumer surplus, productivity gains and cost savings. Six key channels (which are discussed further in Chapter 1) have been identified by which digital trade is important for boosting productivity, creating new revenue streams or lowering costs in the domestic economy.

- **Digital exports.** This includes three main sub-categories:

  - **Digitally-enabled products.** These refer to "content" products such as software, books, music, films, and games that can be traded in a physical form but are now traded electronically via the Internet, as well as apps and e-commerce.

  - **Digitally-enabled services.** These refer to services that are provided using digital technologies. This is a large category because most services currently have adopted digital technologies and are selling e-services to varying degrees. For example, this includes online advertising (viewed from abroad), and the export of data processing and online software consultancy services. It also includes other direct e-service exports such as online booking and electronic banking, however these categories are currently not able to be measured in a robust manner.

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

3. UNESCAP (2016), Internal trade in a digital age. Available at: http://www.unescap.org/sites/default/files/aptir-2016-ch7.pdf
4. 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
5. UNESCAP (2016), Internal trade in a digital age. Available at: http://www.unescap.org/sites/default/files/aptir-2016-ch7.pdf
6. The detailed methodology is explained in an accompanying methodology document, which can be found on the Hinrich Foundation website (http://hinrichfoundation.com/trade-research/digital-trade-project).

THE VALUE AT HOME FROM DIGITAL TRADE

The biggest beneficiaries from digital trade are domestic sectors that have embraced the technological gains brought by cross-border data flows. Economic gains supported by digital trade across major sectors in the Australian economy amounted to an estimated A$43 billion in 2017 – through enabling digital technologies that increase worker productivity, lower costs and create new sources of revenue. Whilst this is already very significant, this number could grow five-fold to reach A$192 billion by 2030, in the absence of digital trade barriers internationally.

UNDERSTANDING HOW DIGITAL TRADE IMPACTS DAY-TO-DAY OPERATIONS

How does digital trade support economic value in the Australian economy? This research has identified six key channels by which digital trade is important for boosting productivity, creating new revenue streams and lowering costs for Australian firms in different sectors (Exhibit 2):

- **Identifying and entering new markets.** New digital tools ranging from simple internet search engines to cloud computing, which are 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 export costs of an average MSME by as much as 82 percent and reduce time involved in exporting for MSMEs by up to 29 percent.[7]

- **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.[8] Related to this, storing data in a number of geographic locations can enhance redundancy and recovery management.

- **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 optimise re-stocking through better forecasting of production and shipment needs, which could lead to increased sales.

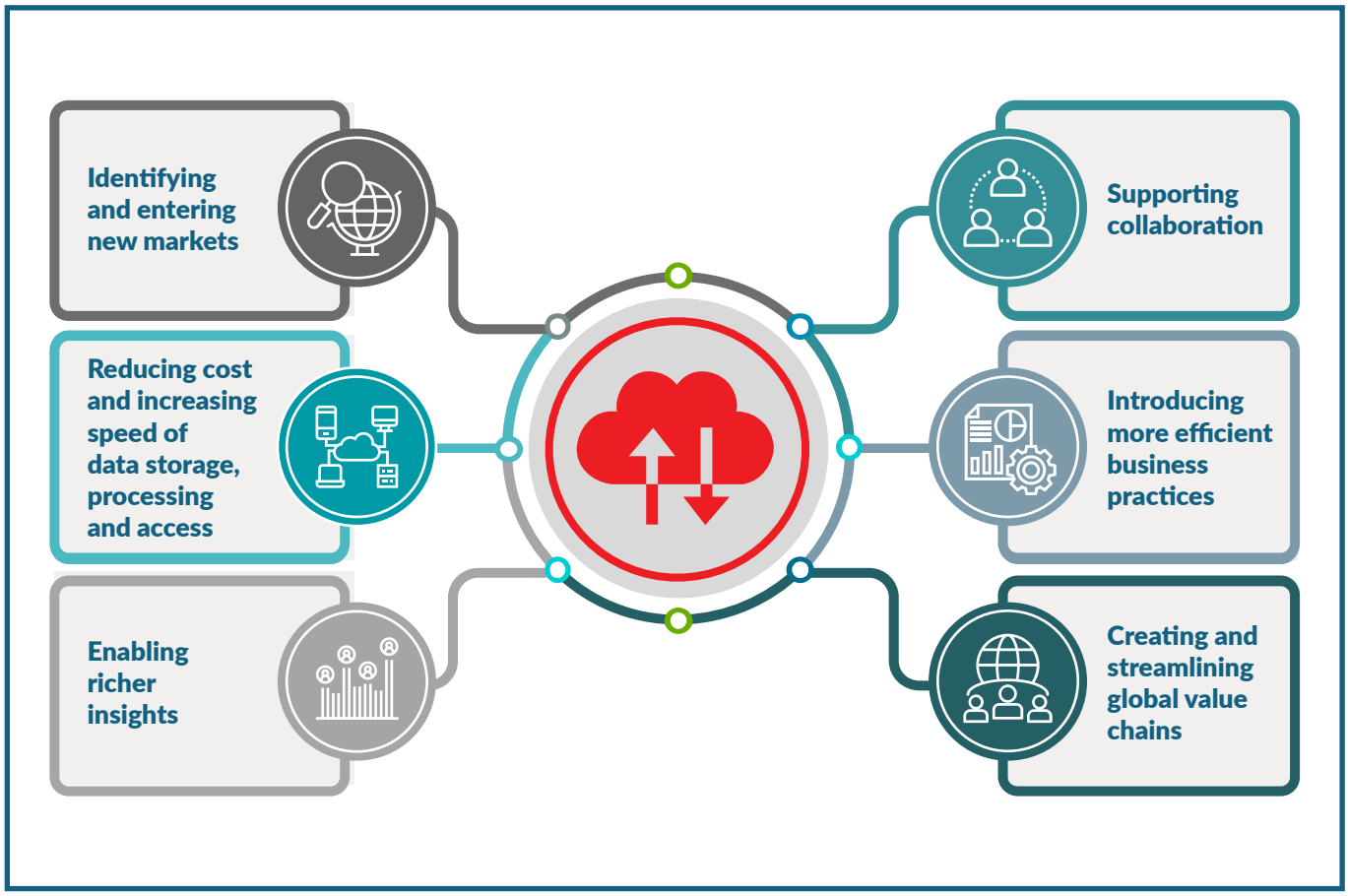
- **Supporting collaboration.** Some activities may be particularly complex, and the sharing of data across borders enables better collaboration between talents. This could relate to talent for the analysis of data or the use of human-guided robotics. For example, remote robotic surgery allows complex 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 analyse the results in a collaborative and real-time manner.[9]

- **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, Australian consumers or businesses wishing to access their bank accounts from overseas), enabling digital platforms to conduct routine operations such as the collection and exchange of data, and outsourcing operations to locations with a comparative advantage in the provision of required services.

7. Asia Pacific MSME Trade Coalition (2018), Micro-Revolution: The new stakeholders of trade in APAC.
8. 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
9. 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

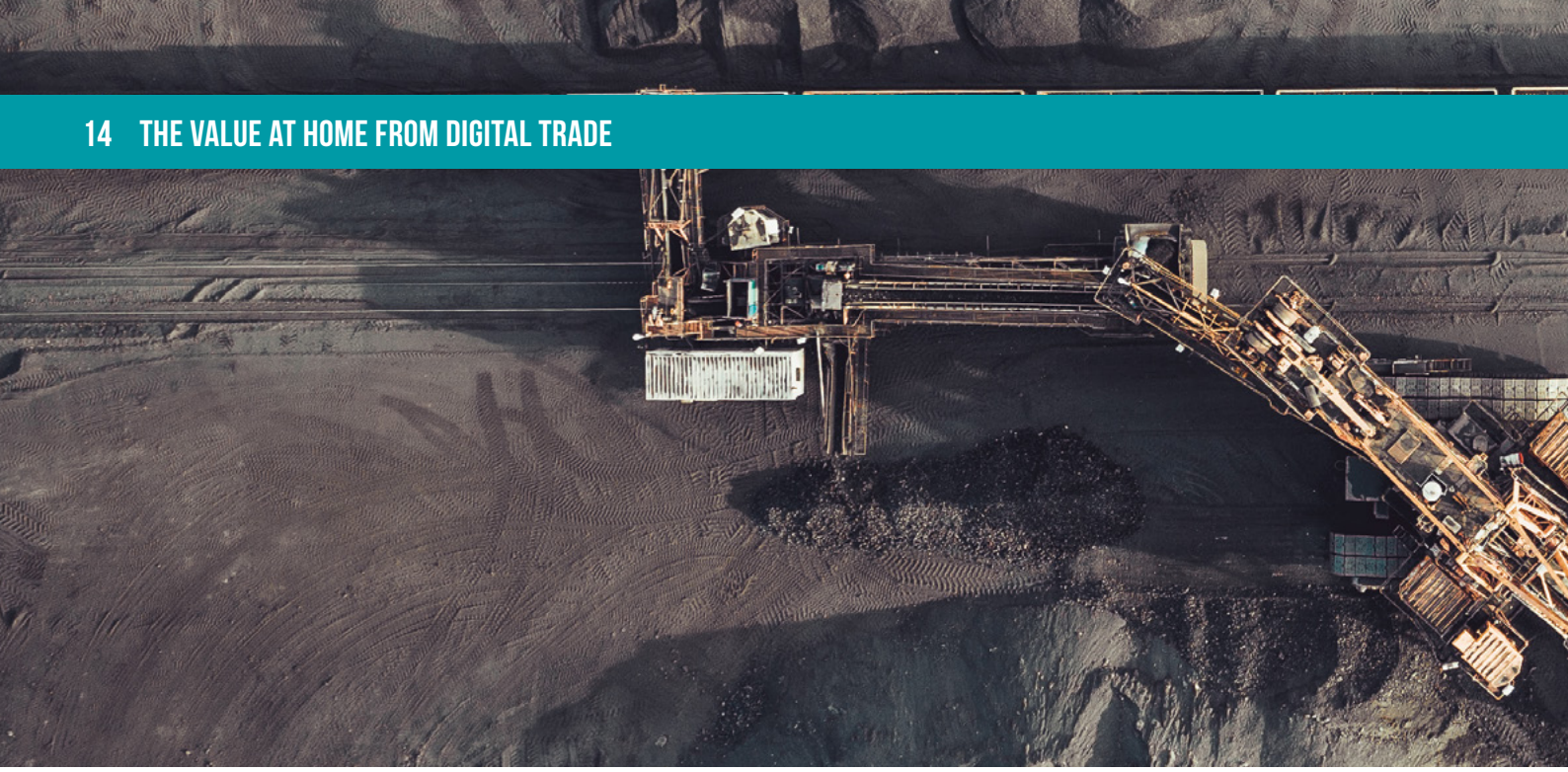
EXHIBIT 2:

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 decision-making and monitoring 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 monitoring of the transit of goods across countries enables better control over supply chains, creating significant logistical benefits.

> "This research has identified six key channels by which digital trade is important for boosting productivity, creating new revenue streams and lowering costs for Australian firms in different sectors."



THE ECONOMIC VALUE OF DIGITAL TRADE ON DOMESTIC SECTORS

To understand the economic value of digital trade on Australia's domestic sectors, a set of relevant technological applications for different sectors of the Australian economy were identified based on an extensive review of the academic literature (Exhibit 3).[10] 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.

The economic value supported by digital trade across the major sectors in the Australian economy is estimated to have been up to A$43 billion in 2017. This number could increase to as much as A$192 billion by 2030 (Exhibit 4), in the absence of barriers to digital trade internationally. Some of the main opportunities and examples by sector include:[11]

- **Resources.** The mining, oil and gas sector is one of the largest potential beneficiaries from digital technologies and Australia is already a global leader. Rio Tinto's "Mine of the Future" programme heavily leverages cross-border data flows to achieve more efficient, environmentally-friendly and safer mining. Data collected from sensors fitted in trucks and drills that the company uses in mines across Australia, Mongolia and the US are aggregated and automatically processed at the company's Processing Excellence Centre in Brisbane.[12] Insights from this data are then used to inform operations to achieve efficiency in its individual mines. Digital trade is crucial for technologies in the resources sector due not only to the need for cost efficient storage solutions, but also for global

10. The detailed methodology is explained in an accompanying methodology document, which can be found on the Hinrich Foundation website (http://hinrichfoundation.com/trade-research/digital-trade-project).
11. The descriptions below only include a subset of the total technologies analysed 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/digital-trade-project).
12. Information Technology & Innovation Foundation (2015), Cross-border data flows enable growth in all industries. Available at: http://www2.itif.org/2015-cross-border-data-flows.pdf

Australian companies to pool data across their different international operations to understand opportunities for improved performance to ensure competitiveness in the global market. As Sean Salter, Vice President of Technology for Australian petroleum exploration and production company Woodside Energy, states, "Modern geophysical technologies place a huge demand on supercomputing resources. Woodside utilises Google Cloud as an on-demand solution for our large computing requirements. This has allowed us to push technological boundaries and dramatically reduce turnaround time."[13]

- **Health.** Digital technologies can expand access to medical care in underserved areas through telemedicine, help to lower costs through technologies such as remote patient monitoring, and support increases in quality of treatment through data-based public health interventions and deploying Internet of Things technology to detect counterfeit drugs. Digital trade is crucial for many of Australia's innovations in these areas due to the need to pool data with a large sample of patients to lower the cost and increase the speed of drug development, and the cross-border nature of some applications, such as Internet of Things to track drugs (and prevent tampering) throughout the supply chain. One example of how an Australian healthcare start-up has leveraged cross-border data flows in its product development and service delivery is Spokle (see Box 2).

- **Financial services.** Digital trade is crucial in this sector for helping to lower the costs of storing high volumes of sensitive data in a secure fashion, and due to the cross-border activities of Australian banks, with data needing to move seamlessly across their different country operations. For example, the National Australia Bank uses cross-border data flows to ensure consistent customer experiences across its international network. To mitigate increased fraud risk arising from cross-border transactions, Australian banks and merchants benefit from the real-time predictive fraud analysis of global payments companies such as Visa and Mastercard, which rely on analysis of international transaction and fraud data.[14]

- **Education & Training.** Digital technologies hold the promise of enhancing the quality of instruction, improving the productivity of teaching and support staff, and enhancing the matching of labour demand and supply. Online job platforms could

13. Information retrieved from https://cloud.google.com/about/locations/sydney/
14. Information Integrity Solutions Pte Ltd (2015), Success through stewardship: Best practice in cross-border data flows. Available at: https://static1.squarespace.com/static/5746cdb3f699bb4f603243c8/t/575f639a01dbaeed2ba40cd0/1465869227869/IIS_Success_through_stewardship_Best_practice_in_cross_border_data_flows.pdf

EXHIBIT 3:
EXAMPLES OF RELEVANT TECHNOLOGIES BY SECTOR IN AUSTRALIA

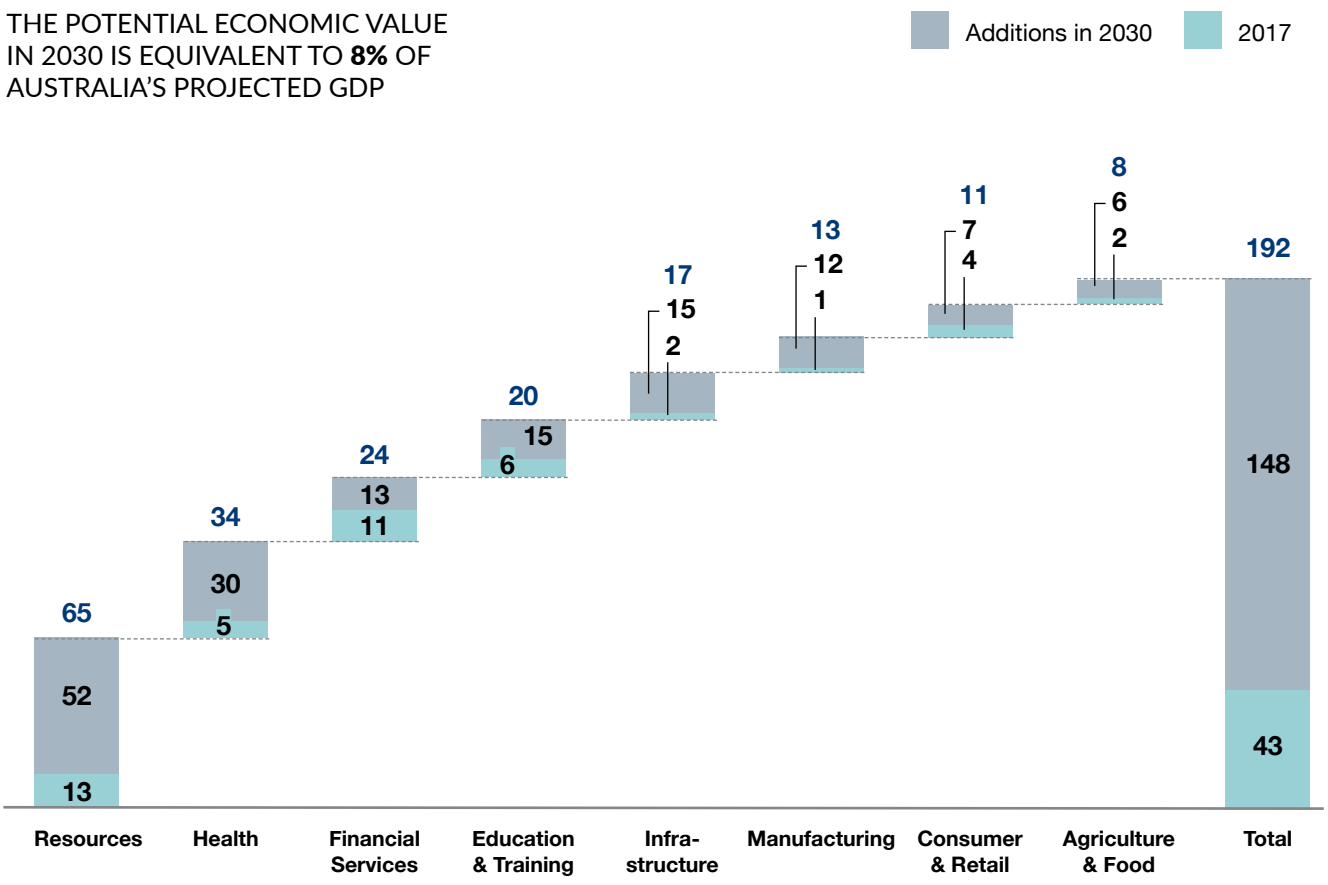
Financial Services	• Big data analytics • Digitising marketing, distribution, and service • Reg tech
Resources	• Smart exploration • Predictive safety • Performance monitoring • Autonomous mining equipment
Agriculture & Food	• Precision farming • Supply chain management • Food safety
Manufacturing	• 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
Infrastructure	• Smart grids • 5D BIM & project management technologies • Predictive maintenance • Smart buildings • Smart roads • Smart ports
Consumer & Retail	• Digitising channels • Inventory management
Education & Training	• E-career centres and digital jobs platforms • Personalised learning • Online retraining programmes

EXHIBIT 4:

DIGITAL TRADE IS SUPPORTING UP TO A$43 BILLION OF PRODUCTIVITY BENEFITS IN AUSTRALIA TODAY, WHICH COULD GROW TO A$192 BILLION BY 2030

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

THE POTENTIAL ECONOMIC VALUE IN 2030 IS EQUIVALENT TO **8%** OF AUSTRALIA'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

potentially boost GDP by 2 percentage points and create 327,000 jobs in Australia by 2030 through encouraging workforce participation and increasing the speed and efficiency of job matching.[15] Digital trade is important for many of these opportunities given the scale benefits from pooling a large number of insights (both in terms of learning results and in cross-border job matching).

- **Infrastructure.** Digital technologies can enhance not only the efficiency of constructing new infrastructure, but also the utilisation and maintenance of existing infrastructure. Radio-Frequency Identification (RFID) based automation systems, which monitor RFID-tagged vehicles and equipment as well as cargo, can be used to plan the flow of cargo, assets, and vehicles across terminals in real time. For example, Victoria International Container Terminal (VICT) in the Port of Melbourne is regarded as one of the most advanced ports in the world using a range of digital technologies to automate production. Digital trade is crucial for many of these infrastructure-related technologies due to the large volume of data generated (requiring cost-efficient and secure storage), and the need for collaboration and cross-border monitoring (for example, in the tracking of containers).

- **Manufacturing.** The use of big data and the Internet of Things can improve demand forecasting and production planning to improve customer service levels, while real-time data on inventory levels and shipments in transit can allow manufacturing businesses to optimise their supply chains. Digital trade is crucial for advanced manufacturing given the cross-border nature of supply chains and Australia has recently signified its intent to align with global Industry 4.0 standards.[16]

- **Consumer & Retail.** More than 18 million Australians are estimated to purchase items online[17] and Australia's e-commerce sector is the 4th largest in the Asia Pacific (behind China, Japan, and South Korea).[18] Australian consumers benefit in the form of lower prices and better product selection, while retailers can improve inventory management, due to better demand forecasting enabled by big data and Internet of Things technologies. By enabling cross-border data exchanges, digital trade is crucial for this sector given the desire of Australian consumers to take advantage of global e-commerce platforms that provide greater breadth of products.

- **Agriculture & Food.** Digital technologies such as precision farming and Internet of Things to improve supply change management hold significant potential for raising yields, minimising waste and boosting revenue for Australian farmers. Digital trade is crucial in this sector due to the need to share data across borders (for example, monitoring exports using IoT) and to pool data to enhance insights for use in precision farming. For example, Australian agri-tech firm PA Source, which specialises in taking satellite images of farms and developing analytics tools that allow farmers and their consultants to adopt precision farming technologies, leverages cross-border flows in relaying these images and information to farmers outside of Australia. PA Source uses cloud management tools such as those provided by Amazon to store and process data for the overseas markets that they serve.[19]

15. McKinsey Global Institute (2015), A labor market that works: Connecting talent with opportunity in the digital age. Available 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

16. Australian Government: Department of Industry, Innovation and Science (2017), "Prime Minister's Industry 4.0 Taskforce – Cooperation agreement with Plattform Industrie 4.0 (Germany)." Available at: https://archive.industry.gov.au/industry/Industry-4-0/Pages/PMs-Industry-4-0-Taskforce.aspx

17. Ecommerce Foundation (2017), Ecommerce Report Australia 2017. Available at: http://www.asendia.nl/application/files/3215/1688/2350/Australia_Ecommerce_Country_Report_2017_light_002.pdf

18. Forrester data.

19. Based on interview with Dr Ben Jones, founder of PA Source. PA Source is now a subsidiary of GrainGrowers Limited.

BOX 2.
SPOKLE – SPEECH LANGUAGE THERAPY ACROSS BORDERS[20]

Cross-border data flows are heavily leveraged in the product development and operations of Spokle, an Australian healthcare mobile app. Spokle enables families of children with speech impairment difficulties across a range of South-east Asian countries, such as Indonesia, to access speech therapy services. These services are provided by qualified therapists from Australia and New Zealand in a way that is affordable and convenient.

Through the use of online surveys and video conferencing, the company amasses a large amount of data on the people and overseas markets that it serves, which informs the design of its speech therapy services. As Spokle's co-founder, Elisabeth Yunarko, points out, "With technology, we can significantly expand the pool of people and overseas markets we wish to conduct research on, and we can a learn a lot from that. For example, how a school reacts to adopting a speech therapy solution that was made in Australia."

At the same time, digital trade has also made it possible for speech therapists in Australia and New Zealand – many of whom own their independent practices with neither ready links nor exposure to overseas markets – to provide their services where they are needed most – internationally. As Elisabeth states, "With technology allowing for digital trade, therapists are now able to take on more clients and export their knowhow. In so doing, they can help so many more people."

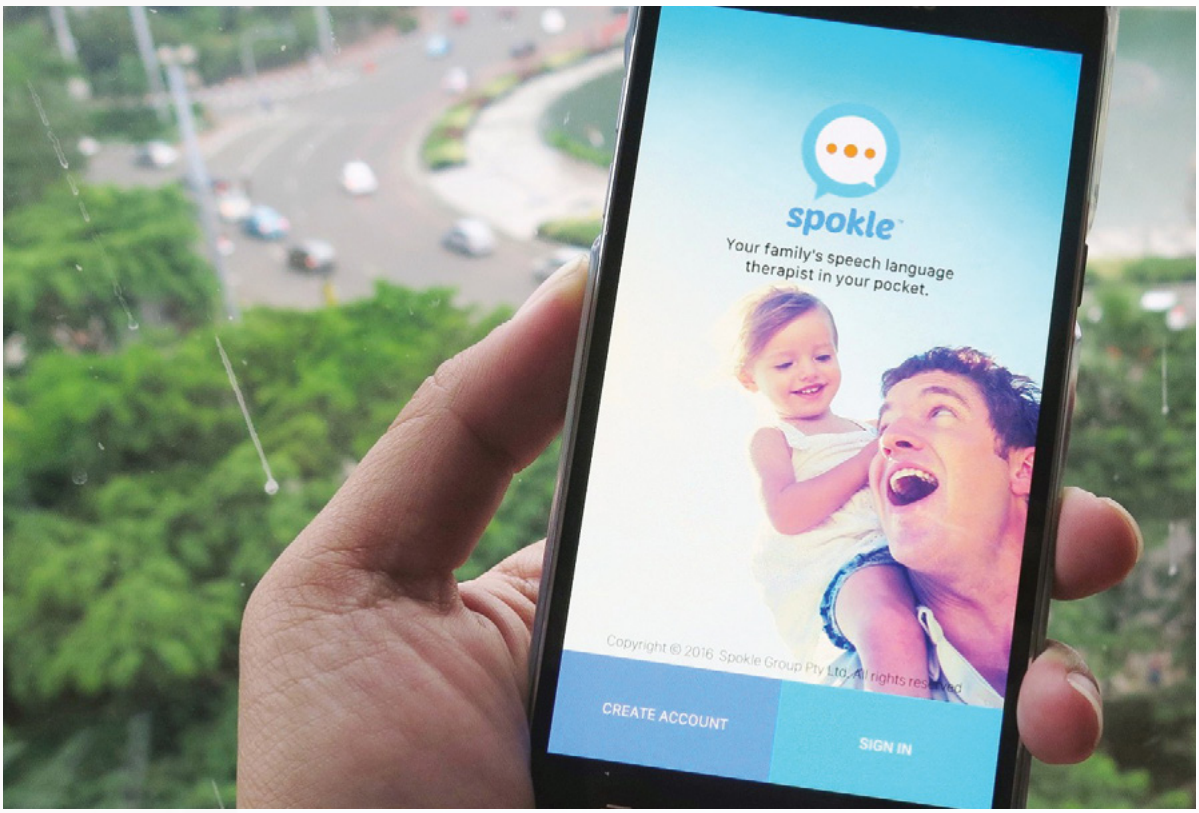


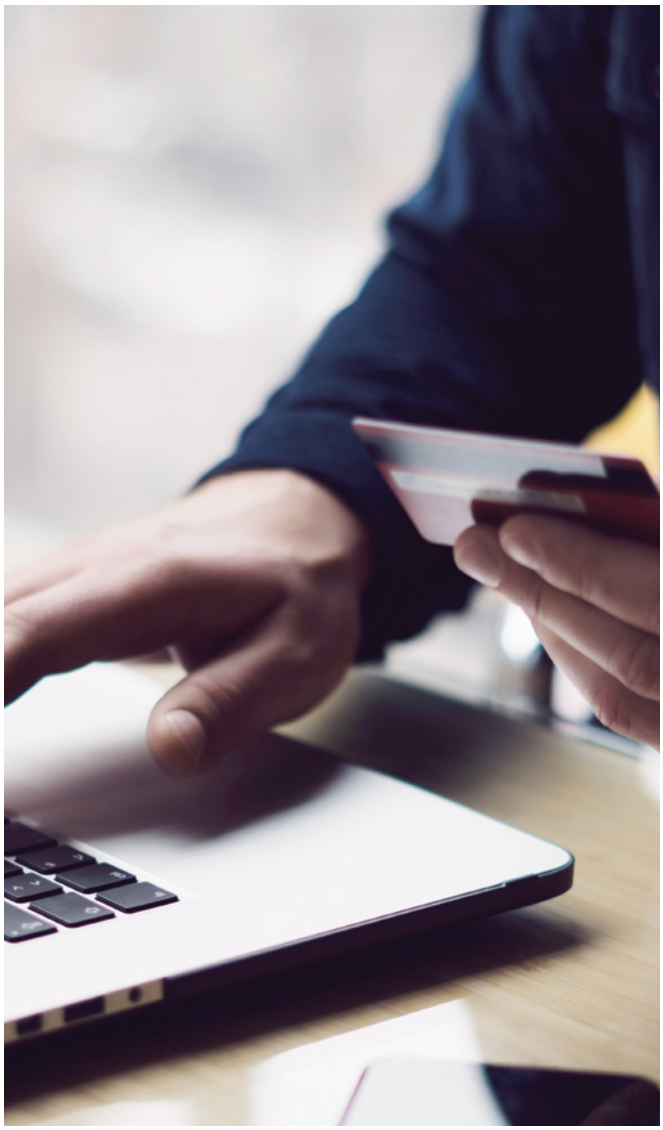
PHOTO SOURCE: The Jakarta Post

20. Based on interview with Ms Elisabeth Yunarko, co-founder of Spokle Group.

THE VALUE OF DIGITAL EXPORTS FOR AUSTRALIA

Australia's digital exports in 2017 were estimated to be worth over A$6 billion, making it Australia's 4th largest export sector today and accounting for about 1.6 percent of Australia's total export value. However, it is estimated that if Australia's exporters fully leverage digital trade, the value of the country's digital exports could potentially more than triple to become A$19 billion in 2030. Australia thus faces a strong imperative to play a leading role in facilitating digital trade in the region.

THE VALUE OF AUSTRALIA'S DIGITAL EXPORTS



Australia's digital exports are estimated to be currently worth A$6 billion, making it the country's 4th largest export sector. Equivalent to 1.6 percent of its total export value today, this value is relatively small when compared with other Asia-Pacific economies such as Japan, whose digital exports account for almost 3 percent of its total export value. It is estimated that if Australia's exporters fully capitalise on digital trade, and in the absence of digital trade barriers internationally, the value of Australia's digital exports could grow by 210 percent 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.[21] For example, the value of digitally-enabled products only focuses on Fast Moving Consumer Goods (FMCG) and not other categories of goods where e-commerce could be important. At the same time, it should be noted that in national and international statistical databases, revenues earned in the overseas offices of Australian-based companies that ultimately still go to Australia are not included within the published export data. Similarly, the value of digitally-enabled services only focuses on a subset of services where robust data is available. As a result, the potential value of digital exports could be more than ten times as large if some of these broader impacts were included.[22]

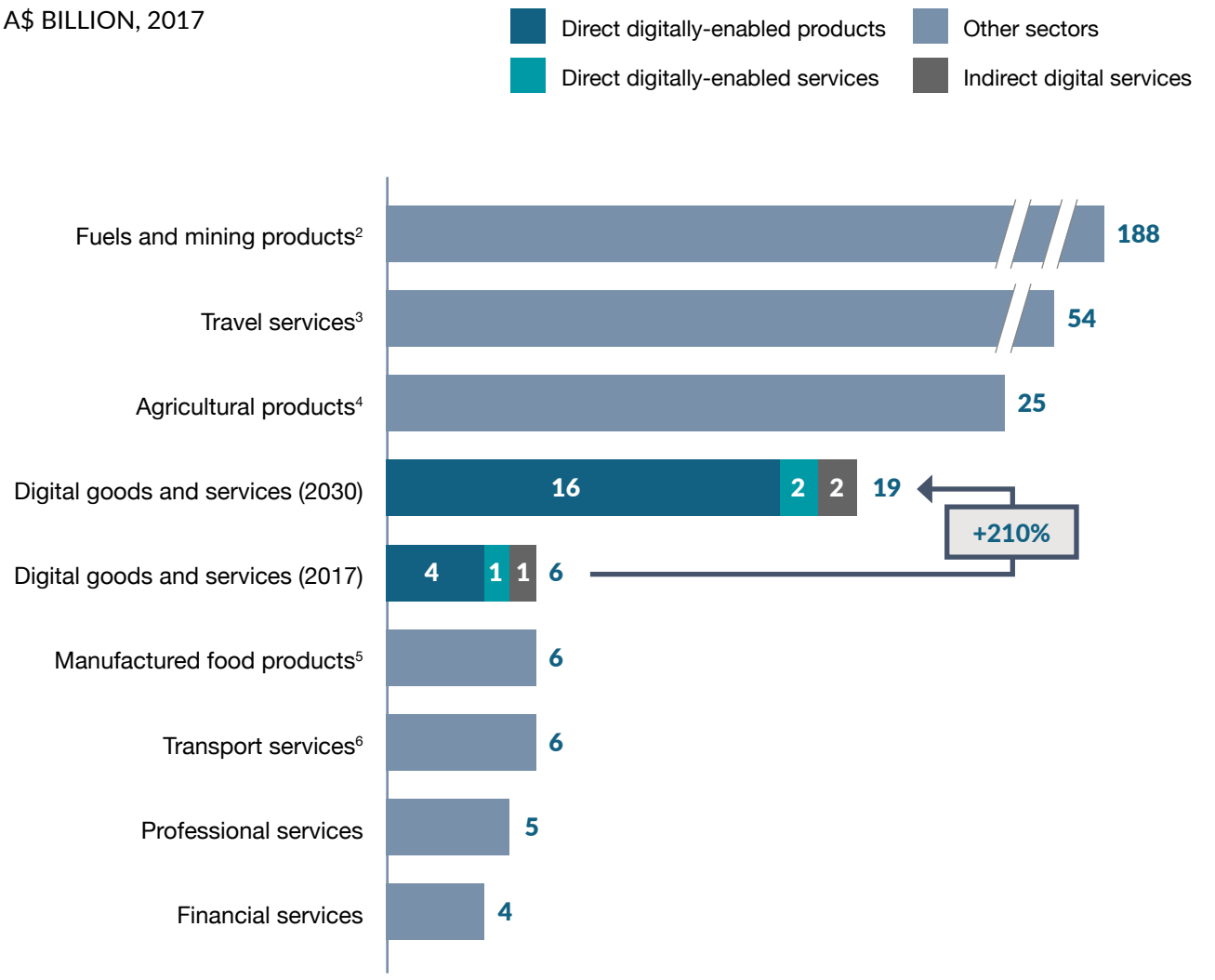
21. The approach is similar for both Australia and Japan, hence, the comparison highlighted in the previous paragraph holds valid.
22. Based on specific country studies where there is data from large-scale firm surveys on the value of e-commerce across a range of sectors. For further details on the methodology, see the accompanying methodology document, which can be found on the Hinrich Foundation website (http://hinrichfoundation.com/trade-research/digital-trade-project).

EXHIBIT 5:

IF DIGITAL WERE A SECTOR, IT WOULD REPRESENT AUSTRALIA'S 4TH LARGEST EXPORT SECTOR, AND COULD INCREASE BY 210 PERCENT BY 2030

VALUE OF EXPORTS FOR AUSTRALIA[1]

A$ BILLION, 2017



1. Due to rounding to the nearest billion, the numbers in this table may not add up precisely to the totals indicated.
2. Includes iron, aluminium, copper (metals, ores & concentrates for all three), gold, coal, natural gas and crude petroleum
3. Includes education-related, personal and business travel services
4. Includes beef, wheat, meat, wool & other animal hair and vegetables
5. Includes edible products & preparations and alcoholic beverages
6. Includes passenger transport services and other transport services

SOURCE: AlphaBeta Analysis

DIGITALLY-ENABLED PRODUCTS

The value of these exports is currently A$4 billion and could grow to four times the current value by 2030, reaching A$16 billion. This growth is expected to be largely driven by expanding e-commerce exports.

- **E-commerce.** E-commerce platforms can be crucial gateways to connect firms to export 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, with much of it being driven by platforms such as Alibaba, Amazon, eBay, Flipkart, and Rakuten.[23]

  However, most Australian businesses have yet to tap the export opportunity, with less than 8 percent of businesses currently engaged in exporting (versus 16 percent in East Asian and Pacific economies on average).[24] [25]

  Many Australian businesses, particularly Small and Medium Enterprises (SMEs) still face substantial challenges to bridge the gap to global markets. They often lack the resources to research international sales opportunities, build global business networks and promote their products overseas.

  According to the Australian Bureau of Statistics, just over 36 percent of Australian businesses receive orders via the internet; however, this propensity can differ by sector. For example, in the manufacturing sector, over 57 percent of businesses receive orders online.[26] Data from eBay shows that Australian businesses on the eBay platform are much more likely to be involved in exporting than those not using the platform.[27]

  Using average export revenue data and eBay data on the proportion of sellers on their platform who export as proxies for the likelihood of Australian companies to export using e-commerce channels, it is estimated that e-commerce generated over A$3 billion of export revenues for Australia in 2017, which could grow to over A$14 billion by 2030. This 2030 figure was estimated based on the forecasted growth of e-commerce markets in nearby countries.

  These estimated e-commerce export revenues make up the majority of estimated export revenues from digitally-enabled products in both 2017 (A$4 billion) and 2030 (A$16 billion). Examples of how some Australian enterprises have maximised the e-commerce export opportunity are shown in Box 3.

- **Digital apps.** Thanks to digital products and services which transcend geographical constraints, Australia's geographic isolation does not pose a barrier to international success in app development. While Australia's app development market is still relatively nascent, some Australian apps are already doing well on the world stage. For example, video app 'True Skate' has grossed over A$2.5 million in global sales. With over 1 million downloads, it ranks 42nd globally for current app downloads. Combined, Australian app exports in 2017 accounted for over A$107 million and this number is estimated to grow to potentially over A$1 billion by 2030.

23. McKinsey Global Institute (2016), Digital globalization: The new era of global flows. Available 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
24. Mark Thirwell (2017), An update on Australian businesses' export propensity.
Available at: https://www.austrade.gov.au/news/economic-analysis/an-update-australian-businesses-export-propensity
25. World Bank Enterprise Survey. Available at: http://www.enterprisesurveys.org/Custom-Query
26. ABS (2017), Business Use of Information Technology, 2015-16.
Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8129.02015-16?OpenDocument
27. eBay (2016), Small Online Business Growth Report. Available at: https://www.ebaymainstreet.com/sites/default/files/ebay_global-report_2016-4_0.pdf

DIRECTLY DIGITALLY-ENABLED SERVICES

The value of these exports is currently A$1 billion and could double by 2030, reaching A$2 billion. This growth is being driven by Australia's growing online video advertising segment.

- **Digital infrastructure services.** This includes telecommunication services such as the export of email, video conferencing, digital file sharing, Voice Over Internet Protocol (VOIP) services as well as data processing. Australia's digital exports of infrastructure services in 2017 are estimated at around A$1.4 billion.

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

  The demand for Australian content and the associated economic opportunities with them are significant. In 2016, more than 550,000 hours of video were uploaded by Australian creators, and over 90 percent of views on Australian channels came from overseas.[28] More than 2,000 Australian YouTube channels earned between A$1,000 and A$100,000 in 2016, and more than 100 channels earned more than A$100,000.[29]

Australian creators are finding success in a range of different fields:

- Derek Muller's science video blog has enjoyed over 400 million views (see Exhibit 6),

- Marty and Moog host the world's top DIY automotive show, with over 400 million views, and

- Wengie has over 8.8 million subscribers and almost 2 million daily views just on her primary channel; her online popularity has led her to pursue a career in music and in television.[30]

Online video platforms are estimated to support over A$21 million in advertising revenues from foreign markets for businesses in Australia in 2017. These benefits reflect the income earned by Australians from advertising displayed on their content. This could potentially grow to over A$250 million by 2030 based on forecasted growth of the digital advertising market.[31] 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.

28. YouTube (2017), The Australian story.
29. YouTube (2017), The Australian story.
30. YouTube (2017), The Australian story.
31. Data from Statista. Available at: https://www.statista.com/outlook/216/107/digital-advertising/australia#market-revenue

BOX 3.
WATCHES, TRAMPOLINES AND WINE - HOW AUSTRALIAN COMPANIES CAPTURE GLOBAL MARKETS BY SEIZING THE E-COMMERCE EXPORT OPPORTUNITY

Australia is home to a variety of small-to-medium enterprises who have leveraged the e-commerce export opportunity to achieve great success in overseas markets. By investing in a strong online presence and digital tools to enhance customer outreach and experience, these Australian businesses have managed to expand globally with incredible momentum.

One such company is The 5th, an Australian fashion accessory brand famous for its classic-style watches. Starting out as a design blog in the hope of connecting with creative-minded individuals around the world, Alex McBride's pet project turned into one of the most internationally popular fashion accessory websites.[32] A deliberate pre-launch marketing campaign over social media led to a successful first day of business, raking up over A$100,000 in sales in a complete inventory sell-out. Within a year, the company had made A$10 million. The 5th now sells around the world from its Melbourne base.[33]

PHOTO SOURCE: http://static.domain.com.au/twr/production/uploads/2017/06/21210900/TWR-21-June-Start-Up-Stars-The-5th-CollingwoodStart-Up-Stars-1950.jpg

PHOTO SOURCE: https://www.vulyplay.com/en-AU/swingsets

Websites and social media platforms have also been a critical growth driver for Vuly, a trampoline manufacturer, distributor and retailer based in Brisbane. Vuly's website has been important in facilitating Vuly's access to overseas markets, which now span across countries in the Americas, Europe, and the Middle East. The company's founder and CEO, Joe Andon, states, "Our website is our store. We aim to provide the customer with a positive website experience through high-quality photographs, videos, simplified messages, streamlined navigation and country-

32. The 5th (2018). Available at: https://www.the5th.co/blog/architecture-alex-mcbride/
33. Shopify Plus (2018), "The 5TH: Australia's fashion powerhouse went global by going local". Available at: https://www.shopify.com/plus/customers/the-5th

PHOTO SOURCE: https://www.vinomofo.com.sg/about

specific content. The depth of our website's content is important because in many cases, a customer will buy our products directly from our website based on the photographs or videos they see on the site." Indeed, the return on Vuly's investment in its online presence has been significant, with a website upgrade after its first year of operations leading to a tripling of sales revenue. Social media platforms such as YouTube, Facebook and LinkedIn are also extensively used to feature regular posts about new trampoline products and customer testimonials.[34]

A third example is of an Australian SME which has brought a cherished local product to be enjoyed by the rest of the world. Starting out in the Adelaide garage of wine geeks Justin Dry and Andre Eikmeier as a project to create a social network for wine lovers and producers, Vinomofo has grown to be one of the nation's fastest growing technology companies and leading retailer of Australian wine. At the heart of its success is its use of data and predictive analytics technology to assess customer preferences, allowing them to tailor their marketing and promotional offers to customers. Catering to a membership of over 540,000 wine lovers, Vinomofo ships wine to members in Australia, New Zealand and Singapore, and is planning to expand to China, the US and Europe.[35]

34. Deloitte (2017), Connected small businesses 2017.
Available at: https://www2.deloitte.com/au/en/pages/economics/articles/connected-small-businesses-google.html
35. Deloitte Access Economics (2017), Connected Small Businesses 2017.
Available at: https://www2.deloitte.com/au/en/pages/economics/articles/connected-small-businesses-google.html

EXHIBIT 6:

MUSIC

- **Who:** Janice and Sonia Lee
- **Channel:** jayesslee
- **Detail:** Acoustic versions of pop songs
- **Subscribers:** >2.1 million
- **Views:** >319 million

SCIENCE

- **Who:** Derek Muller
- **Channel:** Veritasium
- **Detail:** Experiments and discussions about science
- **Subscribers:** >4.7 million
- **Views:** >432 million

DIY

- **Who:** Marty and Moog
- **Channel:** Mighty Car Mods
- **Detail:** DIY automotive show, teaching viewers how to modify cars
- **Subscribers:** >2.7 million
- **Views:** >441 million

BEAUTY

- **Who:** Lauren Curtis
- **Channel:** Lauren Curtis
- **Detail:** Makeup and hair tutorials
- **Subscribers:** >3.6 million
- **Views:** >300 million

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 Australian firms in reaching new markets.

For example, luxury spa resort Casa Di Natura, located in Queensland's Sunshine Coast, has adopted a range of digital tools including Google Ads, Google Maps, and customer relationship management (CRM) software. These digital tools have enabled the resort to substantially increase their bookings, particularly with overseas visitors.[36]

In 2017, the economic value of imported digital services for exports in all other sectors in Australia is estimated at just under A$1.1 billion.

> "In 2017, the impact of imported digital services on exports in all other sectors in Australia is estimated at just under A$1.1 billion."

36. PWC (2015), Case Study: Casa Di Natura.
Available at: http://www.digitalinnovation.pwc.com.au/small-business-digital-growth/case-studies/casa-di-natura-case-study.html

CAPTURING THE DIGITAL TRADE OPPORTUNITY

In order to realise the full potential of digital trade, policy makers will need to address four areas of potential concern. It is in Australia's interest to advocate strongly for digital trade to remain open in the Asia Pacific to safeguard the potential benefits to Australia's economy.

PERCEIVED CONCERNS RELATED TO DIGITAL TRADE

Governments have increased their constraints on digital trade in recent years, ranging from data localisation requirements through to local registration mandates. Four reasons are often made to justify such interventions:

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

Many of these justifications require critical examination. Some are either false or overlook the fact that the same end objective could be achieved more efficiently through technological measures or other regulations without jeopardising the benefits of digital trade.

CONCERN 1:

PROTECTING THE PRIVACY OF CITIZENS AND SAFEGUARDING THEM FROM INAPPROPRIATE CONTENT

Digitised 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.

The Asia-Pacific Economic Cooperation (APEC) forum has established the Cross-Border Privacy Rules (CBPR) and Privacy Recognition for Processors (PRP) systems which require participating businesses to implement data privacy policies consistent with the APEC Privacy Framework.[37] These forms of privacy protections are solutions that allow cross-border data flows while safeguarding privacy through interoperable enforcement mechanisms, providing an ideal international policy framework. On the other hand, data localisation requirements could actually increase privacy risks by requiring data to be stored in single centralised locations that are more vulnerable to intrusion.

CONCERN 2:

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

Cybersecurity concerns may be exacerbated by constraints on cross-border digital trade that limit the scale of cloud providers (thus potentially impacting their ability to ensure appropriate investment in data safeguards) and by concentrating data in few locations (as opposed to maintaining redundant datasets at multiple data centres spread across countries).

Modern data storage systems take advantage of 'sharding', a type of database partitioning that separates very large databases 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 centres and across borders in the interests of integrity, efficiency and security. Without sharding, data transfer and storage is slower and less secure.

Cloud providers balance factors ranging from internet bandwidth and the likelihood of power outages over available networks to network throughput in order to optimise systems.[38] As one set of researchers found, "Requirements to localise 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."[39]

Moreover, research has shown that local storage providers in fact apply less rigour to data security than

37. For further information, see: http://www.cbprs.org/
38. 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/
39. 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

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).[40] There are also numerous examples of data localisation 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 centre 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.[41] 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.[42] For example, Australia could explore discussions with the United States under the CLOUD Act, which authorises providers to disclose communications content pursuant to a lawful order from a foreign government that has entered into an executive agreement with the United States.

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 most of the economic benefits, while local firms receive limited benefits and local economies miss out on employment opportunities. The economic literature has debunked the notion of trade protectionism spurring the creation of highly-productive domestic champions,[43] 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 (including in Australia) 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.[44] In Australia, such examples of the importance of digital multinationals to the local digital industry are plentiful:

- **Investment in research.** Oracle is currently partnering with and providing investment to Western Sydney University on Visual Analytics Research.[45]
- **Support for innovation.** Twitter has supported the creation of Twitter development communities

40. James Arlen and Brendan O'Connor (2015), "Xenophobia is hard on data: Forced localization, data storage, and business realities", Sector. Available at: https://sector.ca/sessions/xenophobia-is-hard-on-data-forced-localization-data-storage-and-business-realities/
41. 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
42. 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
43. 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
44. AlphaBeta (2017), Digital Nation: Policy levers for investment and growth. Available at: https://www.alphabeta.com/our-research/digital-nation-policy-levers-for-investment-and-growth/
45. Oracle (2016), "Childhood cancer research gets investment boost from oracle". Available at: https://www.oracle.com/au/corporate/pressrelease/oracle-western-sydney-university-team-up-visual-analytics-research-20161130.html

in Sydney and Melbourne to bring developers together to share best practices and learn more about the Twitter platform.[46]

- **Support for small businesses.** Research has shown that small businesses in Australia can unlock an additional A$49.2 billion of private sector output over the next ten years by making better use of digital technologies. Over half of these benefits could be realised in rural and regional Australia.[47] Free tools such as 'Google My Business' allow businesses to be found online without a website, while platforms such as LinkedIn and Facebook provide opportunities to connect with customers. For example, 'Facebook Blueprint' aims to help agencies, partners and marketers craft advertising campaigns that drive business results; Australia is the country with the 8th highest number of SMEs using 'Blueprint'.[48] One example of a business taking advantage of such digital tools is 'Bay Fish N Trips' in Mornington, Victoria. A quarter of their business now comes through Google AdWords, enabling them to cost efficiently market to customers on a small budget.[49]

- **Support for the education system.** Google[50] and Microsoft[51] have launched national programmes offering free digital skills training aimed at building the nation's future-ready workforce.

Second, digital constraints not only negatively affect the digital sector itself, but also the broader economy. The macroeconomic costs of forced data localisation range between 0.7 percent and 1.1 percent of GDP.[52] In addition, data localisation has been associated with investment decreases of up to 4 percent.[53]

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 centres 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 30-60 percent more for their computing needs from strictly enforced data localisation policies.[54] Indeed, it has been observed that not only does the fragmentation of global online networks by data localisation 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".[55]

Fourth, protectionism could encourage retaliatory behaviour in other jurisdictions with the potential to shut out local firms from these foreign markets. McKinsey

46. Available at: https://developer.twitter.com/en/community/communities.html
47. PWC (2015), Small Business: Digital Growth.
Available at: http://www.digitalinnovation.pwc.com.au/small-business-digital-growth/pdf/Small-Business-Digital-Growth.pdf
48. David Cohen (2017), "More Than 1 Million Small Businesses Have Registered for Facebook Blueprint".
Available at: https://www.adweek.com/digital/1-million-small-businesses-facebook-blueprint/
49. PWC (2015), Case Study: Bay Fish N Trips.
Available at: http://www.digitalinnovation.pwc.com.au/small-business-digital-growth/case-studies/bay-fish-n-trips-case-study.html
50. "Digital Springboard is a program by Infoxchange and Google to help people learn the digital skills they need to thrive in work and life." See: Digital Springboard (2019). Available at: www.digitalspringboard.org.au
51. Microsoft New Center (2018), "Microsoft launches program to help build Australia's future-ready workforce".
Available at: https://news.microsoft.com/en-au/2018/02/07/microsoft-launches-program-help-build-australias-future-ready-workforce/
52. 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
53. http://www.ecipe.org/app/uploads/2014/12/OCC32014__1.pdf
54. Leviathan Security Group (June, 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
55. Sascha Meinrath (2013), "We can't let the Internet become balkanized", Slate.
Available at: http://www.slate.com/articles/technology/future_tense/2013/10/internet_balkanization_may_be_a_side_effect_of_the_snowden_surveillance.html

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.[56]

Finally, the perceived benefit of data localisation requirements for domestic employment is typically much smaller than expected. Data centres, for example, are 'capital heavy' but 'job light' investments that are likely to create few local jobs.[57]

CONCERN 4:
PROTECTING THE LOCAL TAX BASE

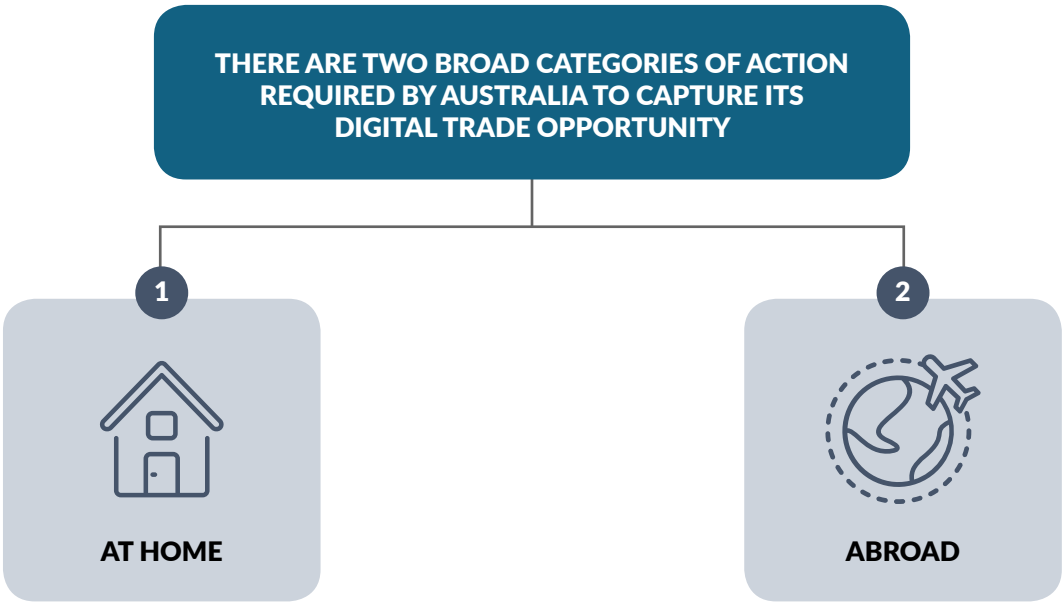
A fear of many policymakers is that digital trade makes it easier for companies to shift profits to low tax jurisdictions and hence avoid paying taxes. This perception, however, is not necessarily backed by data. Research by the European Centre for International Political Economy (ECIPE) shows that the taxes paid by the world's largest Internet firms are on average commensurate with leading businesses across the Asia-Pacific region.[58] 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 indefinite 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 enough paying 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.[59] For example, over 40 percent of respondents in Deloitte's latest "Asia Pacific Tax Complexity Survey" considered the tax compliance and fiscal requirements in Australia to be "complicated".[60] 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.[61]

56. 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
57. 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/
58. T Martina F. 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/
59. AlphaBeta (2017), Digital Nation: Policy levers for investment and growth.
Available at: https://www.alphabeta.com/our-research/digital-nation-policy-levers-for-investment-and-growth/
60. Deloitte (2017), Shifting sands: risk and reform in uncertain times. 2017 Asia Pacific Tax Complexity Survey.
61. 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

Generally speaking, Australia has a strong environment for supporting digital trade. It does have some restrictions on the transfer of sensitive data in some sectors, notably for health data.[62]

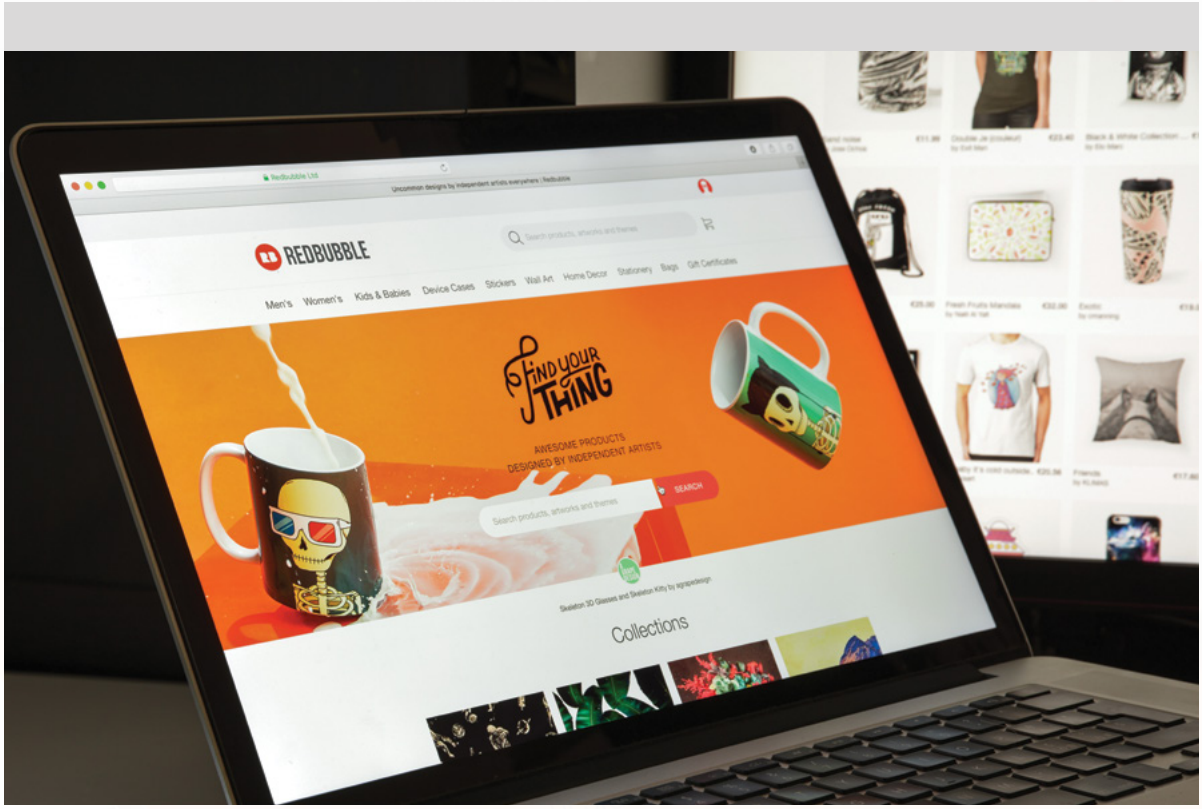
An area of greater concern is in regard to Australian copyright legislation that imposes higher risks of liability on internet intermediaries than equivalent laws overseas, potentially creating an uneven playing field with overseas competitors and impeding competition by smaller firms.[63] Box 4 provides an example of one Australian firm impacted by the legislation on intermediary liability.

"An area of greater concern is in regard to Australian copyright legislation that imposes higher risks of liability on internet intermediaries than equivalent laws overseas, potentially creating an uneven playing field with overseas competitors and impeding competition by smaller firms."

62. The My Health Records Act 2012 s77 prohibits the taking or processing of health records outside Australia, unless no personal or identifying information is included. From: Scott Livingston and Graham Greenleaf (2016), "Data Localization in China and Other APEC Jurisdictions", Privacy Laws & Business International Report. Available at: https://ssrn.com/abstract=2895610

63. Australian Digital Alliance (2018), Internet Intermediaries and Copyright - A 2018 Update. Available at: file:///C:/Users/User/Downloads/Sub37.pdf

BOX 4.
REDBUBBLE AND INTERMEDIARY LIABILITY CONCERNS[64]



Australian Internet company Redbubble was sued for copyright infringement by the Pokémon company, which owns the copyright for a range of fictional characters, including a bright yellow character known as Pikachu.

Redbubble's technology allows artists and designers to upload images and designs for use on products like t-shirts, manufactured by third-party companies. While Redbubble had implemented measures to protect against copyright infringement (including requiring artists to agree that they owned or had permission to use the copyright in uploaded works), trademarks were not completely removed to enable parodies and non-infringing activity.

A Federal Court of Australia ruling against Redbubble implied that prompt ex-post removal of notified copyright infringement was insufficient to avoid liability, and that liability extends to companies even in instances where extensive and reasonable steps may have been made to mitigate the potential risk.

The magnitude of the risk faced by companies under such a regime could cause them to question whether to invest or operate in Australia. For instance, a recent survey showed that 71% of global investors believed that holding intermediaries liable for third party content would deter investment.[65]

64. Based on information from Australian Digital Alliance (2018), Internet Intermediaries and Copyright - A 2018 Update. Available at: https://www.aph.gov.au/DocumentStore.ashx?id=79110429-08ee-4b3b-8219-85071c8c0cee&subId=563534

65. Fifth Era (2016), The Impact of Internet regulation on Investment. Available at: https://ennovate.withgoogle.com/uploaded-files/AMIfv96Ln9h4URferkka9z4yF1cFWWM6VzTOg7iDHDf6rxlmVLqt7zpEYyZmbKRfbgrWD6Q0ucdKs0wXJSYvp1kofxDG4X7D-QLjaVRXgrz-bWWOelEnSGHqKcLt53bfWO3HK3JLF7rYXSpO_loSMGdY5fibCu02hMyO4vsFN6-7iN_3SCzGp-k

CATEGORY 2: ACTION ABROAD

The Australian Government is taking a leadership role by negotiating ambitious digital trade rules in free trade agreements (FTAs) such as those in TPP-11 and the new e-commerce initiative in the World Trade Organisation (WTO).

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

There are three crucial areas for Australia to advocate for:[66]

- **Ensuring open data flows and interoperability.** There are considerable opportunities 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.

  While there are legitimate public policy concerns for restricting movement of some forms of data (e.g., to address privacy issues), establishing guidelines for this could be useful. For example, the Comprehensive and Progressive Agreement for Trans Pacific Partnership establishes key principles for its member states, under which free cross-border e-commerce data flows may take place: (i) commitments not to impose custom duties on digital products; (ii) non-discriminatory treatment of digital products; (iii) rules against localisation requirements; (iv) commitments to provide reasonable network access for telecommunications suppliers.[67]

  A related opportunity is to encourage interoperability between digital frameworks, particularly on payment gateways, to avoid the costs of companies having to customise their approaches to every single market.

  It is unrealistic to imagine that multilateral trade agreements will not have some form of exception from a general prohibition on forced data localisation, but it is in Australia's interests to ensure that such exceptions are as limited in scope as possible.

> "There are considerable opportunities to improve transparency on data management requirements across Asia and to identify areas to enhance performance."

66. These same issues have been identified in past research supported by AlphaBeta (2018), Micro-revolution: The new stakeholders of trade in APAC. Available at: https://www.alphabeta.com/our-research/micro-revolution-the-new-stakeholders-of-trade-in-apac/
67. Henry S. Gao (2018), "Digital or trade? The contrasting approaches of China and US to digital trade", Journal of International Economic Law, Vol 21, Issue 2. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3162557

- **Building flexibility into copyright and intermediary liability regulations.** 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 those objectives with a system that is sufficiently flexible so that it does not impose an undue burden on firms, particularly MSMEs.

  Ensuring clarity on issues such as the 'fair use doctrine', which aims to balance the interests of authors and inventors in the control and exploitation of their writings and discoveries on the one hand, and society's competing interest in the free flow of ideas, information, and commerce on the other hand, will be important as part of this.

  This issue is particularly relevant as emerging technologies such as Artificial Intelligence (AI) will create the need for regulatory frameworks related to copyright to evolve, given the use of large volumes of data. Economic research has shown that an ineffective policy framework (that fails to address key regulatory concerns such as copyright issues and other issues such as labour reskilling) could significantly reduce the economic impact of AI in Australia. Australia was found to have the highest upside potential among a group of economies studied (relative to the respective size of the economies) from an AI adoption scenario leading to an uplift in the skilled workforce, but was also found to have significant downside risk with the most to lose from inadequate policy reforms.[68] The challenge for regulators is how to balance the need to protect an author's intellectual property from unauthorised use without hampering innovation. In the United States, the Digital Millennium Copyright Act (DMCA) provides a mechanism for copyright holders to protect their online content, whereby a service provider must act "expeditiously" to remove copyrighted work after it has been notified.[69]

  Similarly, well-balanced Internet Intermediary Liability (ILL) regulations can help to ensure the effective removal of illegal content without constraining the free flow of information. Having a clear system of intermediary liability protections in place is a fundamental building block for digital trade. To enable trade, online services need to facilitate transactions and communications among millions of businesses and consumers, enabling buyers and sellers to connect directly on a global basis. For example, in jurisdictions where appropriate liability protections are in place, Australian small businesses can offer customer reviews and feedback mechanisms. These online tools are critical for any small business that wants to build customer trust in a foreign market. It is imperative that regulations define clear and cost-efficient requirements for intermediaries to comply with legislation and provide clarity on any potential liability. To this end, many jurisdictions have laws setting out the conditions under which intermediaries can be made exempt from liability, known as 'safe harbours'.

- **Minimising border frictions.** Cross-border trade would be greatly enhanced by reducing the need for local registration, removing disclosure requirements of key intellectual property, and minimising unnecessary procedures and duties. Local establishment requirements can be cost prohibitive especially for MSMEs, and pose as a disincentive to businesses by effectively serving as an additional tax on operations.

68. Economist Intelligence Unit (2017), Risks and Rewards: Scenarios around the economic impact of machine learning. Available at: http://perspectives.eiu.com/sites/default/files/Risks_and_rewards_2018.2.7.pdf
69. Bradley S. Shear (2010), Copyright Protection in the Digital Age. Available at: http://www.acc.com/legalresources/quickcounsel/icpituscaeu.cfm

Some countries have also adopted complicated administrative processes and burdensome document requirements on international trade in goods, placing an additional barrier on e-commerce. Australia's push to address this through the 2017 Trade Facilitation Agreement of the WTO was particularly useful.[70]

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.[71] A de minimis threshold of US$200 could generate over US$30 billion in economic benefits for all 21 APEC members.[72] Australia's initiative to seek that the temporary moratorium on customs duties to electronic transmissions be made permanent amongst WTO members was a commendable effort.[73]

However, this moratorium is currently under threat, with indications from several countries to potentially oppose it in the belief that this would improve their trade balance, shrink fiscal deficits and ensure the competitiveness of domestic businesses.[74] Such arguments, however, neglect the adverse cost impact of the potential resulting tariffs on domestic consumers and businesses, as well as ignore the scale of revenues from digital exports and economic benefits brought about by digital imports.[75] Imposing custom duties as a stop-gap measure in a bid to improve these countries' trade balances could also trigger retaliatory tariffs from other governments, putting all involved at risk of suffering even greater losses to future digital export revenues, and being shut out of the gains to global digital trade. For Australia, the consequences of removing this moratorium would similarly be severe not only to companies who depend on cross-border data flows, but also those who benefit indirectly from it as highlighted in Chapter 1. As such, it is key that Australia continues to advocate strongly for this moratorium to be made permanent.

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.[76] 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 Australian enterprises by influencing their decision to trade and invest.[77] 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.

70. Department of Foreign Affairs and Trade (2018), Discussion Paper: The future of digital trade rules.
Available at: http://dfat.gov.au/trade/services-and-digital-trade/Documents/the-future-of-digital-trade-rules-discussion-paper.pdf
71. This does not preclude governments from applying local consumption or sales taxes, but these cannot discriminate against international designers or developers.
72. Stephen Holloway and Jeffrey Rae (March 2012), "De minimis thresholds in APEC", World Customs Journal, Vol.6 # 1.
73. Department of Foreign Affairs and Trade (2018), Discussion Paper: The future of digital trade rules.
Available at: http://dfat.gov.au/trade/services-and-digital-trade/Documents/the-future-of-digital-trade-rules-discussion-paper.pdf
74. 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
75. 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
76. Yuafanda Kholfi Hartono (2018), "Welcoming import duties on intangible goods".
Available at: http://www.thejakartapost.com/academia/2018/01/10/welcoming-import-duties-on-intangible-goods.html
77. Asia Pacific Economic Cooperation (2016), 2016 CTI report to ministers. Available at: http://publications.apec.org/-/media/APEC/Publications/2016/11/2016-CTI-Report-to-Ministers/TOC/Appendix-26-Pathfinder-on-Permanent-Customs-Duty-Moratorium-on-Electronic-Transmissions-Including-Co.pdf

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