Emerging Approaches for Measuring and Estimating Digital Trade

APEC Digital Economy Steering Group

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1. Introduction

The digitalisation of our economies continues to transform what and how we trade. The digital deliverability of many services and the proliferation of e-commerce platforms has enabled an unprecedented degree of cross-border dynamism and connectivity between consumers and businesses across the APEC region. This continues to stimulate growth in both digital and traditional industries, lower trade costs, and incentivise policy development to foster an enabling environment for digital trade. Past work has estimated that intra-APEC digital trade reached USD2.12 trillion in 2020, comprising 28% of total intra-regional trade[1].

However, the availability of data on digital trade has not kept pace. As with many aspects of the digital economy, statistical approaches for capturing data on digital trade are still developing. Progress has been made in recent years with the establishment of an internationally agreed conceptual framework for cross-border digital trade statistics. However, data constraints within economies typically prevents a "one size fits all" approach, and innovative and targeted approaches are often needed to collect, compile, and apply data. The fast-evolving nature of digital trade also means that measurement and estimation approaches are evolving as new data sources and methodologies emerge and policy discussions progress.

As digital transactions become increasingly important for international trade, improving the availability of digital trade data is crucial to inform understanding, analysis, and policy development. It is also essential to support implementation of the APEC Putrajaya Vision 2040 and APEC's Aotearoa Plan of Action by contributing to the development of effective measures, interoperable approaches, and the adoption of digital technologies to facilitate trade and investment across the APEC region[2].

As international best practice continues to emerge, there is much that can be learnt by sharing experiences compiling digital trade data. It will take time before comprehensive and standardised compilation and reporting mechanisms for digital trade statistics across economies are possible. However, in the meantime, existing experiences provide useful insights to strengthen our understanding of digital trade patterns and valuable lessons to improve future efforts to measure and estimate digital trade.

This paper provides a short overview of international efforts to develop measurement and estimation approaches for digital trade, focusing on case studies from APEC economies. The paper was informed by a virtual workshop organised and hosted by New Zealand on 27 November 2025. The workshop convened experts from a range of APEC economies to share and discuss their practical experiences with common data digital trade challenges and sources. It also discussed ongoing work by the OECD to develop methodologies to derive experimental estimates of digital trade. The workshop was attended by over 120 attendees from 14 APEC economies, the APEC Business Advisory Council, and APEC observer organisations including the Pacific Economic Cooperation Council and the Pacific Islands Forum Secretariat. Additional research has been undertaken for this paper to supplement the experiences shared in the workshop.

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1 AA Access Partnership (2024), '*Understanding the Economic Impact of Digitalisation on Digital Trade*'. Available here.
2 See the '*APEC Putrajaya Vision 2024*' available here and the '*Aotearoa Plan of Action*' available here.

2. Defining & measuring digital trade

2.1 Defining digital trade

Given the wide-ranging ways in which digitalisation has transformed international trade, it's no surprise that "digital trade" can commonly be used to refer to a breadth of issues related to trade in the digital era. In addition to cross-border trade of goods and services via digital technologies, it is commonly used in economic commentaries and policymaking to describe the digitalisation of trade documents and processes, cross-border dataflows that support international transactions, and the changing nature of economic activity across the economy resulting from increased digital connectivity.

To support the development of a shared definition and in response to growing demand for data on digital trade, the OECD, WTO, and IMF developed the '*Handbook on Measuring Digital Trade'* (second edition released in 2023), which was formally endorsed by the UN Statistical Commission in 2024[3]. It provides a conceptual framework for defining digital trade, which has come to be widely adopted internationally and provides an important mechanism to assist with identifying best practice approaches to the development of digital trade data.

Within this framework, digital trade is defined as all international trade that is digitally delivered and/or digitally ordered:

1) **Digitally delivered trade** refers to international trade transactions that are delivered remotely over computer networks. In recent years, the ability to deliver services remotely via the internet has transformed the way in which many services can be provided to overseas customers. For some, services that previously relied on in-person travel to deliver cross-border transactions are now routinely done online. For others, the exchange of physical documents, plans, blueprints, and other outputs has been almost entirely replaced by the transmission of digital files[4]. Digitally delivered services are among the fastest growing segments of global trade, expanding at an annual rate of 8% – nearly twice the pace of goods trade[5].

   Since digitally delivered trade requires the transaction to be delivered digitally, it only includes trade in services and not trade in physical goods. However, this captures a wide array of digital services, content, and products that consumers and businesses use and produce every day. For example, the use of downloaded or cloud-based software from software-as-a-service companies; digitally streamed or produced movies, music, and books; the use of offshore-based cloud storage or webpage hosting services; online education services from overseas providers; and cross-border electronic payments or fintech services.

2) **Digitally ordered trade** refers to the international sale or purchase of goods and services, conducted over computer networks by methods specifically designed for receiving or placing orders. This covers all international e-commerce, including orders for goods or services that occur via online shopping platforms and direct purchases made through

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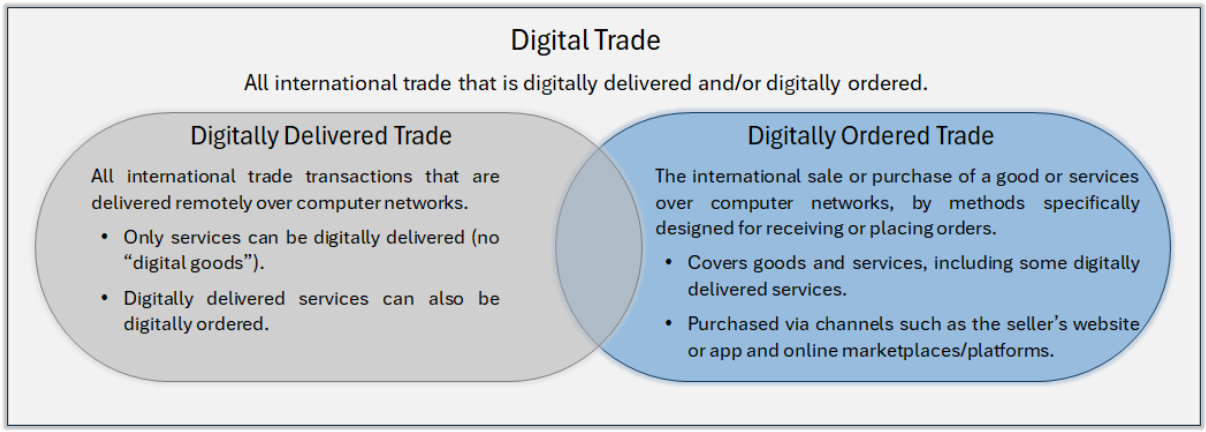
3 OECD, WTO, IMF (2023), '*Handbook on Measuring Digital Trade'*. Available here.
4 Ali, et. al (2023), '*Exploring Commonwealth Trade in Digitally Delivered Services'*.
5 WTO (2025), '*Digitally Delivered Services Trade Dataset*'.

websites or apps belonging to the seller that use an online "shopping cart" or order form. It also includes digital orders, such as subscriptions to streaming media or gaming services, that involve ongoing service provision and payments.

Unlike digitally delivered trade, digitally ordered trade covers both goods *and* services as the nature of the product does not matter, so long as it is ordered digitally. Given the huge increase in online shopping in recent years, digitally ordered trade has grown significantly. Estimates of digital trade for APEC economies found that digitally ordered trade as a share of total digital trade grew from 58% in 2016 to 74% in 2020[6], comprising a majority of intra-APEC digital trade.

The two components of digital trade differ in terms of what they seek to capture, but they are not mutually exclusive. There is a significant overlap between digitally *delivered* trade and digitally *ordered* trade. For example, many services that can be delivered digitally will also be ordered online, particularly for downloaded or streamable products such as software, music, videos, or e-books. At the same time, there is a lot of digital trade that is delivered digitally but not ordered digitally. This includes many large-scale digital service transactions between businesses that may be delivered digitally but are often "ordered" through in-person negotiations to agree and conclude the transaction.

Figure 1 – Definition of digital trade



Source: OECD

2.2 Challenges measuring digital trade

Despite the establishment of a conceptual measurement framework for digital trade, compiling comprehensive data on digital trade remains challenging, partly because it exacerbates several measurement challenges involved in international transactions[7]. A key challenge is that international trade statistics have traditionally been compiled around "what" is being traded—that is, what the good or service is[8]. While this remains of interest for digital trade analysis, the focus for defining a digital trade transaction is ultimately on "how" it is purchased or delivered, which has traditionally not been well captured in trade data sources such as

[6] AA Access Partnership (2024), '*Understanding the Economic Impact of Digitalisation on Digital Trade: Evidence from APEC Economies*'.
[7] For further information on the challenges and approaches summarised here, see the OECD-WTO-IMF '*Handbook on Measuring Digital Trade*'.
[8] ADB (2022), '*Unlocking the Potential of Digital Services Trade in Asia and the Pacific*'.

customs data or business surveys. The growth of digital ordering has also seen a rapid rise in low-value trade in goods, which can present further challenges where measurement of merchandise trade is based on higher value thresholds.

Digitalisation has also transformed the actors involved in international trade. It has enabled significantly higher participation by households as direct purchasers from overseas, as well as households and small businesses as sellers. These actors have tended to be underrepresented in traditional data sources, which have typically focused on large firms. Digitalisation has also resulted in a rapid rise in the role of online shopping platforms and digital intermediation platforms, which facilitate transactions in goods and services for a fee and are key facilitators of digitally ordered trade. This can further complicate measurement by adding a third party to the transaction which may not be resident in the buyer's or seller's economies and for which data is typically not readily available.

Despite these challenges, past work has suggested that current international trade statistics for goods or services do not significantly undervalue the amount of digital trade, although this may vary across economies[9]. Rather, the main measurement challenge lies in identifying the transactions that are digitally ordered or delivered and making this digital trade more visible within trade statistics. This is essential for better measuring and understanding the component of existing international trade flows that are being digitally ordered or digitally delivered.

[9] López González, J., S. Sorescu and P. Kaynak (2023). '*Of bytes and trade: Quantifying the Impact of Digitalisation on Trade*', OECD Trade Policy Papers, No. 273, OECD Publishing. https://doi.org/10.1787/11889f2a-en.

3. Recent digital trade measurement & estimation approaches

3.1 Work by international organisations

In recent years, a range of methodologies and approaches have been developed that aim to address some of the common data challenges surrounding digital trade. Although underlying data constraints, methodological challenges, and varied data availability across economies mean that each approach has limitations, these experiences provide valuable information, examples, and tools that can be emulated or learned from by analysts and policymakers wanting to improve data on digital trade.

Since the early days of digital trade policy, international organisations such as the OECD and the WTO have played a critical role in leading the development of these approaches and datasets. As mentioned, the '*Handbook on Measuring Digital Trade'* produced by the OECD, WTO, and IMF (henceforth the '*Handbook'*) established a conceptual framework for defining and measuring digital trade and has provided the foundation for more recent research efforts by many international organisations. A common starting point has been estimating trade in digitally delivered services. As digitally delivered trade is a subset of economies' trade in services, for which internationally comparable datasets are routinely produced and available at an economy level, the WTO and UNCTAD both publish publicly available cross-economy estimates.

UNCTAD publishes data on economies' trade in digitally deliverable services, compiled by aggregating services trade data for services that can and are routinely delivered via the internet or other computer networks[10]. Meanwhile, the WTO's dataset goes further by publishing experimental estimates of digitally *delivered* trade, using additional assumptions about the degree of digital deliverability for each service category[11]. Where possible, economy-specific data is used to estimate the proportion of services trade that is digitally delivered. However, for economies without this data, plausible cross-economy averages are used. The WTO's estimates are provided for over 200 economies and regions for the period 2005 to 2024, with disaggregation possible for key services categories. This data highlights the rapid growth of cross-border digitally delivered services over the past decade, with the value of global digitally delivered services exports estimated at around USD4.8 trillion in 2024, supported by an annual average growth rate of 8%.

Due to the data challenges discussed in Section 2, efforts to identify and estimate digitally ordered trade are generally less developed and cross-economy datasets more limited. In addition, difficulties estimating digitally ordered trade have also constrained efforts to produce estimates of total digital trade. Even where estimates of digitally ordered trade are possible, simply adding these to estimates of digitally delivered services to produce an estimate of total digital trade risks double counting due to difficulties identifying trade transactions that are both digitally delivered *and* digitally delivered. However, work by both the OECD and UNCTAD has sought to mitigate some of these challenges and provide preliminary proxy estimates for a subset of economies.

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[10] UNCTAD's '*International Trade in Digitally Deliverable Services Dataset'* is available on the UNCTAD Data Hub.
[11] The WTO's '*Digitally Delivered Services Trade Dataset'* is available on the WTO website.

For example, research by the OECD has estimated digitally delivered trade and total digital trade using the OECD's Trade in Value-Added (TivA) database – a publicly available dataset tracking value added in exports, imports, and final demand for 80 economies[12]. This work used digitally deliverable services as a proxy for digitally delivered trade and digital inputs in non-digital sectors as a proxy measure for digitally ordered trade. This estimated that digital trade has grown faster than non-digital trade over the past decade and could represent around a quarter of global trade. In addition, it estimated that digitally delivered trade represented around 60% of total digital trade in 2020. Further analysis by UNCTAD (2024) provided estimates of digitally ordered trade for 43 economies, based on information on international e-commerce sales collected by business ICT surveys in some economies[13]. This suggested that around 12-14% of total goods and services exports were digitally ordered.

More recently, the OECD has experimented with two methodologies to produce estimates of digitally ordered trade and total digital trade[14]. The first approach examines digitally ordered trade through a lens of international e-commerce, which it defines as the share of turnover that is digitally ordered. It uses cross-economy data on e-commerce turnover for 24 economies to compute digitally ordered trade, based on data from the OECD's ICT Access and Usage Database and partial estimates of the share of e-commerce sales that are internationally sourced from Eurostat's ICT Usage in Enterprises Database and the Structural and Demographic Business Statistics Database. Meanwhile, the second approach adopts an international trade lens and uses a proxy measure for digital ordering from OECD Supply and Use Tables for 29 economies. It addresses issues caused by the overlap in digitally ordered and digitally delivered trade by assuming that all trade that is identified as digitally delivered is categorised as digitally delivered, irrespective of whether some of this trade has been digitally ordered or not. It then identifies digitally ordered trade as only that which takes place in non-digitally deliverable services and goods industries.

While methodological differences between the two experimental approaches result in some variation, the OECD finds that estimates of digital ordering and digital trade produced by both new methodologies produce similar trends and highlight the growth in digital ordering over the past decade. For example, the estimates are highly correlated and show that digital trade accounted for a growing share of exports across most sample economies. Moreover, it finds that digitally ordered trade has been the second fastest growing segment of international trade since 2010, behind only digitally delivered services[15]. However, the OECD notes that data limitations with both approaches remain an issue for economies outside of the EU statistical system as the cross-economy availability of e-commerce data varies[16].

Looking ahead, recent updates to the international frameworks for compiling national statistical accounts and balance of payments statistics should further support development of digital

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[12] López González, J., S. Sorescu and P. Kaynak (2023). '*Of bytes and trade: Quantifying the Impact of Digitalisation on Trade*', OECD Trade Policy Papers, No. 273, OECD Publishing. https://doi.org/10.1787/11889f2a-en.

[13] UNCTAD (2024), Business e-commerce sales, https://unctad.org/system/files/official document/dtlecde2024d3_en.pdf

[14] OECD (2025), '*Deriving Experimental Estimates of Digital Trade'*, Technical Report, OECD Publishing. https://doi.org/10.1787/c7dbbc14-en. This summary is also informed by the presentation '*Deriving Experimental Estimates of Digital Trade*, delivered by Karin Gourdon (OECD), at the APEC virtual workshop on '*Measuring and Estimating Digital Trade'* on 27 November 2025.

[15] OECD (2025) draws on WTO Digitally Delivered Services export data.

[16] This is particularly relevant for the international e-commerce approach whose estimates are dominated by Eurostat economies which have more data available. The extension to economies outside of the EU statistical system is possible but contingent on data availability.

trade measures over coming years. The '*2025 System of National Accounts'* and '*7th Edition Balance of Payments Manual'*, both adopted by the UN Statistical Commission in March 2025, have been developed to ensure core macroeconomic statistics reflect recent developments in areas like digitalisation[17] [18]. This includes improvements to better measure fundamental aspects of the digital economy, such as data, AI, e-commerce, cloud computing, and digital intermediation platforms. Implementation of the new standards is aimed for 2029-2030, with best practice guidelines to be released in coming years.

3.2 Examples of approaches used in APEC economies

In addition to—and in many cases inspired by—the work of international organisations, individual economies are increasingly developing their own data sources and measures for digital trade. As the production of comprehensive and official statistics on digital trade will not be possible for some time, the approaches adopted by individual economies tend to vary based on their own unique data environments, constraints, and areas of interest. This section provides case studies of some approaches used within APEC economies to illustrate examples of how different economies have sought to address common data challenges[19].

Table 1 – Summary of digital trade data approaches by different APEC economies

Economy	Coverage of data	Main data sources
Australia	Digitally delivered trade (streaming services, software licenses, and advertising services)	International trade in services data Administrative data (tax data, company financial reports, price indices data)
Chile	Digitally delivered trade	Customs export declarations of services export businesses
Malaysia	Digitally delivered and digitally ordered trade	International trade in services data Survey of ICT use by businesses Household expenditure survey
New Zealand	Digitally delivered trade	International trade in services data Survey of business operations Administrative data (business registry)
Singapore	Digitally delivered and digitally ordered trade	International trade in services data Survey of ICT use by businesses Household expenditure survey Administrative data (credit card data, tax data)

i) Australia[20]

The measurement of digital services has been a long-standing and known measurement gap within the Australian Bureau of Statistics' (ABS) International Trade in Services and Balance

[17] United Nations (2025) '*System of National Accounts 2025 – Pre Edit Version'*. Available here.
[18] IMF (2025), '*Integrated Balance of Payments and International Investment Position Manual, Seventh Edition (BPM7) – Pre Edit Version''*. Available here.
[19] These cases studies are drawn from the experiences of economies that presented at, contributed to, or co-sponsored the APEC virtual workshop on '*Measuring and Estimating Digital Trade'* on 27 November 2025.
[20] This case study is informed by the Australian Bureau of Statistics' article '*Introduction of Digital Services in the Balance of Payments'* (2024). For more information, see the ABS website.

of Payments statistics. Like many economies, Australia has seen a substantial increase in digital services delivered and consumed within Australia, often by non-resident multinationals operating across multiple economies. Some of the most popular digital services include audiovisual streaming services, advertising services, and computer software. The rapid advancement of technology, complex corporate structures for multinational companies, and a lack of available data for these services (particularly for households) has made it difficult to measure the production and consumption of these services. This has been compounded by difficulties faced by businesses correctly reporting these services.

The ABS recently improved the measurement of its digital services, targeting the most significant Multinational Enterprises (MNEs) that provided digital services. It has developed new estimates using administrative data to estimate imports and exports of these services. A number of data sources were used from across different government agencies, including data from the Australian Taxation Office (GST and sales data), the Australian Securities and Investment Commission (individual company financial reports), and the ABS (trade in services data and data from the consumer and producer price indices).

To compile the digital services estimates, the ABS identified companies engaged in the provision of digital services, with an initial focus on significant businesses and those that provided streaming services, software licenses, and advertising services. As these services are typically administered and distributed in Australia by local entities (while the intellectual property is produced and held by parent entities overseas), each company was assessed and classified based on whether it was: a local entity producing administrative and support services; a local entity producing commission or intermediation service; or a local entity producing streaming or publishing services. This was done consistent with conceptual principles in the System of National Accounts 2008 and the Balance of Payments and International Investment Position Manual, and services were classified into existing categories in the Extended Balance of Payments Services Classification 2010 (EBOPS).

The inclusion of the new digital services estimates resulted in revisions to ABS' previous services trade series, most noticeably for Australia's services imports. The improved measurement approach resulted in the value of EBOPS categories containing digital services increasing by AUD87 billion between the 2010 and 2024 financial years, with an upward revision from AUD4.3 billion to AUD22.8 billion in the year to June 2024. Notably, the data highlighted the rapid growth of these digital services as a share of Other Services imports over the past decade, rising from only 1% in the 2010 financial year to 29% in 2024. The new approach also improved the measurement of digital services exports, although the revisions were smaller given the more limited scale of digital services production in Australia compared with consumption. Between the 2010 and 2024 financial years, they added an additional AUD5.1 billion of exports to existing EBOPS categories containing digital services, with an upward revision in the year to June 2024 from AUD1.8 billion to AUD3.7 billion. The new estimates for digital services imports and exports were incorporate into Australia's National Accounts for the first time in 2023-24 and subsequently in 2024-25.

ii) Chile[21]

Chile has sought to address common challenges with international services trade data through developing its own framework for measuring services exports and imports. The framework covers all international services trade categories and has provided significantly improved visibility and measurement of digital services, which were largely hidden within previous services export statistics. Past data showed that services were a relatively small component of Chile's international trade profile, comprising around 11% of total exports, and had grown more slowly over the past two decades than goods exports. However, the limited granularity of Balance of Payments trade data prevented an understanding of the performance of specific services, their destination economies, and the use of digital technologies to deliver cross-border transactions.

To improve visibility of digital services exports, Servicio Nacional de Aduanas (Chile's National Customs Service) created its own nomenclature for recording services exports, which provides significantly more detailed information about Chile's digital services exports. Using a similar structure and approach as for the Harmonised System for merchandise goods exports, Chile's services export measurement framework developed "tariff codes" for individual services at a more detailed level of disaggregation than under Balance of Payments classifications. These "tariff codes" were incorporated into export declarations by businesses, enabling the customs service to compile data on approximately 300 different services export categories, aggregated into 14 broad services groups. In many cases, these aggregated categories were designed to broadly align with high-level services trade categories within the Balance of Payments framework (e.g. professional services, telecommunications services, and computer services).

The measurement framework has been fundamental to improving Chile's administrative data on services exports, including digitally delivered services. Through companies' export declarations, the customs service can identify whether a service has been delivered physically or digitally. As a result, the new framework has enabled Chile's authorities to determine the value of digitally delivered services exports, the destinations of those exports, and to analyse trends over time. The development of Chile's own nomenclature has also provided it with the flexibility to add or adapt services categories at any time, for example as new digital services and technologies develop.

The data shows that Chile's digital services exports reached USD2.9 billion in 2024, more than double the value of a decade earlier, and have grown at an average annual rate of 14% since 2003. Around 40% of Chilean services exports were delivered digitally in 2024, with key digital services exports including web hosting services for websites and email, remotely provided technical support for computing and ICT, ICT consulting services, original software design, and the design and development of ICT applications. The new framework has also enabled authorities to better identify companies that deliver digital services, with the number of companies that completed export declarations rising from below 700 in 2022 (prior to the adoption of the new approach) to over 1,100 in 2024. In doing so, it has also helped to identify new Chilean export success stories to support the Chilean government's understanding of

[21] This case study was informed by the presentation '*Exporting Digital Services – Chile's Experience'*, delivered by Nelson Paredes and Cristina Allende (Undersecretariat of International Economic Affairs at the Chilean Ministry of Foreign Affairs), at the APEC virtual workshop on '*Measuring and Estimating Digital Trade'* on 27 November 2025.

digital service export opportunities, including comic design, TV animation, and the remote delivery of monitoring services for mining.

Although Servicio Nacional de Aduanas led the work programme, the development of the new measurement framework involved significant engagement and collaboration across a range of stakeholders. It was led by the Public-Private Committee for Services Exports, which was formally established in 2016 to promote services exports as a driver of economic growth and to coordinate work across government and private sector organisations. The committee's members include the Chilean Central Bank, InvestChile, the Ministry of Culture, the Ministry of Science, and business associations from relevant sectors. The committee assisted with identifying data gaps, proposing solutions, and providing recommendations for the design and implementation of the new framework.

iii) Malaysia[22]

Malaysia's efforts to improve its digital economy and digital trade statistics have been underway for over a decade, beginning in 2011 and remains ongoing. It's digital statistical architecture, led by the Department of Statistics Malaysia (DOSM), comprises three different frameworks that allow DOSM to produce measures and data on multiple dimensions of Malaysia's digital economy, including digital trade. The frameworks include an ICT Use and Access by Individuals and Households Survey, an Annual E-Commerce Survey, and an ICT Satellite Account. Together these frameworks provide a relatively comprehensive view of digital economy participation across households and businesses and enable a range of high-frequency indicators, including quarterly and monthly statistics across relevant sectors.

For digital trade, DOSM uses the conceptual and definitional framework provided by the OECD, WTO, and IMF in the '*Handbook'*. Through its Annual E-Commerce Survey, DOSM collects information from Malaysian businesses on international e-commerce income and expenditure, including by type of customer (i.e. business, consumer, and government) to understand the nature of cross-border e-commerce transactions. DOSM has also introduced additional questions to its International Trade in Services Survey to capture data on digital services transactions, and has produced an ICT Satellite Account that provides comprehensive data on Malaysia's ICT sector.

Overall, the data provides a range of indicators and measures that can be used to understand Malaysia's cross-border digital trade. For example, it estimates that international customers were the source of around 11% of Malaysian businesses' e-commerce revenue in 2023 (MYR131.1 billion), with international revenue growing faster than domestically sourced revenue in recent years. Similarly, the data shows that Malaysian businesses spent MYR40.8 billion on overseas e-commerce orders in 2023, comprising 7% of total e-commerce expenditure, with international e-commerce expenditure also outpacing domestic expenditure. In terms of Malaysia's trade in ICT services, DOSM's data shows that exports of ICT services and digital content outpaced Malaysia's aggregate export growth in 2024, with the ICT industry providing around 290,000 trade-related jobs.

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[22] This case study was informed by the presentation '*Charting the Digital Frontier: Malaysia's Insights on Measuring Digital Trade and the Digital Economy'*, delivered by Dato Sri Dr. Mohd Uzir Mahidin (Department of Statistics Malaysia), at the APEC virtual workshop on '*Measuring and Estimating Digital Trade'* on 27 November 2025.

Looking ahead, Malaysia intends to continue to strengthen its digital economy statistics and further enhance its framework for digital trade data. This includes improving the visibility and estimation of unregistered and informal activities within Malaysia's digital economy and trade.

iv) New Zealand[23]

Digital trade has become an important part of New Zealand's trade and economic strategy. Over the past decade, there has been a growing focus on opportunities presented by high-wage services industries and the potential to make the most of "weightless trade" to overcome challenges associated with New Zealand's geographic remoteness. New Zealand has also been a strong advocate internationally for efforts to reduce barriers to digital trade, with more than half of New Zealand's free trade agreements containing dedicated digital trade or electronic commerce chapters. However, data on digital trade has been limited, preventing a deeper understanding of the nature of New Zealand's digital trade profile among policymakers. It has also constrained awareness among the public and private sectors of the importance of digital industries for New Zealand's trade performance. A government review of New Zealand's digital trade policies in 2022 highlighted the need to make digital trade more "real" for the public[24].

To improve understanding of digital trade, the New Zealand Ministry of Foreign Affairs and Trade commenced a work programme to leverage existing data sources to improve data on New Zealand's digital services trade. One component of this project involved producing a time series of New Zealand's digitally delivered services trade at a more detailed level of disaggregation than was available in the WTO's dataset. To do this, officials adopted the OECD, WTO, and IMF '*Handbook'* methodology and used international services trade data to estimate the share of digitally deliverable services that were delivered digitally. As data on modes of supply for New Zealand's services trade were not available, the estimates used a simplified approach based on cross-economy data from the WTO's Trade in Services by Mode of Supply (TiSMoS) dataset to estimate the share of services delivered digitally.

Although the accuracy of applying the simplified approach to New Zealand is difficult to assess, the estimates provide useful preliminary estimates of the approximate size and nature of New Zealand's digitally delivered services trade as data sources develop. For example, it highlighted the growing value and share of digitally delivered services within New Zealand's trade profile, particularly for services imports. Digitally delivered services were estimated to comprise almost a quarter of New Zealand's services exports in 2024 (NZD7.1 billion) and almost half of services imports (NZD15.2 billion). The data also helped to highlight the growing importance of digital services exports among New Zealand's export profile. It showed that the total value of exports of digitally delivered services in 2024 were estimated to be worth more than New Zealand's exports of horticultural goods.

A second component of the project then used firm-level microdata contained in Stats NZ's administrative databases to analyse the characteristics of New Zealand's digital service exporters. This used data collected through an annual Business Operations Survey—a survey

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[23] This case study was informed by a forthcoming working paper from the New Zealand Ministry of Foreign Affairs and Trade, '*Bytes Across Borders: Understanding New Zealand's Digital Services Trade'*, expected to be published in mid-2026. For more information, see the MFAT website.

[24] Martin Jenkins (2023), '*Digital Trade Review'*, commissioned by the New Zealand Ministry of Foreign Affairs and Trade.

of approximately 9,000 New Zealand businesses—to identify firms that reported using the internet to supply services to overseas customers. Characteristics of these businesses such as firm size, length of business operations, and extent of international activities were then analysed. This found that digital exporting firms were more likely to have been in operation shorter, to have expanded to a new overseas market in the previous year, and to have an offshore investment presence compared with non-digital exporting firms. They were also more likely to provide their services directly to individuals or households (B2C).

Although the work programme relied on existing data sources, future work is intended to further develop New Zealand's digital trade data sources to enable more robust estimates of digitally delivered services trade and provide initial insights into digitally ordered trade.

v) Singapore[25]

Singapore has identified digital trade as an important driver of future economic growth. Singapore's National Research Foundation's Research, Innovation, and Enterprise 2025 Plan highlights the development of digital and technology industries as a key driver of Singapore's international competitiveness. Singapore has also been a global leader in the development of Digital Economy Agreements, such as with Australia; the UK; Republic of Korea; and the EU, which aim to promote digital trade by enhancing digital connectivity and facilitating interoperability through the alignment of standards and frameworks. The growing presence of cross-border e-commerce and digital intermediation platforms, and the creation of new digital business models and the gig economy, are also of keen interest to policymakers. However, like many economies, the availability of data to understand developments and opportunities in Singapore's digital trade has previously been relatively limited.

To allow more accurate, timely, and detailed data on digital trade, Singapore's Department of Statistics (DOS) is currently undertaking a multi-year work programme to develop experimental estimates of digital trade. Based on the definitions and conceptual framework provided by the OECD's *Handbook on Measuring Digital Trade*, it aims to produce published indicators for both exports and imports of digitally ordered goods and digitally ordered and/or digitally delivered services. The work programme began in 2021 and is expected to publish its first experimental estimates in 2026.

Given the wide-ranging nature of the estimates, DOS has used a number of data sources to capture the required information across different economic actors and activities. In many cases, DOS has been able to leverage existing surveys or data sources that have been adapted where necessary. For example, DOS utilised an existing economy-wide survey of Infocomm Usage by Enterprises undertaken by Singapore's Infocomm Media Development Authority (IMDA) to compile data on the use of digital ordering by businesses. Similarly, to compile data on digital ordering by Singaporean households, DOS is exploring the use of administrative data and survey sources. These include possible data related to online card payments from the Monetary Authority of Singapore (Singapore's central bank), average monthly online expenditure from DOS's Household Expenditure Survey, and GST data on

[25] This case study was informed by the presentation '*Singapore's Experience in Developing Digital Trade Estimates'*, delivered by Andrew Goh (Singapore Department of Statistics), at the APEC virtual workshop on '*Measuring and Estimating Digital Trade'* on 27 November 2025.

business-to-consumer imports of remote services and low-value goods from the Inland Revenue Authority of Singapore. Finally, to produce estimates of cross-border digitally delivered services, DOS has added pilot questions to its routine International Trade in Services (TIS) Survey, asking respondents to report the percentage of digitally delivered content in cross-border service transactions.

DOS' digital trade estimates will provide a valuable dataset to inform policymaking and improve understanding of Singapore's cross-border digital trade once the work programme is completed. That being said, it has experienced a number of challenges. DOS has noted the development of data sources required for the new indicators has been resource intensive. In addition, due to challenges with data availability, it has had to strike a balance between using more detailed but less timely data collected through annual surveys and more timely but less granular administrative data. Finally, as the collection of data on digital trade is new and understanding of its concepts is still developing, the publication of clear guidance for businesses has been essential combined with stakeholder engagement. For example, some businesses found it challenging to complete questions on digital service delivery as their accounting records did not track the necessary information. Questions that asked respondents to self-identify as a digital intermediation platform (DIP) also experienced issues and additional guidance was needed to help respondents to understand the statistical scope and definition of a DIP.

4. Lessons learned & recommendations

As measurement and estimation approaches for digital trade continue to develop, there is much that can be learnt by sharing methodologies. The experiences outlined in this paper demonstrate that while the production of comprehensive digital trade statistics is likely to remain a medium-to-long term goal, practical progress can be made by APEC economies by using existing data sources and statistical approaches. In many cases, even partial or proxy estimates of digital trade have provided economies with important insights about the scale and nature of cross-border digital trade that have been valuable to inform digital trade policy and understanding.

Based on the case studies outlined in this paper, a number of lessons can be drawn for economies and government authorities seeking to develop digital trade data:

- *Begin with existing data sources and infrastructure* – While developing new data sources can be resource intensive, in many cases progress can be made by leveraging and adapting existing data and surveys. These existing sources can provide partial or proxy indicators to improve the availability of data on digital delivery and digital ordering in international trade as other data sources are developed. For example, several economies have introduced questions to existing International Trade in Services Surveys or ICT Access and Use Surveys to better identify digitally enabled cross-border transactions. Similarly, administrative datasets held by tax authorities, customs agencies, and other economic agencies have provided useful insights on digital trade activities by households and businesses.

- *Make the most of the resources and frameworks offered by international organisations* – Significant work has been done by international organisations such as the OECD, WTO, and UNCTAD in recent years to develop a shared conceptual and measurement framework for digital trade. Although circumstances for individual economies vary, adopting these definitions and concepts can provide a valuable framework and direction for statistical work programmes. It is also important to ensure that digital trade data developed within individual economies' remains internationally coherent and comparable as different approaches are adopted for addressing common data challenges. Resources provided by international organisations such as cross-economy datasets, model questions and modules for survey design, and guidance and research are also valuable for governments with more limited resources.

- *Cross-government collaboration and engagement with the private sector is important* – Given the breadth of economic activity and the actors involved in digital trade, broad engagement across both public and private sector stakeholders can be valuable. For public sector stakeholders, a collaborative work programme can help to identify possible data sources, policy interests, and resources. Meanwhile, engagement with businesses and industry organisations can be valuable to inform the effective design of survey questions, data collection approaches, and the clarity of guidance material. This can be particularly important given the relative newness of digital trade statistics and as familiarity with digital trade definitions and concepts develop.

- *The nature of digital trade can lend itself towards an incremental approach to data development* – In many cases, economies have approached the improvement of digital trade data as an incremental work programme, developing data on different aspects of digital trade gradually over time. Typically, an initial focus has been on improving digitally delivered services trade data as the ability to use existing international trade in services data makes it a natural starting point. Whereas the more prevalent methodological challenges associated with digitally ordered trade, digital intermediation platforms, and the activities of households mean that the scope and granularity of data efforts in these areas have tended to be addressed over time.

- *A consistent focus on developing digital trade data is needed to support comprehensive and robust statistics* – While much progress has been made in the development of digital trade data in recent years, it remains an area of ongoing work and emerging best practice even for economies with relatively advanced data ecosystems. This suggests that while "early wins" are possible, improving the quality and coverage of digital trade statistics can best be supported by a sustained long-term effort. This includes the development of domestic data sources as well as international efforts to share expertise and support collaborative approaches to enhance the measurement and estimation of digital trade.

As APEC economies continue to develop the data sources necessary to produce estimates and measures of digital trade, APEC as a forum can play a critical role in sharing expertise, supporting capacity building, and enhancing comparability across datasets. Supporting dialogue between economies and sharing practical experiences remains valuable, as varied levels of data development across APEC economies means there is still a lot to be gained from sharing lessons and expertise across economies. Similarly, maintaining dialogue between APEC and international organisations such as the OECD, WTO, and UNCTAD is important to maintain coherence with international frameworks and to stay informed of wider work to develop international datasets and statistical frameworks.

APEC also provides a valuable forum to advance collaboration and further work to better understand existing and potential digital trade data sources across APEC economies. While this project has sought to highlight case studies from a number of economies, a deeper understanding of the digital trade data landscape across APEC would support discussions on opportunities that exist to better use, develop, and report digital trade data. This in turn would inform policy development within APEC aimed at removing barriers and promoting cross-border digital trade. Future work could compile a more complete picture of digital trade data practices in APEC economies along with a better understanding of common statistical surveys, such as international trade in services surveys or ICT access and use surveys that could be adapted by statistics agencies to better capture data on digital trade. Compiling a clearer picture of this data landscape would support the development of future guidance and recommendations for APEC economies, as well as promote a possible pathway to improve the availability of complete, comparable, and regular digital trade data across the APEC region.

Annex – Workshop agenda (27 November 2025)

Time (NZDT, UTC +13)	Session
14:00 – 14:05	**Opening remarks** Andrew Jenks – New Zealand APEC Senior Official, New Zealand Ministry of Foreign Affairs and Trade
14:05 – 14:10	**Workshop introduction** Neil Cribbens – Trade Policy Consultant, New Zealand Ministry of Foreign Affairs and Trade
14:10 – 14:35	**Session one: International methodologies** Speaker: Karin Gourdon – Economist and Trade Policy Analyst, OECD *In this opening session, Karin will provide an overview of the OECD's work on developing experimental estimates of digital trade, highlighting challenges and data gaps, and discussing ways to address them using available data.*
14:35 – 15:30	**Session two: Economy case studies – experiences and approaches in estimating and measuring digital trade** <u>Economy 1: Chile</u> Speakers: Nelson Paredes – Director of Studies, Undersecretariat of International Economic Affairs, Chilean Ministry of Foreign Affairs and Cristina Allende – Head of Trade & Data Information Division, Undersecretariat of International Economic Affairs, Chilean Ministry of Foreign Affairs *Nelson and Cristina will share Chile's experience compiling digital services trade data through the creation of a specialised customs declaration and tariff codes for services exporters, and how coordination between government agencies enabled the creation of disaggregated export figures for digital and traditional services.* <u>Economy 2: Malaysia</u> Speaker: Dato' Sri. Dr. Mohd Uzir Mahidin – Chief Statistician, Malaysia Department of Statistics

	Dr. Uzir will share Malaysia's experience compiling and producing its digital statistics architecture over the past decade, which has enabled a relatively comprehensive view of Malaysia's digital trade and economy supported by a number of data sources and frameworks. <u>Economy 3: Singapore</u> Speaker: Andrew Goh – Assistant Director, Singapore Department of Statistics *Andrew will share Singapore's experience estimating, compiling, and measuring digital trade as part of work to contribute to ongoing global efforts and discussions on the measurement of digital trade.*
15:30 – 15:50	**Session three: Q&A and panel discussion with speakers** Moderator: Neil Cribbens – Trade Policy Consultant, New Zealand Ministry of Foreign Affairs and Trade *This session will involve a moderated Q&A and panel discussion, providing an opportunity for workshop attendees to ask questions in the chat function.*
15:50 – 16:00	**Closing remarks and next steps**

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