Centre for International
Governance Innovation

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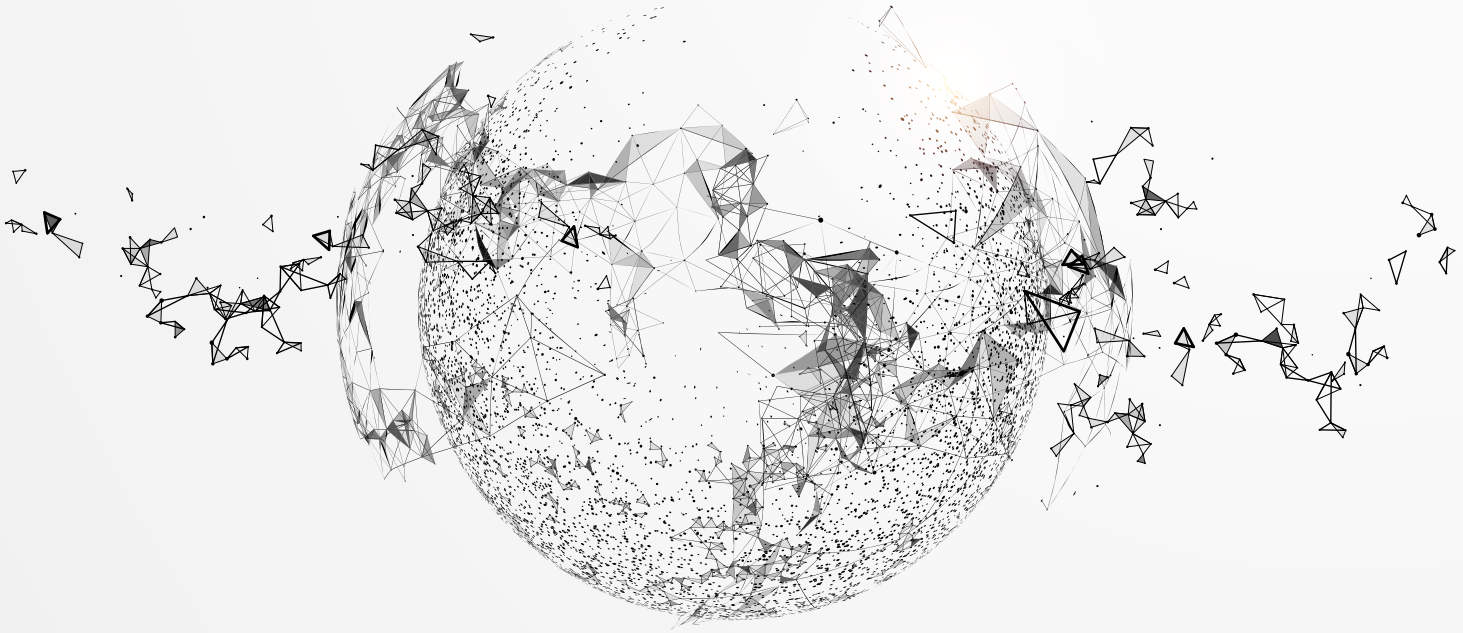
Mitigating Global Fragmentation in Digital Trade Governance

A Case Study

Douglas Lippoldt



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67 Erb Street West
Waterloo, ON, Canada N2L 6C2
www.cigionline.org

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About the Author

Douglas (Doug) Lippoldt is a CIGI senior fellow and an international trade economist based in Claremont, California. He served as chief trade economist at HSBC Global Research from 2014 to 2020. Previously, he served in various roles as a senior economist at the Organisation for Economic Co-operation and Development in Paris, France, during a tenure of 22 years. Doug's early career included seven years as an international economist with the US Department of Labor.

He has published extensively on trade topics as well as on related aspects of economic development, labour market adjustment, innovation and intellectual property. Doug holds a Ph.D. in economics from the Institut d'études politiques de Paris (Sciences Po), an M.A. in international studies from the University of Denver and a B.A. in international studies from Washington College in Maryland. He was a Fulbright Scholar at the University of Cologne, Germany, and a Peace Corps volunteer in Burkina Faso. During 2015–2019, he represented HSBC as the deputy delegate on the Business 20 Trade and Investment Task Force. He is currently a contributing author on a Think20 trade task force team.

Acronyms and Abbreviations

AI	artificial intelligence
APEC	Asia-Pacific Economic Cooperation
B2C	business-to-consumer
CETA	Comprehensive Economic and Trade Agreement
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CUSMA	Canada-United States-Mexico Agreement
DEA	Digital Economy Agreement
DEPA	Digital Economy Partnership Agreement
DPA	Digital Policy Alert
DSTRI	Digital Services Trade Restrictiveness Index
DTA	Digital Trade Agreement
EBOPS	Extended Balance of Payments Services Classification
EPA	Economic Partnership Agreement
EUSFTA	EU-Singapore Free Trade Agreement
GATS	General Agreement on Trade in Services
GTA	Global Trade Alert
ICC	International Chamber of Commerce
ICT	information and communications technology
IP	intellectual property
IPEF	Indo-Pacific Economic Framework for Prosperity
ISIC	International Standard Industrial Classification
IT	information technology
ITU	International Telecommunication Union
JSI	Joint Statement Initiative
MC12	Twelfth Ministerial Conference
OECD	Organisation for Economic Co-operation and Development
RCEP	Regional Comprehensive Economic Partnership
RTAs	regional trade agreements
SMEs	small and medium-sized enterprises
STRI	Services Trade Restrictiveness Index
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UPU	Universal Postal Union
WTO	World Trade Organization

Executive Summary

Digital trade is transforming the international economy. It is changing the way goods and services are brought to market; the nature of products (for example, as many are digitized or hybridized with online features); the manner in which products are developed and produced (for example, via improved data resources and ongoing international collaboration); and the conduct of business operations. Highly digitally intensive services are rising as a share of the overall services export mix. Initially, this expansion was facilitated by light regulation in the international digital economy. However, with growth in this trade over the past two decades, it has come to the attention of regulators. Oversight has increased as regulators seek to respond in an appropriate manner to growing concerns about privacy, consumer protection, cybercrime, administrative transparency and facilitation, and national security matters, among other issues. But, in some cases, the result is an international regulatory patchwork of unnecessary complexity, inconsistent approaches, uncertainty or outright discrimination against foreign suppliers.

A review of recent economic literature underscores the case for addressing increases in digital trade restrictiveness, while tackling related challenges such as those around trust and data issues, two cross-cutting themes currently before trade negotiators. Composite indicators, such as those developed by the Organization for Economic Cooperation and Development (OECD) and the United Nations Conference on Trade and Development (UNCTAD), highlight the extent to which cross-border digital trade remains constrained due to discrimination, regulatory misalignment and capacity limitations, among other impediments. New trade agreements aim to tackle some of these issues. Yet digital inclusiveness remains elusive, posing a challenge for social and economic development. It remains to be seen how effective current-generation trade agreements are in addressing the challenges. Moreover, some of the concerns (for example, postal reliability) go beyond the scope of traditional trade agreements to resolve and will require complementary policy measures.

Illustrative cases of five leading digital economies (Canada, the European Union, Japan, Singapore and the United States) offer insights into their efforts to promote development of a liberal, rules-based framework for governance of digital trade. These economies have employed a multipronged, collaborative approach to advance the work toward an international governance framework for digital trade. They have pursued regional trade agreements (RTAs) addressing some relevant matters, although gaps remain. Provisions vary across the accords. Often, they aim to facilitate digital services trade, discipline some aspects (for example, by prohibiting imposition of customs duties on data transmissions), and promote best regulatory practices and cooperation. In some cases, they provide complementary liberalization measures such as with respect to domestic services regulation or digital economy inputs. Simultaneously, at the World Trade Organization (WTO), the case study economies have pursued with other members a broad work program and supported negotiations for an international accord on e-commerce. This plurilateral (opt-in) accord would focus on digital trade facilitation measures in particular. Such regional and multilateral initiatives may help to push back against some fragmentation risk in the international digital marketplace.

With respect to the case study economies, the analysis highlights a sample of six current-generation RTAs. The paper takes an early look at pre- and post-RTA developments for a small sample of products along certain corridors once an agreement is in place. The results of this illustrative exercise point to above-average growth in some preferential corridors, albeit with some variation. For example, in some cases, there is significant volatility or leads and lags in developments relative to the entry into force of the accords. As more experience is gained with these RTAs, further investigation will be needed to confirm the trade effects.

In light of these developments, and drawing on insights from the present analysis, the paper offers five policy recommendations:

→ Pursue multilateral action, including conclusion of the negotiations under way at the WTO for a plurilateral accord on e-commerce ahead of the next WTO Ministerial Conference in 2024.

- → Facilitate regional action to tackle some controversial matters in relation to service sector market access, data governance and national security exceptions. In order to combat the risk of increased complexity, it will be important for negotiators to consider international standards, guidelines and best practices, as well as successful provisions in existing RTAs.
- → Promote stakeholder advocacy in relation to matters such as consumer protection and facilitation of commerce, as well as insistence upon best regulatory practice. Constructive engagement by stakeholders is needed to promote digital trade policy reforms that correspond well to real needs in the digital economy. Given that the WTO is an intergovernmental organization, advocacy by consumers, business and others is needed to ensure that national governments prioritize relevant actions at the multilateral level.
- → Prioritize data as a cross-cutting policy issue. Policy choices being made may affect stakeholders across the economy. Steps to address data challenges such as security, privacy, access, regulatory alignment and interoperability, among other aspects, will be critical to ensuring continued openness and international digital trade integration within a trusted trading environment.
- → Push back against unilateralism where it negatively affects market openness. As advocated in OECD guidelines, policy makers and other stakeholders should screen proposed domestic regulations carefully to ensure alignment with best practices, international standards and least trade-distorting approaches. With respect to the emerging governance framework for digital services trade, trade openness with appropriate regulatory safeguards and convergence toward international norms will tend to deliver better economic outcomes than more restrictive approaches.

Introduction

With the emergence of the international digital economy, siloed national policy making presents a risk of increased fragmentation and discrimination.[1] Fissures in policy approaches between some trade partners are already evident and may be causing disruption to digital trade in some areas. For example, some economies are imposing stringent data localization requirements (for example, Russia) or potentially onerous content moderation linked to a broad interpretation of essential security interests (for example, China).[2] Yet willing trade partners are nevertheless making stepwise efforts to promote integration in the cross-border digital economy, aiming to improve governance of digital trade via current-generation RTAs (some of which are converging in their handling of certain issues) and via digital trade initiatives at the WTO, including a potential plurilateral agreement on e-commerce.[3] Among partner economies with similar orientations to digital trade governance, RTAs and plurilateral WTO accords can provide a means to go beyond what is currently feasible at the multilateral level at the WTO.

Such steps can help to promote market openness, reduce discrimination on covered trade corridors,

1 Technical references are provided in the footnotes. References from the literature and items cited at multiple points in the text are included in the Works Cited.

2 The Digital Policy Alert (DPA) platform provides illustrative examples of recent actions in both countries. Russian regulator Roskomnadzor reportedly blocked access to Google News on March 23, 2022, due to its coverage of the war in Ukraine (see Reuters, quoted in DPA: http://digitalpolicyalert.org/event/3924-roskomnadzor-blocks-access-to-google-news-due-to-alleged-fake-news-on-conflict-in-ukraine); Roskomnadzor is also reportedly enforcing data localization requirements for international firms doing business with Russian citizens, for example, with an investigation launched on May 27, 2022, against a number of international firms including Airbnb and Apple, among others (see http://digitalpolicyalert.org/event/4905-announced-investigation-into-airbnb-pinterest-likeme-twitch-apple-and-ups-over-alleged-noncompliance-with-data-localisation-requirement). DPA also reports that on October 10, 2022, the Chinese Ministry of Culture and Tourism concluded consultations on a measure for screening online performances for prohibited content (see https://digitalpolicyalert.org/event/6876-consultation-closed-on-regulations-on-online-performances-including-content-moderation-requirements) and that on July 29, 2022, the Cyberspace Administration of China concluded consultations on a regulation now in force concerning standard contracts for the international transfer of personal information (see https://digitalpolicyalert.org/event/5309-closed-consultation-on-cac-provisions-on-standard-contracts-for-the-transfer-of-personal-information). Both actions could potentially be interpreted in a manner that impeded some digital trade.

3 A plurilateral agreement is one covering a subset of WTO members (those that have opted to participate). A multilateral agreement engages all WTO members. The relevant plurilateral initiative in this case was known among participants initially as the Joint Statement Initiative on E-Commerce (or JSI on E-Commerce). The name derives from a joint statement issued by WTO participants to discussions on the topic of e-commerce in December 2017. See www.international.gc.ca/world-monde/international_relations-relations_internationales/wto-omc/electronic-commerce-electronique.aspx?lang=eng.

facilitate digital trade and build trust among users, while offering appropriate consideration of dimensions related to development and inclusivity. Provided they remain WTO-consistent and in line with best regulatory practice, the regional agreements and the proposed WTO plurilateral accord should not unduly impede development of a future multilateral framework for the broader digital economy. The experience gained from developing and implementing the various accords may indeed prove beneficial for the development of a multilateral framework. An eventual multilateral accord would still be a worthwhile objective, having the potential to unlock further trade gains by addressing trade costs that may have emerged due to heterogeneity in regulatory approaches among the RTAs, addressing problems of trade diversion emerging as a result of preferences in RTAs, and closing gaps concerning matters left unaddressed in RTAs and the proposed WTO plurilateral accord (for example, some aspects of market access). Given the breadth of the digital economy, it may be that a new global digital economy institution will be required to ensure a consistent and comprehensive approach to governance, as proposed by some scholars (see Fay and Medhora 2021 and Leblond and Aaronson 2019). This higher goal, however, should not preclude efforts to address in a timely manner the immediate problems challenging consumers, businesses and government with respect to digital trade.

According to the OECD,[4] digital trade might be viewed as encompassing "digitally-enabled transactions of trade in goods and services that can either be digitally or physically delivered, and that involve consumers, firms, and governments."[5] Such transactions entail cross-border movement of data in the conduct of commerce. Data systems are often employed in the delivery of the actual product as data can be integral to the content and products sold (for example, software or streamed entertainment). The OECD notes that digitized information plays a key role in facilitating tangible goods trade via the operation of global value chains and related customs processes. Moreover, data drives modern service supply models in areas such as cloud computing, the Internet of Things and additive manufacturing.

The scale and growth of the internet economy are contributing a welcome dynamism to the global economy. As can be seen in Figure 1, as of 2020, already some 60 percent of the world's population was online in some manner, up from just 31 percent in 2011. Yet, statistically, digital trade is challenging to measure due to gaps in available indicators (Lippoldt 2022). Not all cross-border flows are recorded and identified separately. Businesses may transfer ownership of intellectual assets and associated revenues to low-tax jurisdictions one step removed from the geographic location of the actual trade. Firms may invest in markets to establish local affiliates to service a domestic market or international clients or both, drawing on content, software and methods from across their own international operations and those of partner firms.

Observers do know that the constellation of activities concerning the digital economy is huge and that digital trade constitutes a substantial chunk in the mix. For example, consider e-commerce, consisting of business-to-consumer (B2C) and business-to-business transactions. As of 2019, UNCTAD estimates put total global e-commerce at about $26.7 trillion,[6] equivalent to about 30 percent of global GDP (UNCTAD 2021b; Lippoldt 2022, table 1). The UNCTAD data reveals B2C e-commerce to be nearly $4.9 trillion in 2019, engaging some 1.48 billion online shoppers. Of these, some 0.36 billion (nearly one in four online shoppers) engaged in at least one online purchase from a website abroad requiring delivery from abroad. Cross-border digitally delivered services in 2020 were 2.5 times greater than in 2005.[7] Moreover, many leading retail e-commerce firms have home offices in just a handful of countries from which they are operating and investing internationally.

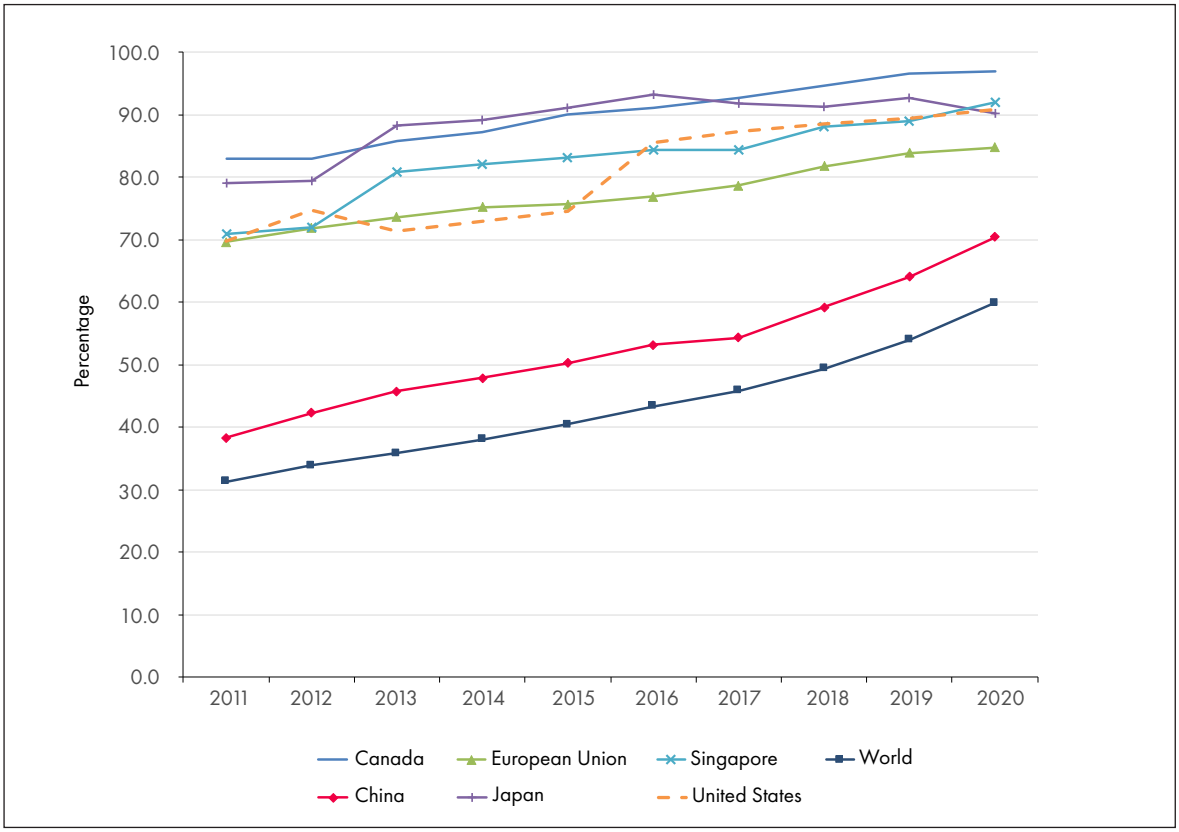
4 The OECD is an intergovernmental, policy-focused institution representing 38 (mostly) advanced economies globally.

5 See www.oecd.org/trade/topics/digital-trade/. For a schematic conceptualization, see OECD, WTO and International Monetary Fund (2019). The *Handbook on Measuring Digital Trade* discussion notes that e-commerce can be defined as digitally ordered trade, a definition focused narrowly on the online sales transaction. This is a narrower concept than the OECD definition of digital trade cited above. In effect, it refers to one component or aspect of digital trade. In the WTO context, e-commerce discussions go beyond this narrow definition to include related elements needed to facilitate this type of digitally ordered trade (for example, touching on cross-border data flows and customs duties, digital payments and e-invoices, among other elements).

6 All dollar figures in US dollars.

7 See UNCTADstat, "Digital economy," https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx. Note that underlying data is in US dollars. Digitally deliverable services include insurance and pensions, financial services, charges for the use of intellectual property (IP), telecommunications, computer and information services, audio-visual services and other business services.

Figure 1: Individuals Using the Internet (% of Population)



Source: World Bank, "World Development Indicators," https://databank.worldbank.org/reports.aspx?source=world-development-indicators#.

Notes: The World Bank defines internet users as "individuals who have used the Internet (from any location) in the last 3 months. The Internet can be used via a computer, mobile phone, personal digital assistant, games machine, digital TV etc." See https://databank.worldbank.org/metadataglossary/millennium-development-goals/series/IT.NET.USER.P2.

As of 2020, among the 13 leading e-commerce retail firms identified by UNCTAD (2021b), seven had headquarters in the United States, four in China, one in Canada and one in Japan.[8] In addition, digital trade often involves the application of new technologies and business methods. And there is a particular geographic concentration in innovation in relation to high-digital-intensity sectors, meaning that imported inputs are generally required in most economies for the digital economy (Lippoldt 2022). Thus, one might expect a sensitivity of digital trade to governance issues that may restrict or facilitate such trade. The potential importance of such governance is underscored by the scale of the potentially affected economic activity.

A Note on Regulation

It should be noted that the objective across the various digital trade policy initiatives considered here is not deregulation. While an accord may, for example, discipline or even prohibit some potentially discriminatory measures or establish a mutually agreed provision to facilitate aligned, rules-based approaches to trade development, there is recognition that regulation can and should play an appropriate and positive role in advancing public interest. In the case of digital trade, for example, cross-border disciplines may be used to promote regulations such as those protecting consumers (for example, from spam) or facilitating legitimate trade (for example, harmonized standards for mutual recognition of e-signatures

8 These 13 firms had a total global turnover of $2.9 trillion in 2020. These tabulations are from Lippoldt (2022, figure 3), based on data from UNCTAD (2021b).

and e-invoices), among other welfare-enhancing policy objectives. As in the case of services more generally — where regulation may aim at correcting market failures in such areas as undue exploitation of asymmetric information, moral hazard or market power associated with economies of scale, among other harms — it is clear that regulation can play a constructive role in the digital economy. As Henk Kox and Hildegunn Nordås (2007, 3) observe in the case of services more generally, "When such regulation successfully remedies market failure, it can lower entry barriers and improve welfare."

However, the pace of change in the digital economy is posing further challenges for regulators and for those navigating the regulatory process, which can lead to inconsistency and shortfalls from best practice. As Sebastien Benz, Janos Ferencz and Hildegunn Nordås (2020) note for services generally, trade impediments can arise not only directly from regulations that constrain the ability to enter and trade in a market, but also from regulatory heterogeneity. Countries may not always give due consideration to best practices emerging elsewhere or to international standards. Also, the pace of regulatory reform and the number of changes may be overwhelming to some stakeholders (for example, small businesses with limited administrative resources); shortcomings in the development of regulations may emerge under such conditions including, for example, a lack of transparency or inadequate public consultation (for example, see Evenett and Fritz 2022). International accords can be employed to manage some of these risks, including with respect to the dynamics of digital trade governance.

Moreover, regulation is not costless, and trade agreements may also seek to rein in unduly burdensome or discriminatory regulation that could hamper legitimate trade in the digital space and thereby weigh on economic performance. Trade policy makers have recognized the need for a balanced approach. With respect to goods and services trade more generally, for example, in 2003, the OECD Trade Committee established the OECD efficient regulation principles for market openness that might provide a reference point for such disciplines (for example, see Tsai et al. 2011). These OECD principles advocate:

- → transparency and openness of decision making;
- → non-discrimination;
- → avoidance of unnecessary trade restrictiveness;
- → use of internationally harmonized measures;
- → streamlining of conformity assessment procedures;[9] and
- → application of competition principles from a market openness perspective.

Similar principles are being integrated in some of the current generation of international accords to promote and facilitate digital trade.

Overview

Using a sample of five case study economies (Canada, the European Union,[10] Japan, Singapore and the United States) to highlight a sample of six current-generation RTAs (the Canada-United States-Mexico Agreement [CUSMA], the Comprehensive and Progressive Agreement for Trans-Pacific Partnership [CPTPP], the Digital Economy Partnership Agreement [DEPA], the EU-Japan Economic Partnership Agreement [EPA], the EU-Singapore Free Trade Agreement [EUSFTA] and the US-Japan Digital Trade Agreement [DTA][11]), this paper posits that such agreements can help to push back against potential fragmentation associated with unilateral national regulatory measures and promote convergence in areas relevant to digital trade. It points to evidence that RTAs engaging these economies are emerging as a channel for convergence in the handling of some aspects of digital trade governance on a number

9 Regulatory mutual recognition agreements are one means for trading partners to facilitate conformity assessment. These can be supportive of merchandise trade relevant to the digital economy. For example, the EU-US Agreement on Mutual Recognition entered into force in 1998 and covers regulations concerning telecommunication equipment, electromagnetic compatibility, electrical safety, recreational craft, pharmaceutical good manufacturing practices and medical devices. The agreement has evolved through updates and decisions in the period since. See https://ustr.gov/archive/World_Regions/Europe_Middle_East/Europe/1998_US-EU_Mutual_Recognition_Agreement/Section_Index.html.

10 Coverage of the European Union reflects the membership of 27 nations as of February 2020. Where EU-wide indicators are not available, the analysis focuses on EU members France and Germany to illustrate developments. These two members were selected for inclusion here in light of their large shares in the EU economy and the availability of data.

11 See Table 2 for details on entry into force and membership rosters for these accords.

of economically important trade corridors. While a fragmentation risk persists at the global level, the convergence among these RTAs helps to push back against such risk. The paper takes an early look at pre- and post-RTA developments for a small sample of products along certain corridors once an agreement is in place. It also notes that the case study economies remain engaged at the multilateral level, participating in the various WTO digital trade initiatives that build on the foundation of the WTO General Agreement on Trade in Services (GATS).[12]

The paper proceeds as follows. It first sets the stage with an illustrative literature review on the economic case for addressing digital trade restrictiveness, and on trust and data issues (two cross-cutting themes currently before negotiators). It then highlights the need for trade policy action in light of empirical indicators of impediments to digital trade and its importance to business, taking account of the position of the case study economies. The paper then considers recent steps by trade policy makers in the case study economies to push back against fragmentation at the regional level and at the WTO, facilitating digital trade while promoting improved trust in the system. On an illustrative basis, subsequent export performance is then assessed statistically, focusing on a selection of high-digital-intensity service sectors and preferential trade corridors. The paper concludes with ideas for next steps in digital trade policy reform.

Literature Review

The development of conditions for robust digital trade performance is a complex undertaking, as highlighted by Andrew D. Mitchell and Neha Mishra (2020). It remains to be seen just how effective current-generation RTAs will be in this task. However, there is also evidence emerging in the literature of the cost of rising impediments to digital trade and some preliminary evidence that earlier trade accords engaging primarily OECD countries and relevant to digital trade are associated positively with some relevant measures of economic performance.

Much of the recent trade policy effort has focused on pragmatic steps in such areas as improving transparency in administrative processes; protecting consumers; maintaining duty-free treatment for digital transmissions; establishing conditions for the free flow of data; facilitating transactions; and digitization of customs procedures, among others. In current efforts to deliver tangible results for governance of digital trade, two cross-cutting themes in the literature and on negotiators' agendas concern establishment of a trusted environment for the conduct of digital trade for consumers, business and governments, and the governance of data with respect to issues such as privacy, access and cross-border transfer.[13]

Based on a sample of the literature, the economic evidence, trust and data matters are addressed in turn as an underpinning for the subsequent treatment of related issues in the case study analysis.

Economic Evidence on Trade Policy and the Digital Economy

Mitchell and Mishra (2020) argue that digital trade growth depends on improved digital interconnectivity across borders. This digital integration requires reduction of digital trade barriers, digital trade facilitation, digital trade regulatory frameworks and digital trust policies; digital development and inclusion for smaller firms and disadvantaged segments of the population; and institutional coordination. They argue that preferential trade agreements do not generally tackle interconnectivity across borders in a holistic fashion, focusing primarily on reduction of digital trade barriers and digital trade facilitation over the other elements. For example, Mitchell and Mishra note that effective digital development and integration would need to address disparities among people and among firms between rich and poor nations and within any given economy. They point out that concrete measures to address these shortfalls could be included in trade agreements, possibly as binding provisions, including technical assistance and capacity building; longer transition periods for developing countries (especially

12 For the WTO foundational documents that include the GATS text, see www.wto.org/english/docs_e/legal_e/legal_e.htm-services.

13 These issues were recurrent themes, for example, at the recent WTO Public Forum held September 27–30, 2022, in Geneva, Switzerland (see www.wto.org/english/forums_e/public_forum22_e/public_forum22_e.htm) and also in several webinar reviews following the WTO's Ministerial Conference in June 2022 (see, for example, Trade Policy Exchange 2022 and Hinrich Foundation 2022).

least developed countries) to phase in regulatory reforms; support for digitalization of micro, small and medium-sized enterprises (SMEs); and digital skills education, especially provision of support to minorities.[14] A similar concrete approach could be employed for further measures in the areas of digital trade regulatory frameworks and digital trust policies, as well as for institutional coordination.

Where bilateral digital connectivity has improved, trade has tended to respond. There is some evidence that RTAs can play a significant complementary role. For example, Javier López González and Janos Ferencz (2018) employ a gravity model to assess the relationship between digital connectivity and trade. On average, they found that a 10 percent increase in bilateral digital connectivity (defined in terms of share of the population that uses the internet) is associated with an increase in goods trade of nearly two percent. The association is greatest for sectors such as electrical equipment, miscellaneous manufacturing, machinery, motor vehicles and plastics. It is higher among developed countries than developing countries, pointing to the need to address inclusiveness issues for developing countries.[15] The authors found that trade policy has a role to play in further enabling a trade response. When combined with an RTA, a 10 percent increase in bilateral digital connectivity corresponds to an increase in merchandise exports that is 2.3 percentage points greater on average. That is, the combination of improved digital connectivity and an RTA is associated with additional gains to trade. Also, the authors found a similar responsiveness of services exports to digital connectivity in most sectors. The effect is greatest in service sectors where products can be digitized. The authors found that a 10 percent increase in internet usage between countries is associated with a 3.2 percent increase in exports of postal and telecommunications services. Such an increase in digital connectivity was associated on average with increases of more than 2.5 percent in exports for computer and related activities, other business services, health services and education services.

Moreover, there is also evidence that impediments to digital trade can be costly for the economy. Nigel Cory and Luke Dascoli (2021) highlight the rise in policy measures in force that impose data localization requirements and restrict data flows. Drawing on OECD product market regulation data and EU KLEMS[16] indicators of sectoral data intensity, they develop a composite indicator for data restrictiveness. The resulting indicator is available at five-year intervals for 28 countries for the period 1998–2018. Using regression modelling, Cory and Dascoli consider the relationship between data restrictiveness and indicators for economic performance. The authors found that a one-point increase in a nation's data restrictiveness over five years is associated with a seven percent reduction in the volume of gross output traded, a loss of 2.9 percent in total factor productivity and hikes in downstream prices of 1.5 percent.

Trust

Susan Ariel Aaronson (2021) underscores the importance of trust for users of the online economy, including in regard to data flows. She references Francis Fukuyama's view that "Trust is the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of that community" (Fukuyama, quoted in Aaronson 2021, 1). For digital trade, RTAs might be expected to have a role to play in supporting such trust. And, indeed, Aaronson's review of a sample of RTAs found that among seven recent accords, there was progress in setting rules governing cross-border data flows.[17] For example, each of the reviewed accords except for the Regional Comprehensive Economic Partnership (RCEP) provided for enforcement of domestic laws regarding privacy, consumer protection and spam. However, with respect to explicit mentions

14 Some of these issues are relevant to the UNCTAD B2C e-commerce indicator discussed in relation to Figure 4 below.

15 The UNCTAD indicator presented in Figure 4 is based on four elements that UNCTAD considers as key for capacity to engage in e-commerce: account ownership at a financial institution or with a mobile money service provider (% of population ages 15+, based on data from the World Bank); individuals using the internet (% of population, based on data from the International Telecommunication Union [ITU]); postal reliability index (based on data from the Universal Postal Union [UPU]); and secure internet servers (per one million people, based on data from Netcraft retrieved via the World Bank). These four elements are complementary to steps to improve digital market openness.

16 EU KLEMS is an EU research project focused on industry-level growth and productivity studies concerning capital (K), labour (L), energy (E), materials (M) and services (S) inputs. See https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/eu-klems-capital-labour-energy-materials-and-service_en.

17 RCEP is an accord among the 10 Association of Southeast Asian Nations members and five of their prior free trade agreement partners: Australia, China, Japan, New Zealand and South Korea. Aaronson considers the enforcement of the CPTPP, the US-Japan DTA, the CUSMA, the DEPA, the Australia-Singapore DEA, the EU-UK Trade and Cooperation Agreement, and the RCEP.

of trust and regulations banning divulgence of encryption, several of the accords fell short in each case. Among the RTAs that she examined, only DEPA and the Australia-Singapore Digital Economy Agreement (DEA) include provisions covering both areas as well as the enforcement of domestic laws regarding privacy, consumer protection and spam.

Aaronson notes that across her sample of accords, trust could be better served. There are limitations in that the accords are subject to exceptions; lack specification of means to ensure interoperability among national systems for protection of personal data; lack concrete terms for protection of cybersecurity; and fail to address issues such as censorship, internet shutdowns, ransomware and distributed denial of service attacks. Among her recommendations are that trade agreements should address trust issues by educating users on how to work safely online; developing internationally accepted strategies to protect personal data, thwart cross-border spam and malware, and protect consumer welfare; and disciplining internet shutdowns as a barrier to trade. She also advocates national and international channels for internet users to provide feedback to policy makers in the formulation of future digital trade rules.

Dan Ciuriak and Robert Fay (2022) also point to the role that RTAs can play in building trust, highlighting the positive example of the DEPA. They note that the DEPA builds on the CPTPP in a consistent manner and addresses concrete digital trade issues with modules covering such topics as business and trade facilitation, the treatment of digital products and related issues, data issues, the wider trust environment, business and consumer trust, digital identities, emerging trends and technologies, innovation with respect to the digital economy, and general exceptions and essential security interests. Cross-cutting issues such as standards, cooperative mechanisms and interactions with other trade agreements are also addressed. In advocating Canadian membership in the DEPA, Ciuriak and Fay note that it provides a forum for dealing with emerging issues in digital trade, creating a platform for cooperation, expansion of coverage to new members and further accords as needed.

A related quality in the handling of trade policy is transparency, which can be supportive of trust. This aspect is often of particular concern to business, but relevant to other stakeholders as well. Markus Krajewski (2014) points out that transparency is a general principle stipulated in GATS (article III) with respect to fair and equitable treatment and stakeholders' legitimate expectations concerning stability, predictability and consistency. At the same time, according to the GATS preamble, WTO members recognize the right of members to regulate, and to introduce new regulations on services. Regulations must be sufficiently flexible to react to new challenges and changes of societal values or policy choices. Krajewski argues for balance in that any such changes should be implemented via open and predictable processes while respecting the need to avoid placing undue burdens on regulatory flexibility.

Data

Michel Girard (2020) highlights the tension in the real economy that emerges from the lack of an agreed mandate for an international organization to coordinate the development, maintenance and use of policy-oriented standards covering data governance. There is a gap due to the lack of an agreed international road map or guidebook for market participants. Entities such as the International Organization for Standardization and International Electrotechnical Commission, as well as the Institute of Electrical and Electronics Engineers, have contributed to the development of standards with respect to some aspects of data management and governance. But this is a work in progress, and complementary initiatives are under way via national governments in some countries as well as various private sector actors. Girard considers the elements that a proper data governance framework would need to address, ranging from the scope (types of data covered) to accountability; data ownership; IP licensing and copyright; data access, sharing, retention and disposal; data collection; data analytics (including the use of artificial intelligence [AI]); data residency and limitations; privacy, ethics and trust; and standards approval and implementation mechanisms; as well as compliance, verification and certification. While Girard's policy brief is focused on Canada's institutional framework, it underscores data governance challenges relevant to the international digital economy and the piecemeal architecture that is emerging.

Patrick Leblond and Susan Ariel Aaronson (2019) have highlighted the importance of open data flows for smaller economies such as Canada in order to access the amount of high-quality data needed to support a data-driven economy. However, there is a

"data trilemma" facing a small economy seeking to enjoy free cross-border flows of data, a high-trust data environment and a national data protection regime. Their solution would be to establish — with key partners such as the European Union, Japan and the United States — a single data area governed by an international data standards board ensuring openness, shared core standards and adequate protection for users. Canada has managed to satisfy EU and US access requirements, but there is uncertainty among all three partners that this can be sustained as the partners further develop their data regimes. The authors argue for this to be developed outside of the WTO due to that organization's lack of expertise on data protection standards and the risks associated with exceptions in trade agreements; due to the institutional flexibility afforded by a stand-alone agreement (for example, to adapt to technological change); and due to the positions of some WTO members such as China and Russia that have very different data protection regimes. In their view, such an arrangement might be situated in a new standards body for data regulation. But an alternative might be to anchor this activity in an existing institution such as the OECD.

Leblond (2019) highlights the tensions for policy makers in making trade agreements that aim to generate economic benefits by protecting free flow of data across borders and at the same time provide a high-trust environment for individuals, firms and governments engaged in the digital economy. They may also seek to ensure that national regulations affecting data flows are not disguised protectionist measures that discriminate against foreign providers of digital goods and services in favour of domestic ones. Core principles of national treatment, most-favoured-nation status and transparency often apply here. But there may be uncertainty concerning the scope of regulatory exceptions and the absence of internationally agreed standards. Where such matters are subject to dispute resolution procedures, panels may decide whether to take a permissive stance (with substantial national policy space but risking the free flow of data), or they may turn to limiting the scope of national policy (but risking undermining trust in data-driven markets). For this reason, Leblond (ibid.) argues that existing trade agreements and the WTO's possible agreement on trade-related aspects of electronic commerce are unlikely to be effective instruments for promoting international trade in digital goods and services. Leblond (ibid.) and Leblond and Aaronson (2019) suggest that establishment of a single data area with its own standard-setting and monitoring body might impartially establish a balanced set of rules governing international trade in digital goods and services.

Erik van der Marel (2021) points to the competing regulatory models for governance of international flows of personal data:

- the US model, which is based on openness to transfer and process data subject to baseline privacy principles and limited rights for data subjects via consumer protection rules;
- the EU model, which employs conditional transfers and processing, based on data subject consent, corporate codes of conduct and destination country data protection adequacy determinations (*ex ante* determination); and
- the Chinese model, which has restrictions generally requiring data localization or *ex ante* authorization by government of any transfers based on a security assessment.

Van der Marel author finds that the US approach may help to minimize trade costs, whereas the EU model may best create trust. Both help to promote digital services trade. The EU approach of regulatory cooperation and the ability to issue determinations of regulatory adequacy in data protection can also help to facilitate the trade: an adequacy determination can boost digital services trade by a margin of around five to six percent for EU trade partners.[18] He notes that the Chinese approach to data control generally appears to constrain development of digital services trade.

Digital Trade Integration

Economic Policy Orientations

Digital trade is transforming the international economy. It is changing the way goods and services are brought to market; the nature of products (for example, as many are digitized or

18 Van der Marel (2021) cites this point with reference to Ferracane and van der Marel (2021).

hybridized with online features); the manner in which products are developed and produced (for example, via improved data resources and ongoing international collaboration); and the conduct of business operations. The international digital economy was initially lightly regulated. However, over the past two decades, it has come to be the focus of increasing regulation. Often regulators are seeking to respond in an appropriate manner to growing concerns about privacy, consumer protection, cybercrime and national security matters, among other issues, taking account of international standards, guidance and best practice, as well as considering the experience from existing accords. But, in other cases, unduly trade-distorting provisions may emerge from unilateral or poorly coordinated international processes. The result can be a costly regulatory patchwork of unnecessary complexity, inconsistent approaches, uncertainty or outright discrimination against foreign suppliers.

In principle, many trade economists have tended to prefer inclusive, multilateral approaches to trade governance where feasible, as multilateralism has been regarded as having the best opportunity to minimize discrimination and address distortions in an inclusive, comprehensive fashion. This would generally deliver larger welfare gains than would be feasible under more limited approaches.[19] However, achievement of a multilateral trade accord generally requires consensus, and negotiation of such accords has proven to be a slow, painstaking endeavour in recent decades, whereby success is not guaranteed.[20]

As noted above, RTAs may take alternative regulatory approaches leading to heterogeneity and can be trade diverting, distorting trade patterns and introducing costly friction in the ability to trade with third parties (Viner 1950). However, provided the reformers strive to employ best regulatory practice and ensure WTO consistency, recourse to liberal RTAs may be a useful second-best form of liberalization, pending development of conditions that make a multilateral accord feasible.[21] Conclusion of an RTA does not preclude development of a future multilateral accord establishing a more comprehensive global framework for digital trade or, more broadly, the digital economy. Economically speaking, it makes sense in the digital economy to ultimately aim for a global, rules-based, inclusive governance framework that offers some flexibility in light of a nation's particular challenges, such as its level of economic development or geographic situation.

RTAs: Pushing Back against Fragmentation?

Despite a global rise in restrictive measures targeting digital trade in recent years (Evenett and Fritz 2022), reformers continue to push back by seeking to develop new disciplines, appropriate regulation and facilitation measures via RTAs and the WTO Work Programme on E-Commerce. Some new agreements are already in force. Others are under negotiation. If appropriate care is taken to follow best practice and ensure WTO consistency, the cumulative achievement has the potential to provide a basis for addressing important gaps and impediments in the present governance framework. If successful, the result could be a more efficient, competitive and responsive environment for digital trade, including digitally enabled transactions for traditional goods and services as well as cross-border trade in digital products.[22] Success in the realization of such a reform agenda may have the potential to provide a countercurrent to the emergent fragmentation in parts of the digital economy.

The following analysis takes stock of the current state of play globally with respect to certain dimensions of market openness for digital trade, and with particular regard to the case study economies. Issues of current stakeholder concern are noted. The analysis focuses on recent trade accords of the case study economies that address a range of digital trade matters. Points of convergence relating to facilitation of digital trade are noted,

19 For example, see Warwick J. McKibbin (1997) as an illustration of research highlighting the economic advantage of a multilateral trade accord.

20 For example, the WTO's Doha Development Agenda negotiations, launched in 2001, failed to deliver a comprehensive multilateral accord as was envisaged by ministers in their declaration. See WTO, *Ministerial declaration*, WTO Doc WT/MIN(01)/DEC/1 (2001), online: WTO <www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm>.

21 For example, see Judit Fabian (2020) as an illustration of research highlighting the potential to use RTAs in a Canadian context pending future participation in a multilateral accord.

22 Beyond digital services trade governance, there are further opportunities for complementary trade and investment reforms that would also facilitate the functioning of the sector. For example, market openness for inputs employed by the digital economy would help, including elements ranging from rare earths to electronics hardware and repair technicians, among others, as noted by Simon J. Evenett and Johannes Fritz (2022).

as well as a persistence of areas of divergence. (The analysis builds, in part, on conclusions from an earlier CIGI paper by the author [see Lippoldt 2022]). As the selected trade accords are now in force,[23] the paper considers the structure of services trade for the case study economies and the evolution of exports in high-digital-intensity service sectors, including examples of performance on certain preferential corridors. This is done on an illustrative basis to highlight export performance of digitally intensive sectors among those trade partners that are developing closer trade relations, considered in a manner relative to their overall export performance. It is not intended to be a demonstration of causality, but rather to highlight potential trade responsiveness over time, a development that may merit further research.

Impediments to Digital Trade Integration

The assessment now turns to consider the fragmentation risk posed due to developments (or lack thereof) that constrain digital trade integration. For this illustrative case study, four indicators are considered:

- counts of policy interventions taken with respect to the digital economy as tracked by the teams at Global Trade Alert (GTA) and DPA;
- the OECD's Digital Services Trade Restrictiveness Index (DSTRI);
- the OECD's sector-specific Services Trade Restrictiveness Index (STRI); and
- UNCTAD's B2C E-commerce Index.

Counts of Policy Interventions

The teams at GTA and DPA recently published an assessment, *Emergent Digital Fragmentation*, which considers government interventions in the virtual economy (Evenett and Fritz 2022). As of the end of 2019, they found 5,857 government policy interventions in place that harmed foreign interests in the digital economy. By December 2021, the number of discriminatory measures in force had reached 6,791. And these numbers do not include subsidies. In contrast, as of December 2019, just 1,576 trade and investment liberalizing reforms were in place in support of the digital economy.

The actions highlighted in Evenett and Fritz (2022) affected a range of final goods and services associated with the digital economy, as well as inputs at various stages of the supply chain (for example, lithium, rare earths and semiconductors). The measures take various forms ranging from traditional commercial policy interventions (for example, tariffs, anti-dumping measures), to behind-the-border measures (for example, public procurement, localization requirements), and foreign direct investment measures. The authors note that much of the recent policy action is in data governance. Key data issues include data protection, cybersecurity and governance of data protection authorities. Action is also taking place with respect to digital content (for example, content moderation, user speech rights), competition, taxation and IP protection, among other areas.

Regardless of the liberalizing or constraining effect of an intervention, the sheer volume of changes affecting digital services trade and related matters can be a challenge for businesses to navigate. The turbulence in policies is a particular problem for SMEs that may lack the administrative capacity to track and respond to the changes. For the case study countries and China, Table 1 draws on DPA tracking data to highlight the number of digital trade-related policy interventions under formal consideration or implemented for the period since December 2019. Among the leading economies for digital services trade, these jurisdictions also fall within the top quintile for the volume of policy interventions affecting digital trade. DPA does not qualify each action as to the anticipated trade effect (for example, it does not indicate whether trade effects are positive, negative, large-scale or small). The data is presented in this paper simply to provide an indication of the large number of changes confronting businesses over this recent 30-month period.

The OECD's DSTRI

The OECD's DSTRI provides a useful indicator of cross-cutting regulatory and policy impediments to the conduct of this type of trade. It considers measures that affect infrastructure and connectivity (i.e., regulatory aspects such as the use of best practice in regulating interconnections, access to communication services, and policies affecting connectivity including cross-border data flows

23 These are presented in Table 2. The table covers six RTAs that are in force. As a memo item, the table notes one regional initiative (not a trade agreement) that is still under development and not yet in force.

Table 1: Policy Interventions Affecting Digital Trade (Actions under Formal Consideration or Implemented, January 1, 2020–July 18, 2022)

Case Study Countries	Number of Actions Identified	Global Rank, by Volume of Activity (among 236 Economies)	Top Policy Area, Number of Actions in the Area and Recent Illustrative Examples
Canada	66	34	Data governance (26 actions): for example, adopted a road map (not yet implemented via law) for establishment of data governance standards to ensure quality of data; trust and security with respect to handling and use of data; and ethics with respect to AI data tools and more.
France	259	3	Data governance (104 actions): for example, adopted a recommendation on use of logging tools by data processors and controllers.
Germany	268	2	Data governance (99 actions): for example, adopted a five-year cybersecurity strategy including assignment of law enforcement responsibilities.
Japan	46	36	Data governance (22 actions); for example, adopted cybersecurity recommendations concerning financial institutions in order to manage risks, detect incidents and facilitate recovery.
Singapore	44	37	Data governance (20 actions): for example, adopted a cybersecurity tool kits and partnership program for enterprises — especially SMEs — to prevent ransomware attacks and support digital economic development.
United States	526	1	Data governance (234 actions): for example, a rapid reporting requirement entered into force for critical infrastructure controllers and civilian federal agencies experiencing a significant cyberattack.
For comparison:			
China	144	30	Data governance (62 actions); for example, a requirement entered into force for critical information infrastructure and network platform operators to undergo an official cybersecurity review (for example, for risk of illegal control, service interruption or data theft) if they plan to purchase products or services that may affect national security, or if they manage large amounts of personal data and plan to engage in public listing abroad.

Source: DPA, "Activity Tracker," https://digitalpolicyalert.org/activity-tracker?offset=0&limit=10&period=2020-01-01&period=2022-07-18/; author's tabulations.

Notes: The activity data may vary over time as the DPA team collects further information. To the extent that the actions are effective, they may be trade enhancing or trade inhibiting. DPA does not currently provide an evaluation of the likely effects on trade for each action. Also, note that while many of the tracked actions are unilateral, some of the actions engage multiple economies.

and data localization); electronic transactions (for example, discrimination in licensing or tax matters); access to payment systems; IP rights (appropriate copyright and trademark protection); and other barriers affecting digitally enabled services (for example, mandatory technology transfer or streaming limitations). This selection of measures reflects OECD and subject area expert consideration of those trade-related factors that may pose a binding constraint on some aspect of digital services trade.[24] (Note that full resolution of some related challenges in digital services trade may go beyond the scope of current-generation RTAs. For example, addressing regulatory challenges with respect to infrastructure may not be sufficient to ensure adequate investment in infrastructure capacity, a matter not typically covered in a trade agreement.) The DSTRI is scored based on empirical indicators for specific regulatory elements, which are then combined using weights that were developed based on expert judgment (collected using a survey methodology). The index is scored from zero (a completely open market) to one (a completely closed market).

The 2021 global results for the DSTRI are presented in Figure 2 and are quite striking in terms of the contrasting results by region. The advanced economies as represented by the OECD — including the case study economies — tend to offer significantly greater digital services market openness than developing countries and emerging markets. All of the case study economies covered by the DSTRI scored better than the OECD average (Singapore is not yet covered). Overall, according to the OECD, Canada has the best score in the entire DSTRI sample, delivering top-notch performance in each of the five policy areas of focus for the index. Globally, among the five policy areas covered by the DSTRI, infrastructure and connectivity accounted for much of the burden facing firms in the sector.

The DSTRI dynamics for the period since 2014 reflect a deterioration in market access for digital services trade on balance. Here again, infrastructure and connectivity impediments contributed much of the increase in the average scores, overwhelming very modest average improvements in the areas of electronic transactions and IP rights in some countries. Market access for the OECD countries on average declined by slightly more than for developing countries. China, a key counterpart for OECD countries with respect to information technology (IT) development, increased its already high level of burdens on digital services trade. Among the five case study economies, Japan and France delivered incremental losses in market access by raising barriers. In contrast, Canada made a positive policy step, addressing its remaining impediments for electronic transactions as measured by the DSTRI.

The OECD's STRI

Steps to address the cross-cutting digital services trade restrictions may not be sufficient for digital trade to enjoy rapid growth. Further complementary sector-specific measures may be needed. In the first place, even where the impediments to digital services trade are addressed, significant barriers to market access may remain under the domestic services regulatory regime for specific sectors. To gauge this aspect, the assessment now shifts to consider a major complementary indicator to the DSTRI; that is, the OECD's STRI. These indicators consider impediments to access in domestic services markets, taking into account five types of restrictions: restrictions on foreign ownership; restrictions on movement of people; barriers to competition; regulatory transparency; and other discriminatory measures (for example, performance requirements). For each sector covered, an index is developed and scored between zero (a fully open market) and one (a fully closed market). A sector score above 0.1 is considered to reflect meaningful impediments to services trade and between 0.2 and 0.3 to reflect significant trade restrictions.[25]

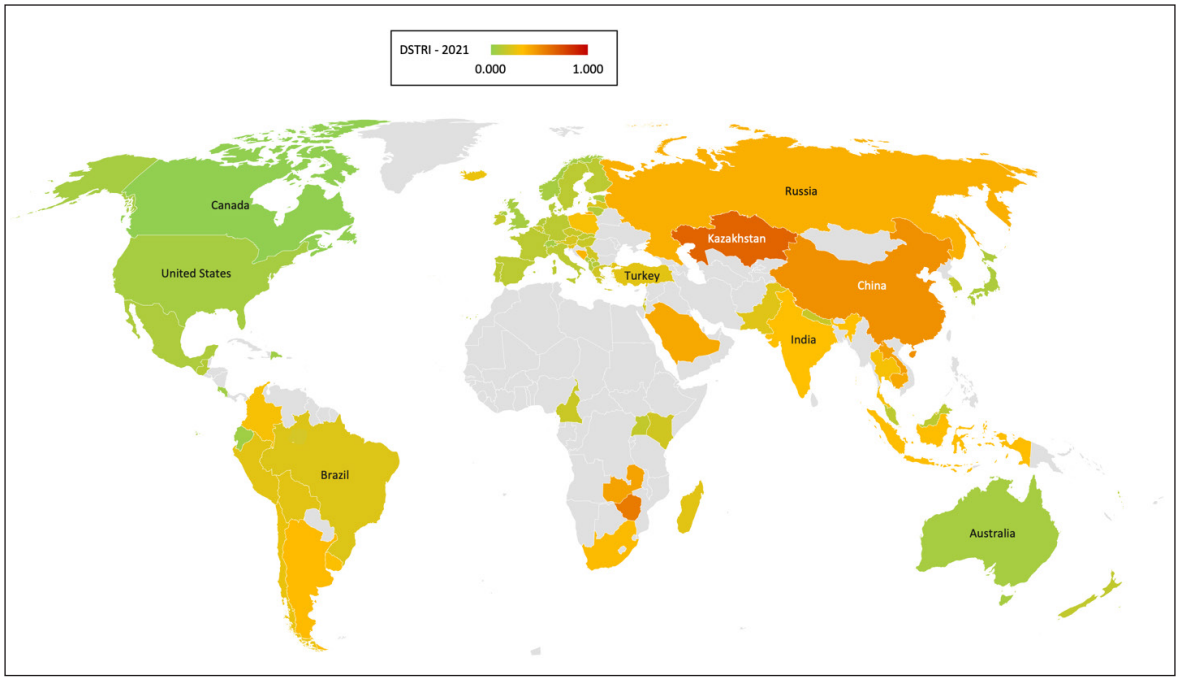
Based on an OECD taxonomy of sectors by their digital intensity, the author selected for closer examination eight high-digital-intensity sectors covered by the OECD's STRI: accounting, architecture, engineering, legal services, telecommunications, commercial banking, insurance and computer services. The index scores are used here to assess the relative domestic services market openness of the case study economies and the broader sample of countries covered by the OECD team.

Figure 3 presents averages and Table A2 in the Annex presents the detailed scoring for these

24 For a more detailed discussion of the methodological background to the DSTRI, see Ferencz (2019).

25 See OECD (2014, 5).

Figure 2: The OECD's DSTRI (2021)

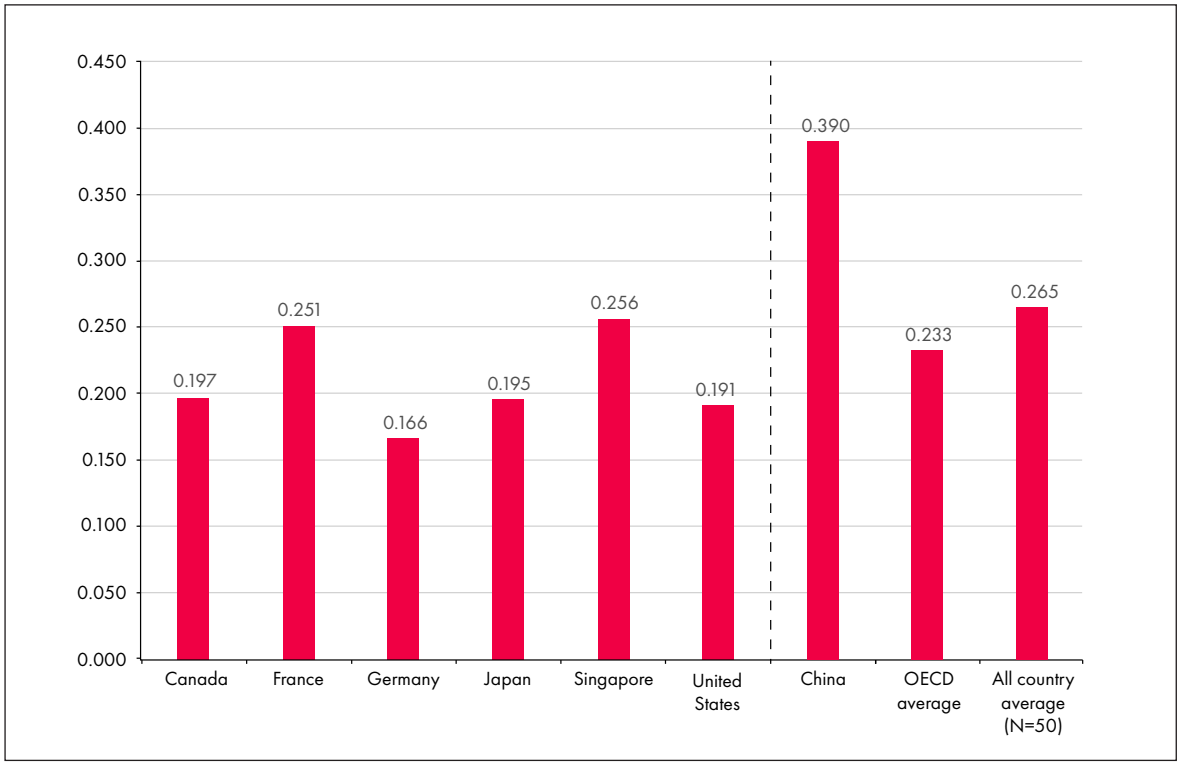


Sources: OECD Going Digital Toolkit, "OECD Digital Services Trade Restrictiveness Index," recently updated to 2021 for OECD members and Brazil, China, India, Indonesia and South Africa (https://goingdigital.oecd.org/indicator/73); for other countries highlighted in the map, the scores are held constant from 2020 (see "Digital Services Trade Restrictiveness Index," available as a menu option at https://stats.oecd.org/Index.aspx?DataSetCode=STRI).
Notes: The OECD DSTRI is an indicator based on an established peer-reviewed methodology for characterizing regulations and their cumulative effect, taking into account five specific areas of digital market openness (Ferencz 2019). The areas are infrastructure and connectivity; electronic transactions; payment systems; IP rights (copyright, trademark and enforcement provisions); and other barriers affecting trade in digitally enabled services (for example, performance requirements affecting digital trade). For further discussion, see Lippoldt (2022). The DSTRI scores range from zero to one. A market closed to digital trade would score one; a market fully open would score zero. The average score for countries covered is 0.198. The DSTRI sample presented in the map covers 74 countries, reflecting newly expanded coverage; alas, Singapore is still not among those covered.[26]

sectors. On average for the entire sample, there has been a slight deterioration in market access since 2014. Across the board, the sectors are mostly subject to meaningful or significant market access limitations for the sample as a whole and for the case study economies. The only clear exception is for engineering services in Japan, which has a score below the meaningful restriction threshold. The scores for a few other sectors are marginally above the threshold for meaningful restrictiveness, such as telecommunications in Germany and insurance in France. On a positive note, four of the case study countries have made some incremental progress in reducing average impediments. Germany is the only laggard — it has seen some reduction in market access in each sector as measured by the OECD. China has improved its average offering of market access more substantially than the case study countries and the sample as a whole, yet, on average, the scores for China remain quite elevated in comparison to the OECD countries.

26 However, it is worth noting that in pursuing its digital trade policy agenda, Singapore is prioritizing a broad range of issues that highlight its liberal agenda. For example, in the new Singapore-Korea Digital Partnership Agreement signed on November 21, 2022 (see www.mti.gov.sg/Trade/Digital-Economy-Agreements/KSDPA), the Singapore Ministry of Trade and Industry points to features including e-payments acceptance, paperless trading (administration), trusted cross-border data flows, prohibiting data localization, cross-border AI collaboration on ethics and governance, promotion of interoperability of digital identity regimes, supporting connection of SMEs to business opportunities, online consumer protection against fraud, source code protection, cryptography protection and open government innovation.

Figure 3: Average OECD STRI Scores for Eight High-Digital-Intensity Service Sectors (2021)



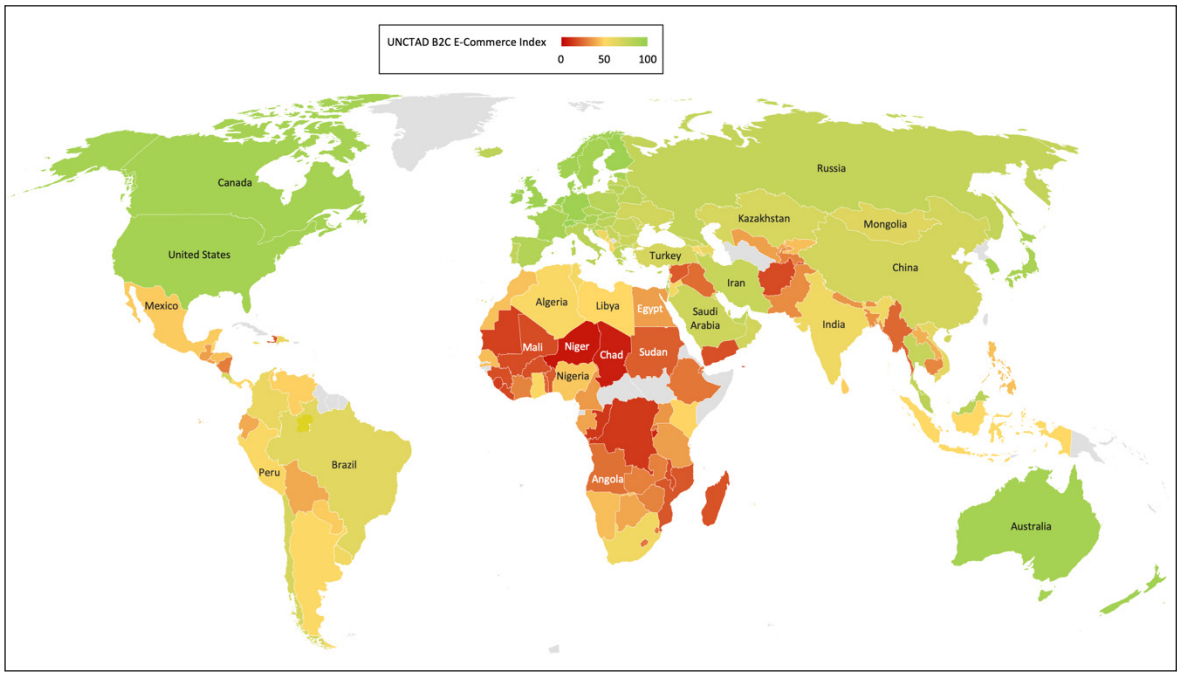
Source: OECD.stat, "Services Trade Restrictiveness Index," https://stats.oecd.org/Index.aspx?DataSetCode=STRI; author's tabulations.

Notes: High-digital-intensity service sectors were determined using a taxonomy prepared by the OECD (Calvino et al. 2018). These include accounting, architecture, engineering, telecommunications, commercial banking, insurance and computer services. The averages were calculated as simple averages using equal weights for sectors and for countries. See Table A2 in the Annex for detailed scores.

Among the sectoral services trade restrictiveness indicators, the impediments for access to foreign supply of computer services and telecommunications services may be particularly disruptive to the digital economy. For obvious reasons, there are spillovers. Constraints on computer services and telecommunications burden delivery of such services for use in other sectors that employ computers and move data. As a recent study by the OECD, the UN Economic Commission for Asia and the Pacific, the UN Economic Commission for Africa, and the UN Economic Commission for Latin America and the Caribbean noted,[27] substantial bottlenecks in the computer services sector are caused by barriers affecting the cross-border movement of computer professionals, restrictions on foreign supplier access to public procurement markets, and restrictions affecting foreign investment such as localization or performance requirements. With respect to telecommunications, barriers related to the supply of communications infrastructure and connectivity contribute to at least half of all barriers observed in all regions as measured by the DSTRI. Moreover, the study concluded that lower restrictiveness to digital trade (as measured by the DSTRI and by the computer services sectoral services trade restrictiveness indicator) is associated with higher access and use of communication networks and increased trade in digitally enabled services.

27 The reference for the study is Ferencz et al. (2022).

Figure 4: UNCTAD B2C E-commerce Index (2020)



Sources: UNCTAD (2021a); author's tabulations; Microsoft Bing mapping.
Notes: The UNCTAD index measures an economy's preparedness to support online shopping. Scores can range from 100 (high preparedness) to zero (low preparedness). The average score for countries shown is 54.9. The UNCTAD team calculates the index as the average of four equal-weighted indicators: account ownership at a financial institution or with a mobile money service provider (% of population ages 15+) (from the World Bank); individuals using the internet (% of population) (from the ITU); postal reliability index (from the UPU); and secure internet servers (per one million people) (from Netcraft retrieved via the World Bank). The data in the current index refers to 2019 or the latest year available. The sample presented in the map covers 152 economies.

UNCTAD B2C E-commerce Index

Yet, even with progress on market access, a further challenge for digital trade development concerns the capacity of an economy to exploit the market opening. Focusing on e-commerce, UNCTAD's B2C E-commerce Index (Figure 4) considers four elements related to this capacity: access to a bank account, the internet and reliable postal service, as well as the availability of secure internet bandwidth. Although resolution of these challenges may go beyond the scope of a typical trade agreement, they nonetheless affect the ability to capitalize on market openness to digital trade that may be achieved. Here again, the challenge of inclusivity is evident from a glance at the map. Advanced economies tend to have much better performance as measured by this indicator than low-income countries. However, some developing countries such as China, Malaysia, Moldova, Oman and Saudi Arabia, among others, have achieved performance levels as measured by this indicator that are competitive with the lower range of OECD countries. The capacity to access the digital economy is proving to be an important complement to policy-related market openness to digital trade. Where such conditions are put in place, the combination of market access and capacity could offer a promising contribution toward further economic development, diversification and inclusive growth.

Summing Up on Impediments to Digital Trade

While the case study economies are relatively open to digital trade as measured by the indicators presented here, they are facing a world that yields a very mixed picture in terms of market access, capacity to engage in digital trade and consistency in the policy landscape. There is substantial variation in conditions for the conduct of digital trade. This is motivating the drive for RTAs and a potential WTO plurilateral agreement to lock

in existing market access, facilitate digital trade and promote cooperation, with a view toward eventual multilateralization of provisions.

RTAs and WTO Initiatives: Responding to Impediments to Digital Trade

This section considers a sample of recent RTAs that each engage at least one of the five case study economies in facilitation of some aspect of digital trade along one or more important trade corridors. These accords have gone beyond what has been feasible at the WTO to date. The experience gained may help to inform next steps at the WTO. The assessment then turns to the WTO, where the plurilateral negotiations now under way may offer an opportunity to draw on the RTA experience and integrate some elements into the WTO framework.

The review of RTA case studies and WTO initiatives helps to motivate the subsequent section that presents a statistical assessment of trade in high-digital-intensity service sectors. The analytical approach is based on a simple statistical assessment of export performance. For an illustrative group of high-digital-intensity service sectors, the analysis considers the export performance of the case study economies with selected RTA trade partners relative to other destination markets. The objective is to identify for further research possible early indications of responsiveness to liberalization from the trade measures that have been taken.

Case Study RTAs

Canada, the European Union, Japan, Singapore and the United States are each party to a specific agreement or initiative highlighted here with respect to digital trade (Table 2). Among the six trade accords, four are expansive (or deep) RTAs that cover various aspects of goods and services trade including explicit provisions addressing e-commerce or digital trade more broadly: CUSMA, the CPTPP, the EU-Japan EPA and the EUSFTA.

Box 1: Do Deep RTAs Deliver the Services?

A recent World Bank and Centre for Economic Policy Research publication mobilized teams of economists to consider the effects of deep trade agreements that promote economic openness and integration (Fernandes, Rocha and Ruta 2021). The findings indicate that such trade agreements can have a positive effect on growth and development. However, there are risks of fragmentation between such deep accords that could diminish the overall potential economic gains from liberalization. Therefore, multilateralization of trade rules is considered by the authors to be an important complementary policy in order to reduce discrimination. The authors note that provisions to promote free flows of data are an important facilitator of digital trade in such agreements, whereas an increase in regulatory precautionism could hurt digital trade with non-members. To have a meaningful effect on services exports, the authors note that agreements need to have ambitious structure, meaningful disciplines and accountability. In terms of relative impacts by sector, one team found that positive results for services are driven in particular by regulation-intensive services such as financial and business services (which are also data-intensive, according to the OECD taxonomy cited above from Calvino et al. 2018), and by the exchange of IP rights.

(For more on deep trade accords, see Box 1.) These four accords treat digital trade in a relatively limited manner but have the advantage of also advancing reforms in other complementary areas (for example, domestic services market access). Two of the accords focus more deeply and specifically on facilitation of digital trade: DEPA and the US-Japan DTA. Each of these six accords includes elements to ameliorate certain constraints on digital trade.

The six accords considered here are relatively high-standards agreements, which offer some convergence in the handling of key dimensions of the conduct of digital services trade (Table 3).

Table 2: A Sample of Trade Accords Covering the Digital Economy

	Trade Accords and Entry-into-Force Dates						Memo item:
	CUSMA, July 1, 2020	**CPTPP, December 30, 2018**	**DEPA, January 7, 2021**	**EU-Japan EPA, February 1, 2019**	**EUSFTA, November 21, 2019**	**US-Japan DTA, January 1, 2020**	**Indo-Pacific Economic Framework for Prosperity (IPEF, not in force)**
Canada	X	X					X
European Union				X	X		
Japan		X		X		X	X
Singapore		X	X		X		X
United States	X					X	X
Others	Mexico	Australia, New Zealand and Malaysia (September 30, 2022); Mexico and Peru (September 19, 2021); Vietnam (January 14, 2019); ratification is pending for Brunei and Chile	Chile (November 23, 2021) and New Zealand	Note: The EPA operates together with the EU General Data Protection Regulation (May 25, 2018) on this trade corridor.			Australia, Brunei, Fiji, India, Indonesia, Malaysia, New Zealand, Philippines, South Korea, Thailand and Vietnam

Sources: European Commission, https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions_en; Office of the US Trade Representative, https://ustr.gov/countries-regions; Singapore Ministry of Trade and Industry, www.mti.gov.sg/Trade/Digital-Economy-Agreements/The-Digital-Economy-Partnership-Agreement; The White House (2022); and related pages on these sites.
Notes: For the IPEF, the consultation process was formally launched on May 23, 2022. No agreement is yet in force.

The extent of the convergence varies by issue and there are points of divergence. For example, there is a general sense among the RTA participants that customs duties should not be applied to digital transmissions including with respect to the content of those transmissions such as software or music delivered via the internet. On the other hand, some areas may have limitations or exceptions due to public policy considerations. For example, with respect to liberal rules on cross-border data transfer, the CPTPP's prohibition of data localization requirements has exceptions for government data and financial services, and potentially other areas. In another example, parties generally agree on the need to protect personal data from abuse. But there is a striking contrast between the United States and the European Union in the means to accomplish this. The US-led approaches tend to emphasize

Table 3: Illustrative List of Areas of Convergence across RTAs (CUSMA, CPTPP, DEPA, EU-Japan EPA, EUSFTA and US-Japan DTA)

Issue	Covered in All Six Case Study RTAs?
Duty-free electronic data transmission	Yes
Liberal cross-border data transfer rules	All except the EU-Japan EPA, which will have a review of the need for such a provision
Non-discrimination in treatment of digital products (with toleration of national regulation for legitimate policy objectives, exceptions)	Yes
Legal protection of personal information	Yes
Protection of source code (may have toleration of exceptions, for example, for regulatory or judicial processes)	Yes
Consumer protection (for example, from spam, fraud, harm and misinformation)	Yes
Cooperation on cybersecurity (for example, on incident response)	Yes
Restriction on use of data localization	Yes
Digital economy facilitation (for example, United Nations Commission on International Trade Law [UNCITRAL] model law, paperless trade, e-payments, e-authorization and interoperability)	Yes

Sources: Lippoldt (2022); official texts of the accords; Morita-Jaeger (2021).
Notes: The UNCITRAL Model Law on Electronic Commerce (1996, as amended in 1998) outlined fundamental principles of non-discrimination, technological neutrality, and functional equivalence between electronic and paper-based commercial communication. See UNCITRAL, *UNCITRAL Model Law on Electronic Commerce (1996) with additional article 5 bis as adopted in 1998*, 12 June 1996, online: UNCITRAL <https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_commerce>. Also, for a detailed and useful comparison of digital provisions in the CPTPP and the DEPA, as well as the RCEP and the Australia-Singapore DEA, see Honey (2021, table 1). More broadly, the OECD has produced an inventory of rules, standards and principles governing digital trade; see Nemoto and López González (2021).

corporate responsibilities in the handling of personal data, whereas EU-led approaches tend to emphasize consumer choice as a priority in these matters in addition to corporate responsibility.[28] In sum, while the convergence in some areas may be facilitating for digital trade, there is more work to be done. The consequence of remaining exceptions, gaps and divergences in approach on some matters likely reduces the effectiveness of these accords (for example, see Mitchell and Mishra 2020; Ferracane and van der Marel 2021).

However, the emergence of some alignment of approach on such issues at the RTA level does appear to be feeding into ongoing discussions at the WTO and could support early development of plurilateral (opt-in) rules among similarly minded WTO members, or perhaps even global rules. For example, among the WTO e-commerce negotiations co-convenors (Australia, Japan and Singapore), experience with accords such as the DEA, the DEPA and the CPTPP may help inform the talks (discussed in the next section). However, the areas of convergence in RTAs are often relatively general, despite references in some cases to international standards and recommendations such as those of the Asia-Pacific Economic Cooperation (APEC)[29] forum or the OECD. That is, some details are subject to public interest exceptions and markers of topics for further development (for example, see discussion in Ciuriak and Fay 2021 on the digital trade chapter of CUSMA).

Although it is not an RTA and remains a project in early-stage development, the IPEF is cited as a memo item in Table 2. This is because of the IPEF's aspiration and potential to provide a framework for future digital regulation and standards, as well as trade and investment practices in an economically dynamic region spanning 15 nations, including four of the case study countries (Evenett and Fritz 2022). The White House's IPEF fact sheet includes a specific mention of the "connected economy" as a priority. Among other objectives, it states, "We will pursue high-standard rules of the road in the digital economy, including standards on cross-border data flows and data localization. We will work with our partners to seize opportunities and address concerns in the digital economy, in order to ensure small and medium sized enterprises can benefit from the region's rapidly growing e-commerce sector, while addressing issues...such as online privacy and discriminatory and unethical use of Artificial Intelligence" (The White House 2022). One particular challenge for the IPEF is its apparent reliance on incentives to ensure compliance. Unilateral withdrawal of benefits appears to be the main enforcement mechanism anticipated, and the effectiveness of this approach remains untested in this context.[30] Nevertheless, should this initiative succeed, the scale of the IPEF region and the engagement of developing and advanced economies in the framework would add weight to any policy settings that may be agreed. Alignment on a measure in this forum may attract others to follow and could provide useful experience serving as a basis for eventual multilateralization of a provision in a future WTO agreement.

WTO Initiatives

The E-commerce Work Program and Plurilateral Negotiations

Although a comprehensive multilateral trade framework for governance of digital trade via the WTO appears to be out of reach presently, the organization has not been standing still on these issues. WTO members launched a work program on e-commerce in 1998,[31] tasking the General Council to establish and oversee the program, and delegating examination of specific issues to relevant WTO bodies, including the Council for Trade in Services, the Council for Trade in Goods, the Council for Trade-Related Aspects of Intellectual Property Rights, and the Committee for Trade and Development. While progress on the work program has been slow and halting, it has nonetheless kept e-commerce on the member-agreed multilateral agenda.

Also in 1998, the WTO members established the renewable temporary multilateral moratorium

28 See van der Marel (2021) for a discussion of the contrast between the EU and US approaches to personal data protection.

29 APEC is a regional intergovernmental forum that, among many other areas of focus, provides guidance and best practice information for members to apply, including with respect to the digital economy. The APEC Cross-Border Privacy Rules System, for example, is referenced in CUSMA. It requires enforceable standards, accountability, risk-based protections, consumer-friendly complaint handling, consumer empowerment (for example, to correct personal data that certified firms may have on file), consistent protections and cross-border enforcement cooperation. See www.apec.org/About-Us/About-APEC/Fact-Sheets/What-is-the-Cross-Border-Privacy-Rules-System.

30 For a discussion on IPEF enforcement, see Lester (2022).

31 See WTO, "Work Programme on Electronic Commerce," WTO Doc WT/L/274 (1998), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/L/274.pdf&Open=True>.

on customs duties on digital transmissions.[32] The moratorium is considered under the work program on e-commerce and has been maintained since 1998. At the WTO's Twelfth Ministerial Conference (MC12) held in June 2022 in Geneva, ministers renewed the moratorium until the next Ministerial Conference (MC13) or, if that event is delayed, the moratorium will extend until March 31, 2024. As part of the decision, ministers also agreed to reinvigorate the work program in line with earlier mandates, especially in relation to the economic development dimension.[33] The future status of the moratorium remains uncertain as some members, including many advanced economies in particular, would like to make it permanent. This would multilateralize the approach embedded in recent RTAs engaging the case study economies, among others. In opposition, countries such as India and South Africa have raised objections concerning lost revenues those customs duties might have brought into their treasuries and could still bring in the future.[34] In addition, Indonesia has objected,[35] arguing that the moratorium should be interpreted to apply only to the provision of the digital transmission itself and not to the content being transmitted (for example, software or digital music and films).[36]

A current area of focus in digital trade for a large group of WTO members is the potential plurilateral accord on e-commerce. The seeds for this progress were planted back at the time of the WTO's Eleventh Ministerial Conference held in Buenos Aires in December 2017. At that time, a group of 71 WTO members issued a joint statement expressing support for the work of WTO members on e-commerce and interest in potential negotiations for an accord.[37] Then, in January 2019, 76 members agreed to launch negotiations building on the existing WTO framework. At MC12, the co-convenors of the JSI on Electronic Commerce (ministers of Australia, Japan and Singapore) confirmed that the talks remain on course with the potential to prepare a consolidated negotiating text by the end of the year (WTO 2022a). Participation has grown, with some 87 WTO members now engaged, accounting for more than 90 percent of global trade.

In the e-commerce negotiations, members are emphasizing support for facilitation of this trade. They have made good progress in the areas of consumer protection and combatting spam, e-signatures, e-contracts and invoices, paperless trading, open government data and transparency in relevant regulatory processes. Many of the provisions concerning these matters are reportedly already settled in principle.[38] Outstanding issues concern, in particular, handling of the moratorium on customs duties. (For example, can it be made permanent? Does it concern only digital transmissions or the content of those transmissions as well? Does it unduly restrict developing country revenue?) Another issue of concern is the architecture of the agreement with respect to its approach to implementation and enforcement.

Negotiations are open to new participants. They are being conducted based on member proposals, with 40 submitted as of the end of September 2022. Members have taken care to ensure coherence between the negotiations and the broader WTO framework for trade, including GATS, while also keeping separate the handling of tax issues (i.e., the OECD-supported negotiations on base erosion and profit shifting[39]). Given their experience with

32 For the latest renewal, see WTO, Ministerial Conference, *Work Programme on Electronic Commerce: Ministerial Decision* (held on 12–15 June), WTO Doc WT/MIN(22)/32, WT/L/1143 (2022), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN22/32.pdf&Open=True>.

33 Ibid.

34 See WTO, Work Programme on Electronic Commerce, *The E-Commerce Moratorium: Scope and Impact: Communication from India and South Africa*, WTO Doc WT/GC/W/798 (2020), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/GC/W798.pdf&Open=True>.

35 WTO, Ministerial Conference, *Statement By Indonesia: Facilitator's Consultation on Electronic Commerce, MC11 Declaration, and Other Relevant Plenary Sessions*, WTO Doc WT/MIN(17)/68 (2017), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN17/68.pdf&Open=True>.

36 In making the case for ending the moratorium, some developing countries have pointed to an UNCTAD study with a comparatively expansive assessment of the government revenue potential; see Kozul-Wright and Banga (2020). In counterpoint, some advanced economies have cited an OECD assessment that points to more limited government revenue losses and large consumer losses from ending the moratorium; see Andrenelli and López González (2019).

37 See WTO, Ministerial Conference, *Joint Statement on Electronic Commerce* (held on 10–13 December), WTO Doc WT/MIN(17)/60 (2017), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN17/60.pdf&Open=True> and related pages on the WTO website.

38 The discussion in this paragraph draws on the oral briefing by Zainab Mchumo of the WTO Secretariat at the WTO Public Forum in Geneva on September 29, 2022, and Trade Policy Exchange (2022). See also the WTO's online resource page, www.wto.org/english/tratop_e/ecom_e/ecom_e.htm. Also note for reference Hinrich Foundation (2022).

39 See www.oecd.org/tax/beps/.

relevant RTAs, there are indications that the co-convenors of the WTO negotiations (Australia, Japan and Singapore) were able to draw on their RTA experience to help inform their positions in the talks and to facilitate the negotiations. For example, Australia's Digital Trade Strategy highlights global and regional dimensions, including facilitation elements from Australia's regional initiatives that are now under discussion in the context of the WTO plurilateral negotiations.[40] Notably, the co-convenors have stated, "We note that provisions that enable and promote the flow of data are key to [a] high standard and commercially meaningful outcome."[41] The co-conveners have stressed their view that it is crucial for the JSI to make permanent the current renewable moratorium on customs duties with respect to electronic transmissions. Moreover, together with Switzerland, the co-convenors for the e-commerce negotiations launched an intergovernmental E-Commerce Capacity Building Framework in order to support inclusive digital trade integration for developing and least developed countries.[42] As of the WTO Pubic Forum at the end of September 2022, the co-convenors originally hoped to issue a consolidated draft text and agree on the agreement architecture by the end of 2022.[43] They then planned to conclude negotiations if feasible by the end of 2023, in time for the next WTO Ministerial Conference.

Complementary WTO Initiatives

The WTO is moving forward in other areas that will complement the work on e-commerce. Digital trade consists of the services to enable the transactions, as well as the delivery of goods and services themselves. Thus, many areas of WTO activity are relevant. For example, the WTO Trade Facilitation Agreement is improving administrative transparency, streamlining customs clearance processes and supporting digitization of customs processes, all of which help to reduce trade costs and expedite merchandise handling, giving a boost to e-commerce.[44] The WTO Aid for Trade initiative is helping to boost capacity to trade in developing economies, including with respect to digitization.[45] In addition, the 1996 WTO Information Technology Agreement and the accord to expand its product coverage in 2015 ensure that most IT electronics and related inputs are traded on a duty-free basis. This plurilateral agreement engages 83 WTO members accounting for 97 percent of world trade in IT products.[46]

A significant development on the services side has been the conclusion of the plurilateral initiative on services domestic regulation.[47] On December 2, 2021, 67 WTO members adopted the Declaration on the Successful Conclusion of Negotiations on services domestic regulation. Members are now working through the implementation steps, originally aiming in principle to complete the process by the end of 2022. Once implemented, the accord will go some way toward improving disciplines on some trade-relevant dimensions of regulation, including transparency (for example, making available information on compliance requirements and channels for enquiries); legal certainty and predictability (for example, providing timely information and handling of authorization applications); and regulatory quality and facilitation (for example, digitization of regulatory processes, impartiality in procedures, with authorization based on objective and transparent criteria). Participants engaged in digital trade will benefit from reductions in discrimination and facilitation of market access.[48] An assessment by an OECD team (Benz, Ferencz and Nordås 2020) found that for all participating economies, the WTO services domestic regulation accord could reduce services

40 For example, see www.dfat.gov.au/trade/services-and-digital-trade/e-commerce-and-digital-trade.

41 WTO, "WTO Joint Statement Initiative on E-commerce Statement by Ministers of Australia, Japan and Singapore," December 2021, online: WTO <www.wto.org/english/news_e/news21_e/ji_ecom_minister_statement_e.pdf>.

42 See www.wto.org/english/tratop_e/ecom_e/jiecomcapbuild_e.htm.

43 See the oral briefing by Zainab Mchumo of the WTO Secretariat at the WTO Public Forum in Geneva on September 29, 2022 (www.wto.org/english/tratop_e/ecom_e/ecom_e.htm).

44 The WTO Trade Facilitation Agreement entered into force on February 22, 2017. See WTO (2017).

45 See WTO (2022b).

46 The WTO Information Technology Agreement entered into force in 1996. The expanded product coverage was phased in over several years beginning in 2016. See WTO (2022c).

47 The negotiation on services domestic regulation was concluded on December 2, 2021, with participants aiming to submit their schedules of specific commitments for certification within 12 months. See WTO, *Declaration on the Conclusion of Negotiations on Services Domestic Regulation*, WTO Doc WT/L/1129 (2021), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/L/1129.pdf&Open=True>.

48 See WTO, *Declaration on the Conclusion of Negotiations on Services Domestic Regulation*, WTO Doc WT/L/1129 (2021), online: WTO <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/L/1129.pdf&Open=True>; also see WTO (2022d).

Box 2: Commercial Perspectives on Data, Digital Trade and the WTO

Many businesses have been actively supportive of the digital trade agenda at the WTO, eager to see a redoubling of the pace of progress. In the lead-up to MC12, the ICC suggested that a deadline should be imposed to finalize an agreement under the JSI by the end of 2022. Despite this hint of impatience, ICC also stated that "the e-commerce negotiations have been a bright spot at the WTO."[49] The statement went on to say that "writing rules on digital trade — especially those that promote the free flow of data across borders — will be an important driver of the further development of the digital economy, help bridge the 'digital divide' and provide more stability and predictability for businesses in all sectors."[50]

Businesses remain concerned about the temporary nature of the current moratorium on the imposition of customs duties on digital transmissions. Indeed, the co-convenors of the JSI on E-Commerce report that, prior to MC12, 105 trade associations had weighed in to support the extension of the current moratorium. In the words of the co-convenors, these associations emphasized that the extension was "absolutely necessary to avoid significant trade and investment disruptions" (WTO 2022a).

Likewise, the ICC's statement characterized as a "first-order priority" the conversion of the moratorium to be permanent or, failing that, to see it extended. As next steps, businesses have highlighted the need to address appropriate disciplines on barriers to data flows and on the imposition of data localization requirements.

As a recent DHL report put it, "Secure and efficient data flows between locations with different regulatory approaches will be crucial to maximizing benefits of digital globalization while addressing legitimate policy concerns" (Altman and Bastian 2021, 43). The report goes on to recognize that the inclusion of cross-border data flow policies in recent trade agreements constitutes one reason for some "guarded optimism" in this area. Yet the downside risks persist and could be costly. The DHL team points to recent research by the Information Technology and Innovation Foundation finding that a one-point increase in data restrictiveness for any given country results in a seven percent decrease in trade output, an almost three percent reduction in productivity and a 1.5 percent long-term increase in prices for downstream industries.[51]

trade costs by around three to four percent on average, with annual trade cost savings in the range of $150 billion globally. Given the significant role of services in the digital economy, digital trade will surely stand to benefit from the initiative. Thus, it is not surprising that business associations such as the International Chamber of Commerce (ICC) have been supportive of the talks and the outcome. (Box 2 provides further details on commercial perspectives on digital trade developments.)

How Is Digital Trade Performing in the Case Study Economies?

Given the policy developments discussed above, how is digital trade developing in the case study economies? What has been the experience on the ground and "in the ether" with respect to digital services trade? The analysis now turns to consider the measured structure and performance with respect to digital trade. As noted above, this trade may face challenges for market access and cross-border facilitation in light of digital trade restrictions, sectoral services trade restrictions and technical capacity limitations, among other issues. The potential existence of multiple layers

of impediments can add complexity to the liberalization and facilitation efforts required for success. For example, there may be restrictions on physical presence that are required for delivery of some services, even where they are digitally enhanced. For trade to succeed, it may not be enough to facilitate the conduct of cross-border digital transactions. And, even with comprehensive reform, it may take time for businesses to identify commercial opportunities and navigate the new market access requirements. Some firms may anticipate reforms and initiate actions ahead of time (for example, establishing a representative office). Thus, even where reform efforts advance and enter into force on a specific date, the response as observed in the trade statistics may be attenuated.

Looking into the Data

As highlighted in a previous paper in this line of research (Lippoldt 2022), the framework for statistical tracking of developments in digital services trade remains a work in progress. There are gaps and inconsistencies that limit the ability to get a coherent picture. There is not a single standard data series identified as digital services trade. With this in mind, the analysis here sets out in an indicative effort to get a sense of the evolving structure of services trade within the context of current digital trade reforms.

The OECD publishes data from the System of National Accounts and Extended Balance of Payments Services Classification accounts (EBOPS) that provides some insights. While digital services trade is not separately monitored, services trade can be tracked by focusing on sectors of high digital intensity. In order to keep this assessment manageable in scale, the paper focuses on exports. Sectors of high digital intensity can be identified using a preliminary taxonomy developed by the OECD (Calvino et al. 2018). The OECD considered each sector of the International Standard Industrial Classification (ISIC) (Revision 4) using five indicators, providing an assessment for a three-year period (2013–2015).[52] For each sector, the indicators include:

- the share of information and communication technology (ICT) tangible and intangible investment (for example, software and databases, respectively) as a percentage of non-residential gross fixed capital formation, by sector;
- the share of purchases of intermediate ICT goods and services (for example, production inputs) as a percentage of output, by sector;
- the stock of robots per 100 employees (as an indicator of automation);
- the share of ICT specialists in total employment; and
- the share of turnover from online sales.

Ranking sectors using these indicators, the OECD team defined the top quartile of sectors as being of high digital intensity. For the assessment in this paper, the author selected EBOPS service sectors that corresponded well to the OECD taxonomy (Table 4).

This approach defines digital services trade expansively to include sectors that employ digital technology and related skills extensively. The level of the EBOPS classification selected is fairly aggregated (one digit), and each EBOPS sector groups relevant sectors from the OECD taxonomy (ISIC two-digit level). Here it should be noted that it is possible there is some noise in the data, in particular with respect to the EBOPS sector "other business services." That EBOPS sector also includes some segments of probable low digital intensity (for example, services incidental to agriculture, forestry and fishing; and waste treatment and depollution). Thus, other business services data included in the following analysis should be considered with care.

49 See ICC (2022).

50 Ibid.

51 Cory and Dascoli, cited in Altman and Bastian (2021).

52 The OECD team (Calvino et al. 2018) also produced a sectoral digital intensity assessment for an earlier period (2001–2003), but as that time was out of scope for the present analysis, it was not taken into account here.

Table 4: Correspondence between OECD High-Digital-Intensity Service Sectors and EBOPS Sectors

ISIC (Revision 4) Sectors Ranked by OECD as High Digital Intensity	Corresponding EBOPS Sector
Telecommunications (ISIC 61); IT and other information systems (ISIC 62-63)	Telecommunications, computer and information services
Finance and insurance (ISIC 64-66)	Financial services
	Insurance and pension services
Legal and accounting activities (architecture, engineering) and so forth (ISIC 69-71); scientific research and development (ISIC 72); advertising and market research, other business services (ISIC 73-75); administrative and support service activities (ISIC 77-82); and other service activities (ISIC 94-96)	Other business services

Sources: Calvino et al. (2018); OECD (2010); United Nations (2008); author's tabulation.

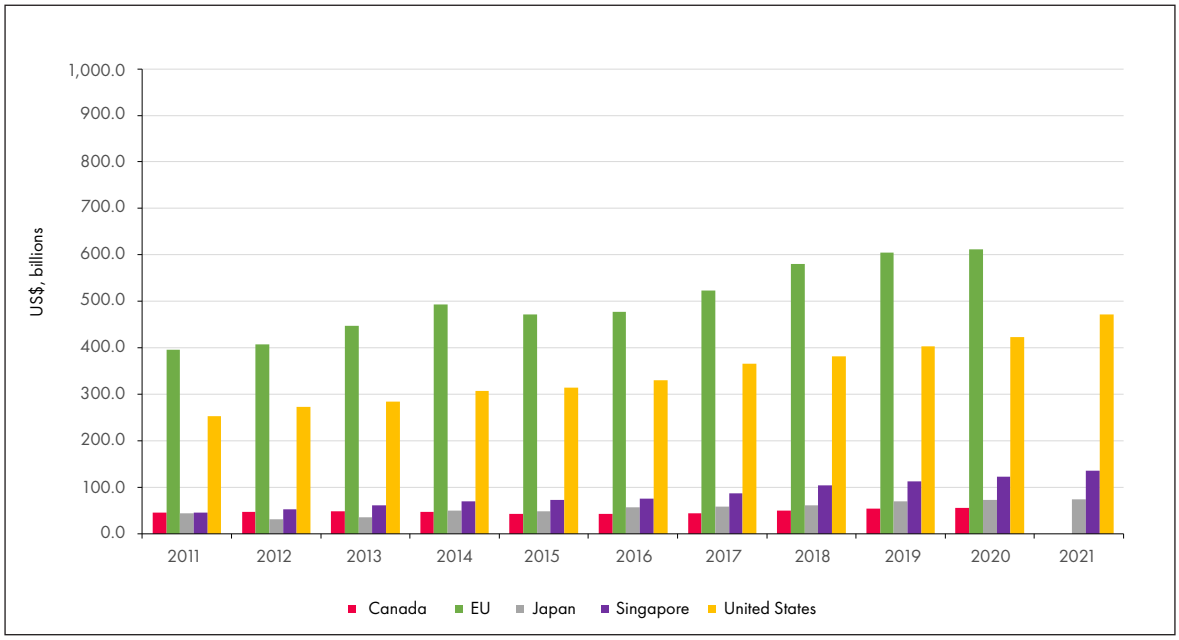
Scale of High-Digital-Intensity Service Sector Exports

The first step in the analysis is to note the value of exports in high-digital-intensity sectors based on the EBOPS export data in US dollars. Figure 5 presents the high-digital-intensity sector exports for each of the case study economies. All five of the case study economies exhibited growth in the high-digital-intensive service sector exports over the decade, but only Singapore and the United States exhibited growth in every year. The other three economies experienced more export volatility. In terms of the value of exports, the EU countries (excluding the United Kingdom and intra-EU exports) collectively lead the rankings by a wide margin. Overall, the case study economies are delivering fairly robust growth in exports for these high-digital-intensity sectors.

Figure 6 highlights for each of the case study economies the share of high-digital-intensity service sector exports in the total services exports. The figure presents the evolution of these shares over the past decade. All five economies experienced a rise in the share of high-digital-intensity services exports in total services exports. The European Union, Singapore and the United States saw fairly steady growth over the decade, albeit with a few years each of weak performance. Canada and Japan experienced some volatility. Unsurprisingly, all of these economies saw a sharp rise in digital services export shares during the COVID-19 pandemic, as exports in certain other service sectors such as travel and transport saw a strong negative impact. It remains to be seen whether this higher share for digital services trade persists. For Japan, Singapore and the United States, growth in digital shares appears to have levelled off during 2021 (comparable data for Canada and the European Union was not yet available at the time of drafting). The high-digital-intensity sectors account for more than half of services exports in four of the five case study economies; Japan is the outlier with an export share for these sectors in the mid-40 percent range in 2020 and 2021.

Table 5 presents the shares of each service sector in total services exports. The high-digital-intensity sectors are shown in bold. The table provides some additional context for the indicator in Figure 6. For each of the case study economies, "other business services" is the largest sector for services exports. Financial services are relatively substantial for the United States and Singapore, but of more moderate scale for the other three economies. Telecommunications, computer and information services are fairly substantial for the European Union, but more moderate in scale for the others. Across the board, insurance and pension services are relatively modest in scale.

Figure 5: High-Digital-Intensity Sectors (Export Values for the Five Case Study Economies, US$ Billions)



Sources: OECD.Stat, "EBOPS 2010 – ITSS by Partner Country," https://stats.oecd.org/Index.aspx?QueryId=67115#, under heading "International Trade in Services Statistics (ITSS)"; Singapore Department of Statistics, "Trade In Services By Detailed Services Category" (annual), https://tablebuilder.singstat.gov.sg/table/TS/M060311; author's tabulations.
Notes: The European Union as covered here reflects the 27 members as of February 1, 2020, excluding the United Kingdom and intra-EU exports. The high-digital-intensity sectors include insurance, financial services, telecommunications and other business services (see also Table 4). Comparable data for 2021 for Canada and the European Union was not yet available at the time of drafting.

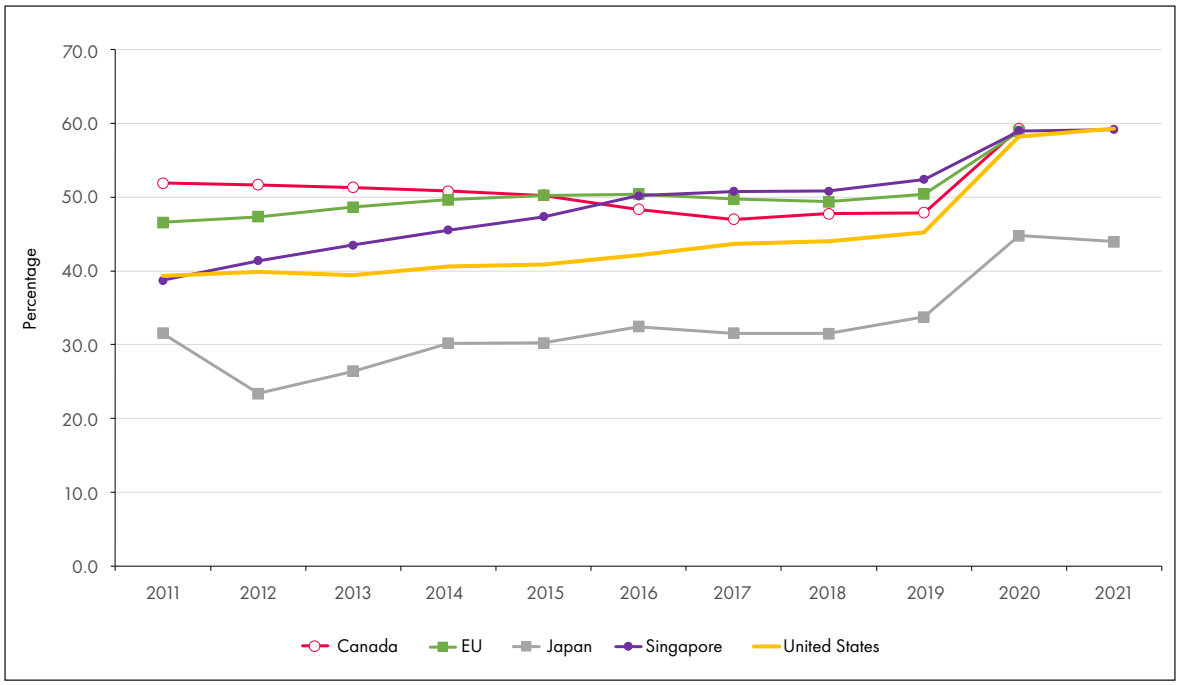
How Have Digital Services Sector Exports Performed on Preferential Corridors?

In order to gain a sense of the export dynamics in the high-digital-intensity service sectors along corridors benefiting from trade reforms, the analysis presents an example of one notably dynamic sector from each of the case study economies. The data is presented in index format, in order to permit comparisons of the trends for exports to each of the trade partners over time. The figures highlight trade partners that have concluded preferential trade accords that aim to facilitate digital services trade and, in some cases, also aim to facilitate domestic services market access more broadly (for example, via the CPTPP, CUSMA, EU-Japan EPA). For comparison, each figure includes a plot of the economy's overall exports in the sector to provide a baseline. Some also highlight a selection of trade partners beyond the scope of the particular trade agreements of interest for the case study.

The illustrative cases presented here concern three of the four high-digital-intensity sectors: other business services; financial services; and telecommunications, computer and information services. The trends for the fourth such sector (insurance and pension services) were quite mixed and specific to each corridor. So, the results are not presented here. This outcome may be due, in part, to a persistence of trade restrictiveness despite achievement of some liberalization through the various accords (in part due to exceptions that were integrated in the various RTA concessions). For example, in some economies, insurance regulations may vary by region at the subnational level, and some may not be covered by national-level concessions (for example, in Canada or the United States).

The results of this charting exercise can be viewed in Figures 7 to 11. As can be seen, in some cases, there is quite striking volatility in the long-term evolution of the high-digital-intensity exports.

Figure 6: High-Digital-Intensity Sectors (Share in Economy's Total Services Exports to the World, 2011–2021)



Sources: OECD.Stat, "EBOPS 2010 – ITSS by Partner Country," https://stats.oecd.org/Index.aspx?QueryId=67115#, under heading "International Trade in Services Statistics (ITSS)"; Singapore Department of Statistics, "Trade In Services By Detailed Services Category" (annual), https://tablebuilder.singstat.gov.sg/table/TS/M060311; author's tabulations.
Notes: The European Union as covered here reflects the 27 members as of February 1, 2020, excluding the United Kingdom and intra-EU exports. Comparable data for 2021 for Canada and the European Union was not available at the time of drafting. Services include insurance, financial services, telecommunications and other business services.

Yet there may also remain cumulative above-average growth in some corridors despite the volatility. For example, Canadian exports of other business services to Japan, EU exports of other business services to Singapore, or US exports of telecommunications, computer and information services to Japan, all exhibited strong long-term growth. More consistent above-average long-term growth is found in Canadian exports of other business services to the United States, Singaporean exports of financial services to the European Union, or US exports of telecommunications, computer and information services to Canada and Mexico.

Results Overview

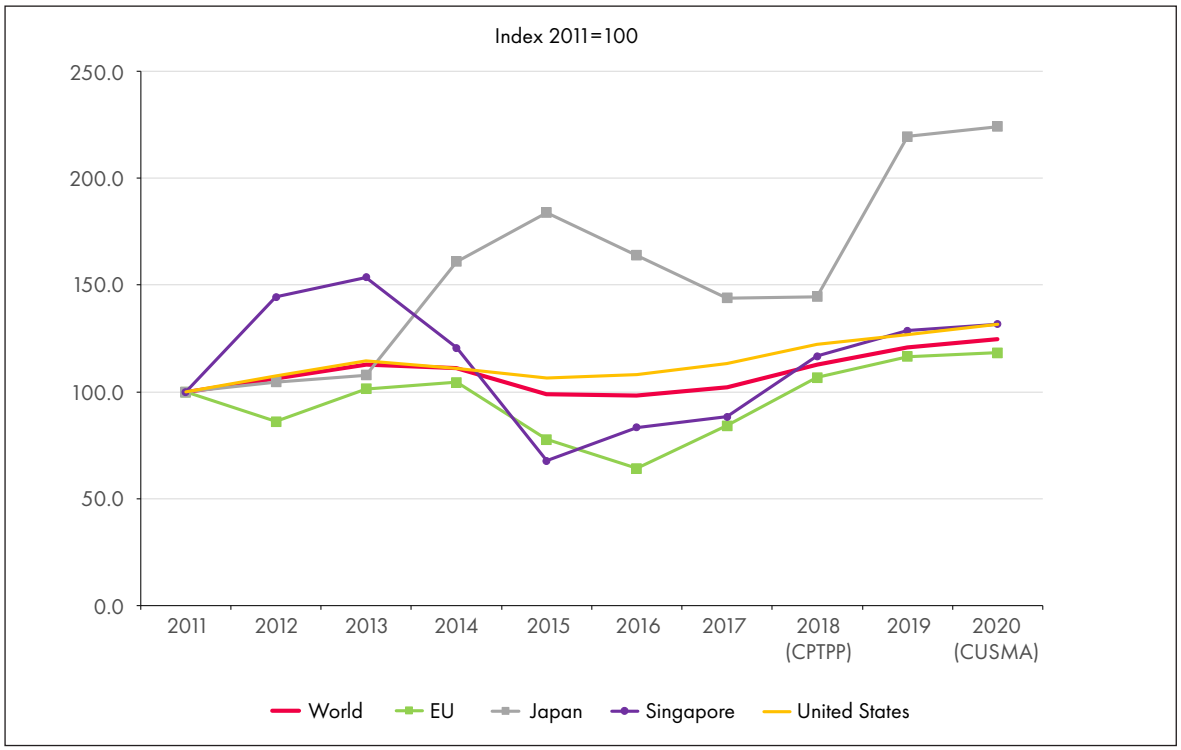
Seen in relationship to the trade agreements, the export patterns did reveal some apparently positive associations for high-digital-intensity exports. Canada did see a rise in other business services exports to Japan after the CPTPP's entry into force in December 2018. The European Union did see exports of other business services to Singapore pick up in the lead-up to the entry into force of the EU-Singapore RTA in November 2019. Japan saw exports of telecommunications, computer and information services accelerate to Singapore around the time of implementation of the CPTPP. Singapore saw exports of financial services to the European Union grow consistently after the signing of their bilateral trade agreement and its eventual entry into force. The most consistent long-term results were for EU and US exports as shown in the charts: their exports to deep treaty partners saw above-average growth in comparison with their exports to the world for the time periods shown (although not necessarily in sync with the timing of the trade accords). For Canada, Japan and Singapore, the long-term results were more of a mixed bag with some preferential

Table 5: Structure of Services Exports to World Markets, by Sector (2020, %)

	Exporting Economy				
Sector	**Canada**	**EU**	**Japan**	**Singapore**	**United States**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Manufacturing services on physical inputs owned by others	n/a	2.9	0.9	0.1	n/a
Maintenance and repair services NIE	1.8	2.0	0.8	3.2	1.8
Transport	10.9	16.9	12.7	30.1	7.9
Travel	14.4	5.9	6.5	2.5	10.0
Construction	0.2	1.1	4.6	0.4	0.3
Insurance and pension services	1.4	2.5	1.3	2.9	2.8
Financial services	10.7	9.1	9.6	16.4	20.8
Charges for the use of IP NIE	7.7	9.0	26.4	4.1	15.9
Telecommunications, computer and information services	12.4	20.0	6.2	8.3	7.8
Other business services	34.8	27.3	27.6	31.4	26.8
Personal, cultural and recreational services	4.6	1.5	0.9	0.4	2.9
Government goods and services NIE	1.1	0.8	2.4	0.1	3.0
Memo item: high-digital-intensity sectors are insurance, financial services, telecommunications and other business services (% of total services exports)	59.3	58.9	44.8	59.0	58.2
Memo item: economy's total value of services exports (US$ billion)	93.8	1,039.6	170.0	209.6	726.4

Sources: OECD.Stat, "EBOPS 2010 – ITSS by Partner Country," https://stats.oecd.org/Index.aspx?QueryId=67115#, under heading "International Trade in Services Statistics (ITSS)"; Singapore Department of Statistics, "Trade In Services By Detailed Services Category" (annual), https://tablebuilder.singstat.gov.sg/table/TS/M060311; author's tabulations.
Notes: NIE = not included elsewhere; n/a = not available. Canada and the United States do not provide a separate breakout for the processing trade category "Manufacturing services on physical inputs owned by others." Data for this type of activity is distributed among the other activities. The European Union as covered here reflects the 27 members as of February 1, 2020, excluding the United Kingdom and intra-EU exports. The EU total services exports include a share of 1.1% for exports not allocated to a specific sector. The high-digital-intensity sectors are bolded in the table. A useful explanation of service sector categories is available from the US International Trade Administration, "Trade in Services Data," www.trade.gov/trade-services.

Figure 7: Canadian Exports (Other Business Services, 2011–2020)



Sources: OECD.Stat, "EBOPS 2010 – ITSS by Partner Country," https://stats.oecd.org/Index.aspx?QueryId=67115#, under heading "International Trade in Services Statistics (ITSS)"; author's tabulations.
Notes: Data for Singapore for 2011 and 2012 is estimated using the mirror data trend from Singapore's other business services data for imports from the Americas; see Singapore Department of Statistics, "Trade In Services By Detailed Services Category" (annual), https://tablebuilder.singstat.gov.sg/table/TS/M060271. The data point for Japan for 2016 is based on simple interpellation of the data for 2014 and 2016. For the EU-27, data is missing for a few of the smaller member countries in specific years due to confidentiality considerations; this does not significantly affect the trends. Also note with respect to the horizontal axis, the CPTPP entered into force in December 2018 and CUSMA did so in July 2020. In addition to the case study agreements, it should be noted that the EU-Canada Comprehensive Economic and Trade Agreement (CETA) entered into force provisionally in September 2017.

corridors showing above-average performance and a few showing underperformance.[53]

This charting exercise is intended to be exploratory and illustrative, not definitive. The charts provide some encouraging signs with respect to RTAs on some trade corridors. But they also appear to reflect some poor performance on a few and noise from exogenous factors on others. There are grounds for further exploration. Analysis based on longer time series and more powerful analytical tools will be required for a full review.

One area for further exploration concerns the nature of the development of services trade under conditions of trade liberalization. It appears that trade in services sometimes advances at a slow pace despite improvements in market access. The effect, if any, of the RTAs appears to be rather attenuated in some instances. This may be due, in part, to the time required for firms to do their due diligence and work through regulatory requirements targeting service providers (for

53 It is interesting to note that some of the strongest, most consistent outperformance was for preferential trade partners with RTAs beyond the scope of the case study. For example, compared to the case study trade partners, Singapore's financial services exports were stronger with its RTA partner China. For the United States, telecommunications, computer and information services exports were stronger with respect to its free trade agreement partner South Korea than with the case study partners. For both China and South Korea, this performance may have been fuelled, in part, by demand associated with ongoing structural change in these dynamic emerging market economies.

Box 3: Advice to Business on Digital Services Market Entry

Liang Chen et al. (2022) highlight the ease and cost advantages of scaling up a digital platform globally. At the same time, they also point to these advantages as a problem. A digital business may be able to enter a new foreign market faster than a traditional firm. But the rapid entry may leave a digital business vulnerable to inadvertently bypassing local regulations on matters such as consumer and data protection, domestic service market access requirements, or even encountering geopolitical objections. It may pay for a new market entrant to manage such risks by engaging local staff, committing to local value-added content, and reaching out to local decision makers and potential business allies, among other possibilities. Even if this slows expansion somewhat, such actions may reduce the risk of a regulatory or political backlash and contribute to the firm's sustainability in the new market. At least with respect to regulatory matters, a portion of these business environment risks may be reduced by better aligning regulatory requirements across countries including improved transparency and predictability of procedures, support for SMEs and ongoing cooperation between authorities.

example, to comply with regulations for use of data, privacy, consumer protection and, in financial services, to "know your client").[54] Even in the digital space, it can take time for a firm to raise awareness of its product offerings and build trust with potential clients and other stakeholders (Box 3). In some cases, the long lead time required may incentivize some firms to move in anticipation of promising agreements that are still under negotiation. Such firms may thereby gain a first-mover advantage among international suppliers as a market opens. Some RTAs include provisions to raise awareness of new trade opportunities, for example, among SMEs. This may help to deliver improved performance after the agreement is signed. In the future, the challenge here for researchers may be to identify other elements that might facilitate a more rapid uptake of new opportunities from RTAs.

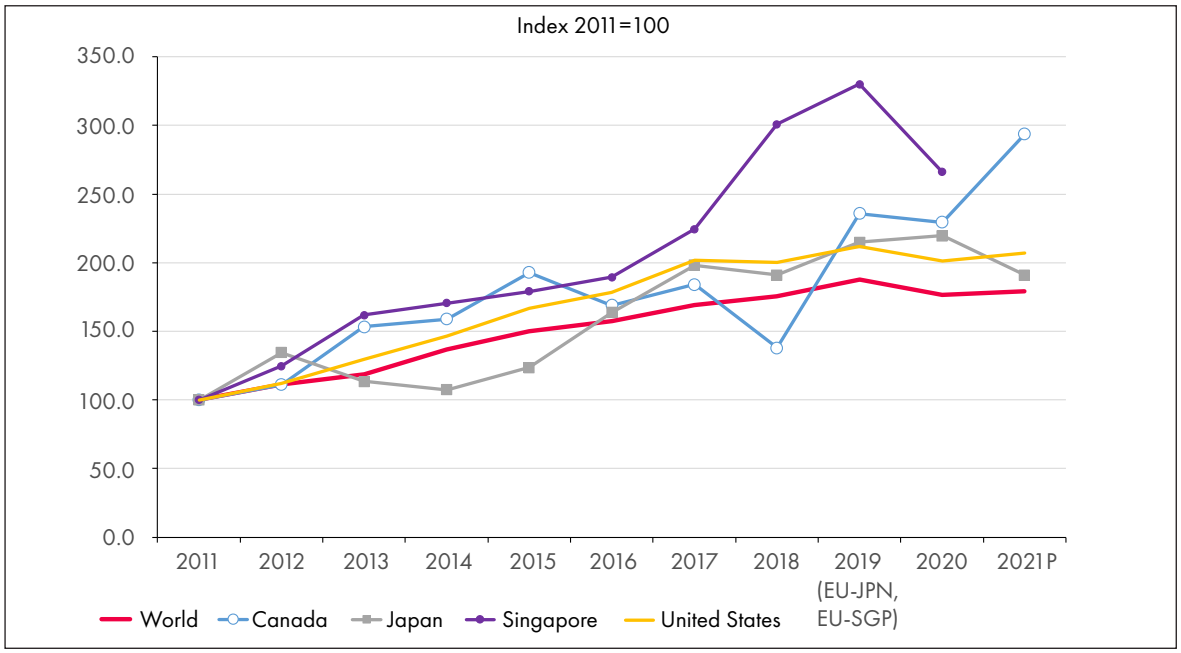
54 There may also be threshold effects in liberalization, whereby partial liberalization is not enough to provide effective market access. For example, an agreement to grant additional operating licences to foreigners may be of little value if a cap on overall foreign participation in a trade partner remains in effect.

Policy Recommendations and Conclusions

This review has highlighted differences among economies in terms of market access for digital services trade globally. The openness of the global economy to this trade is being challenged by an increase in the number of unilateral measures being launched by countries around the world in recent years. While some of these actions reflect appropriate initiatives to address emerging concerns with respect to issues such as data protection, privacy, cybersecurity and consumer protection, others may be unduly trade distorting, costly or discriminatory. Examples of the latter might include data localization laws in Russia and strict content moderation guidelines in relation to essential security interests in China (Evenett and Fritz 2022).

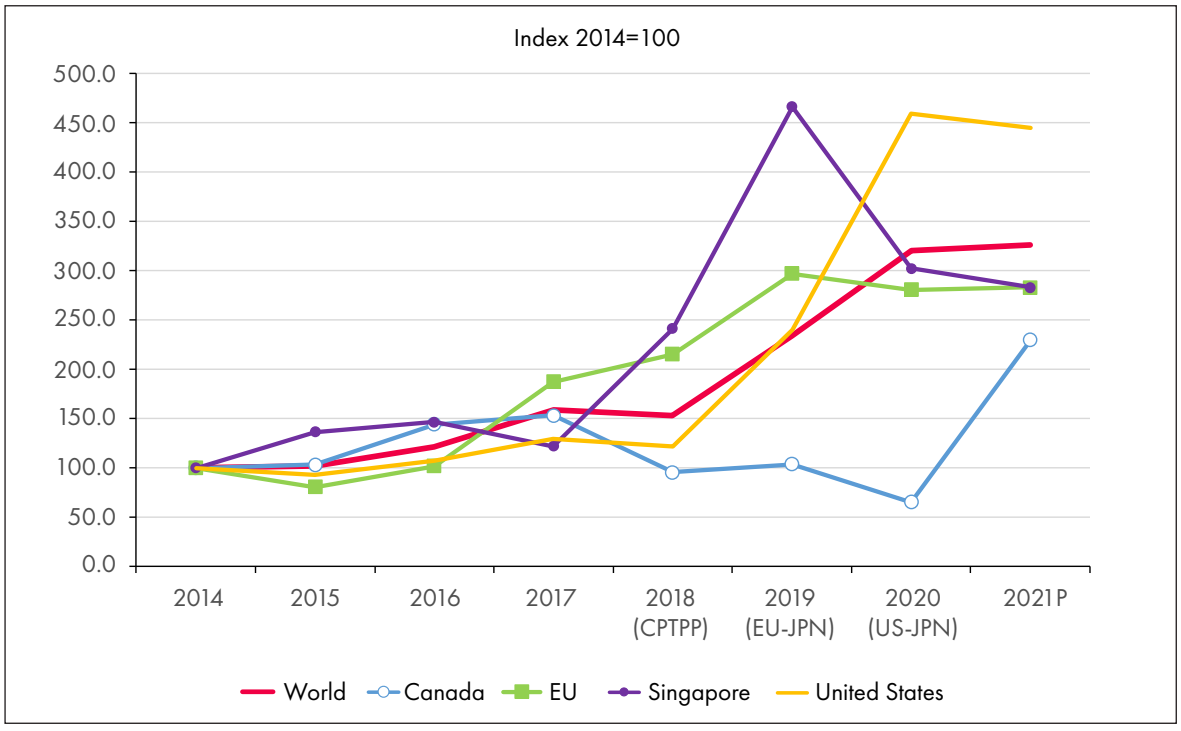
Pushback against such distortions and policy fragmentation has arisen via trade agreements such as the six that are cited here in this illustrative study. The case study trade accords apply a mix of provisions to facilitate digital services trade, discipline some aspects (for example, prohibiting imposition of customs duties on data transmissions), promote best practices and cooperation, and, in some cases, provide complementary liberalization measures with respect to domestic services regulation. In addition to benefits from improved economic

Figure 8: EU Exports Excluding Intra-EU Trade (Other Business Services, 2011–2021)



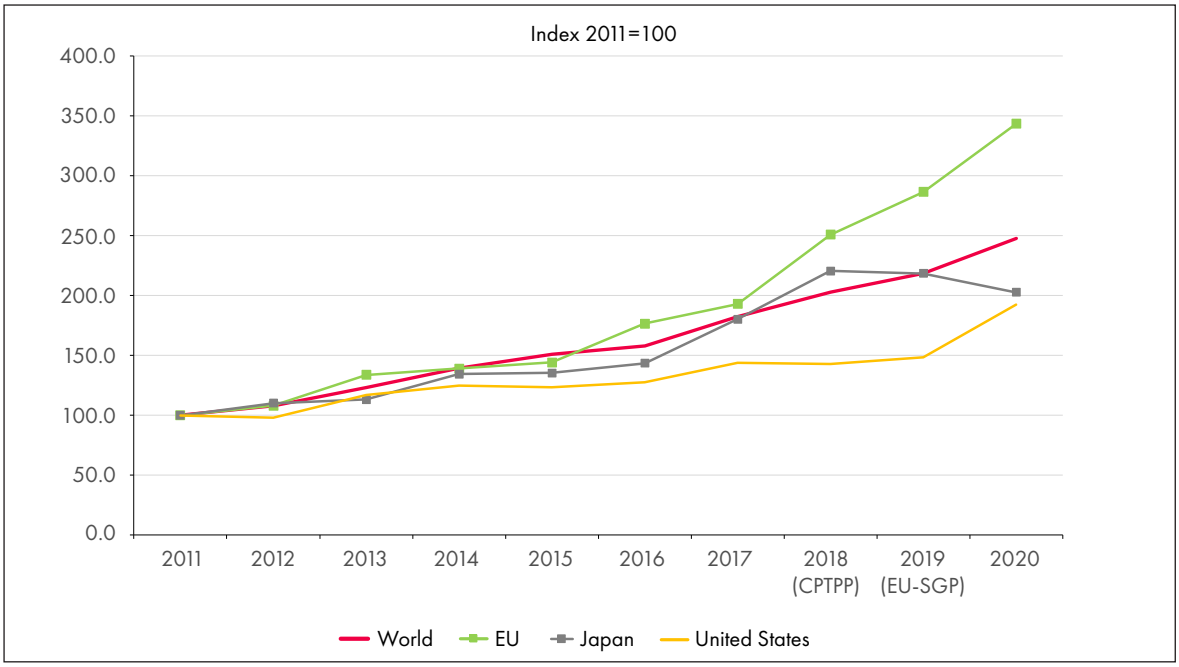
Source: Eurostat, https://ec.europa.eu/eurostat/databrowser/view/BOP_ITS6_DET__custom_3044503/default/table.
Notes: Underlying data is in euros. P = provisional data. Data for 2011 for Canada is estimated based on indications from trends for EU-27 exports of other business services to the United States and global markets. Also note with respect to the horizonal axis, the EU-Japan EPA entered into force in February 2019, as did the EU-Singapore FTA in November 2019. In addition to the case study agreements, it should be noted that the EU-Canada CETA entered into force provisionally in September 2017.

Figure 9: Japan Exports (Telecommunications, Computer and Information Services, 2014–2021)



Source: OECD.Stat, "EBOPS 2010 – Trade in Services by Partner Country," https://stats.oecd.org/Index.aspx?QueryId=67115#, under heading "International Trade in Services Statistics (ITSS)."
Notes: Underlying data is in US dollars. Also note with respect to the horizontal axis: the CPTPP entered into force in December 2018, the EU-Japan EPA in February 2019 and the US-Japan DTA in January 2020.

Figure 10: Singapore Exports (Financial Services, 2011–2020)



Sources: Singapore Department of Statistics, https://tablebuilder.singstat.gov.sg/table/TS/M060311; OECD.stat, https://stats.oecd.org/Index.aspx?DataSetCode=TISP_EBOPS2010; author's tabulations.
Notes: Underlying figures are in Singapore dollars. Data for Canada is not published separately in this data set. The 2020 data point for Singapore's financial services exports to the European Union is estimated based on EU mirror data reflecting the EU trade in financial services import growth from Singapore over the same time period. The European Union as covered here reflects the 27 members as of February 1, 2020, excluding the United Kingdom. Also note with respect to the horizontal axis, the CPTPP entered into force in December 2018 and the EUSFTA in November 2019. In addition, the DEPA entered into force in January 2021.

efficiency, such deals have the potential to promote improved inclusiveness in trade, supporting participation of SMEs and economic development more generally. The statistical analysis in this paper provides some positive early indications of gains in export performance that may potentially be associated with these reforms.

As more experience is gained with these RTAs, further investigation appears merited. In addition, the pushback against fragmentation remains a work in progress, and the effectiveness of these accords may improve as further enhancements currently under negotiation among RTA partners and at the WTO are concluded. With respect to the five case study economies in some digital service sectors on some trade corridors covered by these RTAs, there has been above-average growth. Further policy reforms in support of digital services trade are under consideration via regional initiatives such as the IPEF and at the multilateral level via the WTO, notably through the JSIs on E-Commerce and Services Domestic Regulation. These have sufficient scale that if both are successfully concluded and implemented, they have the potential to improve market access and discipline covered trade distortions in a meaningful manner for substantial portions of the global digital economy.

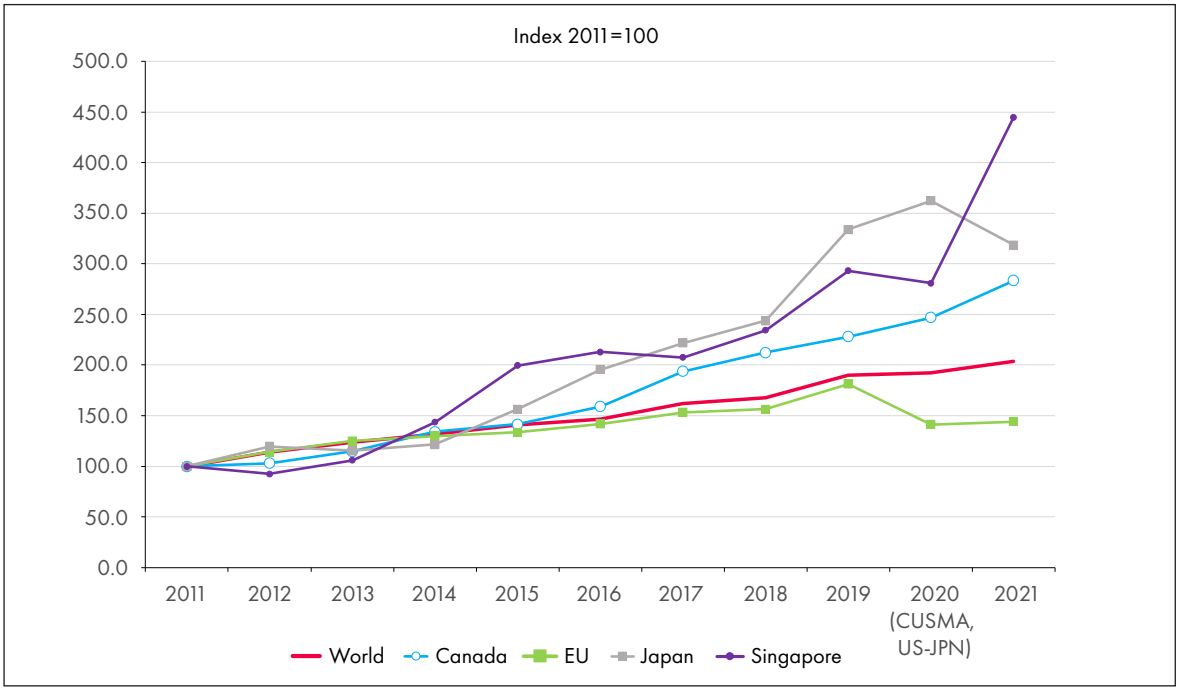
Next Steps

In light of these developments, and drawing on insights from the present analysis, five policy recommendations follow.

Multilateral Action

There is low-hanging fruit available at the WTO through the JSI on E-Commerce. Negotiations under way for a plurilateral accord have made good progress on provisions to facilitate this trade. Negotiators should pursue the opportunity

Figure 11: US Exports (Telecommunications, Computer and Information Services, 2011–2021)



Source: BEA, table 2.2, https://apps.bea.gov/iTable/iTable.cfm?reqid=62&step=9&isuri=1&6210=4.
Notes: Underlying data is in US dollars. For more on Mexico and the data-driven economy in the context of CUSMA, see Ciuriak and Fay (2021). The US-Japan DTA entered into force in January 2020, CUSMA in July 2020 and the US-Singapore Free Trade Agreement in 2004 (an early agreement including an e-commerce chapter). Other partners with a US free trade agreement that includes a provision on e-commerce (and potentially other aspects of digital trade) are Australia, Bahrain, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru and South Korea.

to achieve results in the remaining contentious issues, such as customs duties on electronic transmissions, cross-border data flows, data localization, protection of source code, electronic transactions frameworks, cybersecurity and electronic invoicing, as well as improvements in market access. Intractable issues should be set aside for future negotiations, however, in order to ensure that the deal can be brought to conclusion ahead of the next WTO Ministerial Conference by the end of 2023 or early 2024. This will help to maintain the momentum and goodwill gained from the MC12. A successful conclusion of the e-commerce accord would be plurilateral, and it would be anchored in a multilateral institution, the WTO. That would be a helpful contribution in response to ongoing fragmentation challenges.

Regional Action

Countries with similar digital trade perspectives may be able to pursue further policy action at the regional level to address outstanding issues from the WTO digital trade initiatives, as well as to facilitate further alignment and cooperation on emerging issues. Action could advance via the IPEF (or other mega-regional framework); cooperation provisions and expanded membership of existing RTAs such as the CPTPP or the DEPA; and new accords if necessary. Regional groupings of similarly minded partners may prove better able to advance on issues that are heavily contested at the multilateral level such as service sector market access, data governance and disciplines on national security exceptions. In order to combat the risk of increased complexity, it will be important for negotiators to take account of international standards, guidelines and best practices, as well as successful provisions in existing RTAs. Experience gained via these efforts may help

to promote future multilateral convergence. Cooperation at the regional level, if framed in an open, non-exclusive and non-discriminatory manner consistent with the WTO framework, may serve as a frontline defence against further policy fragmentation in the digital economy.

Advocacy Action

At several points, this paper has touched on digital trade stakeholder interests such as consumer protection and anti-spam measures, as well as business concerns such as transparency in regulatory processes. Constructive engagement by stakeholders can help to promote digital trade policy reforms that correspond well to commercial, consumer and other real needs in the digital economy. Transparency and consultation provisions in existing RTAs, among other channels, should be exploited to provide inputs where appropriate. At the multilateral level, there is a lack of a standing, direct consultative channel at the WTO for non-state stakeholders such as businesses and consumers. Therefore, advocacy by such groups with governments at the national level is needed to ensure that policy makers and negotiators prioritize multilateral action and tackle relevant issues.

Data Needs Prioritization as a Cross-Cutting Policy Issue

Appropriate data use and protection is a cross-cutting theme for digital trade policy, with the choices affecting stakeholders across the economy, as highlighted in the literature review. The case study countries have engaged to varying degrees in RTAs that address important data challenges such as undue data localization requirements, customs duties on digital transmissions, and the balance between personal data protection and the ability to engage in cross-border data flows. This is helpful for the trade corridors covered. But these issues remain to be resolved at the multilateral level. And further challenges remain to be addressed with respect to security, privacy, access, regulatory alignment and interoperability, among other aspects that will be critical to ensuring continued openness and international digital integration. New trade accord provisions and regulations should consider the adequacy of existing provisions and, where feasible, aim for convergence on viable solutions. Eventual establishment of global norms would help to combat discrimination and facilitate the conduct of digital services trade.

Push Back against Unilateralism Where It Negatively Affects Market Openness

While it is not always the case, unilateral trade policy actions to protect domestic interests can be the vehicle for measures affecting the digital economy that are inefficient or discriminatory. In other words, in supporting digital trade, it may not be adequate to focus exclusively on positive reforms and pursuit of rules-based liberalization. In some economies, there may also be a risk of backsliding and imposition of trade-distorting measures, a risk that has been documented by the GTA and DPA teams (see Evenett and Fritz 2022) and the Digital Trade Integration Project at the European University Institute,[55] among others. In some cases, policy makers aiming to address a domestic issue may inadvertently constrain digital trade. As advocated in OECD guidelines (Tsai et al. 2011), policy makers and other stakeholders should screen proposals carefully with a view to ensuring alignment with best practices, international standards and least trade-distorting approaches.[56] With respect to the emerging governance framework for digital services trade, trade openness with appropriate regulatory safeguards and convergence toward international norms is likely to lead to better economic outcomes than more restrictive approaches. Guidance from international organizations such as the OECD and UN agencies can help national policy makers to achieve legitimate policy objectives and avoid unduly burdensome regulation. Too often such support is not sought out. Considering the focus areas covered in the present paper, it is notable that as Ferencz et al. (2022, 3) point out, "compared to the benchmark year of 2014, barriers to digitally enabled services have been growing over the years, with the highest overall increase observed in the Asia-Pacific region and the OECD."

Final Point

Elements for a broader framework governing digital trade are being trialled by the case study economies

55 The Digital Trade Integration Project database catalogues policy measures affecting digital trade (see https://dti.eui.eu/database/?country=CA&country2=&chapter=).

56 For further discussion on good regulatory practice in the context of digital trade, see Casalini, López González and Moïsé (2019).

covered in this paper. The paper provides an illustration of some positive developments, with a view to motivating further research and empirical assessment, notably concerning the economic implications of the convergence across the case study RTAs in the approaches to some policy issues and the association of reforms with export performance of high-digital-intensity sectors. The case study economies represent a substantial share of the international digital economy. Their experience with refinement of these provisions over successive generations of trade agreements, and their achievement of convergence in some areas, bodes well in the struggle to push back against unilateralism, protectionism and fragmentation in the international economy. More work is now required to improve the effectiveness of these agreements (for example, addressing gaps, exclusions and exemptions) and promote convergence in the rules. Ultimately, compared to their more restricted counterparts, digital markets functioning in a secure, trust-enabled, rules-based regional — or an eventual plurilateral or multilateral — framework have the potential to increase competition, lower costs for businesses, and provide consumers with more varied goods and services offerings and better values. And that sounds like a good deal, indeed, for digital trade stakeholders.

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Annex

Table A1: The OECD's DSTRI (2014–2021)

	Infrastructure and Connectivity	Electronic Transactions	Payment System	IP Rights	Other Barriers Affecting Trade in Digitally Enabled Services	DSTRI Overall Score
2014						
Canada	0.000	0.021	0.000	0.000	0.000	0.021
France	0.040	0.021	0.018	0.000	0.022	0.101
Germany	0.079	0.043	0.000	0.000	0.000	0.122
Japan	0.000	0.043	0.000	0.000	0.000	0.043
United States	0.040	0.021	0.000	0.000	0.000	0.061
China	0.238	0.043	0.055	0.043	0.087	0.467
OECD average (N=38)	0.072	0.030	0.004	0.002	0.007	0.115
All country average (N=74)	0.112	0.033	0.008	0.006	0.020	0.178
2021						
Canada	0.000	0.000	0.000	0.000	0.000	0.000
France	0.040	0.021	0.018	0.000	0.044	0.123
Germany	0.079	0.021	0.000	0.000	0.022	0.123
Japan	0.040	0.043	0.000	0.000	0.000	0.082
United States	0.040	0.021	0.000	0.000	0.000	0.061
China	0.238	0.043	0.055	0.043	0.109	0.488
OECD average (N=38)	0.087	0.028	0.004	0.000	0.020	0.140
All country average (N=74)	0.126	0.028	0.009	0.005	0.030	0.198

Table A1: The OECD's DSTRI (2014–2021) (continued)

Change 2014–2021

(Negative change in score implies greater openness)

	Infrastructure and Connectivity	Electronic Transactions	Payment System	IP Rights	Other Barriers Affecting Trade in Digitally Enabled Services	DSTRI Overall Score
Canada	0.000	-0.021	0.000	0.000	0.000	-0.021
France	0.000	0.000	0.000	0.000	0.022	0.022
Germany	0.000	-0.022	0.000	0.000	0.022	0.001
Japan	0.040	0.000	0.000	0.000	0.000	0.039
United States	0.000	0.000	0.000	0.000	0.000	0.000
China	0.000	0.000	0.000	0.000	0.022	0.021
OECD average (N=38)	0.015	-0.002	0.000	-0.002	0.013	0.025
All country average (N=74)	0.014	-0.005	0.001	-0.001	0.010	0.019

Sources: OECD Going Digital Toolkit, "OECD Digital Services Trade Restrictiveness Index" (recently updated to 2021 for OECD members and Brazil, China, India, Indonesia and South Africa), https://goingdigital.oecd.org/indicator/73; for other countries highlighted in the map in Figure 2, the scores are held constant from 2000, drawing on data from OECD.Stat, "Digital Services Trade Restrictiveness Index," available as a menu option at https://stats.oecd.org/Index.aspx?DataSetCode=STRI; author's tabulations.

Notes: See Figure 2 for the applicable notes on the OECD's DSTRI. N = sample size.

Table A2: OECD Services Trade Restrictiveness for Sectors of High Digital Intensity (2014–2021)

	Accounting	Architecture	Engineering	Legal	Telecom	Commercial Banking	Insurance	Computer	Average
2014									
Canada	0.224	0.209	0.175	0.149	0.296	0.165	0.208	0.167	0.199
France	0.415	0.341	0.135	0.594	0.139	0.166	0.116	0.159	0.258
Germany	0.170	0.165	0.177	0.235	0.093	0.148	0.122	0.130	0.155
Japan	0.174	0.136	0.082	0.517	0.224	0.189	0.162	0.111	0.199
Singapore	0.220	0.422	0.291	0.354	0.276	0.259	0.211	0.225	0.282
United States	0.153	0.199	0.205	0.206	0.150	0.196	0.287	0.149	0.193
China	0.727	0.233	0.254	0.510	0.695	0.401	0.449	0.322	0.449
OECD average (N=38)	0.279	0.233	0.217	0.351	0.181	0.193	0.187	0.193	0.229
All country average (N=50)	0.319	0.255	0.230	0.381	0.244	0.231	0.231	0.213	0.263
2021									
Canada	0.224	0.209	0.175	0.149	0.276	0.165	0.208	0.167	0.197
France	0.409	0.332	0.128	0.594	0.130	0.162	0.107	0.145	0.251
Germany	0.179	0.179	0.191	0.243	0.101	0.158	0.131	0.146	0.166
Japan	0.174	0.113	0.082	0.527	0.234	0.180	0.142	0.111	0.195
Singapore	0.220	0.246	0.291	0.323	0.276	0.259	0.211	0.225	0.256
United States	0.153	0.199	0.205	0.192	0.150	0.196	0.287	0.149	0.191
China	0.727	0.157	0.155	0.478	0.667	0.324	0.348	0.266	0.390
OECD average (N=38)	0.283	0.235	0.226	0.355	0.183	0.196	0.186	0.201	0.233
All country average (N=50)	0.324	0.253	0.235	0.385	0.244	0.232	0.226	0.219	0.265

Table A2: OECD Services Trade Restrictiveness for Sectors of High Digital Intensity (2014–2021) (continued)

Change 2014–2021

(Negative change in scores implies greater openness)

	Accounting	Architecture	Engineering	Legal	Telecom	Commercial Banking	Insurance	Computer	Average
Canada	0.000	0.000	0.000	0.000	-0.020	0.000	0.000	0.000	-0.003
France	-0.006	-0.009	-0.007	0.000	-0.009	-0.004	-0.009	-0.014	-0.007
Germany	0.009	0.014	0.014	0.008	0.008	0.010	0.009	0.016	0.011
Japan	0.000	-0.023	0.000	0.010	0.010	-0.009	-0.020	0.000	-0.004
Singapore	0.000	-0.176	0.000	-0.031	0.000	0.000	0.000	0.000	-0.026
United States	0.000	0.000	0.000	-0.014	0.000	0.000	0.000	0.000	-0.002
China	0.000	-0.076	-0.099	-0.032	-0.028	-0.077	-0.101	-0.056	-0.059
OECD average (N=38)	0.004	0.003	0.009	0.004	0.002	0.003	-0.001	0.008	0.004
All country average (N=50)	0.005	-0.002	0.005	0.004	0.000	0.001	-0.006	0.005	0.002

Sources: Nemoto and López González (2021); OECD.stat, https://stats.oecd.org/Index.aspx?DataSetCode=STRI.

Notes: STRI indices take values from zero to one. Complete market openness yields a score of zero, while complete market closure yields a score of one. Scoring takes into account five policy areas: restrictions on foreign ownership; restrictions on movement of people; barriers to competition; regulatory transparency; and other discriminatory measures (for example, performance requirements). Index data refers to prior year policy status. Telecom = telecommunications, computer and information services. N = sample size.

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67 Erb Street West
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