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Digital Trade Provisions in Preferential Trade Agreements: Introducing a New Dataset

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ABSTRACT

The article introduces a new dataset that seeks to comprehensively trace developments in the area of digital trade governance. The TAPED (Trade Agreements Provisions on Electronic-Commerce and Data) dataset includes a detailed mapping and coding of all preferential trade agreements that cover chapters, provisions, annexes, and side documents that directly or indirectly regulate digital trade. This article presents the methodology behind TAPED and provides an overview of the evolution of digital trade provisions in preferential trade agreements, highlighting also some emerging trends. It then takes a look at the substance of selected rules found particularly in electronic commerce chapters and maps the diversity of approaches in tackling issues meant to facilitate online trade, such as the customs duty moratorium on electronic transactions or paperless trading, and discusses the very recent rule-making with regard to cross-border data flows. This is of course merely a glimpse of the wealth of information that TAPED provides, and the goal of this article is simply to uncover the great variety and the complexity of the norms found in the preferential trade agreements on digital trade governance, which reveals the value of the dataset.

INTRODUCTION

Digital trade has emerged as an important topic in contemporary international economic law and policy and has moved up on the agenda of many trade negotiators around the world. Yet, the topic is by no means new and the membership of the World Trade Organization (WTO) recognized early on the implications of digitization for trade by launching a Work Programme on E-commerce in 1998.[1] This initiative to examine and, if needed, adjust all pertinent issues including trade in services, trade in goods, intellectual property (IP) protection, and economic development did not however bear any fruit over a period of two decades. Indeed, WTO law, despite some adjustments through the Information Technology Agreement (ITA),[2] its update in 2015, and the

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1 WTO, *Work Programme on Electronic Commerce*, WT/L/274, 1998.

2 WTO, *Ministerial Declaration on Trade in Information Technology Products*, WT/MIN(96)/16, 1996.

Trade Facilitation Agreement,[3] is still very much in its pre-Internet state.[4] It can of course be argued that the powerful and far-reaching principles of non-discrimination coupled with the adaptive mechanism of the WTO dispute settlement can easily cover new situations and still provide certainty and predictability for businesses and states to engage in global trade.[5] Such a hypothesis may be however far-fetched and even flawed. Since the Work Programme on E-commerce was launched more than 20 years ago, the picture of global trade has changed in many critical aspects. The significance of digital trade, both in its contribution to the economic growth of many countries and the preoccupation of governments with digital trade-related policies, has grown exponentially.[6] On the one hand, this progress and the changing interests relate to new, previously unknown or not fully developed technological applications, such as mobile telephony or cloud computing, which have become important platforms for business.[7] On the other hand and more vitally, they relate to the Internet as an elemental foundation for innovation with deep economic, social, and cultural implications.[8] The importance of data as a key aspect to essentially all societal activities is critical in this transformation[9] and has been recently clearly acknowledged in trade policy circles.[10] The sweeping transformations brought about by the Internet have also been associated with a palette of new measures that inhibit digital trade, such as, among others, the much talked of 'data localization measures,' which encompass diverse requirements for either localization of data servers and providers, local content policies, or may involve discrimination against not locally based digital services or providers.[11]

3 WTO, *Protocol Amending the Marrakesh Agreement Establishing the World Trade Organization*, Decision of 27 November 2014, WT/L/940, adopted 28 November 2014; entered into force on 22 February 2017 following the ratification by two-thirds of the WTO membership.

4 Mira Burri, 'The International Economic Law Framework for Digital Trade', II Zeitschrift Für Schweizerisches Recht 135 (2015), at 10; Mira Burri, 'The Governance of Data and Data Flows in Trade Agreements: The Pitfalls of Legal Adaptation', 1 UC Davis Law Review 51 (2017), at 65.

5 Burri (2017), ibid.

6 United States International Trade Commission (USITC), Digital Trade in the US and Global Economies, Part 1, Investigation No 332–531, USITC Publication 4415 (2013), at 1; United States International Trade Commission, Digital Trade in the US and Global Economies, Part 2, Investigation No 332–531, USITC Publication 4485 (2014), at 1.

7 See e.g. WTO, *Communication from the European Union and the United States: Contribution to the Work Programme on Electronic Commerce*, S/C/W/338, 2011.

8 Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, (New Haven, CT: Yale University Press, 2006); Anupam Chander, *The Electronic Silk Road: How the Web Binds the World in Commerce*, (New Haven, CT: Yale University Press, 2013). For a brief overview with regard to trade, see Joshua Paul Meltzer, 'The Internet, Cross-Border Data Flows and International Trade', 1 Asia & the Pacific Policy Studies 2 (2015), at 90; Mira Burri, 'Current and Emerging Trends in Disruptive Technologies: Implications for the Present and Future of EU's Trade Policy', Study for the European Parliament EXPO_STU(2017)603 845 (2017).

9 Viktor Mayer-Schönberger and Kenneth Cukier, *Big Data: A Revolution That Will Transform How We Live, Work, and Think*, (New York: Eamon Dolan/Houghton Mifflin, 2013).

10 Nicolaus Henke et al., *The Age of Analytics: Competing in a Data-Driven World* (Washington, DC: McKinsey Global Institute, 2016); See Burri (2017), above n 4; WTO, *World Trade Report 2018* (Geneva: World Trade Organization, 2018).

11 See USITC, above n 6; for a country survey, see Anupam Chander and Uyên P Lê, 'Breaking the Web: Data Localization vs. The Global Internet', 1 UC Davis Legal Studies Research Paper Series Research Paper 2014 (2014); Anupam Chander and Uyên P Lê, 'Data Nationalism', 3 Emory Law Journal 64 (2015) 677.

Against the backdrop of pre-Internet WTO law, many of these disruptive changes have demanded regulatory solutions outside the multilateral trade forum. States around the world have used in particular the venue of preferential trade agreements (PTAs) to fill in some of the gaps of the WTO framework, clarify its applications and beyond that, address the newer trade barriers, and accommodate their striving for seamless digital trade. Quite naturally for developments in preferential trade, the framework that has emerged as a result and now regulates contemporary digital trade is not coherent. It is neither evenly spread across different countries, nor otherwise coordinated. Indeed, it can be messy, fragmented with regard to substantive rules and the countries who endorse them, with both legal entrepreneurs and late comers; it is often power-driven and sometimes curiously not so.

This article introduces a dataset that seeks to comprehensively trace all these developments in the area of digital trade governance. The Trade Agreements Provisions on Electronic-Commerce and Data (TAPED) dataset includes a detailed mapping and coding of all PTAs that include chapters, provisions, annexes, and side documents that directly or indirectly regulate digital trade. These rules can be found in electronic commerce, services chapters (in particular telecommunications, computer and related, audio-visual and financial services sectors), and IP chapters, as well as in specifically created understandings—for instance, on Information and Communications Technology (ICT) cooperation, government procurement, or in entirely new rules on free data flows. The TAPED dataset provides a helpful basis for comparing digital trade relevant norms scattered in the existing, predominantly bilateral, PTAs.[12] It also gives an important evolutionary perspective on the political processes and the diverging positions of the main actors on digital trade issues, such as the United States (US) and the European Union (EU), and how these have changed over time. The dataset also permits to trace other developments that may be missed if one focuses solely on the US versus EU tensions and covers the important role of other actors, such as Australia, Japan, and the countries of the Pacific Alliance, in advancing new models of digital trade governance.

We trust that this dataset can be in many ways invaluable to both research and policy, as it allows for a fully-informed understanding of digital trade rules and how these have been shaped over time. As many countries strive to push their digital agendas forward, including in the area of trade, TAPED may help along the way, in particular as to identifying gaps, best practices and pinpointing issues on which there seems to be some consensus among states, which can be then potentially more easily multilateralized. Beyond this and in an effort to link to international relations research, in the elaboration of the TAPED dataset, we have also tried to categorize existing provisions as 'hard' or 'soft,' so as to be able to detect levels of legalization and assess their impact on the domestic regulatory environment. International relations scholars can also make good

12 For some previous attempts with a limited number of agreements, see e.g. Sacha Wunsch-Vincent, 'Trade Rules for the Digital Age', in Marion Panizzon, Nicole Pohl and Pierre Sauvé (eds), *GATS and the Regulation of International Trade in Services* (Cambridge: Cambridge University Press, 2008) 497–529; Sacha Wunsch-Vincent and Arno Hold, 'Towards Coherent Rules for Digital Trade: Building on Efforts in Multilateral versus Preferential Trade Negotiations', in Mira Burri and Thomas Cottier (eds), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press, 2015) 179–221.

use of TAPED in identifying models, tracking their global diffusion and thinking about the forces that may have driven this diffusion.[13] Finally and in a normative sense, we hope that the TAPED dataset would permit research and policy recommendations on what should and can be done differently in digital trade governance, so that on the one hand, data-driven innovation can be fostered and sustained, while on the other hand, some important public interests, such as notably the protection of privacy, can be appropriately safeguarded. We view the TAPED dataset as a continued effort, as it will be made available to all to use and further develop under the creative commons (attribution, non-commercial, and share-alike) license on the University of Lucerne website (unilu.ch/taped).[14]

This article introduces the TAPED dataset and is structured as follows: Section two briefly explains the methodology used for the creation of TAPED; section three presents an overview of the evolution of digital trade provisions in PTAs and identifies some emerging trends. Section four looks at the substance of the provisions with a deep dive into the existing e-commerce chapters and side agreements. A brief conclusion follows in section five.

I. METHODOLOGY

Digital trade as a critical policy topic can be construed in two ways—one narrow and one broad. In the former sense, digital trade is plainly equated to commerce in products and services delivered via the Internet.[15] The second aspect is much broader and has to do with enabling innovation and the free flow of information in the digital networked environment. This difference is not of mere academic interest but has true policy implications, as for instance in the current WTO negotiations, China has promoted a narrow view of digital trade, which focuses on trade in goods online, while the US and others have subscribed for an inclusive approach.[16] It has been the purpose of our dataset to cover issues under both these definitions of digital trade and strive for comprehensiveness. If one wishes, by merely filtering the dataset by countries, it is possible to identify which countries have followed a narrower or a broader approach on digital trade.

Unless otherwise specified, we considered as digital trade provisions those explicitly mentioning and referring to electronic commerce, digital trade, and data flows. Several

13 David Marsh and J C Sharman, 'Policy Diffusion and Policy Transfer', 3 Policy Studies 30 (2009) 269; Fabrizio Gilardi, 'Transnational Diffusion: Norms, Ideas, and Policies', in Walter Carlsnaes, Thomas Risse and Beth Simmons (eds), *Handbook of International Relations* (London: SAGE, 2013) 453–477.

14 The TAPED dataset has been created under the project 'The Governance of Big Data in Trade Agreements', which is led by Mira Burri and Manfred Elsig and based at the Universities of Lucerne and Bern. It is part of the National Research Programme (NRP)75: Big Data, which is sponsored by the Swiss National Science Foundation. The TAPED dataset would not have been possible without the time and effort invested by a great team, consisting of Rodrigo Polanco, Rahel Schär, Sebastian Klotz, Rutendo Tavengerwei and Ximena Montenegro Huerta.

15 USITC, above n 6, at i. As there is no settled definition of 'electronic commerce' or 'digital trade', characterizations differ. For an overview of the existing definitions, see Andrew D Mitchell, 'Towards Compatibility: The Future of Electronic Commerce within the Global Trading System', 4 Journal of International Economic Law 4 (2001) 685–686, at 683; Lior Herman, 'Multilateralising Regionalism: The Case of E-Commerce', OECD Trade Policy Working Papers 99 (2010), at 8–10.

16 Henry Gao, 'Digital or Trade? The Contrasting Approaches of China and US to Digital Trade', 2 Journal of International Economic Law 21 (2018) 297.

keywords were used as a short-cut to identify such provisions (e.g. 'data,' 'digital,' 'electronic,' 'information and communication,' 'internet,' 'online,' and 'information technology'). As these keywords can appear in different sections besides chapters devoted to electronic commerce or digital trade, we have made a cross-cut analysis of digital trade provisions, regardless where there were found in the text of the PTA. In this sense, our coding also considered commitments that are related to the effective implementation of digital trade provisions, like national treatment (NT) and market access commitments in telecommunications, financial, and computer and related services. With this methodology, we aim for breadth and hope to contribute to the growing literature that systematically maps PTA rules in various trade areas using different analytical approaches.[17]

Together with the collection and revision of metadata of these agreements (parties, date of signature, entry into force, etc.), a double-coding of each treaty was done manually and then complemented with the digital mapping of texts using a software designed for computer-assisted qualitative and mixed methods data, text, and multimedia analysis (MAXQDA). A total of 90 different items were coded, including provisions on digital trade, IP, key services sectors, government procurement, trade in goods, as well as general and specific exceptions. A codebook explaining the questions behind the coding points is made available online together with the dataset. Although we have tried to formulate the coding questions in straightforward and specific terms, it cannot be excluded that some questions suffer from an unintended selection bias, which has to do with history of data governance.

Our work has not started from scratch, nor has it developed in a scholarly vacuum. We have used the basic framework given through the existing and evolving body of literature in the area of conceptualizations of Big Data and related topics,[18] as well as the existing efforts of creating databases or mapping PTAs.[19] For our analysis, we have used as a starting point the Design of Trade Agreements (DESTA) database, which has since 2009 systematically collected data on various types of PTAs. As of March 2019, DESTA works with a list of 993 PTAs. Unlike other enquiries, which have analyzed

17 Wolfgang Alschner, Joost Pauwelyn and Sergio Puig, 'The Data-Driven Future of International Economic Law', 2 Journal of International Economic Law 20 (2017) 217.

18 See e.g. David Weinberger, *Everything Is Miscellaneous: The Power of the New Digital Disorder*, (New York: Times Books, 2007); David Weinberger, *Too Big to Know*, (New York: Basic Books, 2012); Danah Boyd and Kate Crawford, 'Critical Questions for Big Data', 5 Information, Communication & Society 15 (2012) 662; Mayer-Schönberger and Cukier, above n 9; Rob Kitchin, *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences*, (London: SAGE, 2014); Urs Gasser, 'Perspectives on the Future of Digital Privacy', II Zeitschrift für Schweizerisches Recht 134 (2015) 339; Andrew Keane Woods, 'Against Data Exceptionalism', Stanford Law Review 68 (2016) 729.

19 José-Antonio Monteiro and Robert Teh, 'Provisions on Electronic Commerce in Regional Trade Agreements', WTO Staff Working Paper ERSD-2017-11 (2017); Claudia Hofmann, Alberto Osnago and Michele Ruta, *Horizontal Depth: A New Database on the Content of Preferential Trade Agreements*, (Washington, DC: The World Bank, 2017); Andreas Dür, Leonardo Baccini and Manfred Elsig, 'The Design of International Trade Agreements: Introducing a New Dataset', Review of International Organizations 9 (2014) 353; Henrik Horn, Petros C Mavroidis and André Sapir, 'Beyond the WTO? An Anatomy of EU and US Preferential Trade Agreements', 11 The World Economy 33 (2010) 1565; Antoni Estevadeordal, Kati Suominen and Robert Teh, *Regional Rules in the Global Trading System* (Cambridge: Cambridge University Press, 2009).

e-commerce provisions in PTAs,[20] this study provides a comprehensive quantitative analysis beyond the PTAs currently in force and notified to the WTO[21] and covers also those agreements that are not notified, those that are signed but not yet in force, and those for which the negotiation has been completed and the text made available.[22] Using the kick-off of the US Digital Agenda (with the Bipartisan Trade Promotion Authority Act of 2002), and the EU's 2000 Directive on e-commerce[23] as starting points of the PTA proliferation, our dataset includes the revision of 346 PTAs concluded between 2000 and October 2019,[24] which were compiled in pdf format. From those treaties, 184 PTAs include provisions that are related to digital trade, 108 have specific e-commerce provisions and 78 consider dedicated e-commerce chapters and side agreements. In comparison, the most complete analysis made prior to TAPED, only examines 75 WTO-notified PTAs that explicitly include e-commerce provisions.[25]

An assessment of the extent of legalization of all coded provisions was also performed, distinguishing between 'soft,' 'mixed,' and 'hard' commitments, as well as the number of provisions and words contained in each agreement that are related to digital trade.[26] We considered as 'soft' those commitments that are not enforceable by the parties. These include 'best effort' provisions like those 'recognizing the importance,' 'working towards,' or 'promoting' a certain objective. Cooperation provisions were considered as non-binding unless an obligation to cooperate in certain areas is made explicit in the treaty, within a specific frame and time. When coding these provisions, we took into account that several treaties use language that initially appears binding (e.g. 'shall') but becomes hortatory by adding another word (e.g. 'shall endeavor').[27] We classified as 'hard' those commitments that oblige a party to comply with a provision or a principle and which are enforceable by another party. Examples of binding commitments include 'shall,' 'must,' or 'shall take appropriate measures.' We consider an agreement with 'mixed' legalization, if the treaty has both soft and hard commitments in the same coding line, regardless the number of provisions that bear such characteristics. Similarly, we included in this category references to other agreements that are only partially applicable (e.g. some specific provisions of the TRIPS) or if the agreement 'allows' for something that is not explicitly noted in the text (e.g. certain exceptions). To be

20 Sonia E Rolland, 'Consumer Protection Issues in Cross-Border Ecommerce', in John A Rothchild (ed), *Research Handbook on Electronic Commerce Law*, (Cheltenham: Edward Elgar, 2016) 365–390; Herman, above n 15.

21 Monteiro and Teh, above n 19.

22 We have excluded from this count treaties where a wish to regulate these topics has been mentioned but there is no agreement (e.g. Art. 239(a) of the 2001 Revised Treaty Establishing the Caribbean Community and Common Market).

23 Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market, OJ L 178 (2000).

24 In contrast, by March 2019 a total of 291 PTAs in force have been notified to the WTO but only 149 are found between 2000 and 2018.

25 Monteiro and Teh, above n 19.

26 Kenneth W Abbott and Duncan Snidal, 'Hard and Soft Law in International Governance', 3 International Organization 54 (2000) 421. See also Kenneth W Abbott et al., 'The Concept of Legalization', 3 International Organization 54 (2000) 401; Gregory C Shaffer and Mark A Pollack, 'Hard vs. Soft Law: Alternatives, Complements, and Antagonists in International Governance', Minnesota Law Review 94 (2010) 706.

27 Abbott and Snidal, above n 26.

sure, there are limitations that are inherent to this type of analysis: sometimes different wording of provisions can mean the same thing and vice versa; some interpretations also depend on the context of the treaty, such as its preamble. Similarly, a greater number of words in e-commerce chapters or side agreements may not mean more liberalization of digital trade, although it arguably signifies a greater interest in the subject.

II. THE EVOLUTION OF DIGITAL TRADE PROVISIONS IN PTAS: OVERVIEW AND SOME EMERGING TRENDS

From the 346 PTAs reviewed, we found 184 PTAs with provisions related to digital trade. The largest number of provisions is found in e-commerce and IP chapters; overall, the provisions remain however highly heterogeneous, addressing various issues ranging from customs duties and non-discriminatory treatment of digital products to domestic regulatory framework, electronic signatures, consumer protection, data protection, paperless trading, and unsolicited electronic messages. Putting the agreements along a chronological line, it is evident that the inclusion of digital trade provisions in PTAs referring explicitly to electronic commerce is not a recent phenomenon, although it has evolved significantly in the past two decades. The first e-commerce provision is found in the 2000 Free Trade Agreement (FTA) between Jordan and the US.[28] Three years later, the 2003 Australia–Singapore FTA (SAFTA)[29] was the first PTA to have a dedicated chapter on e-commerce. At the moment of this writing, specific provisions applicable to e-commerce can be found in 108 PTAs, mostly in dedicated chapters (78 in our dataset).

Provisions regarding data flows in particular are found in trade agreements for more than a decade. While the first PTA including such provisions in general terms is the 2007 Korea–US FTA (KORUS),[30] the 2000 New Zealand–Singapore Closer Economic Partnership Agreement (CEPA) already included a provision considering the transfer of financial information, as well as data processing as part of the financial services commitments.[31] Although the number of PTAs incorporating specific digital trade provisions remains limited, the last eight years have witnessed a significant increase in the number of agreements with such provisions. As shown in Figure 1, digital trade provisions are, on average, included in more than 61% of all PTAs that were concluded between 2010 and 2018. The correlation is even closer, if we consider only the PTAs that have been notified to the WTO.[32] As Willemyns mentions, two-thirds of the WTO Members are party to a PTA with e-commerce related provisions.[33]

This rise in the total number of PTAs with digital trade provisions is driven mainly by bilateral agreements: 77% of all trade agreements concluded since 2000 are bilateral,

28 Jordan-US FTA, Art. 7 (concluded on 24 October 2000, in force 17 December 2001).

29 SAFTA was concluded on 17 February 2003, in force 28 July 2003.

30 KORUS was concluded on 30 June 2007, in force 15 March 2012.

31 CEPA Annex 2.1, Schedule of Commitments of New Zealand.

32 The decline in WTO-notified PTAs with digital trade provisions in 2018 is probably related to the fact that two-thirds of these agreements are not yet in force.

33 Ines Willemyns 'Agree to disagree? A tripartite comparison in light of the plurilateral negotiations on electronic commerce', in this issue, at 4.

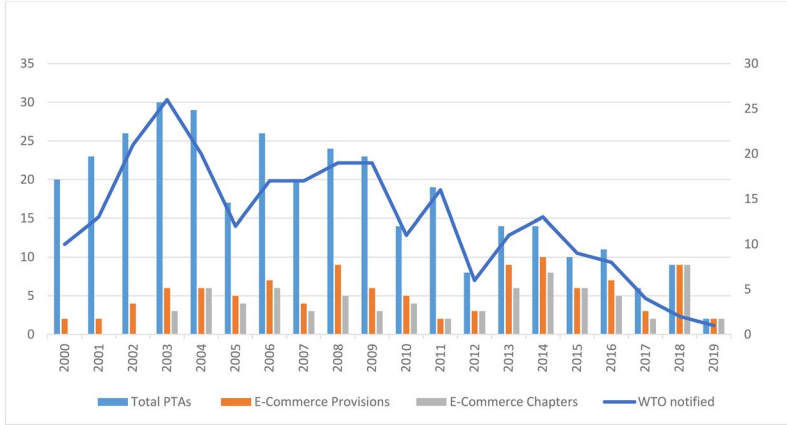

Figure 1. Evolution of PTAs with digital trade provisions.

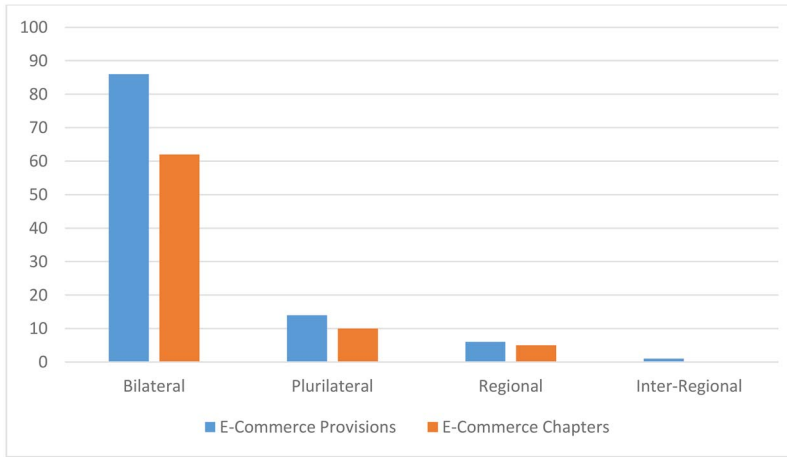

Figure 2. Type of PTA with digital trade provisions.

and within that group 83% agreements include digital trade provisions, as it is depicted in Figure 2.

The agreements with digital trade provisions are mostly of an intercontinental nature; the Americas and Asia being the most relevant regional areas, as portrayed in Figure 3.

The rise of PTAs having digital trade provisions involves both developed and developing countries. Following the country classification of the UN World Economic Situation and Prospects report,[34] as of September 2019, 59% of the PTAs with digital trade provisions were negotiated between developed and developing countries and 36% between developing countries. Only 5% of PTAs with e-commerce provisions were negotiated between developed countries, as depicted in Figure 4.

34 United Nations, *World Economic Situation and Prospects*, (New York: UN Publications, 2018).

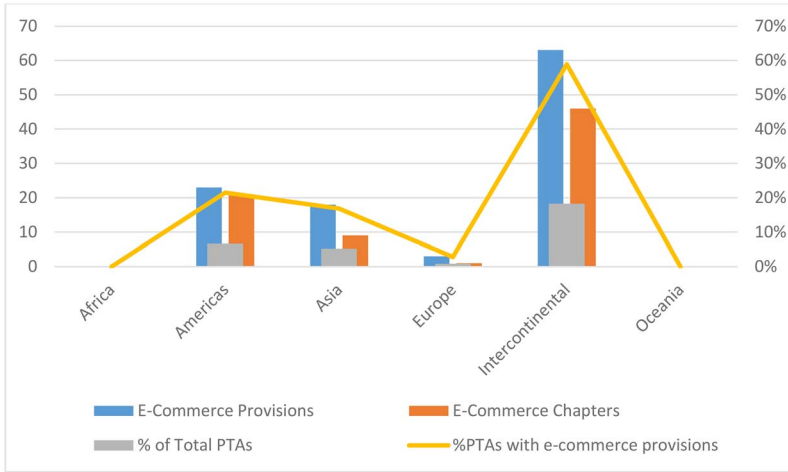

Figure 3. PTAs with digital trade provisions per region.

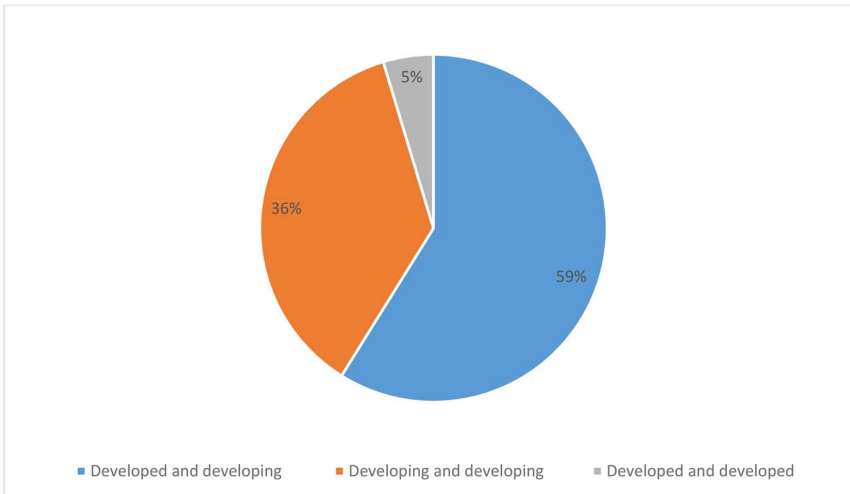

Figure 4. Parties to PTAs with digital trade provisions.

Among the PTAs in our dataset, the number of agreements including digital trade provisions has increased significantly over the years. As of October 2019, seven is the average number of PTAs provisions found in e-commerce chapters and side agreements, and if we consider the past five years that average goes up to ten, as shown in Figure 5.

Among the PTAs with digital trade provisions, it is evident that the level of detail has also increased significantly over the years. As of October 2019, 835 is the average number of words found in e-commerce chapters and side agreements, with an average number of 1476 words in the last five years, as shown in Figure 6.

As of October 2019, the updated 2016 SAFTA is the PTA in force with the highest number of provisions in an E-commerce chapter (19 in total), with a total of 2997

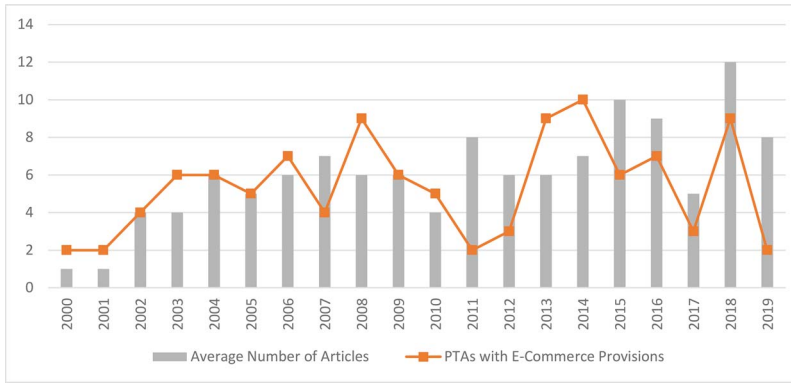

Figure 5. PTAs with digital trade provisions: average number of articles.

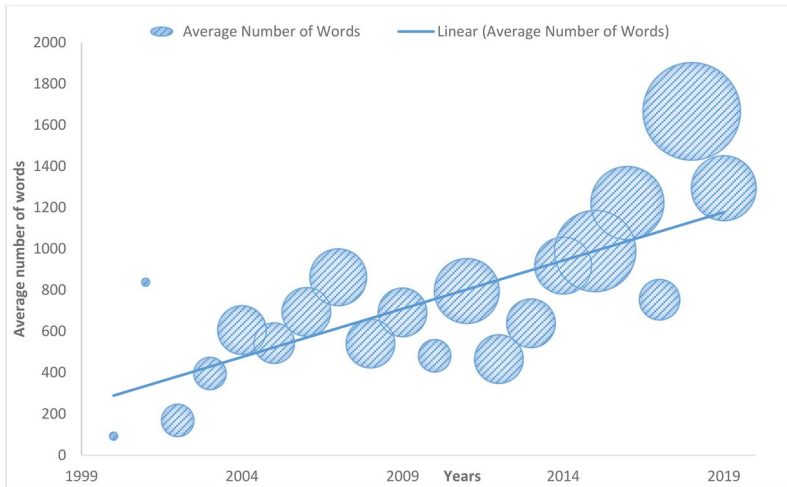

Figure 6. PTAs with E-commerce chapters: average number of words.

words. If approved, the 2019 Japan-US Digital Trade Agreement (DTA) would overtake SAFTA, as its current text has 22 articles comprising 5346 words.

III. SUBSTANTIVE DIGITAL TRADE PROVISIONS IN PTAS: INSIGHTS FROM THE E-COMMERCE CHAPTERS

We now take a deep dive into some substantive areas of the emergent digital trade law, as shaped by PTAs. While in the preceding section, we looked at the digital provisions that are generally found in PTAs; in this section, we focus on selected topics tackled in mostly in dedicated e-commerce chapters, as these tend to include the most comprehensive and binding commitments on digital trade. To structure the overview, we have focused on those provisions within commerce chapters that are also most likely to have a strong impact on domestic regulatory regimes underlying digital technologies and their development. We have tentatively split these provisions into categories that are (i) meant to compensate for the lack of development under the WTO and/or address

specific issues raised by the WTO Work Programme on E-Commerce; (ii) meant to enable digital trade by either cutting red tape, by facilitating digital transactions or in general, by making it easier to conduct business online; and (iii) provisions that cover new issues that have not been discussed in the WTO context (the so-called 'WTO-extra' issues) and try to address more contentious areas, such as in particular data flows and data protection. Our goal is to uncover the great variety and the complexity of the norms found in the PTAs, which also reveals the value of the TAPED dataset.

A. Compensating for developments under the WTO

1. Applicability of WTO rules

It is commonly assumed that the digital trade provisions in PTAs build upon the rules of the WTO.[35] As a move of regime-shifting, PTAs are also expected to fill in gaps and address some of the questions that have been left open by the multilateral forum.[36] When looking at the e-commerce chapters of PTAs, however, it appears that the majority of PTAs do not include a provision referring to the applicability of WTO rules to e-commerce. From the 108 PTAs that have e-commerce chapters or side agreements, only 48 agreements include such reference, with important differences of language across agreements. Some of the PTAs do explicitly recognize the applicability of the WTO rules to electronic commerce, but do not clearly specify which the relevant rules that would be applied are. Such provisions are found mainly in some of the PTAs to which the EU is a Party,[37] as well as in agreements concluded by Canada and Singapore.[38] A similar provision stipulates that the Parties recognize that WTO rules apply 'to the extent they affect electronic commerce,'[39] or to measures 'affecting electronic commerce'[40]—such provisions are found mainly in agreements concluded by Colombia, South Korea, and the US. In other softer variations, countries merely 'reaffirm' their respective commitments under the WTO Agreements,[41] agree that

35 See e.g. diverse chapters in Mira Burri and Thomas Cottier (eds), *Trade Governance in the Digital Age*, (Cambridge: Cambridge University Press, 2014).

36 See e.g. Kal Raustiala and David G Victor, 'The Regime Complex for Plant Genetic Resources', 2 International Organization 58 (2004) 277; Laurence Helfer, 'Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking', Yale Journal of International Law 29 (2004) 1; Karen J Alter and Sophie Meunier, 'The Politics of International Regime Complexity', 1 Perspectives on Politics 7 (2009) 13.

37 EU-Singapore FTA, Art. 8.57.1; CETA, Art. 16.2.1; EC-Ukraine, Art. 85.1; EC-Georgia FTA, Art. 76.1.

38 Central America-Korea FTA, Art. 14.1.1; Australia-China FTA, Art. 12.1; China-Georgia FTA, Art. 12.2.1; China-Korea FTA, Art. 13.1; Canada-Korea FTA, Art. 13.2.1; Colombia-Panama FTA, Art. 19.2.1; Canada-Panama FTA, Art. 15.03.1; Canada-Colombia FTA, Art. 1502.1; Canada-Peru FTA, Art. 1502.1; Panama-Singapore FTA, Art. 13.1; Korea-Singapore, Art. 14.2; India-Singapore ECA, Art. 10.1; New Zealand-Thailand FTA, Art. 10.1; Australia-Thailand FTA, Art. 1101.1; Singapore-US FTA, Art. 14.1; Australia-Singapore FTA (2003), preamble.

39 Canada-Honduras FTA, Art. 16.2.

40 Australia-Korea FTA, Art. 15.1; Colombia-Costa Rica FTA, Art. 16.2.1; Colombia-Korea FTA, Art. 12.1.1; Australia-Malaysia, Art. 15.1; Central America-Mexico, Art. 15.2.1; Korea-Peru FTA, Art. 14.1.1; EC-Korea FTA, Art. 7.48.1; Costa Rica-Singapore Art. 12.1.1; Colombia-Northern Triangle FTA, Art. 14.2.1; Korea-US FTA, Art. 15.1; Panama-US TPA, Art. 14.1.1; Colombia-US, Art. 15.1.1; Nicaragua-Taiwan FTA, Art. 14.01.1; Peru-US, Art. 15.1.1; Oman-US FTA, Art. 14.1; Bahrain-US FTA, Art. 13.1; CAFTA-Dominican Republic-United States (CAFTA-DR-US), Art. 14.1.1; Morocco-US FTA, Art. 14.1; Australia-US FTA, Art. 16.1.

41 EU-Armenia CEPA, Art. 141.1; Colombia-EU-Peru FTA, Art. 107.1; EC-Moldova FTA, Art. 202.1.

electronic commerce 'falls within the scope of WTO rules and commitments,'[42] or endeavor to develop their legal framework for electronic commerce applying decisions taken within the WTO framework on this issue.[43]

2. Non-imposition of customs duties on electronic transmissions

One explicit link to the WTO is made through provisions on the so-called 'moratorium on custom duties.' The latter has been one of the frequently discussed issues under the WTO E-Commerce Programme and one that has actually enjoyed, at least partial, support of the WTO membership. Until now, members have continued to extend the obligation not to impose customs duties on electronic transmissions at all Ministerial Conferences since the start of the WTO E-Commerce Work Programme but have failed to make it permanent.[44] The ban on customs duties is one of the most common provisions found in PTAs with digital trade rules (76 agreements) and provides some legal certainty for digital commerce, in particular for trade in downloadable products, such as software, e-books, or music.[45] Despite being commonplace, these commitments have different wording. An earliest type of provisions merely recognizes the 'existing practice of not imposing customs duties on electronic transmissions' between the Parties;[46] with some agreements making it explicit that the practice shall or will be maintained.[47] In certain cases, the agreements make reference to the Work Programme on Electronic Commerce and the Parties pledge to cooperate to make this practice binding in the WTO framework.[48] In few agreements, the parties reserve their right to adjust this practice, consistent with any changes to the WTO Ministerial Decision on this issue.[49]

Yet, the most common approach is a provision on a permanent moratorium on duty-free treatment, meaning that no customs duties should be imposed on electronic transmissions and digital products. Here again, there are several variations. Some PTAs plainly stipulate that a party may not apply customs duties on digital products of the other Party,[50] or in more binding terms, 'shall' not impose such duties,[51] or generally not to apply them, as well as any fees or charges on import or export of digital products

42 Jordan-US FTA, Joint Statement on Global Electronic Commerce.

43 EAEU-Vietnam FTA, Art. 13.7.a).

44 WTO, *Work Programme on Electronic Commerce, Ministerial Decision of 13 December 2017*, WT/MIN(17)/65, WT/L/1032, 2017.

45 Mark Wu, 'Digital Trade-Related Provisions in Regional Trade Agreements: Existing Models and Lessons for the Multilateral Trade System', International Centre for Trade and Sustainable Development Working Paper (2017), at 11.

46 Jordan-US FTA, Art. 7.1(a); Australia-Singapore FTA, Ch. 14, Art. 3; Jordan-Singapore FTA, Art. 5.1(a); Australia-Thailand FTA, Art. 1102; New Zealand-Thailand FTA, Art. 10.2; New Zealand-Taiwan FTA, Ch. 9, Art. 4.

47 Australia-Japan FTA, Art. 13.3; Japan-Mongolia FTA, Art. 9.3; China-Korea FTA, Art. 13.3.

48 Japan-Switzerland FTA, Art. 76. Similar provisions can be found in the 2013 Central America-EFTA, Annex II, Art. 2; the 2015 Australia-China FTA, Art. 12.3; the 2018 Singapore-Sri Lanka FTA, Art. 9.3 and the 2015 Korea-Vietnam FTA, Art. 10.2.1.

49 China-Korea FTA, Art. 13.3; Australia-China, Art. 12.3; Singapore-Sri Lanka FTA, Art. 9.3.2.

50 Chile-US FTA, Art. 15.3.

51 Australia-Chile FTA, Art. 16.4; Australia-Korea FTA, Art. 15.3; EU-Singapore FTA, Art. 8.58; EU-Vietnam FTA, Art. 8.51; EU-Japan EPA, Art. 8.72.

by electronic means.[52] In certain agreements, mostly concluded by the EU, the parties agree that electronic transmissions shall be considered as the provision of services and for that reason cannot be subject to customs duties.[53] In some of these treaties, instead of referring to electronic transmissions, the parties simply agree not to impose duties on 'deliveries by electronic means.'[54] Another group of PTAs makes it clear that the moratorium extends only to customs duties, fees, or other charges on or in connection with the importation or exportation of digital products, and not to internal taxes, fees, or other charges, provided that are imposed in a manner consistent with the agreement.

While some of these treaties give this benefit exclusively to products transmitted or delivered,[55] or imported/exported by electronic means,[56] others extend the moratorium to the content transmitted electronically between persons,[57] regardless of whether digital products are fixed on a carrier medium or transmitted electronically.[58] In certain PTAs, there is an explicit distinction between digital products (which are transmitted by electronic means) and those whose sale occur online but are physically transported over borders. For example, according to some treaties—mainly concluded by Singapore and Colombia—a party shall not apply customs duties on digital products by electronic transmission, and when these are transmitted physically, the customs value is 'only limited to the value of the carrier medium' without including the value of the digital product stored in it.[59] A variation of this provision, usually found in US agreements, uses 'may' instead of 'shall,' making the commitment somewhat less binding.[60]

A carrier medium is commonly defined as 'any physical object capable of storing a digital product by any method now known or later developed, and from which a digital product can be perceived, reproduced, or communicated, directly or indirectly, and includes, but is not limited to, an optical medium, a floppy disk, or a magnetic tape.'[61] In

52 Mexico-Panama FTA, Art. 14.4.

53 EU-Moldova AA, Art. 254.3; EU-CARIFORUM ECA, Art. 119.3; Colombia-EU-Peru FTA, Art. 162.3; Colombia-Israel FTA, Annex B, Art. 1.3; EU-Georgia FTA, Art. 127.3; EU-Ukraine FTA, Art. 139.3; EU-Armenia CEPA, Art. 193.3.

54 EU-Korea FTA, Art. 7.48.3; Central America-EU FTA, Art. 201.3.

55 Japan-US Digital Trade Agreement, Art. 7; Korea-Vietnam FTA, Art. 10.2.2; Canada-Jordan FTA, Art. 3–1; Canada-Panama FTA, Art. 15.04; Colombia-Panama FTA, Art. 19.3; Canada-Korea FTA, Art. 13.3; Canada-Ukraine FTA, Art. 8.2; CETA Art. 16.3.

56 Peru-Singapore FTA, Art. 13.1; Canada-Colombia FTA, Art. 1503; Korea-Peru FTA, Art. 14.4; Australia-Malaysia FTA, Art. 15.4; Colombia-Korea FTA, Art. 12.2; Canada-Honduras FTA, Art. 16.3; PAAP, Art. 13.4.

57 Singapore-Turkey FTA, Art. 9.3; TPP/CPTPP, Art. 14.3; Chile-Uruguay FTA, Art. 8.3; Australia-Singapore FTA (2016), Ch. 4, Art. 4; Australia-Peru FTA, Art. 13.3; EU-Mexico Modernised Global Agreement, Chapter on Digital Trade, Art. 3; USMCA, Art. 19.3; Brazil-Chile FTA, Art. 10.3.

58 Australia-US FTA, Art. 16.3; Korea-US FTA, Art. 15.3; Canada-Peru FTA, Art. 1503; Central America-Korea FTA, Art. 14.3.1–2.

59 Singapore-US FTA, Art. 14.3.1–2; India-Singapore ECA, Art. 10.4.1–2; Korea-Singapore FTA, Art. 14.4.1–2; Panama-Singapore FTA, Art. 13.3.1–2; Nicaragua-Taiwan FTA, Art. 14.03.1–2; Chile-Colombia FTA, Art. 12.1.2 and 12.3; Colombia-Northern Triangle FTA, Art. 14.2.2 and Art. 14.4.1–2; Costa Rica-Singapore FTA, Art. 12.1.2 and Art. 12.4.1–2; Gulf Cooperation Council (GCC)-Singapore FTA, Art. 7.4; Central America-Mexico FTA, Art. 15.2.1 and 15.4.1–2; Colombia-Costa Rica FTA, Art. 16.3.

60 Morocco-US FTA, Art. 14.3.1–2; CAFTA-DR-US, Art. 14.3.1–2; Bahrain-US FTA, Art. 13.3; Oman-US FTA, Art. 14.3.1–2; Peru-US TPA, Art. 15.3.1–2; Colombia-US TPA, Art. 15.1.2 and 15.3.1–2; Panama-US TPA, Art. 14.1.2 and 14.3.1–2; Singapore-Taiwan FTA, Art. 11.3.

61 Singapore-US FTA, Art. 14.4.1; Australia-US FTA, Art. 16.8.2; Morocco-US FTA, Art. 14.4; CAFTA-DR-US, Art. 14.6; Bahrain-US FTA, Art. 13.5; Korea-Singapore FTA, Art. 14.1; Oman-US FTA, Art. 14.5;

more recent agreements, the reference to a 'floppy disk' has been replaced by 'electronic means.'[62] An alternative definition considers as carrier medium 'any physical object, as listed under the WTO ITA-1 Attachment A, capable of storing a digital product by any method and from which a digital product can be perceived, reproduced, or communicated directly or indirectly.'[63] Other alternative definitions only consider that goods classified in specific subheadings of the Harmonized System can be considered digital products fixed on a carrier medium.[64] Just one agreement in the dataset leaves the determination of the customs value of an imported carrier medium bearing a digital product to each party, in accordance with the WTO Customs Valuation Agreement.[65] Such variations may seem somewhat technical and dull but they are not without legal impact—for instance, extending the obligation to all digital products regardless of source may be a very practical choice, as determining the origin of a digital product can be complicated, especially in a world where data necessary to create these products can be stored and transmitted through various jurisdictions.[66] In a number of PTAs, the moratorium of customs duties, fees, or charges in connection with the exportation or importation of a digital product by electronic means is explicitly not extended to third countries on a most-favored-nation (MFN) basis.[67] In such agreements, the origin of a digital product takes on additional importance, but only a small number of PTAs raise this issue. For example, in the 2009 Japan–Switzerland EPA, the Parties shall 'foster the development of criteria determining the origin of a digital product, with a view to considering the incorporation of such criteria into the Agreement.'[68]

Overall, the issue of the duty-free electronic transmissions shows the link between the WTO discussions and provisions in PTAs. The above brief taxonomy of how different PTAs address it also reveals the striking variations across PTAs with potentially diverging legal effects, despite the relatively narrow and unproblematic legal matter that such a ban on duties imposed on electronic transmissions actually entails.

3. Non-discriminatory treatment of digital products

When it comes to specific WTO disciplines, the number of agreements including explicit commitments on non-discrimination is relatively small. Out of the 78 PTAs that have e-commerce chapters or side agreements, only 35 include commitments on NT and 32 agreements on the MFN treatment regarding electronic commerce. It is

Panama-Singapore FTA, Art. 13.5.1; Peru-US TPA, Art. 15.8; Nicaragua-Taiwan FTA, Art. 14.06; Colombia-US TPA, Art. 15.8; Panama-US TPA, Art. 14.6; Korea-US FTA, Art. 15.9; Colombia-Northern Triangle FTA, Art. 14.1; GCC-Singapore FTA, Art. 7.2(a); Central America-Mexico FTA, Art. 15.1.

62 Chile-Colombia FTA, Art. 12.8.

63 India-Singapore ECA, Art. 10.2.

64 Central America-Korea FTA, Annex 14-A. These headings include e.g. cards incorporating a magnetic stripe (HS 8523.21), solid-state non-volatile storage devices (HS 8523.51), and phonograph records (HS 8523.80).

65 Korea-Singapore FTA, Art. 14.4.2.

66 See Wu, above n 45, at 12.

67 Jordan-US FTA, Art. 7.1(a); Australia-Singapore FTA, Ch. 14, Art. 3; Jordan-Singapore FTA, Art. 5.1. (a); Australia-Thailand FTA, Art. 1102; New Zealand-Thailand FTA, Art. 10.2; Korea-Singapore FTA, Art. 14.4.1; Chile-US FTA, Art. 15.3; Australia-Chile FTA, Art. 16.4; Australia-Malaysia FTA, Art. 15.4.1; New Zealand-Taiwan FTA, Ch. 9, Art. 4; Australia-Japan FTA, Art. 13.3; Japan-Mongolia FTA, Art. 9.3; Australia-Korea FTA, Art. 15.3.

68 Japan-Switzerland FTA, Art. 73.4.

noteworthy that the large majority of these provisions is binding.[69] Overall, PTAs' electronic commerce chapters tend to use a very similar wording for NT and MFN commitments. Some agreements, such as the 2014 Pacific Alliance Additional Protocol (PAAP), the 2016 Trans-Pacific Partnership (TPP), the 2018 Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the 2018 US-Mexico-Canada Agreement (USMCA) and the 2019 Japan-US DTA, address both NT and MFN in the same paragraph as part of a general commitment of a non-discriminatory treatment of digital products.[70] Yet, the majority of PTAs lists NT and MFN obligations separately. On NT, the most common wording goes back to the 2003 Singapore–US FTA stipulating that a party shall not accord less favorable treatment to some digital products than it accords to other like digital products, on the basis that they are 'created, produced, published, stored, transmitted, contracted for, commissioned or first made available on commercial terms outside its territory,' or when the author, performer, producer, developer, or distributor of such products is a person of another party or a non-Party; so as otherwise to afford protection to other like digital products in its territory.[71] A variation of this provision, often found in US agreements, uses 'may' instead of 'shall,' potentially making the commitment less binding.[72] Another an alternative found in earlier agreements, further narrows the NT obligation to products digitally delivered 'associated' with the territory of the other party or where the author, performer, producer, developer, or distributor is a person of the other party.[73] A simpler drafting of NT provisions—found in some Japanese PTAs—merely stipulates that neither party shall adopt or maintain measures that accord less favorable treatment to digital products of the other party than it accords to its own like digital products.[74] A somewhat indirect recognition of NT is found in Canada–Peru FTA, where the

69 Only in the recent Brazil-Chile FTA (2018), there is a softer approach, whereby the Parties recognize the existence of a debate in international fora (such as the WTO) on the application of non-discriminatory treatment in commerce carried out by electronic means and undertake to jointly evaluate the results of these discussions, so as to decide on the possible incorporation of norms of non-discrimination of electronically transmitted content (Art. 10.4).

70 'No Party shall accord less favorable treatment to digital products created, produced, published, contracted for, commissioned or first made available on commercial terms in the territory of another Party, or to digital products of which the author, performer, producer, developer or owner is a person of another Party, than it accords to other like digital products'. A footnote sometimes further clarifies that 'to the extent that a digital product of a non-Party is a 'like digital product', it will qualify as an 'other like digital product'. TPP/CPTPP, Art. 14.4; Singapore-Sri Lanka FTA, Art. 9.4.1; Australia-Peru FTA, Art. 13.4.1; USMCA, Art. 19.4.1; Japan-US DTA, Art. 8.1.

71 Singapore-US FTA, Art. 14.3.3; Australia-US FTA, Art. 16.4.1; Panama-Singapore FTA, Art. 13.3.2; Nicaragua-Taiwan FTA, Art. 14.03.3; Chile-Colombia FTA, Art. 12.4.1; Colombia-Northern Triangle FTA, Art. 14.4.3; Costa Rica-Singapore Art. 12.4.3; Golf Cooperation Council (GCC)-Singapore, Art. 7.4.3.

72 Morocco-US, Art. 14.3.4; CAFTA-DR-US FTA, Art. 14.3.3; Bahrain-US FTA, Art. 13.4.1; Oman-US FTA, Art. 14.3.3; Peru-US TPA, Art. 15.3.3; Colombia-US TPA, Art. 15.3.3; Panama-US, Art. 14.3.3; Korea-US FTA, Art. 15.3.2; Singapore-Taiwan FTA, Art. 11.4.1; Australia-Japan FTA, Art. 13.4.1; Singapore-Turkey FTA, Art. 9.4.1; Central America-Korea FTA, Art. 14.3.2.

73 Sacha Wunsch-Vincent, *The WTO, the Internet and Trade in Digital Products: EC-US Perspectives*, (Oxford: Hart Publishing, 2006), at 209. This provision is found in Chile-US FTA, Art. 15.4.1; India-Singapore ECA, Art. 10.4.3; Korea-Singapore FTA, Art. 14.4.3; Central America-Mexico FTA, Art. 15.4.3.

74 Japan-Mongolia FTA, Art. 9.4.1(a); Japan-Switzerland FTA, Art. 73.1(a); Japan-Mongolia FTA, Art. 9.4.1(a).

parties confirm the application of NT for goods to trade conducted by electronic means.[75]

As for the MFN obligation, most agreements require that a party shall not accord less favorable treatment to digital products 'created, produced, published, stored, transmitted, contracted for, commissioned or first made commercially available in the territory of another Party' than it accords to like digital products in the territory of a non-party. In the same line, a party shall not accord less favorable treatment to digital products of which 'the author, performer, producer, developer or distributor' is a person of a non-Party.[76] Sometimes 'may' is used instead of 'shall,' which signals a less binding nature.[77] Again, some Japanese PTAs have a simpler wording in the sense that neither party shall adopt or maintain measures that accord less favorable treatment to digital products of the other party than it accords to like digital products of a non-party.[78]

In essentially all agreements, there are certain exceptions to the non-discrimination principles, which may relate to subsidies or grants provided by a party, including government-supported loans, guarantees and insurance,[79] government procurement,[80] services supplied in the exercise of governmental authority,[81] broadcasting;[82] or in broader terms to 'electronic transmission of a series of text, video, images, sound recordings, and other products for aural and/or visual reception, and for which the content consumer has no choice over the scheduling of the series.'[83]

To clarify these provisions on non-discrimination, several PTAs include a definition of a 'digital product.' This is normally understood as a computer program, text, video, image, sound recording, or other product that is digitally encoded.[84] While some clarify

75 Canada-Peru FTA, Art. 1501.1.

76 Singapore-US FTA, Art. 14.3; Chile-US FTA, Art. 15.4.2; Australia-US FTA. Art. 16.4.2; Panama-Singapore FTA, Art. 13.3.3; Nicaragua-Taiwan FTA, Art. 14.03.4; Colombia-US TPA, Art. 15.3.4; Chile-Colombia FTA, Art. 12.4.2; Colombia-Northern Triangle FTA, Art. 14.4.4; Costa Rica-Singapore Art. 12.4.4; GCC-Singapore, Art. 7.4.4; Central America-Mexico FTA, Art. 15.4.4.

77 Morocco-US, Art. 14.3.3; CAFTA-DR-US FTA, Art. 14.3.4; Bahrain-US FTA, Art. 13.4.1; Oman-US FTA, Art. 14.4.4; Peru-US TPA, Art. 15.3.4; Colombia-US TPA, Art. 15.3.4; Panama-US, Art. 14.3.4; Korea-US FTA, Art. 15.3.3; Singapore-Taiwan FTA, Art. 11.4.2; Australia-Japan FTA, Art. 13.4.2; Singapore-Turkey FTA, Art. 9.4.1.

78 Japan-Mongolia FTA, Art. 9.4.1(b); Japan-Switzerland FTA, Art. 73.1(b); Japan-Mongolia FTA, Art. 9.4.1(b).

79 Japan-US DTA, Art. 8.2; Singapore-US FTA, Art, 14.3.4; Singapore-Turkey FTA, Art. 9.4.2; Japan-Mongolia FTA, Art. 9.4.2(b); Australia-US FTA, Art. 16.4.3(c); Korea-US FTA, Art. 15.3.5(a); Australia-Japan FTA, Art. 13.4.3(d); Japan-Mongolia FTA, Art. 9.4.2(b); Singapore-Turkey FTA, Art. 9.4.2; TPP/CPTPP, Art. 14.4.3; Australia-Singapore FTA (2016), Ch. 14, Art. 5.3; Singapore-Sri Lanka FTA, Art. 9.4.2; Australia-Peru FTA, Art. 13.4.3.

80 Japan-Mongolia FTA, Art. 9.2(a); India-Singapore ECA, Art. 10.5.2; Australia-Japan FTA, Art. 13.4.3(c); Japan-Mongolia FTA, Art. 9.4.2(a); USMCA, Art. 19.4.2.

81 Australia-US FTA, Art. 16.4.3(d); Korea-US FTA, Art. 15.3.5(b); Australia-Japan FTA, Art. 13.4.3(e)

82 Japan-US DTA, Art. 8.3; Australia-US FTA, Art. 16.4.4; India-Singapore ECA, Art. 10.5.2; Singapore-Taiwan FTA, Art. 11.8; Singapore-Turkey FTA, Art. 9.4.3; TPP/CPTPP, Art. 14.4.3; Singapore-Turkey FTA, Art. 9.4.3; Australia-Singapore FTA (2016), Ch. 14, Art. 5.4; Singapore-Sri Lanka FTA, Art. 9.4.3; Australia-Peru FTA, Art. 13.4.3

83 Singapore-US FTA, Art. 14.3.6; Panama-Singapore FTA Art. 13.3.5; Korea-US, Art. 15.3.6; Costa Rica-Singapore Art. 12.4.6; GCC-Singapore, Art. 7.4.6.

84 CAFTA-DR-US FTA, Art. 14.3.6; Bahrain-US FTA, Art. 13.4.1; India-Singapore ECA, Art. 10.2; Nicaragua-Taiwan FTA, Art. 14.06; Panama-US, Art. 14.6; Colombia-Northern Triangle FTA, Art. 14.1; Canada-Peru FTA, Art. 1510.

that these are produced for commercial sale or distribution, and can be transmitted electronically,[85] others grant protection regardless of whether they are fixed on a carrier medium or transmitted electronically.[86] Few agreements take the distinctive approach of considering digital products as such that are produced for commercial sale or distribution, and requires them to be transmitted electronically.[87] Some of them explicitly provide that those products fixed on a carrier medium are under the general rules of trade in goods.[88] Finally, certain PTAs apply this definition regardless of whether a Party treats such products as a good or a service under its domestic law.[89] Furthermore, in several treaties, it is explicitly clarified that a digital product does not include a digitized representation of a financial instrument, including money.[90]

B. Enabling digital trade

1. Promotion and facilitation of e-commerce

A group of PTAs with e-commerce chapters (47 treaties) includes provisions to promote and facilitate e-commerce. These provisions are largely non-binding and vary across PTAs. Several agreements explicitly agree to promote the development of electronic commerce only between the parties,[91] or its wider global use or development.[92] Many treaties aim somewhat more concretely to create a favorable environment for global electronic commerce, recognizing the importance of having clear, transparent, and predictable domestic regulation to foster electronic commerce.[93] Other formulations include the need to create an environment of trust and confidence for e-commerce

85 Chile-Colombia FTA, Art. 12.8; Central America-Mexico FTA, Art. 15.1; PAAP, Art. 13.1; Singapore-Turkey FTA, Art. 9.1; TPP/CPTPP, Art. 14.1; Australia-Singapore FTA (2016), Ch. 14, Art. 1(d); Australia-Peru FTA, Art. 13.1; USMCA, Art. 19.1.

86 Singapore-US FTA Art. 14.4.2; Central America-Korea FTA, Art. 14.9; Japan-Mongolia FTA, Art. 9.2; Morocco-US, Art. 14.4; Oman-US FTA, Art. 14.5; Panama-Singapore FTA, Art. 13.5.2; Peru-US TPA, Art. 15.8; Colombia-US TPA, Art. 15.8; Korea-US, Art. 15.9; Costa Rica-Singapore FTA, Art. 12.2; GCC-Singapore, Art. 7.2(b); Japan-Mongolia FTA, Art. 9.2(a); Central America-Korea FTA, Art. 14.3.2.

87 Singapore-Turkey FTA, Art. 9.1; Singapore-Sri Lanka FTA, Art. 9.4.1(d).

88 Japan-Switzerland FTA, Art. 72(a); Australia-Japan FTA, Art.13.2(a).

89 Chile-US FTA, Art. 15.6.

90 Chile-US FTA, Art. 15.6, fn 3; Morocco-US, Art. 14.4 fn 3; CAFTA-DR-US FTA, Art. 14.3.3. fn 2; Bahrain-US FTA, Art. 13.4.1 fn 2; India-Singapore ECA, Art. 10.2, fn 10–2; Panama-Singapore FTA, Art. 13.5, fn 2; Peru-US TPA, Art. 15.8 fn 1; Nicaragua-Taiwan FTA, Art. 14.06, fn 2; Colombia-US TPA, Art. 15.8, fn 2¸ Chile-Colombia FTA, Art. 12.8, fn 2; Panama-US, Art. 14.6, fn 2; Korea-US, Art- 15.9, fn 2; Colombia-Northern Triangle FTA, Art. 14.1, fn 1; Costa Rica-Singapore FTA, Art. 12.2, fn 29; GCC-Singapore, Art. 7.2(b), fn 9; Central America-Mexico FTA, Art. 15.1, fn 1; Singapore-Taiwan FTA, Art. 11.8, fn 28; PAAP, Art. 13.1, fn 1; Singapore-Turkey FTA, Art. 9.1; TPP/CPTPP, Art. 14.1, fn 2; Australia-Singapore FTA (2016), Ch. 14, Art. 1(d), fn 2; Singapore-Sri Lanka FTA, Art. 9.4.1(d); Australia-Peru FTA, Art. 13.1; Central America-Korea FTA, Art. 14.9; USMCA, Art. 19.4.1.

91 Central America-Korea FTA, Art. 14.1; CETA, Art. 16.2.1; Colombia-EU-Peru FTA, Art. 162.1; Central America-EU, Art. 201.1

92 Australia-Indonesia CEPA, Arts. 1.2(e) and Art. 13.2.1; EU-Japan EPA, Art. 8.70; EU-Singapore FTA, Art. 8.57.1; Australia-Singapore FTA (2017), Ch. 14, Art. 1.1; Korea-Vietnam FTA, Art. 10.1; China-Korea FTA, Art. 13.1; Japan-Mongolia FTA, Art. 9.1.2; New Zealand-Taiwan FTA, Ch. 9, Art. 1(a); Australia-Chile FTA, Art. 16.2.2.

93 Brazil-Chile FTA, Art. 10.2.5(a); Argentina-Chile FTA, Art. 11.2.5(a); Chile-Uruguay FTA, Art. 8.2.5(a); Canada-Korea FTA, Art. 13.2.2(a); Mexico-Panama FTA, Art. 14.3.2(a); PAAP, Art. 13.3(a) Canada-Honduras FTA, Art. 16.2(a); Colombia-Costa Rica FTA, Art. 16.2.2(a); Canada-Panama FTA, Art. 15.03.2(a); Canada-Colombia FTA, Art. 1502.2(a); Canada-Peru FTA, Art. 1502.2(a).

consumers or users;[94] promote interoperability, innovation, and competition;[95] adopt flexible policies taking into account the rapid changes in the technology environment;[96] or address 'issues relevant to the electronic environment.'[97]

The 2018 EU-Japan Economic Partnership Agreement (EPA) is a notable case that includes specific commitments on domestic regulation, meaning that each party shall ensure that all its measures of general application affecting electronic commerce are administered in a reasonable, objective, and impartial manner. This is accompanied by a best effort commitment not to impose prior authorization or any other requirement having equivalent effect on the provision of services by electronic means. Unless otherwise provided for in its laws and regulations, parties also shall not adopt or maintain measures regulating electronic transactions that deny the legal effect, validity or enforceability of a contract, solely on the grounds that it is concluded by electronic means; or otherwise create obstacles to the use of contracts concluded by electronic means.[98]

Facilitation of e-commerce requires more active policies that go beyond its mere promotion. While some PTAs plainly aim to 'facilitate trade in digital products'[99] or through 'electronic means or technologies',[100] and to improve the effectiveness and efficiency of electronic commerce,[101] or consider e-commerce facilitation as part of general common cooperation activities,[102] other agreements have concrete obligations in this regard. Several treaties include specific commitments to avoid or minimize legal and regulatory barriers to electronic trade,[103] to assist the timeliness and reduce the cost of electronic commercial transactions,[104] as well as apply the principle of technological neutrality.[105] In some treaties, facilitation of e-commerce is taken to a

94 USMCA, Art. 19.2.1; Australia-Singapore FTA (2017), Ch. 14, Art. 2.1; Japan-Mongolia FTA, Art. 9.1.2; Mexico-Panama FTA, Art. 14.3.2(f); Central America-EFTA FTA, Annex II, Art. 1(c).

95 Brazil-Chile FTA, Art. 10.2.5(c); Argentina-Chile FTA, Art. 11.2.5(c); CETA, Art. 16.5(b); Chile-Uruguay FTA, Art. 8.2.5(c); Canada-Korea FTA, Art. 13.2.2(c); Canada-Panama FTA, Art. 15.03.2.c; Canada-Peru FTA, Art. 1502.2(c); Canada-Peru FTA, Art. 1502.2(b).

96 New Zealand-Taiwan FTA, Ch. 9, Art. 2.1. (c)(i)

97 Armenia-EU CEPA, Art. 193.1; Colombia-Panama FTA, Art. 19.2.2; Korea-Peru FTA, Art. 14.1.2; Canada-Panama FTA, Art. 15.03.3; Canada-Colombia FTA, Art. 1502.3; Canada-Peru FTA, Art. 1502.3.

98 EU-Japan EPA, Arts 8.74, 8.75 and 8.76.

99 Japan-Mongolia FTA, Art. 9.12.6.

100 Brazil-Chile FTA, Art. 10.2.6; Argentina-Chile FTA, Art. 11.2.6; Chile-Uruguay FTA, Art. 8.2.6; Eurasian Economic Union (EAEU)-Vietnam, Art. 13.1.1; Chile-Thailand FTA, Art. 11.7.1(f); GCC Economic Agreement, Art. 20; China-Hong Kong CEPA, Annex VI; China-Macao CEPA, Annex VI.

101 New Zealand-Thailand, Art. 10.7.2

102 Chile-China FTA (amended 2018), Art. 57.2; Central America-Mexico FTA, Art. 15.5; ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 9.1(d); CARIFORUM-EU, Art. 119.1, China-Georgia FTA, Art. 12.2.1; Colombia-Northern Triangle FTA, Art. 14.8(c); Panama-US TPA, Art. 14.5(c); Chile-Colombia FTA, Art. 12.5(c); Panama-Singapore FTA, Art. 13.4 (c); CAFTA-DR-US, Art. 14.5(c); Chile-US FTA, Art. 15.5(c).

103 One of the most common objectives of e-commerce/digital trade chapters is to minimize the regulatory burden on electronic commerce (68 PTAs), usually found under provisions on domestic electronic transaction framework.

104 Hong Kong-New Zealand FTA, Ch. 10, Art. 1(d).

105 23 PTAs include the principle of technological neutrality, either implicitly or explicitly. The first agreement were it is explicitly recognized is in the 2009 Japan-Switzerland FTA, Art. 71.2 ('any provisions related to trade in services do not distinguish between the different technological means through which a service may be supplied').

supra-national level. The 2018 USMCA includes as part of the competences of the North American Competitiveness Committee, the identification of priority projects and policies to develop a modern digital trade and investment-related infrastructure.[106] Some provisions on facilitation are targeted at specific countries or groups of users. A couple of agreements aim to facilitate the use of electronic commerce by developing countries;[107] in certain agreements, Parties endeavor to promote access for persons with disabilities to information and communications technologies[108] or, agree to work together to facilitate women participation in E-commerce.[109]

An important number of agreements (45 PTAs) include specific provisions to address the needs of small and medium-sized enterprises (SMEs)[110] in facilitating their use of e-commerce,[111] supporting their growth,[112] or assisting them to overcome obstacles or challenges encountered in the use of e-commerce, usually in non-binding terms under the framework of cooperation activities,[113] like technical assistance.[114] Furthermore, both the USMCA and the Japan-US DTA recognize the importance of SMEs' access to open government data, as well as to interactive computer services.[115]

2. Paperless trading

A significant number of treaties (56 PTAs) includes provisions on paperless trading, which typically cover commitments to make trade administration documents available to the public in electronic form, or accept trade administration documents submitted electronically as the legal equivalent of their paper version. Paperless trading could be applicable between states, between a state and a private entity, or between private entities. These provisions are generally seen as a factor that contributes to the promotion of trade between the parties and significantly enhances the efficiency of trade

106 USMCA, Art. 26.1(d).

107 Canada-Korea FTA, Art. 13.2.2(e); Canada-Costa Rica FTA, Joint Statement on Global Electronic Commerce.

108 USMCA, Art. 19.14.1(e)

109 Brazil-Chile FTA, Art. 10.2.5(e) and Art. 10.15(a).

110 Canada-Costa Rica FTA, Joint Statement on Global Electronic Commerce.

111 Central America-Korea, Art. 14.7.2; CETA, Art. 16.5(c); Chile-Uruguay FTA, Art. 8.2.5(e) and Art. 8.13(a); Singapore-Taiwan FTA, Art. 11.7(b); Canada-Honduras FTA, Art. 16.2.2(d) and Art. 16.5(a); Colombia-Costa Rica FTA, Art. 16.7.1 (a); Korea-Peru FTA, Art. 14.9(a); GCC-Singapore FTA, Art. 8.4(a); Costa Rica-Singapore FTA, Art. 12.6(a); Canada-Colombia FTA, Art. 1502.2(e); Canada-Peru FTA, Art. 1502.2(d).

112 Australia-Peru FTA, Art. 13.14(a)(c).

113 Australia-Indonesia CEPA, Art. 13.3.1(a); EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. 11(c); Chile-China FTA (amended 2018), Art. 57.3(c); Singapore-Sri Lanka FTA, Art. 9.12(a); Australia-Singapore FTA (2016), Ch. 14, Art. 17(a); Korea-Vietnam FTA, Art. 10.8.2; Singapore-Turkey FTA, Art. 9.9(a); Japan-Mongolia FTA, Art. 9.12.3; Canada-Korea FTA, Art. 13.2.2(e) and Art. 13.7(a); Australia-Japan, Art. 13.10.3; Mexico-Panama FTA, Art. 14.3.2(e) and Art. 14.11(a); PAAP, Art. 13.3(e); Chile-Thailand FTA, Art. 11.7.1(a); Colombia-Panama FTA, Art. 19.7.2; Colombia-Korea FTA, Art. 12.6.2; Colombia-EU-Peru FTA, Art. 109(d); Central America-Mexico FTA, Art. 15.5(a); Canada-Panama FTA, Art. 15.03(e); ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 9.1(b); Japan-Switzerland FTA, Art. 82.1; Canada-Colombia FTA, Art. 1507.1(a); Canada-Peru FTA, Art. 1508(a); Colombia-Northern Triangle FTA, Art. 14.8(a); Panama-US TPA, Art. 14.5(a); Chile-Colombia FTA, Art. 12.5(a); Nicaragua-Taiwan FTA, Art. 14.05(a); Panama-Singapore FTA, Art. 13.4(a); CAFTA-DR-US, Art. 14.5(a); Chile-US FTA, Art. 15.5(a).

114 Argentina-Chile FTA, Art. 11.2.5(e) and Art. 11.9(a).

115 Japan-US DTA, Art. 18.1 and 20.3; USMCA, Art. 19.17.1 and 19.18.3.

through the reduction of cost and time.[116] There are three basic types of paperless trading provisions found in PTAs: one typically in the trade in goods chapter, another as part of the cooperation activities between parties, and a third one as part of the e-commerce chapter. These provisions are not mutually exclusive and some agreements include more than one type.

The first agreement with a provision on paperless trading is the 2000 New Zealand–Singapore CEPA, found in the trade in goods chapter, as a way of implementing the Paperless Trading Initiative of Asia-Pacific Economic Cooperation (APEC) Blueprint for Action on Electronic Commerce. Under this provision, customs administrations shall have in place an electronic environment that supports electronic business applications between them and the trading community.[117] Later agreements make explicit that in implementing such initiatives, customs administrations shall take into account the methodologies agreed by international organizations, such as the World Customs Organization[118] or APEC.[119] A couple of agreements also consider the development of a single governmental customs window following relevant international standards, but recognize that each party shall have its own requirements and conditions.[120] Some PTAs add commitments to exchange views and information between customs administrations and their trading communities,[121] to employ information technology to the greatest extent possible, and electronic means for customs reporting requirements as soon as practicable.[122] Another group of PTAs includes paperless trade provisions as part of cooperation commitments. While some only mention it as one of many collaboration issues,[123] others include a more comprehensive set of rules in a dedicated chapter promoting paperless trading between the parties as one of the overall objectives of the agreement.[124] Some agreements also include cooperation at the international

116 UNECE and World Economic Forum. 'Paperless Trading: How Does It Impact the Trade System', White Paper, 2017, at 4.

117 New Zealand-Singapore CEPA, Art. 12.

118 Australia-Indonesia CEPA, Art. 5.13.1; Australia-Singapore FTA (2016), Ch. 4, Art. 4.1; Australia-China, Art. 4.6.1; China-Korea FTA, Art. 4.12; Australia-Korea, Art. 4.4.1; Chile-Thailand FTA, Art. 5.12.2; Colombia-Panama, Art. 4.3.1(a); New Zealand-Taiwan FTA, Ch. 9, Art. 3; Colombia-Costa Rica FTA, Art. 4.1.3(g); Colombia-Korea FTA, Art. 4.4.1; Korea-Peru FTA, Art. 5.8.1; Hong Kong-New Zealand FTA, Ch. 5, Art. 7.

119 ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 8.3; GCC-Singapore FTA, Art. 4.5.3; Peru-Singapore FTA, Art. 5.3; Trans Pacific Strategic EPA (P4), Art. 5.10.

120 Chile-China FTA (2018), Art. 56.3; Australia-Chile FTA, Art. 16.9.3.

121 Singapore-Taiwan FTA, Art. 5.4; GCC-Singapore FTA, Art. 4.5.2; Panama-Singapore FTA, Art. 4.5.

122 Australia-Singapore FTA (2016), Ch. 4, Art. 4.2–3; Chile-Thailand FTA, Art. 5.12.3–4; Australia-Chile FTA, Art. 5.11; Australia-Thailand, Art. 309.

123 Colombia-Israel FTA, Art. 4.6 and Annex B, Art. 2.1(f); Colombia-EU-Peru FTA, Art. 163.1(f); EC-Korea FTA, Art. 7.49.1(e)

124 Japan-Thailand FTA, Art, 1(b), Ch. 5, Arts. 57–61; Japan-Singapore FTA, Art. 1(a)(iii); Ch. 5, Arts. 40–44.

level to enhance the acceptance or use of paperless trading,[125] or taking into account the methods agreed by international organizations.[126]

Another type of commitments on paperless trade, usually found in e-commerce chapters, consists of accepting electronic trade administration documents as the legal equivalent of their paper version. Such provisions are usually formulated as best efforts[127], but can sometimes be mandatory.[128] A group of PTAs also considers making available trade administration documents to the public in electronic form.[129] However, some agreements include exceptions to these commitments—for example, if there is a domestic or international legal requirement to the contrary, or doing so would reduce the effectiveness of the trade administration process.[130]

3. *Electronic authentication*

An important number of trade agreements (68 PTAs) include provisions on electronic authentication, which typically allow authentication technologies and mutual recognition of digital certificates and signatures. The evolution of these provisions goes

125 Australia-Indonesia CEPA, Art. 13.4.3; Australia-Singapore FTA (2016), Ch. 14, Art. 10.3; Australia-China FTA, Art. 12.9.2; Japan-Mongolia FTA, Art. 9.8.3; Australia-Japan FTA, Art. 13.9.4; Australia-Malaysia FTA, Art. 15.9.2; ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 8.2; Japan-Switzerland FTA, Art. 79.3; Australia-Singapore FTA (2003), Ch. 14, Art. 8.3.

126 Australia-China FTA, Art. 12.9.3; Australia-Japan FTA, Art. 13.9.3; Australia-Korea FTA, Art. 15.7; Australia-Malaysia FTA, Art. 15.9.3; Australia-Thailand, Art. 1107.2.

127 Brazil-Chile FTA, Art. 10.9(b); USMCA, Art. 19.9; Central America-Korea FTA, Art. 14.6.2; Australia-Peru FTA, Art. 13.9(b); Singapore-Sri Lanka FTA, Art. 9.8(b); Chile-Uruguay FTA, Art. 8.8(b); TPP/CPTPP, Art. 14.9(b); Singapore-Turkey FTA, Art. 9.8(b); China-Korea FTA, Art. 13.6.2; Korea-Vietnam FTA, Art. 10.7.2; Japan-Mongolia FTA, Art. 9.8.2; Canada-Korea, Art. 13.5.2; Australia-Japan FTA, Art. 13.9.2; Australia-Korea FTA, Art. 15.7; Mexico-Panama FTA, Art. 14.7.2; PAAP, Art. 13.7.2; Singapore-Taiwan FTA, Art. 11.6.2; Colombia-Israel FTA, Annex B, Art. 4.2; Colombia-Panama, Art. 19.5.2; Colombia-Costa Rica FTA, Art. 16.5.2; Colombia-Korea FTA, Art. 12.4.2; Colombia-EU-Peru FTA, Art. 165(b); Korea-Peru FTA, Art. 14.6.2; Japan-Switzerland FTA, Art. 79.2; Canada-Colombia FTA, Art. 413.2 and Art. 1505.2; Canada-Peru FTA, Art. 413.3 and Art. 1506.2; Korea-US FTA, Art. 15.6.2; Chile-Colombia FTA, Art. 5.5.2; Colombia-US TPA, Art. 15.7.2; Peru-US TPA, Art. 15.7.2; Chile-China FTA (2018), Art. 56.1; Australia-US FTA, Art. 16.7; New Zealand-Thailand FTA, Art. 10.6.2.

128 Australia-Indonesia CEPA, Art. 13.4.2; Australia-Singapore FTA (2016), Ch. 14, Art. 10.2; Australia-China FTA, Art. 12.9.1; Chile-Thailand FTA, Art. 11.7.1(f); Australia-Malaysia FTA, Art. 15.9.1; Australia-Singapore FTA (2003), Ch. 14, Art. 8.1.

129 Australia-Indonesia CEPA, Art. 13.4.1; Brazil-Chile FTA, Art. 10.9(a); Central America-Korea FTA, Art. 14.6.1; Australia-Peru FTA, Art. 13.9(a); Singapore-Sri Lanka FTA, Art. 9.8(a); Australia-Singapore FTA (2016), Ch. 14, Art. 10.1; Chile-Uruguay FTA, Art. 8.8(a); TPP/CPTPP, Art. 14.9(a); Singapore-Turkey FTA, Art. 9.8(a); Australia-China FTA, Art. 12.9.4; China-Korea FTA, Art. 13.6.1; Korea-Vietnam FTA, Art. 10.7.1; Japan-Mongolia FTA, Art. 9.8.1; Canada-Korea, Art. 13.5.1; Australia-Japan FTA, Art. 13.9.1; Australia-Korea FTA, Art. 15.7; Mexico-Panama FTA, Art. 14.7.1; PAAP, Art. 13.7.1; Singapore-Taiwan FTA, Art. 11.6.1; Colombia-Israel FTA, Annex B, Art. 4.1; Colombia-Panama, Art. 19.5.1; Colombia-Costa Rica FTA, Art. 16.5.1; Colombia-Korea FTA, Art. 12.4.1; Colombia-EU-Peru FTA, Art. 165(a); Australia-Malaysia FTA, Art. 15.9.4; Korea-Peru FTA, Art. 14.6.1; Japan-Switzerland FTA, Art. 79.1; Canada-Colombia FTA, Art. 413.1 and Art. 1505.1; Australia-Chile FTA, Art. 16.9.1; Canada-Peru FTA, Art. 413.1, Art. 1506.1; Korea-US FTA, Art. 15.6.1; Chile-Colombia FTA, Art. 5.5.1; Colombia-US TPA, Art. 15.7.1; Peru-US TPA, Art. 15.7.1; Australia-Singapore FTA (2003), Ch. 14, Art. 8.1; Australia-US FTA, Art. 16.7.

130 Australia-Indonesia CEPA, Art. 13.4.2; Australia-Singapore FTA (2016), Ch. 14, Art. 10.2; Australia-China FTA, Art. 12.9.1; Chile-China FTA (2018), Art. 56.1; Australia-Malaysia FTA, Art. 15.9.1; Australia-Chile FTA, Art. 16.9.1; Australia-Thailand, Art. 1107.1; Australia-Singapore FTA (2003), Ch. 14, Art. 8.2. The 2015 EAEU-Vietnam FTA contains similar obligations but in negative terms (Art. 13.4).

from earlier treaties having best effort commitments to more binding and mandatory clauses in recent agreements. In 2000, in the very first US-led PTA with e-commerce elements, Jordan and the US declared that their governments should work toward a global approach that supports the recognition and enforcement of electronic transactions and methods of electronic authentication (including electronic signatures), both domestically and internationally. The latter includes joint work on a convention or other arrangements to achieve a common legal approach to support electronic transactions, authentication technologies and implementation models, by adopting relevant provisions from the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce.[131] Following the US lead, in 2001, Canada and Costa Rica acknowledged too the necessity of policies to facilitate the use of technologies for authentication and for the conduct of secure e-commerce.[132] In simpler terms, other agreements started to include cooperation commitments on electronic authentication. These cover activities to share information and experiences on laws, regulations, and programs on electronic signatures[133] or secure electronic authentication;[134] and to 'maintain a dialog' on a number of regulatory issues that include the recognition of certificates of electronic signatures issued to the public.[135] Some PTAs specifically address the facilitation of cross-border certification services[136] digital accreditation,[137] or the recognition and facilitation of interoperable cross-border electronic trust and authentication services.[138] Other cooperation activities include research and training activities on electronic signatures and the electronic authentication,[139] dedicated seminars and expert meetings on security and interoperability,[140] and in general, activities to encourage the use of electronic signatures and certification.[141]

More binding commitments on authentication and digital certificates appear since 2004, establishing restrictions on legislation about electronic authentication using both

131 Jordan-US FTA, Joint Statement on Electronic Commerce.

132 Canada-Costa Rica FTA, Joint Statement on Global Electronic Commerce.

133 Australia-Korea FTA, Art. 13.10.2; Central America-Mexico FTA, Art. 15.5(b); Hong Kong-New Zealand FTA, Ch. 10, Art. 2.1(f)(ii); Australia-Chile FTA, Art. 16.10.1; Colombia-Northern Triangle FTA, Art. 14.8(b); Panama-US TPA, Art, 14.5(b); Chile-Colombia FTA, Art. 12.5(b); Nicaragua-Taiwan FTA, Art. 14.05(b); Panama-Singapore FTA, Art. 13.4(b); CAFTA-DR-US, Art. 14.5(b); Chile-US FTA, Art. 15.5(b).

134 Australia-Indonesia FTA, Art. 13.3.1(b)(v); USMCA, Art. 19.14(a)(iii); Australia-Peru FTA, Art. 13.14(b)(v); Singapore-Sri Lanka FTA, Art. 9.12(c)(iii); Argentina-Chile FTA, Art. 11.9(b); TPP/CPTPP, Art. 14.15(b)(v); Canada-Korea FTA, Art. 13.7(b); Mexico-Panama FTA, Art. 14.11(b); PAAP, Art. 13.12(b); Canada-Honduras FTA, Art. 16.5(b); Chile-Thailand FTA, Art. 11.7(b)(v); Korea-Peru FTA, Art. 14.9(b); Hong Kong-New Zealand FTA, Ch. 10, Art. 2.1(a)(v); Canada-Colombia FTA, Art. 1507.1(b); Canada-Peru FTA, Art. 1508(b).

135 EU-Japan EPA, Art. 8.80.2(d).

136 EC-Vietnam FTA. Art. 8.51.1(a); EC-Singapore FTA, Art. 8.61.1(a); Armenia-EU CEPA, Art. 194.1(a); CETA, Art. 16.6.1(a); EC-Ukraine AA, Art. 140.1(a); EC-Georgia AA, Art. 128.1(a); Colombia-Israel FTA, Annex B, Art. 2.1(a); Colombia-Panama FTA, Art. 19.7.1(a); Colombia-Costa Rica FTA, Art. 16.7.1(f); Colombia-Korea FTA, Art. 12.6.1(a); Central America-EU FTA, Art. 202(a); Colombia-EU-Peru FTA, Art. 163.1(a); EC-Korea FTA, Art. 7.49.1(a); CARIFORUM-EC EPA, Art. 120.1(a); EC-Moldova AA, Art. 255.1(a).

137 Colombia-EU-Peru FTA, Art. 109(g).

138 EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. 11.1(a).

139 Korea-Vietnam FTA, Art. 10.8.1(a).

140 EC-Singapore FTA, Art. 8.60.2(b).

141 Singapore-Taiwan FTA, Art. 11.7(b); New Zealand-Taiwan FTA, Ch. 9, Art. 2.1(c)(ii)(iii).

negative and positive obligations. According to the first group of agreements, countries may not adopt or maintain legislation that prevent or prohibit parties to an electronic transaction: (i) from mutually determining appropriate authentication methods;[142] or (ii) from having the opportunity to prove in court that their electronic transaction complies with any legal requirements with respect to authentication.[143] Further commitments on electronic signatures establish that neither party may adopt or maintain legislation that would prevent parties to an electronic transaction from choosing the court or tribunal to which they bring a dispute concerning the transaction,[144] nor denying the legal validity of a signature solely on the basis that the signature is in electronic form, following the framework of the 2005 United Nations Convention on the Use of Electronic Communications in International Contracts.[145] Some of these treaties inscribe this obligation in binding terms ('no Party shall adopt or maintain').[146]

In a second group of agreements, each Party has the positive obligation ('each Party shall adopt or maintain') to apply domestic legislation for electronic authentication that allows Parties to electronic transactions to: (i) determine the appropriate authentication technologies and implementation models, without limiting their recognition and implementation models; and (ii) to have the opportunity to prove in court that their electronic transactions comply with any legal requirements.[147] Some of these agreements add the obligation to adopt measures on electronic authentication that do not limit the recognition of authentication technologies and implementation models.[148] However, many agreements include exceptions to these commitments—for instance, through a requirement of certain performance standards for electronic signatures or methods of authentication in a particular category of sensitive transactions or communications,[149] through certification by an authority or a supplier of certification services accredited under the Party's regulations.[150] Some PTAs explicitly mandate that such

142 EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. 6.2; Singapore-Sri Lanka FTA, Art. 9.6.2; Singapore-Turkey FTA, Art. 9.6.2; Japan-Mongolia FTA, Art. 9.5.1; Australia-Japan FTA, Art. 13.6.1; Singapore-Taiwan FTA, Art. 11.5.1(a)(b); Japan-Switzerland FTA, Art. 78.1(a)(b); Korea-US, Art. 15.4.1(a)(b); Chile-Colombia FTA, Art. 12.7; Colombia-US TPA, Art. 15.6; Peru-US TPA, Art. 15.6; Australia-US FTA, Art. 16.5.1.

143 Mexico-Panama FTA, Art. 14.9.1; PAAP, Art. 13.10.1; Colombia-Northern Triangle FTA, Art. 14.7.

144 Japan-Switzerland FTA, Art. 78.1(c).

145 This is done either in negative ('may not maintain' — e.g. Singapore-Turkey FTA, Art. 9.6.3.) or positive terms ('a Party shall not deny') — e.g. Australia-Indonesia FTA, Art. 13.5.3; Brazil-Chile FTA, Art. 10.6.3; USMCA, Art. 19.6.3; EU-Japan EPA, Art. 8.77.3; Australia-Peru FTA, Art. 13.6.3; Singapore-Sri Lanka FTA, Art. 9.6.3; Argentina-Chile FTA, Art. 11.3.3; Australia-Singapore FTA (2016), Ch. 14, Art. 7.3; Chile-Uruguay FTA, Art. 8.5.3; TPP/CPTPP, Art. 14.6.3.

146 Japan-US DTA, Art. 10.2; Brazil-Chile FTA, Art. 10.6.2; USMCA, Art. 19.6.2; EU-Japan EPA, Art. 8.77.2; Australia-Peru FTA, Art. 13.6.2; Argentina-Chile FTA, Art. 11.3.2; Australia-Singapore FTA (2016), Ch. 14, Art. 7.2; Chile-Uruguay FTA, Art. 8.5.2; TPP/CPTPP, Art. 14.6.2.

147 Australia-Indonesia FTA, Art. 13.5.2; Australia-China FTA, Art. 12.6.1; China-Korea FTA, Art. 13.4.2; Australia-Korea FTA, Art. 15.5.1; Chile-Thailand FTA, Art. 11.7(e); Australia-Malaysia FTA, Art. 15.6.1; ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 5(a)(c); Australia-Chile FTA, Art. 16.6.3; Korea-Singapore FTA, Art. 18.3.2; Australia-Thailand FTA, Art. 1104.1.

148 ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 5(b).

149 Japan-US DTA, Art. 10.3; Singapore-Turkey FTA, Art. 9.6.3.

150 Australia-Indonesia FTA, Art. 13.5.3; Brazil-Chile FTA, Art. 10.6.3; USMCA, Art. 19.6.3; EU-Japan EPA, Art. 8.77.3; Australia-Peru FTA, Art. 13.6.3; Singapore-Sri Lanka FTA, Art. 9.6.3; Argentina-Chile FTA, Art.

requirements are objective, transparent, and non-discriminatory and relate only to the specific characteristics of the category of transactions concerned.[151] In others, such certification must serve a legitimate governmental objective and be substantially related to achieving that objective.[152] One example, where such a higher degree of reliability and security is required is electronic financial transactions.[153] Another set of exceptions applies to transactions or communications, which cannot be made electronically under each party's laws and regulations,[154] or where the validity of electronic signatures may be denied according to its law.[155]

Additional commitments on electronic authentication are referred to the recognition of digital certificates, either publicly or privately issued. On public authentication, some agreements consider working toward the recognition of digital certificates at government level,[156] which may be based on internationally accepted standards[157] or on cooperation mechanisms between national accreditation and digital certification authorities for electronic transactions.[158] Some of these mechanisms seek to facilitate the understanding of their electronic signature frameworks by making available relevant information to the other party's competent authorities,[159] or examine the feasibility of mutual recognition agreements on digital/electronic signatures.[160] On private authentication, some PTAs encourage the use of interoperable electronic authentication,[161] electronic trust services,[162] digital certificates,[163] as well as the mutual recognition of digital certificates and electronic signatures,[164] which may include a trusted

11.3.3; Australia-Singapore FTA (2016), Ch. 14, Art. 7.3; Chile-Uruguay FTA, Art. 8.5.3; TPP/CPTPP, Art. 14.6.3.

151 EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. 6.3.

152 Japan-Mongolia FTA, Art. 9.5.2; Singapore-Taiwan FTA, Art. 11.5.2; Japan-Switzerland FTA, Art. 78.2; Korea-US FTA, Art. 15.4.2.

153 Australia-Japan FTA, Art. 13.6.2; Australia-Korea FTA, Art. 15.5.2.

154 Japan-Switzerland FTA, Art. 78.3.

155 Australia-Indonesia FTA, Art. 13.5.1; Brazil-Chile FTA, Art. 10.6.1; USMCA, Art. 19.6.1; EU-Japan EPA, Art. 8.77.1; Australia-Peru FTA, Art. 13.6.1; Singapore-Sri Lanka FTA, Art. 9.6.1; Argentina-Chile FTA, Art. 11.3.1; Australia-Singapore FTA (2016), Ch. 14, Art. 7.1; Chile-Uruguay FTA, Art. 8.5.1; TPP/CPTPP, Art. 14.6.1.

156 Korea-Peru FTA, Art. 14.8.2; Australia-US FTA, Art. 16.5.2.

157 Korea-Vietnam FTA, Art. 10.3.2; Mexico-Panama FTA, Art. 14.9.2; PAAP, Art. 13.10.2; Chile-Thailand FTA, Art. 11.7(e); Australia-Malaysia FTA, Art. 15.6.2; Australia-Chile FTA, Art. 16.6.2; Korea-Singapore FTA, Art. 18.3.3; Australia-Thailand FTA, Art. 1104.2.

158 Korea-Peru FTA, Art. 14.8.3.

159 EC-Singapore FTA, Art. 8.60.1 and Art. 8.60.2(a)(c).

160 EC-Singapore FTA, Art. 8.60.1; Argentina-Chile FTA, Art. 11.3.5.

161 Australia-Indonesia FTA, Art. 13.5.4; Brazil-Chile FTA, Art. 10.6.4; USMCA, Art. 19.6.4; EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. 6.4; Australia-Peru FTA, Art. 13.6.4; Singapore-Sri Lanka FTA, Art. 9.6.4; Argentina-Chile FTA, Art. 11.3.4; Australia-Singapore FTA (2016), Ch. 14, Art. 7.4; Chile-Uruguay FTA, Art. 8.5.4; TPP/CPTPP, Art. 14.6.3.

162 This means an electronic service consisting of the creation, verification, validation of electronic signatures, electronic time stamps, electronic registered delivery, certified digitization services, website authentication and related certificates. EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. 6.4.

163 Singapore-Turkey FTA, Art. 9.6.4; Australia-China FTA, Art. 12.6.3; China-Korea FTA, Art. 13.4.4; Korea-Vietnam FTA, Art. 10.3.3; Australia-Korea FTA, At. 15.5.4; Chile-Thailand FTA, Art. 11.7(e); Australia-Malaysia FTA, Art. 15.6.3; Australia-Chile FTA, Art. 16.6.4; Korea-Singapore FTA, Art. 18.3.4; Australia-Thailand FTA, Art. 1104.3.

164 Australia-China FTA, Art. 12.6.2; China-Korea FTA, Art. 13.4.3; Australia-Korea FTA, Art. 15.5.3–4.

third-party service[165] and advanced or qualified certificates.[166] For that purpose, Parties may endeavor to facilitate the procedure of accreditation or recognition of suppliers of certification services.[167] The Chile–China FTA (as amended in 2018) also considers the possibility to require electronic signature for specific certificates following international standards to ensure the security of the commercial process.[168]

Very few trade agreements contain references to specific international standards and these are notably found in treaties concluded by Australia. When this happens, the most referenced is the UNCITRAL Model Law on Electronic Commerce, which is mentioned in 17 treaties. These provisions have several variations: while some agreements stipulate that each party shall 'maintain' laws and regulations governing electronic transactions based on the 1996 Model Law,[169] others extend that commitment also to the 'adoption' of domestic laws and regulations on that subject matter. Some treaties merely refer to certain aspects of the Model Law,[170] while others seek to 'maintain consistency' with the principles contained in that Model Law. [171] In less binding terms, some PTAs cover best efforts to adopt or maintain such model law,[172] or to do so 'as soon as practicable,'[173] 'as appropriate,'[174] or 'to the extent possible.'[175]

C. New rules on digital trade, in particular on digital flows

1. Data-related provisions

Data-related provisions are a relatively new phenomenon and can be found primarily in dedicated e-commerce chapters of PTAs. These are rules either referring to the cross-border flow of data or such banning or limiting data localization requirements. Provisions on the cross-border flow of data can however be also found in chapters, dealing with discrete services sectors, where data flows are key or indeed inherent to the very definition of those services[176]—this is particularly valid for the telecommunications and the financial services sectors, as shown in Table 1 below.

165 EAEU-Vietnam FTA, Art. 13.3.

166 Mexico-Panama FTA, Art. 14.9.2; PAAP, Art. 13.10.2.

167 PAAP, Art. 13.10.2; Central America-Mexico FTA, Art. 15.5(c); Japan-Switzerland FTA, Art. 78.4.

168 Chile-China FTA (2018), Art. 56.2.

169 Japan-US DTA, Art. 9; Australia-Indonesia CEPA, Art. 13.9.1; USMCA, Art. 19.5.1; TPP/CPTPP, Art. 14.5.1; Australia-Peru FTA, Art. 13.5.1; Australia-Singapore FTA (2016), Ch. 14, Art. 6.1; Australia-China FTA, Art. 12.5.1; Australia-Malaysia FTA, Art. 15.5.2(a); New Zealand-Thailand FTA, Art. 10.3.1; Australia-Thailand FTA, Art. 1103.1; Australia-Singapore FTA (2003), Ch. 14, Art. 4.1.

170 E.g. Jordan-US Joint Statement on Electronic Commerce.

171 Singapore-Turkey FTA, Art. 9.5.1.

172 Korea-Vietnam FTA, Art. 10.4.

173 ASEAN-Australia-New Zealand, Ch. 10, Art. 4.

174 Australia-Korea FTA, Art. 15.4.1.

175 Singapore-Turkey FTA, Art. 9.5.1.

176 Banking and other financial services are commonly include the provision and transfer of financial information, and financial data processing and related software by suppliers of other financial services (Singapore-US FTA, Art. 10.20, Annex 10-A; Chile-EC AA, Art. 117.9; Japan-Singapore FTA, Annex IV-A; New Zealand-Singapore CEPA, Annex 2.1). The same is true for telecommunication services, which are defined as including, inter alia, data transmission typically involving the real-time transmission of customer supplied information between two or more points without any end-to-end change in the form or content of the customer's information, or simply including the transfer of data by electronic means (Singapore-US FTA, Art. 9.16.18; Japan-Singapore FTA, Annex IV-B).

Table 1. Overview of data-related provisions in PTAs

	Data flows			
	General	**Financial services**	**Telecommunication services**	**Data localization**
Soft commitments	10	0	1	1
Intermediate commitments	5	0	0	0
Hard commitments	12	69	63	12
Total number of provisions	27	69	64	13

a. Rules on data flows

If we look at the evolution of data flow provisions in PTAs, there has been a sea change over the years. Non-binding provisions on data flows appeared actually quite early. Already in the 2000 Jordan-US FTA, the Joint Statement on Electronic Commerce highlighted the 'need to continue the free flow of information,' although it fell short of including an explicit provision in this regard. The first agreement having such a provision is the 2006 Taiwan–Nicaragua FTA, where as part of the cooperation activities, the parties affirmed the importance of working 'to maintain cross-border flows of information as an essential element to promote a dynamic environment for electronic commerce.'[177] A similar wording is used in the 2008 Canada–Peru FTA,[178] the 2011 Korea–Peru FTA,[179] the 2011 Central America–Mexico FTA,[180] the 2013 Colombia–Costa Rica FTA,[181] the 2013 Canada–Honduras FTA,[182] the 2014 Canada–Korea FTA,[183] and the 2015 Japan–Mongolia FTA.[184] In the same line, in the 2010 Hong-Kong–New Zealand FTA, the parties agreed to ensure that 'their regulatory regimes support the free flow of services, including the development of innovative ways of developing services, using electronic means.'[185]

An intermediate type of provisions between 'hard' and 'soft' commitments is found in the 2007 South Korea–US FTA, where the parties, after 'recognizing the importance of the free flow of information in facilitating trade, and acknowledging the importance of protecting personal information,' declare that they 'shall endeavor to refrain from imposing or maintaining unnecessary barriers to electronic information flows across

177 Nicaragua-Taiwan FTA, Art. 14.05(c).
178 Canada-Peru FTA, Art. 1508(c).
179 Korea-Peru FTA, Art. 14.9(c).
180 Central America-Mexico FTA, Art. 15.5(d).
181 Colombia-Costa Rica FTA, Art. 16.7(c).
182 Canada-Honduras FTA, Art. 16.5(c).
183 Canada-Korea FTA, Art. 13.7(c).
184 Japan-Mongolia FTA, Art. 9.12.5.
185 Hong Kong-New Zealand, Ch. 10, Art. 2.1(h)

borders.'[186] The 2015 Korea–Vietnam FTA, although without a general provision on data flows, considers that each party shall, to the extent possible, make cooperative efforts with competent authorities when personal data transferred across its borders are leaked.[187]

The first agreement having a binding provision on cross-border information flows is the 2014 Mexico–Panama FTA. According to this treaty, each Party 'shall allow its persons and the persons of the other party to transmit electronic information, from and to its territory, when required by said person, in accordance with the applicable legislation on the protection of personal data and taking into consideration international practices.'[188] A much more detailed provision in this regard is found in the 2015 amended version of the PAAP,[189] which is similar to the 2016 TPP that was negotiated at the same time and has since largely influenced all subsequent agreements having data flows provisions.

After recognizing that each Party may have its own regulatory requirements concerning the transfer of information by electronic means, both the PAAP (2015) and the TPP stipulate that each party 'shall allow the cross-border transfer of information by electronic means, including personal information,' when it is for the conduct of the business of a covered person. This shall not prevent a Party from 'adopting or maintaining measures to achieve a legitimate public policy objective, provided that the measure is not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on trade; and does not impose restrictions on transfers of information greater than are required to achieve the objective.' This provision and indeed the entire e-commerce chapter of TPP were kept without changes in the 2018 CPTPP.[190]

Post-TPP/CPTPP, a similarly hard rule on data flows has been incorporated into other trade agreements, largely following the same wording, which include the 2016 Chile–Uruguay FTA,[191] the 2016 Updated SAFTA,[192] the 2017 Argentina–Chile FTA,[193] the 2018 Singapore–Sri Lanka FTA,[194] the 2018 Australia–Peru FTA,[195] the 2018 USMCA,[196] the 2018 Brazil–Chile FTA,[197] the 2019 Australia–Indonesia FTA, and in the 2019 Japan-US DTA.[198] In couple of agreements, such as notably the USMCA, it is further clarified that a measure on restriction of data flows is not considered to achieve a legitimate public policy objective, if it accords different treatment of data transfers solely on the basis that they are cross-border in a manner

186 Korea-US FTA, Art. 15.8
187 Korea-Vietnam FTA, Art. 10.8.2.3,
188 Mexico-Panama FTA, Art. 14.10.
189 PAAP (2015), Art. 13.11.
190 TPP/CPTPP, Art. 14.11.
191 Chile-Uruguay FTA, Art. 8.10.
192 SAFTA, Ch. 14, Art. 13
193 Argentina-Chile FTA, Art. 11.6
194 Singapore-Sri Lanka FTA, Art. 9.9.
195 Australia-Peru FTA, Art. 13.11.
196 USMCA, Art. 19.11.
197 Brazil-Chile FTA, Art. 10.12.
198 Australia-Indonesia CEPA, Art. 13.11; Japan-US DTA, Art. 11.

that modifies the conditions of competition to the detriment of a covered person or the service suppliers of the other party.[199] More recently, different countries have agreed to consider in future negotiations commitments related to cross-border flow of information. Such a clause is found for instance in the 2018 EU-Japan EPA[200] and in the EU-Mexico Global Agreement, currently under negotiation.[201] There, the Parties commit to 'reassess' within three years of the entry into force of the agreement, the need for inclusion of provisions on the free flow of data into the treaty. This is new language is an excellent example of the repositioning of the EU on the issue of data flows, as well as of its wish to couple in due time this deeper commitment with the high standards of the General Data Protection Regulation.

b. Data localization

In recent years, some PTAs have also started to include provisions on data localization, either banning or limiting requirements on the location or use of data. An important difference with the data flows provisions analyzed above is that almost all data localization clauses found in PTAs are of a binding nature. The first agreement including such type of provisions is the 2015 Japan–Mongolia FTA, according to which neither Party 'shall require a service supplier of the other party, an investor of the other party, or an investment of an investor of the other party in the area of the former party, to use or locate computing facilities in that area as a condition for conducting its business'.[202] Later the same year, the 2015 amended version of the PAAP included a similar provision on the use and location of computer facilities, stipulating that no party may require a covered person to use or locate computer facilities in the territory of that party, as a condition for the exercise of its business activity. The agreement adds however that nothing shall prevent a Party from adopting or maintaining measures to achieve a legitimate public policy objective, provided that they are not applied in a manner that constitutes a means of arbitrary or unjustifiable discrimination, or a disguised restriction to trade.[203]

In 2016, the TPP included a similar provision on location of computing facilities. After recognizing that each Party may have its own regulatory requirements regarding the use of computing facilities, such as those to ensure the security and confidentiality of communications, the TPP stipulates that a covered person shall not be required to use or locate computing facilities in a party's territory as a condition for conducting business in that country. The TPP also considers a legitimate public policy objective exception. Additionally, the TPP requires that such measure does not impose restrictions on the use or location of computing facilities greater than are required to achieve the objective. This provision has been kept without change in the CPTPP. [204]

199 Japan-US DTA, Art. 11.2, fn 9; USMCA, Art. 11.19, fn. 6.
200 EU-Japan EPA Art. 8.81.
201 EU-Mexico Modernised Global Agreement, Digital Trade Chapter, Art. XX.
202 Japan-Mongolia FTA, Art. 9.10
203 PAAP (2015), Art. 13.11*bis*.
204 TPP/CPTPP Art. 14.13

After the TPP/CPTPP, a hard rule on data localization largely following the same wording has been included in the 2016 Chile–Uruguay FTA[205] and the 2016 updated SAFTA.[206] A variation is found in the 2019 Australia–Indonesia FTA, which stipulates that nothing in the agreement shall prevent a Party from adopting or maintaining any measure that it considers necessary for the protection of its 'essential security interests.'[207] An alternative is found in the 2018 Singapore–Sri Lanka FTA, the 2018 Australia–Peru FTA and the 2018 Brazil–Chile FTA, where there is no least restrictive measure requirement, thus coming closer to the PAAP wording than to the TPP/CPTPP template.[208] The USMCA and the Japan-US DTA include yet another variation of these provisions, stipulating that 'no party shall require a covered person to use or locate computing facilities in that party's territory as a condition for conducting business in that territory,' without considering any further exception, except in the latter agreement which includes a special rule for financial services. [209]

One of the few provisions on data localization that are not directly binding is found in the 2017 Argentina–Chile FTA. Under this treaty, the parties just 'recognize the importance' of not requiring a person of the other party to use or locate the computer facilities in the territory of that party, as a condition for conducting business in that territory, and pledge to undertake to exchange good practices and current regulatory frameworks regarding location of servers. [210]

2. Privacy and data protection

82 PTAs in our dataset include provisions on privacy, usually under the concept of 'data protection.' Yet, the way this data is protected varies considerably and can include a truly mixed bag of binding and non-binding provisions (see Table 2), which is of course symptomatic of the very different positions of the major actors and the inherent tensions between the regulatory goals of data innovation and data protection.[211] We sketch here the general rules found in e-commerce chapters; however, many relevant specific provisions can also be found in the financial and telecommunication services chapters or in dedicated annexes.

Earlier agreements dealing with privacy issues consist of side non-binding declarations of mere programmatic nature. The 2000 Jordan–US FTA includes a Joint Statement on Electronic Commerce, where Parties deem it necessary to ensure the effective protection of privacy in the processing of personal data on global information networks. However, the means for privacy protection are kept 'flexible,' considering that content, usage, and the method for collection of private information differs from industry to industry. Governments should 'encourage' private sector development and implemen-

205 Chile-Uruguay FTA, Art. 8.11.
206 SAFTA, Ch. 14, Art. 15.
207 Australia-Indonesia CEPA, Art. 13.12.3(b).
208 Singapore-Sri Lanka FTA, Art. 9.10; Australia-Peru FTA Art. 13.12; Brazil-Chile FTA, Art. 10.13.
209 USMCA, Art. 19.12; Japan-US DTA, Arts. 12 and 13.
210 Argentina-Chile FTA, Art. 11.7.
211 See e.g. Paul M Schwartz, 'The EU-US Privacy Collision: A Turn to Institutions and Procedures', Harvard Law Review 126 (2013) 1966; Paul M Schwartz and Daniel J Solove, 'Reconciling Personal Information in the United States and European Union', California Law Review 102 (2014) 877.

Table 2. Overview of privacy-related provisions in PTAs

	Privacy issues
Soft commitments	30
Intermediate commitments	28
Hard commitments	25
Total no. of provisions	84

tation of enforcement mechanisms, including preparing guidelines and developing verification and recourse methodologies, recommending the OECD Privacy Guidelines as an appropriate basis for policy development.[212] Similarly, the 2001 Canada–Costa Rica FTA includes a provision on privacy as part of a Joint Statement on Global Electronic Commerce, declaring that privacy 'should be effectively protected with regards to the processing of personal data on global networks,' with both parties agreeing to share information on the functioning of their respective data protection regimes.[213]

Later agreements include cooperation activities on enhancing the security of personal data at the international level, in order to improve the level of privacy protection in electronic communications and avoid obstacles to trade that requires transfers of personal data.[214] These activities include sharing information and experiences on regulations, laws, and programs on data protection,[215] or on the overall domestic regime for the protection of personal information;[216] technical assistance in the form of exchange of information and experts,[217] research and training activities;[218] the establishment of joint programs and projects,[219] a 'dialog'[220] or 'consultations' on matters of data protection;[221] or in general, other cooperation mechanisms to ensure the protection

212 Jordan-US, Joint Statement on Electronic Commerce, 7 June 2000, Art. II.

213 Canada-Costa Rica FTA, Joint Statement on Global Electronic Commerce.

214 EC-Moldova AA, Art. 13.1 and Art. 99(d).

215 Brazil-Chile FTA, Art. 10.8.5 and Art. 10.15(b); Central America-Korea FTA, Art. 14.5.2; Argentina-Chile FTA, Art. 11.5.5 and Art. 11.9(b); Chile-Uruguay FTA, Art. 8.7.4 and Art. 8.13(b); EAEU-Vietnam FTA, Art. 13.6.1; Japan-Mongolia FTA, Art. 9.12.2; Canada-Korea FTA, Art. 13.7(b); Australia-Japan FTA, Art. 13.10.2; Mexico-Panama FTA, Art. 14.11(b); PAAP, Art. 13.8.2 and Art. 13.12(b); Singapore-Taiwan FTA, Art. 11.7(b); Canada-Honduras FTA, Art. 16.5(b); EU-Central America FTA, Art. 34; Central America-Mexico FTA, Art. 15.5(b); Korea-Peru FTA, Art. 14.7.2(b); ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 9.1(c); Japan-Switzerland FTA, Art. 82.2(a); Canada-Colombia FTA, Art. 1507.1(b); Canada-Peru FTA, Art. 1508(b); Colombia-Northern Triangle FTA, Art. 14.8(b); Panama-US FTA, Art. 14.5(b); Chile-Colombia FTA, Art. 12.5(b); Nicaragua-Taiwan FTA, Art. 14.05(b); Panama-Singapore FTA, Art. 13.4(b); CAFTA-DR-US, Art. 14.5(b); Chile-US FTA, Art. 15.5(b).

216 Australia-Indonesia FTA, Art. 13.3.1(b)(i); USMCA, Art. 19.14.1(a)(i); Australia-Peru FTA, Art. 13.14(b)(i); Singapore-Sri Lanka FTA, Art. 9.12(c)(i); Singapore-Turkey FTA, Art. 9.9(c); China-Korea FTA, Art. 13.5; Colombia-Costa Rica FTA, Art. 16.6.2; Canada-Colombia FTA, Art. 1506.2.

217 Chile-EC AA, Art. 30.

218 Korea-Vietnam FTA, Art. 10.8.1(b).

219 Chile-EC AA, Art. 30.

220 Colombia-EU-Peru FTA, Art. 163.1(e).

221 Australia-Chile FTA, Art. 16.10.1.

of personal data.[222] In a handful of treaties, Parties commit to publish information on personal data protection to users of e-commerce,[223] including how individuals can pursue remedies and how businesses can comply with any legal requirements.[224]

PTAs have also dealt with personal data protection with reference to the adoption of domestic standards. While some agreements merely recognize the importance or the benefits of protecting personal information online,[225] in several treaties parties specifically commit to adopt or maintain legislation or regulations that protect the personal data or privacy of users.[226] These measures are usually in relation to the processing and dissemination of data,[227] which may also include administrative measures[228] or the adoption of non-discriminatory practices.[229] When included, few agreements consider qualifications to this commitment, which may include taking measures deemed 'appropriate and necessary considering the differences in existing systems for personal data protection,'[230] or that the Parties have 'the right to define or regulate their own levels of protection of personal data in pursuit or furtherance of public policy objectives,' and shall not be required to disclose confidential or sensitive information or data.[231]

Some PTAs add that in the development of online personal data protection standards, each Party shall take into account existing international standards,[232] as well as

222 Central America-Korea FTA, Art. 14.7.1(a); Colombia-Israel FTA, Annex-B, Art. 2(e); Colombia-Panama FTA, Art. 19.7.1(b); Colombia-Korea FTA, Art. 12.6.1(c). Some agreements aiming to develop such protection that 'at a higher level', but without giving any further indication of what this entails (Armenia-EU CEPA, Art. 13; EC-Ukraine AA, Art. 15; EC-Georgia AA, Art. 14).

223 Brazil-Chile FTA, Art. 10.8.4.

224 Japan-US DTA, Art. 15; USMCA, Art. 19.8.5; Australia-Peru FTA, Art. 13.8.4; Singapore-Sri Lanka FTA, Art. 9.7.3; Australia-Singapore FTA (2016), Ch. 14, Art. 9.4; Chile-Uruguay FTA, Art. 8.7.3; TPP/CPTPP, Art. 14.8.4; Singapore-Turkey FTA, Art. 9.7.3.

225 Australia-Indonesia FTA, Art. 13.7.1; Brazil-Chile FTA, Art. 10.2.5(f) and Art. 10.8.1; EU-Japan EPA, Art. 8.78.3; Central America-Korea FTA, Art. 14.5.1; Canada-Honduras FTA, Art. 16.2.2(e).

226 Japan-US DTA, Art. 15; Australia-Indonesia FTA, Art. 13.7.2; Brazil-Chile FTA, Art. 10.8.2; USMCA, Art. 19.8.1–2; Australia-Peru FTA, Art. 13.8.1–2; Singapore-Sri Lanka FTA, Art. 9.7.1–2; Argentina-Chile FTA, Art. 11.5.1–2; CETA, Art. 16.4; Australia-Singapore FTA (2016), Ch. 14, Art. 9.1–2; Chile-Uruguay FTA, Art. 8.7.1–2; TPP/CPTPP, Art. 14.8.1–2; Singapore-Turkey FTA, Art. 9.7.1–2; China-Korea FTA, Art. 13.5; EAEU-Vietnam FTA, Art. 13.5; Korea-Vietnam FTA, Art. 10.6.1; Japan-Mongolia FTA, Art. 9.6.3; Australia-Japan FTA, Art. 13.8.1; Australia-Korea FTA, Art. 15.8; Mexico-Panama FTA, Art. 14.8; PAAP, Art. 13.8.1; Colombia-Panama FTA, Art. 19.6; New Zealand-Taiwan, Ch. 9, Art. 2(d)(i); Colombia-Korea FTA, Art. 12.3; Chile-China FTA (2018), Art. 55; Australia-Malaysia FTA, Art. 15.8.1; Canada-Colombia FTA, Art. 1506.1.

227 Central America-EFTA, Annex II, Art. 1(c)(i); EFTA-GCC FTA, Annex XVI, Art. 1(c)(i); EFTA-Colombia FTA, Annex I, Art. 1(c)(i); EFTA-Peru FTA, Annex I, Art. 1(c)(i).

228 Colombia-Costa Rica FTA, Art. 16.6.1; Korea-Peru FTA, Art. 14.7; Hong Kong-New Zealand FTA, Ch. 10, Art. 2.1(f); ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 7.1–2; Australia-Chile FTA, Art. 16.8; Canada-Peru FTA, Art. 1507.

229 Australia-Indonesia FTA, Art. 13.6.3; Brazil-Chile FTA, Art. 10.8.3; USMCA, Art. 19.8.4; Australia-Peru FTA, Art. 13.8.3; Australia-Chile FTA, Art. 11.5.3; Australia-Singapore FTA (2016), Ch. 14, Art. 9.3; TPP/CPTPP, Art. 14.8.3.

230 Australia-China FTA, Art. 12.8.1; Chile-Thailand FTA, Art. 11.7.1(j); Australia-Singapore FTA (2003), Ch. 14, Art. 7.1.

231 EU-Japan EPA, Art. 18.1.2(h) and Art. 18.16.7.

232 EC-Singapore FTA, Art. 8.57.4; Argentina-Chile FTA, Art. 11.5.1–2; Chile-Uruguay FTA, Art. 8.7.2; Armenia-EU CEPA, Art. 197.2; Colombia-EU-Peru FTA, Art. 162.2; CARIFORUM-EC EPA, Art. 119.2; Chile-EC AA, Art. 202.

criteria or guidelines of relevant international organizations or bodies[233]—such as the APEC Privacy Framework and the OECD Recommendation of the Council concerning Guidelines governing the Protection of Privacy and Transborder Flows of Personal Data (2013).[234] In recognition that the Parties may take different legal approaches to protecting personal information, some agreements declare that each party should encourage the development of mechanisms to promote compatibility between different regimes. These may include the recognition of regulatory outcomes, whether accorded autonomously or by mutual arrangement, or through broader international frameworks. To this end, the Parties shall endeavor to exchange information on any such mechanisms applied in their jurisdictions and explore ways to extend these or other suitable arrangements to promote compatibility between them.[235] In this context, the 2018 USMCA explicitly recognizes that the APEC Cross-Border Privacy Rules system is a valid mechanism to facilitate cross-border information transfers while protecting personal information.[236]

Yet, PTA Parties have also employed more binding tools to protect personal information online. A first option considers the protection of individual privacy in the processing and dissemination of personal data and the protection of confidentiality of individual records and accounts as an exception in specific chapters of the agreement—such as for trade in services,[237] investment or establishment,[238] movement of persons,[239] telecommunications[240], and financial services.[241] Certain agreements, mostly EU-led, even have special chapters on protection of personal data, including discrete principles—such as: purpose limitation, data quality and proportionality, transparency,

233 Australia-Indonesia FTA, Art. 13.7.3; Australia-Peru FTA, Art. 13.8.2; CETA, Art. 16.4; Australia-Singapore FTA (2016), Ch. 14, Art. 9.2; TPP/CPTPP, Art. 14.8.2; Australia-China FTA, Art. 12.8.2; Korea-Vietnam FTA, Art. 10.6.2; Australia-Japan FTA, Art. 13.8.2; EC-Ukraine AA, Art. 139.2; EC-Georgia AA, Art. 127.2; Australia-Korea FTA, Art. 15.8; Mexico-Panama FTA, Art. 14.8; Chile-Thailand FTA, Art. 11.7(j); Colombia-Panama FTA, Art. 19.6; Colombia-Costa Rica FTA, Art. 16.6.1; Colombia-Korea FTA, Art. 12.1.2 and Art. 12.3; EU-Central America FTA, Art. 201.2 Australia-Malaysia FTA, Art. 15.8.2; ASEAN-Australia-New Zealand FTA, Ch. 10, Art. 7.3; Australia-Chile FTA, Art. 16.8; New Zealand-Thailand FTA, Art. 10.5; Australia-Thailand FTA, Art. 1106; Australia-Singapore FTA (2003), Ch. 14, Art. 7.2.

234 USMCA, Art. 19.8.2.

235 Australia-Indonesia FTA, Art. 13.7.4; Australia-Peru FTA, Art. 13.8.5; Australia-Singapore FTA (2016), Ch. 14, Art. 9.5; TPP/CPTPP, Art. 14.8.5.

236 USMCA, Art. 19.8.6.

237 Japan-Singapore FTA, Arts. 69.1(c).

238 Chile-EC AA, Art. 135.1(e)(ii); Japan-Singapore FTA, Arts. 83.1(c)(ii).

239 Japan-Singapore FTA, Arts. 95.1(c)(ii).

240 USMCA, Art. 18.3.4; EU-Japan EPA, Art. 8.44.4; Australia-Peru FTA, Art. 12.4.4; Singapore-Sri Lanka FTA, Art. 8.3.4; Argentina-Chile FTA, Art. 10.3.4; Australia-Singapore FTA (2016), Art. 10.3.4; Singapore-Turkey FTA, Art. 8.3.5; Japan-Mongolia FTA, Annex 5, Art. 3; Korea-Peru FTA, Art. 13.3.4; Panama-US FTA, Art. 13.2.4; Japan-Switzerland FTA, Annex VI, Art. IX(a); Nicaragua-Taiwan FTA, Art. 13.02.4; Korea-Singapore FTA, Art. 11.3.4; Morocco-US FTA, Art. 13.2.4(b); Chile-US FTA, Art. 13.2.4.

241 USMCA, Annex 17-A; EU-Japan EPA, Art. 8.63; EC-Vietnam FTA, Art. 8.45; EC-Singapore FTA, Art. 8.54.2; Australia-Peru FTA, Art. 10.21; Armenia-EU CEPA, Art. 185; CETA, Art. 13.15.4; Australia-Singapore FTA (2016), Annex 9-B; TPP/CPTPP, Annex 11-B; Singapore-Turkey FTA, Art. 10.12; Japan-Mongolia FTA, Annex 4, Art. 11; EC-Ukraine AA, Art. 129.2; EC-Georgia AA, Art. 118.2; ASEAN-Australia-New Zealand FTA, Ch. 10, Annex on Financial Services Art. 7.2; Japan-Switzerland FTA, Annex VI, Art. VIII; EFTA-Colombia FTA, Annex XVI—financial services, Art. 8; EC-Moldova AA, Art. 245; Chile-EC AA, Art. 135.1(e)(ii).

security, right to access, rectification and opposition, restrictions on onward transfers, protection of sensitive data, as well as provisions on enforcement mechanisms, coherence with international commitments and cooperation between the parties in order to ensure an adequate level of protection of personal data.[242] Other agreements merely recognize principles for the collection, processing, and storage of personal data, such as prior consent, legitimacy, purpose, proportionality, quality, safety, responsibility, and information, but without any further detail.[243] The 2018 USMCA was the first US-led PTA to include such a provision recognizing the key principles of limitation on collection, choice, data quality, purpose specification, use limitation, security safeguards, transparency, individual participation, and accountability.[244] That agreement also adds that any restrictions on cross-border flows of personal information are necessary and proportionate to the risks presented.[245]

A second option lets countries adopt appropriate measures to ensure the privacy protection while allowing the free movement of data, establishing a criterion of 'equivalence'—meaning that countries agree that personal data may be exchanged only where the receiving party undertakes to protect such data in at least an equivalent, similar or adequate way to the one applicable to that particular case in the party that supplies it. This has been largely the EU approach and to that end, Parties commit to inform each other of their applicable rules and negotiate reciprocal, general, or specific agreements.[246] In the same line, under the Argentina–Chile FTA, Parties undertake to apply to data from the other Party, a level of protection that is 'at least similar to that applicable to the Party from which the data originates,' through mutual, general, or specific agreements.[247]

A third, but less used option, leaves the development of rules on data protection to a treaty body. The 2012 Colombia–EU–Peru FTA (which also now includes Ecuador), allows the trade committee to establish a working group with the task of proposing guidelines and strategies enabling the signatory Andean countries 'to become a safe harbor for the protection of personal data.' To this end, the working group shall adopt a cooperation agenda 'that defines priority aspects for accomplishing that purpose, especially regarding the respective homologation processes of data protection systems.'[248]

Overall, with regard to data protection, we see how privacy and data protection have become a trade topic and how PTAs strive to interface domestic regulatory regimes, which can be quite diverging across jurisdictions. We can also observe the role of the EU and the US as major actors pushing for the adoption of certain regulatory standards or templates, as well as their repositioning over time—with the EU agreeing

242 Cameroon-EC Interim EPA, Ch. 6, Arts. 61–65; CARIFORUM-EC EPA, Ch. 6, Arts. 197–201.

243 Argentina-Chile FTA, Art. 11.2.5(f) fn 1; Chile-Uruguay FTA, Art. 8.2.5(f), fn 3.

244 USMCA, Art. 19.8.3.

245 Ibid.

246 EC-Singapore FTA, Art. 8.54.2; Understanding 3 Additional Customs-Related Provisions, Arts. 9.2 and 11.1; EC-Ghana EPA, Protocol on Mutual Administrative Assistance on Custom Matters, Art. 10; Bosnia and Herzegovina-EC SAA, Protocol 5 on Mutual Administrative Assistance on Custom Matters, Art. 10.2; Algeria EC Euro-Med Association Agreement, Art. 45 and Protocol N° 7.

247 Argentina-Chile FTA, Art. 11.6.2 and 11.5.7.

248 Colombia-EU-Peru FTA, Art. 109(b).

on the inclusion of data flows language and the US subscribing to certain international standards and principles of data collection and processing.

IV. CONCLUSION

In the past two decades, countries have increasingly included digital trade provisions in their PTAs. The newly emerged framework of digital trade governance is however fragmented, patchy, and complex. Even on relatively simple issues, such as the customs duty moratorium on electronic transmissions or electronic authentication, there is a great variety of rules and formulations, possibly with differing legal effects. We could also observe that despite these variations, there are important levels of regulatory convergence on certain objectives and principles (like the facilitation of e-commerce, reduction of unnecessary barriers, and considering the needs of SMEs), as well as on distinct topics, such as transparency, paperless trading, and electronic authentication. Yet, significant differences remain, in particular with regard to the treatment of cross-border data flows, data localization, and personal data protection.

As the importance of the data-driven economy grows, moving forward with an apt legal design becomes critical. Policy-makers are now well aware of this and we see it reflected both in the reinvigorated efforts under the umbrella of the WTO to reach an agreement on electronic commerce, as well as in new bolder deals that go beyond existing commitments and look at a range of emerging issues, such as digital identity, artificial intelligence, electronic invoicing, and open data.[249] In any of these efforts, it is essential that there are comprehensive data and analyses of all the relevant norms. We hope that our TAPED dataset, bits of which this article presented, can be an important step in providing such information. We also trust that the dataset can be useful for researchers in different areas, such as law, economics, or political science, as well as for governments, international, and non-governmental organization officials, who may use it as a tool for evidence-based policy-making but also for normative analyses of how things should be, so as to ensure that data innovation is fostered but at the same time certain fundamental values, such as national security and privacy protection, are adequately safeguarded.

249 New Zealand Ministry of Foreign Affairs and Trade, 'Digital Economy Partnership Agreement (DEPA) Negotiations' (20 May 2019), *New Zealand Ministry of Foreign Affairs and Trade*. https://www.mfat.govt.nz/en/trade/free-trade-agreements/digital-economy-partnership-agreement-depa-negotiations/