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Digital Transformation as a Reshaper of Global Trade Law

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Abstract This chapter explores the far-reaching effects of the digital transformation on trade and trade law. It first sketches the state of affairs under the multilateral forum of the World Trade Organization (WTO) and, second, analyzes the more deliberate regulatory responses to the challenges of digitization formulated in free trade agreements (FTAs). The focus here is placed on distinct advanced models of digital trade regulation, such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), as well as on particular forms of legal innovation, such as the new generation of Digital Economy Agreements. By looking at specific agreements, the chapter also demarcates the positioning of key stakeholders, in particular the US, the EU, and China, and contributes to the understanding of the dynamic and contentious landscape of global trade law, as reshaped by digital transformation in recent years. This chapter finally asks whether the emergent regulatory environment is adequate to match the data-driven economy and whether certain pitfalls of international cooperation and path dependencies hinder this.

1 Introduction

Technological advances have triggered multiple changes with varying breadth and depth in different areas of law.¹ The legal environment itself is also often of direct relevance as to how businesses and users tap into the affordances of a particular technology and to what extent it ultimately becomes embedded in different societal contexts – so, in this sense, law and technology have a “dialectical”,² mutually dependent relationship. Digitization has been commonly seen as one of the latest and perhaps most pervasive technological advances, which triggers ripples across legal

¹ See e.g. Brownsword and Yeung (2008); Gervais (2010); Kauffman Taskforce on Law, Innovation and Growth (2011).

² Cottier (2017), p. 1017.

domains. It is the aim of this chapter to explore the changes that the digital transformation has caused in one discrete area of international law – namely, trade law. It conceptualizes digital transformation as a reshaper of the existing regulatory regime for trade and reveals a highly dynamic, albeit fragmented, field of governance with some path dependencies but also streaks of legal innovation. The chapter begins by setting the scene and sketching how digitization has disrupted the patterns of trade by focusing on a few developments, such as servicification or the growing importance of data, that also pose a variety of challenges for trade regulation, as established in a brick-and-mortar world. It then turns to the current regulatory framework for digital trade – first, by sketching the state of affairs under the umbrella of the World Trade Organization (WTO) and second, by analyzing the more deliberate regulatory responses to digital transformation formulated in free trade agreements (FTAs). The focus here is placed on distinct advanced models of digital trade regulation – those of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the United States Mexico Canada Agreement (USMCA), the newer FTA templates of the European Union, the Regional Comprehensive Partnership Agreement (RCEP), and the Digital Economy Partnership Agreement (DEPA) as representative of a new category of Digital Economy Agreements (DEAs). By looking at specific agreements, the chapter also demarcates the positioning of key stakeholders, in particular the US, the EU, and China, and contributes to the understanding of the dynamic and contentious landscape of global trade law in the process of being reshaped by digital transformation. The chapter finally asks whether the emergent regulatory environment is adequate to match the data-driven economy and whether certain pitfalls of international cooperation and path dependencies hinder this.

2 Digital Transformation as a Reshaper of Trade

Digitization has had and continues to have multiple effects on trade – first, as an important part of globalization processes and second, as a trigger of new patterns of trade in services and goods. In 2016, the McKinsey Global Institute published an influential report on digital globalization that includes full data and econometric analyses of the changes in trade due to the advent and wide spread of digital technologies and the Internet in particular.³ It establishes that the world has never been more deeply connected by commerce, communication, and travel than it is today.⁴ A particularly important finding, which the chapter also underscores later, is the contribution of data flows, which exert a larger impact on growth than traditional

³ Manyika et al. (2016).

⁴ Admittedly the report was published before the Covid-19 pandemic; the effects of online commerce has only been enhanced during the pandemic times. See e.g. WTO (2020).

goods flows. This is remarkable given that the world's trade networks have developed over centuries, while cross-border data flows are still relatively young a phenomenon.⁵ The share of digital trade has also become significant, and approximately 12% of the global goods trade is conducted via international electronic commerce. Also critically, some 50% of the world's traded services are already digitized,⁶ as digitization enables instantaneous exchanges of virtual goods, such as e-books, apps, online games, music, or software. Digitization also renders global flows more inclusive. The near-zero marginal costs of digital communications and transactions open new possibilities for conducting business across borders on a massive scale. So, while trade was previously largely driven by advanced economies and their large multinational companies, digital platforms allow more countries and smaller enterprises to participate. Still, one trend that needs to be carefully considered is the power of the few, as network effects that are intrinsic to digital markets often trigger "winner-takes-all" scenarios.⁷ Companies like *Google*, *Facebook*, *Amazon* and *Apple* have dominant positions in multiple markets and ways to leverage this dominance onto neighbouring and new markets. The vast data assets that these firms possess only make these effects stronger and may call for intervention, be it in domestic contexts to level the playing field⁸ or in global contexts to ensure that radical data inequalities do not ensue.⁹

Against the backdrop of these broader trends in trade powered by digitization, there are a few distinct ones that may pose challenges to trade policy and law. We highlight two particular developments in this context: (1) the growing importance of trade in services and (2) the growing importance of data.

- (1) Services have been conventionally considered non-tradable across borders, as it is the nature of many services that their provision coincides with the consumption and requires the physical proximity of the service provider. Digitization changes this, and a great number of services, such as legal, computer related, and financial services, can now be provided online in part or in their entirety. As mentioned earlier, more than 50% of the world's traded services are already digitized, and this opens entirely new opportunities for global trade in services,¹⁰ as again highlighted by the developments during the pandemic, which raised digitally deliverable services to nearly 64% of total services exports.¹¹

⁵ Manyika et al. (2016), p. 73 and chapter 4.

⁶ Manyika et al. (2016), p. 7.

⁷ See e.g. Shapiro and Varian (1999).

⁸ See e.g. Ezrachi and Stucke (2016); Burri (2019). This has been reflected in recent legislative efforts of the European Union, such as the Digital Services Act and the Digital Markets Acts.

⁹ See e.g. Couldry and Mejias (2019); Fisher and Streinz (2021).

¹⁰ See e.g. Castro and McQuinn (2015); Manyika et al. (2016).

¹¹ UNCTAD (2021). Notably, worldwide exports of digitally deliverable services fell by only 1.8%, while total services exports declined by 20% (an unprecedented drop since records began in 1990) (ibid.).

Digitization also fuels the trend of “servicification”, whereby there is an increase in the use, produce and sale of services.¹² This happens as some goods are traded as services: for example, while software has been typically distributed on a tangible medium, now that same software can be delivered and updated online. The same is true for trade in books, movies, and music, where trade in the physical form has been replaced by a cross-border movement of digital content. In addition, many of the newer generation of IT products, such as smartphones or video game consoles, inherently include some sort of support, continuous maintenance, or new content, which transcend the purchase of the initial product and essentially render these devices platforms for selling services.

Overall, the relationship between trade in goods and trade in services becomes more complex in the digital space. This means, among other things, that previous distinctions between goods and services are rendered obsolete and newer types of digital offers pose challenges to domestic regulation, which stems from traditional branches, such as telecommunications or media law,¹³ as well as to international trade law, which operates under pre-Internet rules and classifications, as the chapter discusses below.

- (2) Data has certainly become the buzzword in the contemporary debates of digitally driven economic growth and innovation.¹⁴ Enabled by a new generation of digital technologies and because of their deep embeddedness in all facets of societal life, companies increasingly capture vast amounts of information about their customers, suppliers, and operations.¹⁵ It is often maintained in this context that data has become the “new oil”.¹⁶ And while this is not entirely a valid statement,¹⁷ it well illustrates the new centrality of data and the dependence of modern economic activity on it.¹⁸ Many studies and expert reports point at the vast potential of data as a trigger for more efficient business operations, highly innovative societal solutions, and ultimately better policy choices.¹⁹ The transformative potential refers not only to new “digital native” areas, such as search or social networking, but also to “brick-

¹² See e.g. Kammerskollegium (2012); Lanz and Maurer (2015).

¹³ We have seen regulatory reforms unfold due to convergence effects – the European Union, for instance, has adopted twice such reform packages and is now in the process of undergoing a third reform as part of its Digital Single Market Strategy. See European Commission (2015).

¹⁴ Although there were some debates on data flows in the 1980s. See e.g. Kuner (2011); Aaronson (2015); OECD (2011).

¹⁵ Manyika et al. (2011); Mayer-Schönberger and Cukier (2013); Burri (2019).

¹⁶ The Economist (2017).

¹⁷ See e.g. Daskal (2015); Burri (2019); for a fully-fledged analysis, see Scholz (2019).

¹⁸ Manyika et al. (2011).

¹⁹ See e.g. Manyika et al. (2011); Mayer-Schönberger and Cukier (2013); Henke et al. (2016); World Bank (2021).

and-mortar”, physical businesses, such as manufacturing, which often have remained shielded from the effects of globalization so far.²⁰

In the context of trade and trade policies, the growing importance of data for the digital economy has one crucial implication: data must flow across borders. Otherwise, many of the innovations of the data economy and things that we have become accustomed to in everyday life, such as apps, the provision of digital products and services, cloud computing applications, or the Internet of Things (IoT), would not function.²¹ The interdependence between cross-border data flows and digital innovation is also critical for the future, as, for instance, the development of artificial intelligence (AI) also hinges on data inputs.²² This interdependence puts trade policy under pressure. Finding solutions, however, is not easy as the use of data opens many regulatory questions as to data sovereignty, the protection of privacy, national security, and other domestic values and interests.²³ This has also led governments to adopt a variety of instruments,²⁴ such as notably data localization measures,²⁵ that try to keep data within the country and effectively act as trade barriers.

3 Digital Transformation as a Reshaper of Global Trade Regulation

The digital transformation of trade has not occurred in a regulatory vacuum. International trade law, even without deliberate adaptation, has mattered for the regulation of trade in goods, services, and the protection of intellectual property (IP). This is not to say, however, that digital trade could be easily and without any challenges subsumed under the analogue-based rules. Indeed, quite the opposite is true, and states have sought ways to proactively address these challenges, especially in the last decade, rendering digital trade regulation one of the most dynamic governance domains. It is important to note that the changes have not occurred at the same speed and with the same scope and depth in all trade venues. As the next sections will show, legal adaptation under the multilateral forum of the WTO has been minimal, and the reform initiatives are advancing slowly. In contrast, bilateral and regional

²⁰ See e.g. Manyika et al. (2011).

²¹ See Chander (2016), p. 2; Chander (2021).

²² Irion and Williams (2019).

²³ Burri and Schär (2016); Gasser (2021); Burri (2021a).

²⁴ See e.g. USITC (2013); USITC (2014); USTR (2022).

²⁵ Localization measures can be defined as measures that compel companies to conduct certain digital trade-related activities within a country’s borders. They may include policies that require data servers to be located within the country; that require local content; government procurement preferences and technology standards that favour local digital companies. See e.g. OECD (2015).

trade forums, which will be analyzed subsequently, have become a major source of new rules that directly tackle the challenge of digitally-induced transformations.

3.1 Adaptation of the Multilateral Trade Regime

The WTO membership early recognized the implications of digitization for trade by launching a Work Programme on E-commerce in 1998.²⁶ This initiative to examine and, if needed, adjust the rules in the domains of trade in services, trade in goods, IP protection, and economic development was broad in scope but did not come with a concrete negotiating mandate. Over a period of twenty years, despite continued discussions, very little happened, and WTO law is still in its pre-Internet state.²⁷ Despite this lack of legal adaptation, WTO law is not irrelevant. As has been well-documented, the WTO is based on strong principles of non-discrimination, which can potentially address later technological developments. WTO law also often tackles issues in a technologically neutral way – for instance, with regard to the application of the basic principles of most-favoured-nation (MFN) and national treatment (NT), with regard to standards, trade facilitation, subsidies and government procurement.²⁸ Moreover, the WTO possesses the advantage of a dispute settlement mechanism, which on the one hand, makes WTO rules “hard” ones and, on the other hand, can potentially support the adjustment of the rules by clarifying the law and its application to new situations.²⁹ Indeed, a few important cases have dealt with Internet-related issues.³⁰

This has, however, been hardly sufficient. A great number of critical issues have remained unresolved and exposed the disconnect between the existing WTO rules, in particular under the General Agreement on Trade in Services (GATS), and digital trade practices. A good example in this context is the question of whether previously not existing digital offerings should be classified as goods or services (and thus whether the more binding General Agreement on Tariffs and Trade [GATT] or the

²⁶ WTO (1998).

²⁷ Burri (2015); WTO (2018).

²⁸ For a fully-fledged analysis, see Burri and Cottier (2012).

²⁹ See e.g. Sacerdoti et al. (2006).

³⁰ Major GATS cases have had a substantial Internet-related element. See Panel Report, *United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services (US – Gambling)*, WT/DS285/R, adopted 10 November 2004; Appellate Body Report, *US – Gambling*, WT/DS285/AB/R, adopted 7 April 2005; Panel Report, *China – Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products (China – Publications and Audiovisual Products)*, WT/DS363/R, adopted 12 August 2009; Appellate Body Report, *China – Publications and Audiovisual Products*, WT/DS363/AB/R, adopted 21 December 2009; Panel Report, *China – Certain Measures Affecting Electronic Payment Services (China – Electronic Payment Services)*, WT/DS413/R, adopted 31 August 2012.

GATS apply) – the examples given earlier with regard to electronically delivered software or books are pertinent in this context, but one can also think further of more complex situations, such as those stemming from 3D printing.³¹ Even if categorized as services, it is then difficult to say under the scope of which subsector such digital offerings would fall. Online games, for instance, as a new type of content platform, could be potentially fitted into the discrete categories of computer and related services, value-added telecommunications services, entertainment, or audiovisual services. This classification is not trivial at all, as it triggers very different obligations for the WTO members, the divergence in commitments being particularly radical between those for the telecommunications and the media sectors.³²

The classification impasse is only one of many issues discussed in the framework of the 1998 WTO Work Programme on Electronic Commerce that have been left without a solution.³³ Despite its recent reinvigoration with the 2019 Joint Statement Initiative,³⁴ the feasibility of an agreement that will cover all the pertinent issues that the data-driven economy has brought about appears, at this point in time, limited. There is a likelihood that mostly questions around digital trade facilitation will be addressed in some sort of a plurilateral rather than a multilateral deal.³⁵ Against the backdrop of the still struggling multilateral trade forum and the lack of deliberate action over a period of two decades, countries have changed venues and used FTAs to address digital trade issues. The next sections look at the solutions found in these treaties with a brief overview of the developments and closer attention paid to a few newer and particularly far-reaching agreements that help us understand how digital transformation is reshaping global trade law.

3.2 Reshaping Trade Law through Preferential Agreements

Overview

States have, over the years, intensely used preferential trade agreements of bilateral or regional nature, which permit giving certain preferences to the parties to the treaty beyond the WTO standards and commitments (“WTO-plus”) and addressing issues outside those regulated under the WTO (“WTO-extra”).³⁶ Important for this chapter’s discussion is the fact that an increasing number of these agreements tackle

³¹ See e.g. Fleuter (2016).

³² Weber and Burri (2012); Peng (2012); Willemyns (2019).

³³ Wunsch-Vincent and Hold (2012).

³⁴ WTO (2019b).

³⁵ See e.g. Burri (2021b); Burri (2023).

³⁶ See e.g. Cooper (2014); Corbin and Perry (2019).

digital trade. Out of the 360 plus PTAs entered into between 2000 and 2022, 203 contain provisions relevant to digital trade, and 95 have dedicated electronic commerce chapters.³⁷ Although the pertinent rules are very heterogeneous as to scope, level of commitments, and bindingness, it is evident that the move towards more, more detailed, and more binding provisions on digital trade has intensified significantly over the course of the past few years.³⁸ Even more recently, there is also a trend of adopting dedicated Digital Economy Agreements (DEAs). This regulatory push in the domain of digital trade can be explained by the increased importance of the issue over time as well as by the proactive role played by the United States, which has sought to implement its “Digital Agenda”³⁹ in more than a dozen agreements since 2001. The template endorsed by the US has also diffused and can be found in other FTAs.⁴⁰ Other countries, such as those that are members of the European Free Trade Area (EFTA) and a number of developing countries, are, on the other hand, still in the process of developing distinct digital trade strategies.

For the regulation of digital trade, particularly critical are the rules found in: (1) the specifically dedicated e-commerce FTA chapters; (2) the chapters on cross-border supply of services (in particular in the telecommunications, computer and related, audiovisual, financial services sectors); as well as in (3) the chapters on IP protection.⁴¹ The focus of this article is on the e-commerce chapters, which have been the main source of new rule-making and are indicative of the increased attention trade negotiators paid to digital trade. The next sections will reveal the importance of these new rules: the shift from classic trade liberalization topics towards ones that are beyond-the-border regulation and effectively shape the domestic regimes relevant for the data-driven economy. The chapter looks more closely at the most advanced digital trade templates that have emerged only in recent years. It clusters these in four groups: (1) the CPTPP and the USMCA, which illustrate liberal, largely US-led approaches to digital trade regulation; (2) agreements that reveal the EU approach; (3) the RCEP, which reveals the position of China; and finally, (4) the recent phenomenon of DEAs, which highlights legal innovation in the area of digital trade.

³⁷ This analysis is based on a dataset of all data-relevant norms in trade agreements (TAPED). See Burri and Polanco (2020) and <https://unilu.ch/taped> (accessed 16 June 2022).

³⁸ See Burri and Polanco (2020); Willemyns (2020).

³⁹ US Congress (2001); Wunsch-Vincent (2003); Gao (2018).

⁴⁰ See e.g. Elsig and Klotz (2021).

⁴¹ For analysis of all relevant chapters, see Burri (2017).

Liberal Approaches to Digital Trade: The Comprehensive and Progressive Agreement for Transpacific Partnership and the United States Mexico Canada Agreement

The CPTPP

The Comprehensive and Progressive Agreement for Transpacific Partnership (CPTPP) was agreed upon in 2017 between eleven countries in the Pacific Rim⁴² and entered into force on 30 December 2018. Despite the US having dropped out of the agreement with the start of the Trump administration, the CPTPP e-commerce chapter reflects the US efforts to secure obligations on digital trade and is a verbatim reiteration of the e-commerce chapter under the previously negotiated Trans-Pacific Partnership Agreement (TPP).

The CPTPP e-commerce chapter has a broad scope of application covering “measures adopted or maintained by a Party that affect trade by electronic means”.⁴³ A number of the chapter’s provisions, as is common for many other FTAs, address some of the leftovers of the WTO E-Commerce Programme and provide for the facilitation of online commerce. In this context, Article 14.3 CPTPP bans the imposition of customs duties on electronic transmissions, including content transmitted electronically, and Article 14.4 endorses the non-discriminatory treatment of digital products, which are defined broadly pursuant to Article 14.1. Article 14.5 CPTPP goes beyond WTO-discussed issues and is meant to shape the domestic electronic transactions framework by including binding obligations for the parties to follow the principles of the UNCITRAL Model Law on Electronic Commerce 1996 or the UN Convention on the Use of Electronic Communications in International Contracts. Parties must endeavour to (1) avoid any unnecessary regulatory burden on electronic transactions; and (2) facilitate input by interested persons in the development of its legal framework for electronic transactions.⁴⁴ The provisions on paperless trading, electronic authentication, and electronic signatures complement this by securing the equivalence of electronic and physical forms.⁴⁵

The remainder of the provisions found in the CPTPP e-commerce chapter can be said to belong to a more innovative category of rule-making that tackles the emergent issues of the data economy. Most importantly, the CPTPP explicitly seeks to restrict data protectionism. It does this by a ban on data localization measures,

⁴² Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.

⁴³ Article 14.2(2) CPTPP. Excluded for the scope are (a) government procurement and (b) information held or processed by or on behalf of a Party, or measures related to such information, including measures related to its collection. Article 14.2(3) and (4) CPTPP.

⁴⁴ Article 14.5(2) CPTPP.

⁴⁵ Articles 14.9 and 14.6 CPTPP respectively.

whereby parties cannot require from a “covered person to use or locate computing facilities in that Party’s territory as a condition for conducting business in that territory”.⁴⁶ In addition, there is a hard rule on data flows: “[e]ach Party shall allow the cross-border transfer of information by electronic means, including personal information, when this activity is for the conduct of the business of a covered person”.⁴⁷ These provisions clearly reflect the new centrality of data for trade, as highlighted earlier, as well as the shift towards more binding forms intended to curb data protectionism.

Measures restricting digital flows or implementing localization requirements are permitted only if they are adopted to achieve a legitimate public policy objective, provided that the measure is not applied in a manner which would constitute “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”.⁴⁸ These non-discriminatory conditions are very similar to the general exception clauses of Article XIV GATS and Article XX GATT 1994, which are intended to balance trade and non-trade interests by “excusing” certain violations, but their legal tests are also extremely hard to pass.⁴⁹ The CPTPP four-prong test⁵⁰ differs from the WTO norms in one significant element: while there is an exhaustive list of public policy objectives (such as the protection of public moral or public order) in the GATT and the GATS, the CPTPP provides no such enumeration and simply speaks of a “legitimate public policy objective”. This certainly permits more regulatory autonomy for the CPTPP signatories; it may be linked, however, to legal uncertainty until clarified through dispute settlement.

The CPTPP also addresses forced technological transfer in digital trade by a dedicated provision on source code. Pursuant to Article 14.17, a CPTPP party may not require the transfer of, or access to, a source code of software owned by a person of another party as a condition for the import, distribution, sale, or use of such software, or of products containing such software, in its territory. The aim of this provision is to protect software companies and address their concerns about loss of IP or cracks in the security of their proprietary code; it may also be interpreted as a reaction to China’s demands to access to source code from software producers selling in its market.

Further, in terms of conditioning the domestic regulatory environment, the CPTPP e-commerce chapter includes provisions, albeit in a soft law form, on consumer protection,⁵¹ spam control,⁵² net neutrality,⁵³ as well as newly introduced

⁴⁶ Article 14.13(2) CPTPP.

⁴⁷ Article 14.11(2) CPTPP.

⁴⁸ Article 14.11(3) CPTPP.

⁴⁹ See e.g. Andersen (2015).

⁵⁰ See e.g. Greenleaf (2017).

⁵¹ Article 14.17 CPTPP.

⁵² Article 14.14 CPTPP.

⁵³ Article 14.10 CPTPP.

rules on cybersecurity.⁵⁴ Key in addressing and shaping the regulatory conditions for digital trade are the rules with regard to personal data protection. The CPTPP requires parties to “adopt or maintain a legal framework that provides for the protection of the personal information of the users of electronic commerce”.⁵⁵ While this is an important statement, it comes with no specified benchmarks for the legal framework except for a general requirement that the CPTPP parties “take into account principles or guidelines of relevant international bodies”.⁵⁶ Parties are also invited to promote compatibility between their data protection regimes by essentially treating lower standards as equivalent.⁵⁷ The CPTPP template reveals the new importance attached to data protection but also shows that under the US-led model, there seems to be a prioritization of trade over privacy rights, which can be problematic for countries sharing a different understanding of personal data protection.

The USMCA

After the US withdrawal from the TPP and the politics of the Trump administration, many questions were raised as to the next steps the US would take. The renegotiated NAFTA, which is now referred to as the “United States Mexico Canada Agreement” (USMCA), confirmed that the US continues its liberal approach to the regulation of the digital economy. The USMCA has a comprehensive e-commerce chapter, which is now also properly titled “Digital Trade” and follows all critical lines of the CPTPP, creating an even more ambitious template. As a follow-up to the CPTPP model, the USMCA adopts the same broad scope of application,⁵⁸ bans customs duties on electronic transmissions,⁵⁹ and binds the parties to non-discriminatory treatment of digital products.⁶⁰ It also provides for a domestic regulatory framework that facilitates online trade by enabling electronic contracts,⁶¹ electronic authentication and signatures,⁶² and paperless trading.⁶³

⁵⁴ Article 14.16 CPTPP.

⁵⁵ Article 14.8(2) CPTPP.

⁵⁶ Article 14.8(2) CPTPP. A footnote (6) provides some clarification in saying that: “... a Party may comply with the obligation in this paragraph by adopting or maintaining measures such as a comprehensive privacy, personal information or personal data protection laws, sector-specific laws covering privacy, or laws that provide for the enforcement of voluntary undertakings by enterprises relating to privacy”.

⁵⁷ Article 14.8(5) CPTPP.

⁵⁸ Article 19.2 USMCA.

⁵⁹ Article 19.3 USMCA.

⁶⁰ Article 19.4 USMCA.

⁶¹ Article 19.5 USMCA.

⁶² Article 19.6 USMCA.

⁶³ Article 19.9 USMCA.

The USMCA follows the CPTPP model also with regard to data issues and ensures the free flow of data through a clear ban on data localization⁶⁴ and a hard rule on free information flows,⁶⁵ with the same exception possibilities.⁶⁶ Beyond these similarities, the USMCA introduces some novelties. The first one is that the USMCA departs from the standard US approach and signals that the US is willing abide by the guidelines of relevant international bodies with a specific reference to the OECD and APEC.⁶⁷ The parties also recognize key principles of data protection, which include: limitation on collection; choice; data quality; purpose specification; use limitation; security safeguards; transparency; individual participation; and accountability,⁶⁸ and aim to provide remedies for any violations.⁶⁹

Further, three new issues as part of the USMCA may be mentioned. The first refers to the inclusion of “algorithms”, the meaning of which is “a defined sequence of steps, taken to solve a problem or obtain a result”⁷⁰ and has become part of the ban on requirements for the transfer or access to source code. The second novum refers to “interactive computer services”. With regard to these, the USMCA parties pledge not to “adopt or maintain measures that treat a supplier or user of an interactive computer service as an information content provider in determining liability for harms related to information stored, processed, transmitted, distributed, or made available by the service, except to the extent the supplier or user has, in whole or in part, created, or developed the information”.⁷¹ This provision is important, as it seeks to clarify the liability of intermediaries and secures the application of Section 230 of the US Communications Decency Act, which insulates platforms from liability but has been recently under attack in many jurisdictions in the face of fake news and other negative developments related to platforms’ power.⁷² The third and

⁶⁴ Article 19.12 USMCA.

⁶⁵ Article 19.11 USMCA.

⁶⁶ Article 19.11(2) USMCA. A footnote attached clarifies: “A measure does not meet the conditions of this paragraph if it accords different treatment to data transfers solely on the basis that they are cross-border in a manner that modifies the conditions of competition to the detriment of service suppliers of another Party”. The footnote does not appear in the CPTPP.

⁶⁷ Article 19.8(2) requires from the parties to “adopt or maintain a legal framework that provides for the protection of the personal information of the users of digital trade. In the development of its legal framework for the protection of personal information, each Party should take into account principles and guidelines of relevant international bodies, 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)”.

⁶⁸ Article 19.8(3) USMCA.

⁶⁹ Article 19.8(4) and (5) USMCA.

⁷⁰ Article 19.1 USMCA.

⁷¹ Article 19.17(2) USMCA. Annex 19-A creates specific rules with the regard to the application of Article 19.17 for Mexico, in essence postponing its implementation for three years.

⁷² See e.g. Burri (2022).

rather liberal commitment of the USMCA parties regards open government data and seeks to facilitate public access to such data.⁷³

The US approach towards digital trade issues has also been confirmed by the 2019 US–Japan Digital Trade Agreement (DTA), signed alongside the US–Japan Trade Agreement. The US–Japan DTA replicates almost all provisions of the USMCA and the CPTPP,⁷⁴ including the new USMCA rules on open government data,⁷⁵ source code including algorithms,⁷⁶ and interactive computer services,⁷⁷ but notably also covers financial and insurance services as part of the scope of the agreement. Overall, the CPTPP/USMCA template has been followed by a great number of FTAs, and its impact has been so augmented.⁷⁸

The EU Approach to Reshaping Digital Trade Law

The EU approach to digital trade has substantially developed over time. Earlier treaties, such as the 2002 agreement with Chile and the 2009 EU–South Korea FTA, did include substantial e-commerce provisions (often as part of the services chapter), but the language was still cautious, of limited scope, and largely focused on the area of cooperation activities.⁷⁹ The EU, as particularly insistent on data protection, has also sought commitments of its FTA partners to compatibility with the international standards of data protection.⁸⁰

The 2016 EU agreement with Canada, the Comprehensive Economic and Trade Agreement (CETA), only goes a step further. The CETA includes a separate chapter on electronic commerce, but next to the ban on customs duties for electronic transmission,⁸¹ it covers again only softer norms ensuring: (1) clarity, transparency, and predictability in the domestic regulatory frameworks; (2) interoperability, innovation, and competition in facilitating electronic commerce; as well as (3) facilitating

⁷³ Article 19.18 USMCA.

⁷⁴ Article 7: Customs Duties; Article 8: Non-Discriminatory Treatment of Digital Products; Article 9: Domestic Electronic Transactions Framework; Article 10: Electronic Authentication and Electronic Signatures; Article 14: Online Consumer Protection; Article 11: Cross-Border Transfer of Information; Article 12: Location of Computing Facilities; Article 16: Unsolicited Commercial Electronic Messages; Article 19: Cybersecurity US–Japan DTA.

⁷⁵ Article 20 US–Japan DTA.

⁷⁶ Article 17 US–Japan DTA.

⁷⁷ Article 18 US–Japan DTA.

⁷⁸ See e.g. the 2016 Chile–Uruguay FTA; the 2016 Updated Singapore–Australia Free Trade Agreement, the 2017 Argentina–Chile FTA, the 2018 Singapore–Sri Lanka FTA, the 2018 Australia–Peru FTA, the 2018 Brazil–Chile FTA and the 2019 Australia–Indonesia FTA.

⁷⁹ See e.g. Articles 102 and 37 EU–Chile FTA.

⁸⁰ Article 7.48 EU–South Korea FTA.

⁸¹ Article 16.3 CETA.

the use of electronic commerce by small and medium sized enterprises.⁸² The CETA also has a specific norm on trust and confidence in electronic commerce, which obliges the parties to adopt or maintain laws, regulations, or administrative measures for the protection of personal information of users engaged in electronic commerce in consideration of international data protection standards.⁸³ Yet, there are no deep commitments on digital trade; nor are there any rules on data and data flows.

In this sense, it can be underscored that for a lengthy period of time, and in divergence with the US, the European Union has been very cautious when inserting rules on data in its trade deals. It is only recently that the EU has made a step towards such rules, whereby parties have agreed to consider in future negotiations commitments related to the cross-border flow of data. Such a clause is found in the 2018 EU-Japan EPA⁸⁴ and in the modernization of the trade part of the EU-Mexico Global Agreement. In the latter agreements, the parties commit to “reassess” the need for the inclusion of provisions on the free flow of data into the treaty within three years of its entry into force. This “place-holder” is not particularly bold, but it marks the onset of a process of repositioning of the EU. The EU is indeed now willing to subscribe to a regime that endorses free data flows – a position evident in EU’s currently negotiated deals with Australia, New Zealand, and Tunisia, which include norms on the free flow of data and data localization bans in their draft digital trade chapters. This repositioning and newer commitments are, however, also linked with high levels of data protection,⁸⁵ which signifies a unique position of the EU as a champion of privacy in the area of digital trade.

The EU wishes to permit data flows only if coupled with the high data protection standards of its General Data Protection Regulation (GDPR).⁸⁶ In its currently negotiated trade deals, as well as in the EU proposal for WTO rules on electronic commerce,⁸⁷ the EU follows a distinct model of endorsing and protecting privacy as a fundamental right. On the one hand, the EU and its partners seek to ban data localization measures and subscribe to a free data flow, but on the other hand, these commitments are conditioned: first, by a dedicated article on data protection, which clearly states that: “Each Party recognises that the protection of personal data and privacy is a *fundamental right* and that high standards in this regard contribute to

⁸² Article 16.5 CETA.

⁸³ Article 16.4 CETA.

⁸⁴ Article 8.81 EU-Japan EPA.

⁸⁵ See European Commission (2018).

⁸⁶ Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ 2016 L 119/1 [hereinafter GDPR].

⁸⁷ WTO (2019a).

trust in the digital economy and to the development of trade”,⁸⁸ followed by a paragraph on data sovereignty: “Each Party may adopt and maintain the safeguards it deems appropriate to ensure the protection of personal data and privacy, including through the adoption and application of rules for the cross-border transfer of personal data. Nothing in this agreement shall affect the protection of personal data and privacy afforded by the Parties’ respective safeguards”.⁸⁹ The EU also wishes to retain the right to see how the implementation of the FTA with regard to data flows impacts the conditions of privacy protection, so there is a review possibility within three years of the entry into force of the agreement and parties remain free to propose to review the list of restrictions at any time.⁹⁰ In addition, there is a broad carve-out, in the sense that: “The Parties reaffirm the right to regulate within their territories to achieve legitimate policy objectives, such as the protection of public health, social services, public education, safety, the environment including climate change, public morals, social or consumer protection, privacy and data protection, or the promotion and protection of cultural diversity”.⁹¹ The EU thus reserves ample regulatory leeway for its current and future data protection and other measures in a way very different from the test under the CPTPP and the USMCA or that under WTO law.⁹²

The current EU approach, which has been confirmed by the post-Brexit Trade and Cooperation Agreement (TCA) with the United Kingdom,⁹³ is interesting in the way it balances the support for an open data-driven economy and, in this sense, converges with the liberal stance shared by the US and other countries like Japan, Singapore, Australia, and New Zealand, while at the same time carving out a lot of policy space for domestic values and the protection of fundamental rights, which, albeit in a different way, links to the approach of China.

⁸⁸ See e.g. Article 6(1) draft EU–Australia FTA (emphasis added). The same wording is found in the draft EU–New Zealand and the EU–Tunisia FTAs.

⁸⁹ See e.g. Article 6(2) draft EU–Australia FTA. The same wording is found in the draft EU–New Zealand and the EU–Tunisia FTAs.

⁹⁰ See e.g. Article 5(2) draft EU–Australia FTA. The same wording is found in the draft EU–New Zealand and the EU–Tunisia FTAs.

⁹¹ See e.g. Article 2 draft EU–Australia FTA. The same wording is found in the draft EU–New Zealand and the EU–Tunisia FTAs.

⁹² Yakovleva (2020), p. 496.

⁹³ Trade and Cooperation Agreement between the European Union and the European Atomic Energy Community, of the one part, and the United Kingdom of Great Britain and Northern Ireland, of the other part, OJ L [2021] 149/10. See also Irion and Burri (2022).

China's Approach to Digital Trade

China currently maintains 22 FTAs with its trade partners.⁹⁴ The recent Regional Comprehensive Economic Partnership (RCEP) signed on 15 November 2020 between China, the ASEAN Members,⁹⁵ Japan, South Korea, Australia, and New Zealand is particularly important in the digital trade context, as “it showcases what China, the RCEP’s dominant member state, is willing to accept in terms of e-commerce/digital trade provisions”⁹⁶ and illustrates where China stands vis-à-vis the diverging approaches of the EU and the US.⁹⁷

While the RCEP chapter on e-commerce includes a number of provisions that imitate the CPTPP model, albeit in a soft law form, the RCEP provisions on cross-border data flows are particularly critical in the context of this chapter’s discussion. In essence, the RCEP provides only for conditional data flows while preserving room for domestic policies, which well may be of data protectionist nature. So, while the RCEP electronic commerce chapter includes a ban on localization measures,⁹⁸ as well as a commitment to free data flows,⁹⁹ there are clarifications that give RCEP Members a lot of policy space and essentially undermine the impact of the made commitments. In this line, there is an exception possible for legitimate public policies and a footnote to Article 12.14.3(a), which says that: “For the purposes of this subparagraph, the Parties affirm that the *necessity* behind the implementation of such legitimate public policy *shall be decided* by the implementing Party”.¹⁰⁰ This essentially goes against any exceptions assessment, as we know it under WTO law, and triggers a self-judging mechanism. In addition, subparagraph (b) of Article 12.14.3 says that the provision does not prevent a party from taking “any measure that it considers necessary for the protection of its *essential security*

⁹⁴ For details, see People’s Republic of China, Ministry of Commerce: http://fta.mofcom.gov.cn/english/fta_qianshu.shtml (accessed 16 June 2022).

⁹⁵ Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

⁹⁶ Leblond (2020).

⁹⁷ Prior to the RCEP, of all of China’s 22 FTAs, 12 of them have e-commerce chapters or provisions. These are China–Cambodia FTA, China–Mauritius FTA, China–Georgia FTA, China–Australia FTA, China–Korea FTA, China–New Zealand Upgraded FTA, China–Chile Upgraded FTA, China–Singapore Upgraded FTA, China–ASEAN Upgraded FTA, China–Hong Kong Agreement on Economic and Technical Cooperation, China–Macao Agreement on Economic and Technical Cooperation and China–Taiwan Economic Cooperation Framework Agreement. Although the China–US Phase I Agreement does not have an e-commerce chapter, it contains provisions on Piracy and Counterfeiting on E-Commerce Platforms in Section E of Chapter 1: Intellectual Property. In this section, the parties seek to combat online infringement of IP, including infringement on major e-commerce platforms.

⁹⁸ Article 12.14 RCEP.

⁹⁹ Article 12.15 RCEP.

¹⁰⁰ Emphasis added.

interests. Such measures shall not be disputed by other Parties”.¹⁰¹ Article 12.15 on cross-border transfer of information follows the same language and thus secures plenty of policy space for countries like China or Viet Nam to control data flows without further justification.

Noteworthy are some things missing from the RCEP. In comparison to the CPTPP, the RCEP does not include provisions on custom duties, non-discriminatory treatment of digital products, source code, principles on access to and use of the Internet for electronic commerce and Internet interconnection charge sharing. These are aspects that have been discussed in the context of the JSI negotiations on electronic commerce and to which China will need to agree to if admitted to the CPTPP club, according to its recently expressed wish. Yet, particularly the provisions on non-disclosure of source code and net neutrality may be a hard pill to swallow, considering the current levels of state intervention in China.

Legal Innovation: Digital Economy Agreements

The need to tackle digital transformations through enhanced regulatory cooperation has become evident in the last couple of years through the adoption of the so-called Digital Economy Agreements (DEAs) – a new phenomenon in the landscape of digital trade regulation. So far, five such agreements have been agreed upon: the above mentioned 2019 Japan-US Digital Trade Agreement; the 2020 Singapore-Australia DEA; the 2020 Digital Economy Partnership Agreement (DEPA) between Chile, New Zealand, and Singapore; the 2021 Korea-Singapore DEA, and the 2022 UK-Singapore DEA. It should be noted that the DEAs are in most cases linked to an existing or in parallel adopted trade agreement; only in the case of the DEPA do we have a stand-alone agreement. This section looks more closely at the DEPA to illustrate the development of DEAs.

The DEPA seeks to address the broader issues of the digital economy. In this sense, its scope is wide, flexible, and covers several emergent issues, such as those in the areas of AI and digital inclusion. The agreement, unlike other DEAs, is also not a closed deal but one that is open to other countries,¹⁰² and the DEPA is meant to complement the WTO negotiations on e-commerce and build upon the digital economy work underway within APEC, the OECD, and other international forums. To enable flexibility and cover a wide range of issues, the DEPA follows a modular approach, including sixteen different modules.¹⁰³

¹⁰¹ Emphasis added. The “essential security interest” language has been endorsed by China also in the framework of the WTO electronic commerce negotiations.

¹⁰² Article 16.2 DEPA.

¹⁰³ After Module 1, specifying general definitions and initial provisions, Module 2 focuses on “Business and Trade Facilitation”; Module 3 covers “Treatment of Digital Products and Related Issues”; Module 4 “Data Issues”; Module 5 “Wider Trust Environment”; Module 6 “Business and Consumer Trust”; Module 7 “Digital Identities”; Module 8 “Emerging Trends and Technologies”;

The type of rules varies across the different modules. On the one hand, all rules of the CPTPP are replicated – some of the USMCA rules, such as the one on open government data¹⁰⁴ (but not source code), and some of the US–Japan DTA provisions, such as the one on ICT goods using cryptography,¹⁰⁵ have been included too. On the other hand, there are many other so far unknown to trade agreements rules that try to facilitate the functioning of the digital economy and enhance cooperation on key issues. So, for instance, Module 2 on business and trade facilitation includes, next to the standard CPTPP-like norms,¹⁰⁶ additional efforts “to establish or maintain a seamless, trusted, high-availability and secure interconnection of each Party’s single window to facilitate the exchange of data relating to trade administration documents, which may include: (a) sanitary and phytosanitary certificates and (b) import and export data”.¹⁰⁷ Parties have also touched upon other important issues around digital trade facilitation, such as electronic invoicing (Article 2.5); express shipments and clearance times (Article 2.6); logistics (Article 2.4) and electronic payments (Article 2.7). Module 8 on emerging trends and technologies is also interesting to mention, as it highlights a range of key topics that demand attention by policymakers, such as in the areas of fintech and AI. In the latter domain, the parties agree to promote the adoption of ethical and governance frameworks that support the trusted, safe, and responsible use of AI technologies, and in adopting these AI Governance Frameworks, parties would seek to follow internationally-recognized principles or guidelines, including explainability, transparency, fairness, and human-centred values.¹⁰⁸ The DEPA parties also recognize the interfaces between the digital economy and government procurement and broader competition policy and agree to actively cooperate on these issues.¹⁰⁹ Along this line of covering broader policy matters to create an enabling environment that is also not solely focused on and driven by economic interests, the DEPA deals with the importance of a rich and

Module 9 “Innovation and the Digital Economy”; Module 10 “Small and Medium Enterprises Cooperation”; and Module 11 “Digital Inclusion”. The rest of the modules deal with the operationalization and implementation of the DEPA and cover common institutions (Module 12); exceptions (Module 13); transparency (Module 14); dispute settlement (Module 15); and some final provisions with regard to amendments, entry into force, accession and withdrawal (Module 16).

¹⁰⁴ Article 9.4 DEPA.

¹⁰⁵ Article 3.4 DEPA. The article also provides detailed definitions of cryptography, encryption, and cryptographic algorithm and cipher.

¹⁰⁶ Article 2.2: Paperless Trading; art 2.3: Domestic Electronic Transactions Framework.

¹⁰⁷ Article 2.2(5) DEPA. “Single window” is defined as a facility that allows Parties involved in a trade transaction to electronically lodge data and documents with a single-entry point to fulfil all import, export and transit regulatory requirements (Article 2.1 DEPA).

¹⁰⁸ Article 8.2(2) and (3) DEPA.

¹⁰⁹ Articles 8.3 and 8.4 DEPA.

accessible public domain¹¹⁰ and digital inclusion, which can cover enhancing cultural and people-to-people links, including between Indigenous Peoples, and improving access for women, rural populations, and low socio-economic groups.¹¹¹

Overall, the DEPA is a future-oriented project that well covers the broad range of issues that the digital economy impinges upon, offers a good basis for harmonization and interoperability of domestic frameworks and international cooperation, and adequately takes into account the complex challenges of contemporary data governance that has essential trade but also non-trade elements. This modular approach is not isolated and has also been followed in the Singapore–Australia Digital Economy Agreement, which next to the treaty text, regulates the modalities of co-operation through discrete Memoranda of Understandings attached to the agreement.

4 The Dynamic Landscape of Digital Trade Law: Concluding Remarks and Outlook

Digitally-induced transformations have had a deep impact on trade, and this has been reflected in global trade law as well. While the multilateral forum of the WTO as the core of international economic law and an organization with almost universal membership would be the optimal venue to address digital trade issues, so far and presumably in the near future, the WTO appears unlikely to deliver either swift or comprehensive solutions.¹¹² In contrast, FTAs have served as proactive regulatory laboratories in the last two decades that have, although in a fragmented manner, dealt with many of the pertinent issues and advanced a new regulatory model for digital trade. It includes a number of WTO-plus commitments and clarifies some issues that the WTO Members could not agree on. More importantly, the FTAs tackle certain “WTO-extra” issues that have become particularly critical in the data-driven economy. The chapter’s closer examination of discrete FTAs, such as the CPTPP and the USMCA, showed the breadth of the topics covered, as well as the deep intervention of some of the agreed-upon norms, such as those related to localization bans and free cross-border data flows. The CPTPP/USMCA template, although widely diffused, is, however, not universally accepted – indeed, some countries, such as the EU Member States, have chosen a more cautious approach towards digital trade, which gives them policy space domestically and more opportunities to protect their citizens and their sovereignty.¹¹³

¹¹⁰ Article 9.2 DEPA.

¹¹¹ Article 11.2 DEPA.

¹¹² See e.g. Burri (2021b).

¹¹³ See e.g. Burri (2021b); also Shaffer (2021).

It is overall apparent that digitization has had a deep impact on global trade regulation and the governance landscape is highly dynamic with a number of evolving innovative processes, such as those under the DEAs, and a number of pronounced contestations, in particular in the area of data flows and privacy protection. The next years will show to what extent digital transformation can reshape global trade law, considering some of the path dependencies existing under WTO law (for instance, the “all-or-nothing” approach that limits variable geometry solutions) and those of individual stakeholders (such as the EU with regard to privacy protection). There is certainly a process of institutional learning involved as well as room for new solutions, such as the DEPA, which can move us closer to finding an optimal regulatory model for the data-driven economy.

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Bibliography

- Aaronson S (2015) Why Trade Agreements Are Not Setting Information Free: The Lost History and Reinvigorated Debate over Cross-Border Data Flows, Human Rights and National Security. *World Trade Review* 14:671–700
- Andersen H (2015) Protection of Non-Trade Values in WTO Appellate Body Jurisprudence: Exceptions, Economic Arguments, and Eluding Questions. *Journal of International Economic Law* 18:383–405
- Brownsword R, Yeung K (2008) *Regulating Technologies: Legal Futures, Regulatory Frames and Technological Fixes*. Hart, Oxford
- Burri M (2015) The International Economic Law Framework for Digital Trade. *Zeitschrift für Schweizerisches Recht* 135:10–72
- Burri M (2017) The Governance of Data and Data Flows in Trade Agreements: The Pitfalls of Legal Adaptation. *UC Davies Law Review* 51:65–132
- Burri M (2019) Understanding the Implications of Big Data and Big Data Analytics for Competition Law: An Attempt for a Primer. In: Mathis K, Tor A (eds) *New Developments in Competition Behavioural Law and Economics*. Springer, Berlin, pp 241–263
- Burri M (2021a) Interfacing Privacy and Trade. *Case Western Journal of International Law* 53:35–88
- Burri M (2021b) Towards a Treaty on Digital Trade. *Journal of World Trade* 55:77–101
- Burri M (2022) Fake News in Times of Pandemic and Beyond: Exploring of the Rationales for Regulating Information Platforms. In: Mathis K, Tor A (eds) *Law and Economics of the Coronavirus Crisis*. Springer, Berlin, pp 31–58
- Burri M (2023) A WTO Agreement on Electronic Commerce: An Enquiry into its Substance and Viability. *Trade Law 4.0 Working Paper No 1/2021*, forthcoming *Georgetown Journal of International Law* 53
- Burri M, Cottier T (2012) *Trade Governance in the Digital Age*. Cambridge University Press, Cambridge
- Burri M, Polanco R (2020) Digital Trade Provisions in Preferential Trade Agreements: Introducing a New Dataset. *Journal of International Economic Law* 23:187–220

- Burri M, Schär R (2016) The Reform of the EU Data Protection Framework: Outlining Key Changes and Assessing Their Fitness for a Data-Driven Economy. *Journal of Information Policy* 6:479–511
- Castro D, McQuinn A (2015) Cross-border Data Flows Enable Growth in All Industries. Information Technology and Innovation Foundation, Washington DC
- Chander A (2016) National Data Governance in a Global Economy. UC Davis Legal Studies Research Paper 495
- Chander A (2021) AI and Trade. In: Burri M (ed) *Big Data and Global Trade Law*. Cambridge University Press, Cambridge, pp 115–127
- Cooper WH (2014) Free Trade Agreements: Impact on US Trade and Implications for US Trade Policy. Congressional Research Service Report, RL31356
- Corbin L, Perry M (2019) *Free Trade Agreements: Hegemony or Harmony*. Springer, Berlin
- Cottier T (2017) Technology and the Law of International Trade Regulation. In: Brownsword R, Scotford E, Yeung K (eds) *The Oxford Handbook of Law, Regulation and Technology*. Oxford University Press, Oxford, pp 1017–1051
- Couldry N, Mejias UA (2019) Data Colonialism: Rethinking Big Data’s Relation to the Contemporary Subject. *Television and New Media* 20:336–349
- Daskal J (2015) The Un-territoriality of Data. *The Yale Law Journal* 125:326–398
- Elsig M, Klotz S (2021) Data Flow-Related Provisions in Preferential Trade Agreements: Trends and Patterns of Diffusion. In: Burri M (ed) *Big Data and Global Trade Law*. Cambridge University Press, Cambridge, pp 42–62
- European Commission (2015) A Digital Single Market Strategy for Europe. COM(2015) 192 final
- European Commission (2018) Horizontal Provisions for Cross-Border Data Flows and for Personal Data Protection in EU Trade and Investment Agreements, https://trade.ec.europa.eu/doclib/docs/2018/may/tradoc_156884.pdf. Accessed 16 June 2022.
- Ezrachi A, Stucke ME (2016) *Virtual Competition: The Promise and Perils of the Algorithm-driven Economy*. Harvard University Press, Cambridge MA
- Fisher A, Streinz T (2021) *Confronting Data Inequality*. International Law and Justice Working Paper 1, New York
- Fleuter S (2016) The Role of Digital Products Under the WTO: A New Framework for GATT and GATS Classification. *Chicago Journal of International Law* 17:153–177
- Gao H (2018) Regulation of Digital Trade in US Free Trade Agreements: From Trade Regulation to Digital Regulation. *Legal Issues of Economic Integration* 45:47–70
- Gasser U (2021) Futuring Digital Privacy. In: Burri M (ed) *Big Data and Global Trade Law*. Cambridge University Press, Cambridge, pp 95–211
- Gervais D (2010) The Regulation of Inchoate Technologies. *Houston Law Review* 47:665–705
- Greenleaf G (2017) Free Trade Agreements and Data Privacy: Future Perils of Faustian Bargains. In: Svantesson D, Kloza D (eds) *Transatlantic Data Privacy Relationships as a Challenge for Democracy*. Intersentia, Antwerp, pp 181–211

- Henke N, Bughin J, Chui M, Manyika J, Saleh T, Wiseman B, Sethupathy G (2016) *The Age of Analytics: Competing in a Data-Driven World*. McKinsey Global Institute, Washington DC
- Irion K, Burri M (2022) *Digitaler Handel*. In: Kübek G, Tams C J, Terhechte JP (eds) *Handels- und Kooperationsvertrag EU/GB Handbuch*. Nomos, Baden-Baden, pp 343–368
- Irion K, Williams J (2019) *Prospective Policy Study on Artificial Intelligence and EU Trade Policy*. The Institute for Information Law, Amsterdam
- Kauffman Taskforce on Law, Innovation and Growth (2011) *Rules for Growth: Promoting Innovation and Growth through Legal Reform*. Kauffman Foundation, Kansas City MO
- Kommerskollegium (2012) *Everybody Is in Services: The Impact of Servicification in Manufacturing on Trade and Trade Policy*. Swedish National Board of Trade, Stockholm
- Kuner C (2011) *Regulation of Transborder Data Flows under Data Protection and Privacy Law: Past, Present and Future*. OECD Digital Economy Paper 187
- Lanz R, Maurer A (2015) *Services and Global Value Chains – Some Evidence on Servicification of Manufacturing and Services Networks*. WTO Working Paper ERSD 3
- Leblond P (2020) *Digital Trade: Is RCEP the WTO’s Future?*. Centre for International Governance Innovation
- Manyika J, Chui M, Brown B, Bughin J, Dobbs R, Roxburgh C, Hung Byers A (2011) *Big Data: The Next Frontier for Innovation, Competition, and Productivity*. McKinsey Global Institute, Washington DC
- Manyika J, Lund S, Bughin J, Woetzel J, Stamenov K, Dhingra D (2016) *Digital Globalization: The New Era of Global Flows*. McKinsey Global Institute, Washington DC
- Mayer-Schönberger V, Cukier K (2013) *Big Data: A Revolution That Will Transform How We Live, Work, and Think*. Eamon Dolan/Houghton Mifflin Harcourt, New York
- OECD (2011) *The Evolving Privacy Landscape: 30 Years After the OECD Privacy Guidelines*. OECD Digital Economy Papers
- OECD (2015) *Emerging Policy Issues: Localisation Barriers to Trade*. TAD/TC/WP(2014)17/FINAL
- Peng S (2012) *Renegotiate the WTO Schedule of Commitments? Technological Development and Treaty Interpretation*. Cornell International Law Journal 45:403–430
- Sacerdoti G, Yanovich A, Bohanes J (2006) *The WTO at Ten: The Contribution of the Dispute Settlement System*. Cambridge University Press, Cambridge
- Scholz LH (2019) *Big Data Is Not Big Oil: The Role of Analogy in the Law of New Technologies*. Tennessee Law Review 86:863–893
- Shaffer G (2021) *Trade Law in a Data-Driven Economy: The Need for Modesty and Resilience*. In: Peng S, Lin C, Streinz T (eds) *Artificial Intelligence and International Economic Law: Disruption, Regulation, and Reconfiguration*. Cambridge University Press, Cambridge, pp 29–53

- Shapiro C, Varian HR (1999) *Information Rules*. Harvard Business School Press, Boston MA
- The Economist (2017) *The World's Most Valuable Resource Is No Longer Oil, but Data*. print edition
- UNCTAD (2021) *Impacts of the Covid-19 Pandemic on Trade in the Digital Economy*. UNCTAD Technical Notes on ICT for Development No 19
- United States International Trade Commission (USITC) (2013) *Digital Trade in the US and Global Economies*. Part 1, Investigation No 332–531, USITC, Washington DC
- United States International Trade Commission (USITC) (2014) *Digital Trade in the US and Global Economies*. Part 2, Investigation No 332–540, USITC, Washington DC
- United States Trade Representative (USTR) (2022) *2022 National Trade Estimate Report on Foreign Trade*. USTR, Washington DC
- US Congress (2001) *Bipartisan Trade Promotion Authority Act of 2001*, H. R. 3005
- Weber RH, Burri M (2012) *Classification of Services in the Digital Economy*. Springer, Berlin
- Willemyns I (2019) *GATS Classification of Digital Services – Does “the Cloud” Have a Silver Lining?*. *Journal of World Trade* 53:59–82
- Willemyns I (2020) *Agreement Forthcoming? A Comparison of EU, US, and Chinese RTAs in Times of Plurilateral E-Commerce Negotiations*. *Journal of International Economic Law* 23:221–244
- World Bank (2021) *World Development Report 2021: Data for Better Lives*. World Bank, Washington DC
- WTO (1998) *Work Programme on Electronic Commerce*. WT/L/274
- WTO (2018) *World Trade Report 2018: The Future of World Trade*. World Trade Organization, Geneva
- WTO (2019a) *Joint Statement on Electronic Commerce, EU Proposal for WTO Disciplines and Commitments Relating to Electronic Commerce, Communication from the European Union*. INF/ECOM/22
- WTO (2019b) *Joint Statement on Electronic Commerce*. WT/L/1056
- WTO (2020) *E-Commerce, Trade and the Covid-19 Pandemic*. Information Note by the WTO Secretariat
- Wunsch-Vincent S (2003) *The Digital Trade Agenda of the US*. *Aussenwirtschaft* 1:7–46
- Wunsch-Vincent S, Hold A (2012) *Towards Coherent Rules for Digital Trade: Building on Efforts in Multilateral versus Preferential Trade Negotiations*. In: Burri M, Cottier T (eds) *Trade Governance in the Digital Age*. Cambridge University Press, Cambridge, pp 179–221
- Yakovleva S (2020) *Privacy Protection(ism): The Latest Wave of Trade Constraints on Regulatory Autonomy*. *University of Miami Law Review* 74:416–519