

DIRECTORATE-GENERAL FOR EXTERNAL POLICIES  
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# Current and Emerging Trends in Disruptive Technologies: Implications for the Present and Future of EU's Trade Policy

INTA



## STUDY

# Current and Emerging Trends in Disruptive Technologies: Implications for the Present and Future of EU's Trade Policy

### ABSTRACT

Digital technologies, taken as a broad generic category of technological inventions and applications, fall under a rare kind of 'disruptive technologies' that can radically change existing economic sectors, enable new modes of work, production and consumption and trigger broader societal transformations. To make apt policy decisions, there is a distinct need to understand what these technologies and their effects actually are and how they may develop over time. This study attends to this need in particular with regard to the implications of digital technologies for EU's external trade policies. It accentuates the critical importance of data and cross-border data flows for the emergent digital economy and underscores the need to appropriately address them with a calibrated and more proactive positioning of the EU in international trade venues.

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# 1 Introduction

Technological advances are so rapid that we tend to become somewhat weary in trying to understand all their effects and in anticipating the next new buzzword that will supposedly revolutionise our world. Yet, we do need to pay attention, as some technologies have the full potential to induce deep societal changes. Policy-makers in particular ought to be able to discern, contextualise and adequately react to certain technological developments – first, because they need to cater for the effects of these technologies in different domains of societal life; and second, because the very development of these technologies, their distribution, deployment and innovative path, depend on the choices made for the regulatory environment they face. Some technologies can be particularly disruptive and create completely new business models and markets, trigger radical changes in existing economic sectors and enable new modes of work, production and consumption. Digital technologies, taken as a broad generic category of technological inventions and applications, fall under this rare kind of 'disruptive technologies'. To make apt policy decisions, we need to understand their current state of evolution and integration in the economy and in other areas of society, we must figure out their effects on different existing policies and institutions, and we need to know how to react to these technologies now and in anticipation of their future development. It is the purpose of this study to address the effects of digital technologies for trade and to analyse the implications of the new technological affordances and the new patterns of global and local digital trade for the trade law and policies of the European Union (EU).

The study begins with an overview of the current and emergent trends in disruptive technologies and thematises the sweeping effects of digitisation at different levels of the economy. We break down the broad and somewhat vague concepts of digitisation or digital technologies to discrete, more palpable technological types and technological applications. Whenever possible for the format, we try to use examples that illustrate on the one hand, the potential of these technological advances, and highlight their possible effects on trade, on the other. The second part of the study focuses expressly on the effects of digitisation on trade and on the implications for trade policies in general, and for those of the EU in particular. In order to understand what needs to be changed or at least calibrated in existing external trade policies, we need to know what we have in terms of existing regulatory frameworks – both at the international and at the regional and bilateral levels. It is the objective of Part Three of the study to attend to this need, as well as to show how other countries have responded to the digital challenge and formulated distinct or less distinct responses in their respective external trade policies. Here, in particular an understanding of the digital agenda of the United States, as well as of the new templates for electronic commerce is essential and this study will convey this knowledge. Part Four will situate EU's trade policy against this backdrop of technological, legal and policy developments and seeks to critically assess the 'fitness' of the current EU trade policy approach. It will expose the sensitivities and mark the areas where action, swift or more long-term, is needed. Finally, the study will formulate a series of policy recommendations on how to navigate better the relatively complex – in terms of technologies but also in terms of legal rules and policy dilemmas – environment, so as to ensure that the EU is on a path of productivity and growth that makes the most of the digital economy, while safeguarding the EU's essential values and the rights of its citizenry.

## 2 Current and emergent trends in disruptive technologies: the sweeping effects of digitisation

### 2.1 Overview and terminological remarks

There is no clear definition of what should qualify as a ‘disruptive technology’. Definitions vary but there seems to be one common feature across the different technological advances that they all ‘have the potential to disrupt the status quo, alter the way people live and work, rearrange value pools, and lead to entirely new products and services’.<sup>1</sup> This resonates the idea voiced by Joseph Schumpeter that the significant advances in economies can be accompanied by a process of ‘creative destruction’,<sup>2</sup> ‘which shifts profit pools, rearranges industry structures, and replaces incumbent businesses’, and may be driven by technologies in the hand of entrepreneurs.<sup>3</sup> The McKinsey Global Institute identified in 2013 twenty-five technologies as disruptive, because they were (1) rapidly advancing; (2) their potential scope of impact was broad; (3) they affected significant economic value; and (4) their economic impact was potentially disruptive.<sup>4</sup> The technologies listed were: mobile Internet; automation of knowledge work; the Internet of Things; cloud technology; advanced robotics; autonomous and near-autonomous vehicles; next-generation genomics; energy storage; 3D printing; advanced materials; advanced oil and gas exploration; and renewable energy.<sup>5</sup> It is evident, even to the naked eye, that many, indeed the majority, of these technologies mentioned are related to information technology (IT) and the process of digitisation. Even if we consider one of the less IT-related examples – that of gene sequencing, its development too is in fact highly dependent on improvements in computational power and Big Data analytics, and thus again on IT.<sup>6</sup>

This underlying critical importance of digital technologies is a good argument for singling them out as one disruptive technology that needs to be carefully examined and its policy effects well understood. Before moving on to a more focused examination with regard to the implications of digital technologies for trade, two other buzzwords often heard in this discursive context need to be briefly clarified. The first has to do with the association that is now commonly made in the literature and in policy circles that digital technologies have brought about and are continuously fueling the so-called ‘Fourth revolution’<sup>7</sup> (also ‘Fourth industrial revolution’<sup>8</sup>). These ‘revolutions’ are meant to denote (r)evolutionary phases in time that can be associated with certain technologies, patterns of production and societal processes.<sup>9</sup>

<sup>1</sup> James Manyika et al., *Disruptive Technologies: Advances That Will Transform Life, Business, and the Global Economy* (Washington, DC: McKinsey Global Institute, 2013), at 1.

<sup>2</sup> Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy*, 3<sup>rd</sup> edn. (New York: Harper, 1950), at 83 and passim.

<sup>3</sup> Manyika et al. (2013), at 1.

<sup>4</sup> Manyika et al. (2013), at 2–3.

<sup>5</sup> Manyika et al. (2013), at 2–9; similarly but less comprehensively, see Klaus Schwab, *The Fourth Industrial Revolution* (New York: Portfolio, 2017).

<sup>6</sup> Manyika et al. (2013), at 14.

<sup>7</sup> Luciano Floridi, *The Fourth Revolution: How the Infosphere Is Reshaping Human Reality* (Oxford: Oxford University Press, 2014). Warschauer and Matuchniak talk of digitisation as the ‘fourth revolution in the means of production of knowledge, following the three prior revolutions of language, writing, and print’. They argue that its emergence and spread are particularly swift as they occur simultaneously with the transition from industrial to informational economy. See Mark Warschauer and Tina Matuchniak, ‘New Technology and Digital Worlds: Analyzing Evidence of Equity in Access, Use, and Outcomes’, *Review of Research in Education* 34:1 (2010), 179–225, at 179, referring to Stevan Harnad, ‘Post-Gutenberg Galaxy: The Fourth Revolution in the Means of Production and Knowledge’, *Public-Access Computer Systems Review* 2:1 (1991), 39–53.

<sup>8</sup> Schwab (2017).

<sup>9</sup> Schwab (2017) makes the following distinctions: The ‘First Industrial Revolution’ used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology

Signalling the dawn of a new phase is also meant to mobilise policy-makers and convey the message that things are different now and they need to accordingly respond.<sup>10</sup> Implications that have been mentioned in the context of the Fourth industrial revolution relate in particular to the fusion of technologies as a result of highly sophisticated IT that ultimately blurs the lines between the physical, digital and biological spheres. This development is said to have a profound impact on people, business and government – because of the new structures needed to compete, cooperate and adapt, while at the same time coping with new types of societal risks.<sup>11</sup>

Another, and possibly more useful, way of thinking about the multiple and multifaceted effects of the digital technology is to see it as a 'general purpose technology' (GPT).<sup>12</sup> This is an important qualification, since it tries to capture distinct features of certain technological breakthroughs that set them apart from other technologies and may help policy-makers to prepare better in dealing with them. The next section sheds light on GPTs and the Internet as falling under this category.

## 2.2 Digital technologies as general purpose technologies: characteristics and first lessons to be learned

A GPT is a specific type of technology that has broad-ranging enabling effects across many sectors of the economy. Technologists typically define a GPT as a generic technology that comes to be (1) *widely* used; (2) to have *multiple* uses, and (3) to have many *spillover effects*.<sup>13</sup> GPTs are not only non-rival and long-lasting, but play the role of '*enabling technologies*' by opening up new opportunities rather than offering complete, final solutions.<sup>14</sup> GPTs also tend to shift value to consumers, at least in the long run, and ultimately give all players an opportunity to raise productivity, driving increased competition that leads to lower prices.<sup>15</sup> The Internet is, as we will see below in more detail, an excellent example of a GPT. It introduced new ways of producing, distributing, accessing and re-using information that enabled major innovations – some of them like online shopping may seem trivial, as they plainly transform existing market processes to a new space but others are truly far-reaching – like the emergence of new global value chains and new forms of competition, entirely new disruptive platforms like search engines and social networking sites, or the sharing economy applications like *Airbnb* or *Uber*.

Another feature of GPTs that may be critical for policy-makers is that their evolution is not linear. Rather are their effects complex and it is difficult to predict where and how changes will unfold.<sup>16</sup> As digital

to automate production. Now a Fourth Industrial Revolution is building on the Third. It is characterised by a fusion of technologies that is blurring the lines between the physical, digital and biological spheres.

<sup>10</sup> Schwab (2017).

<sup>11</sup> Schwab (2017).

<sup>12</sup> Boyan Jovanovic and Peter L. Rousseau, 'General Purpose Technologies', in Philippe Aghion and Steven N. Durlauf (eds.), *Handbook of Economic Growth* (Amsterdam: Elsevier, 2005), 1182–1224.

<sup>13</sup> Richard S. Whitt and Stephen Schultze, 'The New "Emergence Economics" of Innovation and Growth, and What It Means for Communications Policy', *Journal of Telecommunication and High Technology Law* 7 (2009), 217–315; Richard S. Whitt, 'A Deference to Protocol: Fashioning a Three-dimensional Public Policy Framework for the Internet Age', *Cardozo Arts and Entertainment Law Journal* 31 (2013), 689–768, at 717–729.

<sup>14</sup> Whitt (2013).

<sup>15</sup> Manyika et al. (2013), at 24.

<sup>16</sup> An example from history with another GPT is the development of the printing press. The printing press was first used as a way to make the bible accessible but it became instrumental for the leaders of the Reformation, who adopted the technology to print the pamphlets that spread the movement at unprecedented speed. The printing press also helped spark the scientific revolution and the Enlightenment by disseminating research and discoveries. Indirect effects included accelerated city growth. Some historians attribute Europe's rapid growth and global influence and the eclipse of Islamic nations after the 15th century to the rapid adoption of printing in Europe and its slow adoption in Islamic economies. See Manyika et al. (2013), at 25; Jeremiah

technologies are deeply intertwined with societies, that are in themselves complex and multi-directional, things only become more complicated. Policies and regulation have also a critical role to play as part of the puzzle, as we explain below.

It has been for instance argued in this context that the benefits of the Internet as an enabling platform for innovation and growth cannot be taken somehow as given but need to be seen as a consequence of its original design that embedded openness and generativity.<sup>17</sup> Benkler and others have shown that innovation occurs differently in this networked environment and that it is typified by: change and complexity, rather than predictability and 'well behaved' change; innovation, rather than efficiency and optimisation; and 'scruffy', adaptive learning systems that do better than slower-moving, optimised systems.<sup>18</sup> Regulators must thus understand these systemic specificities; they need to learn to deal with unpredictability and to think of policy design that can adequately address it. Also, because the effects of digital technologies are multi-directional, some applications that have the potential to drive productivity growth, such as advanced robotics and automated knowledge work, could at the same time cause negative effects on other fields – such as notably, employment.<sup>19</sup> In this sense, policy-makers need to continually balance the benefits against the risks. The stakes are high but if policy is properly done, over the long term and on an economy-wide basis, productivity growth and job creation can continue to grow in tandem.<sup>20</sup>

The innovation policy literature so far has offered valuable lessons on different aspects of how innovation occurs and evolves under the conditions of the digital environment, the related causality effects and ultimately, the policy framework that can best accommodate them.<sup>21</sup> Trade policy, be it domestic or international, has not been so far linked to these debates, except for some discussions in the field of intellectual property (IP) rights protection.<sup>22</sup> One can argue that while such a discourse disconnect is not infrequent in complex fields of policy-making with different origins and actors, it is unfortunate. Especially because, policy-makers have at the very same time prioritised digital innovation as one of the key drivers of economic growth and global welfare and made digital trade an important item on their agendas.

## 2.3 Digitisation

Digitisation is the ability to express all information (be it audio, text, still or moving images) as binary digits; it frees information from the tangible medium, makes it networkable and easy to manipulate.<sup>23</sup> Digitisation has allowed computers to talk a common language. The emergence of the Internet as a network of networks enabled computers to interconnect and communicate with each other by sharing bits of data through a common protocol.<sup>24</sup> As of the 1980s, on top of these technological foundations, a range of new information processing and transmission technologies developed rapidly.

E. Dittmar, 'Information Technology and Economic Change: The Impact of the Printing Press', *The Quarterly Journal of Economics* 126 (2011), 1133–1172.

<sup>17</sup> Jonathan L. Zittrain, *The Future of the Internet – and How to Stop It* (New Haven: Yale University Press, 2008).

<sup>18</sup> Benkler (2011), 314.

<sup>19</sup> Manyika et al. (2013), at 27, referring to 11 Erik Brynjolfsson and Andrew McAfee, *Race against the Machine: How the Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy* (Lexington, MA: Digital Frontier Press, 2011).

<sup>20</sup> Manyika et al. (2013), at 27.

<sup>21</sup> For a good overview and references to the important sources, see Whitt (2013); also Kauffman Taskforce on Law, Innovation and Growth (2011).

<sup>22</sup> See e.g. Peter K. Yu, 'Trade Agreement Cats and Digital Technology Mouse', in Brian Mercurio and Ni Kuei-Jung (eds.), *Science and Technology in International Economic Law: Balancing Competing Interests* (Abington: Routledge, 2014), 185–211.

<sup>23</sup> See e.g. Terry Flew, *New Media: An Introduction*, 2nd edn. (Oxford: Oxford University Press, 2014).

<sup>24</sup> For an excellent not too technical explanation of all the underlying technologies, see James Grimmelmann, *Internet Law* (Oregon City, OR: Semaphore Press, 2016), at Chapter 1.

Five enablers were key in this process: (1) *increase in processing speed*: following Moore's law, processing power of semi-conductors doubles every 18 months (and this rule has, through employment of a number of innovations, such as distributed processing, remained valid until today); (2) *increase in storage capacity*: the size and speed of storage devices also increased by the equivalent of Moore's law. This increase was enabled by hardware advances but also by new software and a restructuring of the nature of storage itself, which places much lower demand on the capacity of both storage and communication nodes; (3) *increase in transmission speed*: this related to the availability of more bandwidth, which now enables broadband delivery to the home and to mobile devices; (4) *compression software*: thanks to compression, video can now be delivered, also in real time; and finally, (5) *standardisation*: of both software platforms, as well as the Internet communications and programming software and protocols have made it possible to spread the above technological advances and reduce their cost to levels that enable mass consumption. An important consequence of these factors has been the exponential growth of information offerings available to the consumer. As a result, consumers learned to reach out for tools to screen and select information of value and became more sensitive to reputation and branding as a way of recognising relevance and quality of information. The growth of the network itself became a major driver of change.<sup>25</sup>

The Internet was created as an end-to-end operating, generative platform that allows 'permissionless innovation'.<sup>26</sup> As a consequence, we have witnessed in the past decades 'an explosion of goods and services in the IT industry', an amazing amount of new applications, new forms of content creation and communication.<sup>27</sup> There is a lot of data gathered over different periods of time that shows the different beneficial effects of the global digital platform – some relate for instance to a great increase of consumer welfare because consumers are now able to search, compare and buy products and services on a global scale from a much greater variety of offerings. Others relate to the inclusiveness of the platform, as the Internet has allowed not only big companies but also small and medium-sized enterprises (SMEs), as well as developing countries, to engage in global trade, because of the lower thresholds for participation and the real economic gains to be reaped.<sup>28</sup>

This study's objective is not capture all these experiences but rather to elaborate on those aspects that matter for trade and trade policy, and to contemplate how this innovation environment can be sustained and fostered. For this purpose, we highlight here three aspects of the digital evolution that have caused different regulatory challenges. We look in turn at the process of convergence (section 1.3.1), the emergence and application of great amounts of data (section 1.3.2), and at the Internet of Things (section 1.3.3).

<sup>25</sup> Metcalfe's Law states that the value of a network to society is proportional to the square of the number of users of the network. For a great analysis of all these changes, see Constantijn van Oranje-Nassau et al., *Responding to Convergence, Prepared for the Dutch Independent Telecommunications and Post Regulator* (Oxford: RAND Corporation, 2008), at 6–7.

<sup>26</sup> This is a phrase attributed to Vint Cerf, the father of the Internet. See Henry Chesbrough and Marshall Van Alstyne, 'Permissionless Innovation', *Communications of the ACM* 58 (2015), 24–26.

<sup>27</sup> Zittrain (2008).

<sup>28</sup> For more examples, see e.g. Joshua P. Meltzer, 'Maximizing the Opportunities of the Internet for International Trade', *E15 Expert Group on the Digital Economy – Policy Options Paper* (2016). Facebook estimates that 50 million SMEs are on its platform, up from 25 million in 2013. To put this number in perspective, consider that the World Bank estimated there were 125 million SMEs worldwide in 2010. For small businesses in the developing world, digital platforms are a way to overcome constraints in their local markets. See James Manyika et al., *Digital Globalization: The New Era of Global Flows* (Washington, DC: McKinsey Global Institute, 2016), at 7.

### 2.3.1 Convergence

We begin with one of the early regulatory dilemmas that digitisation brought about that has to do with the process of *convergence*. The technological advances that we noted above (increased transmission speed, storage capacity, etc.) allowed, already in the early years of digitisation somewhere in the 1990s, for a single or similar set of services (such as TV, phone and Internet access) to be offered over different platforms – over cable, satellite or telecommunication networks, as well as enabled the bundling of distinct services onto a single platform.<sup>29</sup> This naturally triggered the erosion of the previously distinct boundaries between the media, the telecommunications and the IT sectors, ultimately leading to a convergence of their products, services and companies. Companies like *Google*, *Facebook* or *Yahoo!* are good examples in this context that not only transcend the conventional sectoral boundaries but also clearly illustrate the power of the few in imposing certain standards worldwide,<sup>30</sup> as we discuss in more detail below.

Convergence is problematic from a regulatory perspective because it makes the existing legal frameworks for telecom and media outdated (especially if they are based upon technology-based classifications). Convergence poses also serious questions about appropriate regulatory design that is capable of reconciling the very different regulatory rationales, histories, rules and actors that these previously distinct sectors had. The reason we have media regulation is not the one we have telecom rules;<sup>31</sup> at the same time, many new services – such as the so-called ‘over-the-top’ services – like *Skype*, *YouTube* or *Netflix* – do not fall under any of the existing regulatory categories, yet effectively serve the same consumer needs and compete in the same markets. The regulator has thus to make important decisions as to the regulatory burden to be imposed on new (and old) companies, on the degree of competition and the safeguarding of essential societal objectives, such as freedom of speech and access to high quality information.<sup>32</sup> We have seen regulatory reforms unfold due to convergence effects – the European Union, for instance, has adopted twice such reform packages<sup>33</sup> and is now in the process of undergoing a third reform as part of its Digital Single Market Strategy.<sup>34</sup> At the international level however, as we explain below, there have not been any deliberate regulatory responses and there is as a result a mismatch between the rules framework and the market reality.

### 2.3.2 Data and Big Data

In contrast to convergence, data is a relatively new buzzword in the contemporary debates of digitally driven economic growth and innovation.<sup>35</sup> 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. Millions of networked sensors

<sup>29</sup> van Oranje-Nassau et al. (2008).

<sup>30</sup> See e.g. Anupam Chander, ‘Facebookistan’, *North Carolina Law Review* 90 (2012), 1807–1842.

<sup>31</sup> Broadcasting often had a strong public service rationale, driven by concerns about free speech, diversity of supply, decency, protection of minors, etc. Telecommunications markets were mostly ruled by economic and technical issues, including network access. See van Oranje-Nassau et al. (2008).

<sup>32</sup> See e.g. van Oranje-Nassau et al. (2008); also Mira Burri, *Public Service Broadcasting 3.0: Legal Design for the Digital Present* (Abingdon: Routledge, 2015).

<sup>33</sup> See e.g. Mira Burri, *EC Electronic Communications and Competition Law* (London: Cameron May, 1997).

<sup>34</sup> See generally European Commission, A Digital Single Market Strategy for Europe, COM(2015) 192 final, 6 May 2015.

<sup>35</sup> Although there were some debates on data flows in the 1980s. See e.g. Christopher Kuner, ‘Regulation of Transborder Data Flows under Data Protection and Privacy Law: Past, Present and Future’, *OECD Digital Economy Paper* 187 (2011); Susan Aaronson, ‘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* 14:4 (2015), 671–700; also William J. Drake, Background Paper for the workshop on Data Localization and Barriers to Transborder Data Flows, 14–15 September 2016, World Economic Forum, Geneva.

are now implanted in the physical world, in devices, such as mobile phones and cars, extracting, creating and communicating data. Multimedia and individuals with smartphones and on social network sites only fuel this exponential growth of data and ultimately lead to accumulation of Big Data sets.<sup>36</sup> Data has become so essential to economic processes that it is said to be the 'new oil'.<sup>37</sup> Like other factors of production, such as natural resources and human capital, it is increasingly the case that much of modern economic activity, innovation and growth cannot occur without data.<sup>38</sup> A plethora of 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.<sup>39</sup> The transformative potential is great and refers not only to new 'digital native' areas, such as search or social networking, but also to 'brick-and-mortar', physical businesses. The data gathered, for instance, in manufacturing can help improve processes, anticipate risks and prevent accidents; public sector administration can also be better structured, made more efficient and more citizen-oriented.<sup>40</sup>

The implications of data and Big Data availability and analytics are multiple and some of them far-reaching.<sup>41</sup> At a micro-level, for instance, the value of data changes the traditional relationship between consumers and producers. While in the past companies sold products to their customers in return for money and some negligible data, '[t]oday, transactions – and indeed every interaction with a consumer – produce valuable information. Sometimes the data itself is so valuable that companies such as *Facebook*, *LinkedIn*, *Pinterest*, *Twitter*, and many others are willing to offer free services in order to obtain it. [...] To maintain an edge in consumer data, user acquisition and user interaction are both critical'.<sup>42</sup> Data becomes also absolutely essential in terms of competition and market power. Some firms, like *Apple*, *Google*, *Amazon*, *Facebook*, *Microsoft*, *General Electric* or *Baidu*, have had a sizeable first-mover advantage in the field and become 'analytics leaders', while at the same time establishing themselves as some of the most valuable companies in the world.<sup>43</sup> These companies have differentiated themselves through unique data sources, analytics talent and investment in data infrastructure. The same trend can be seen among younger companies, 'the next wave of disruptors' – that tend to be companies with business models predicated on data analytics, such as *Uber*, *Flipkart*, *Airbnb*, *Snapchat*, *Pinterest* or *Spotify*.<sup>44</sup> It should be noted that the capacity to handle data increasingly also turns into a competitive advantage for countries and plays as a power move in the global political economy. For instance, China unveiled in 2016 that it is in possession of the world's fastest supercomputer, which is 40 times more powerful than the fastest computer of 2010.<sup>45</sup> Overall, companies as well as governments are

<sup>36</sup> James Manyika et al., *Big Data: The Next Frontier for Innovation, Competition, and Productivity* (Washington, DC: McKinsey Global Institute, 2011). There are no clear definitions of small versus Big Data. Definitions vary and scholars seem to agree that the term of Big Data is generalized and slightly imprecise. One common identification of Big Data is through its characteristics of volume, velocity, and variety, also referred to as the '3-Vs'. Increasingly, experts add a fourth 'V' that relates to the veracity or reliability of the underlying data. See 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 Harcourt, 2013), at 13.

<sup>37</sup> *The Economist*, 'The World's Most Valuable Resource Is No Longer Oil, but Data', print edition, 6 May 2017.

<sup>38</sup> Manyika et al. (2011).

<sup>39</sup> See e.g. Manyika et al. (2011); Mayer-Schönberger and Cukier (2013); Nicolaus Henke et al., *The Age of Analytics: Competing in a Data-Driven World* (Washington, DC: McKinsey Global Institute, 2016).

<sup>40</sup> See e.g. Manyika (2011).

<sup>41</sup> Mayer-Schönberger and Cukier (2013).

<sup>42</sup> Henke et al. (2016), at 26.

<sup>43</sup> Henke et al. (2016), at 26, referring also to Michael Chui and James Manyika, 'Competition at the Digital Edge: "Hyperscale" Businesses', *McKinsey Quarterly*, March 2015.

<sup>44</sup> Henke et al. (2016), at 26.

<sup>45</sup> <https://www.top500.org/list/2016/06/> (last accessed 18 August 2017).

increasingly encouraged to use its potential and to mobilise their resources aptly, so as to make the data-driven economy real.<sup>46</sup>

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. Many of the economic innovations based on digital technologies do rely on global data flows. Things like the app economy, the outsourcing of many services, the provision of digital products and streaming services, many cloud computing applications or the Internet of Things, would not function under restrictions on the cross-border flow of data.<sup>47</sup> This critical interdependence puts trade policy under pressure and demands clear-cut solutions. These may not be easy however, because the use of data and Big Data opens many regulatory questions as to the balance between access to and control of data and the protection of privacy and national security.<sup>48</sup> Furthermore, when data leaves the country, many jurisdictional issues arise and countries feel that they are no longer in a position to secure adequate protection for their citizens, as notably the EU does.<sup>49</sup>

So, in sum, while convergence has been one of the early regulatory challenges, it fades in comparison to the magnitude of issues that the data governance issues involve. This is true for the trade policy context too, as we explain below.

### 2.3.3 The Internet of Things

Our last example of the applications of digitisation is the Internet of Things. We use it in particular to underline that although typically when we talk about the digital revolution, we mean intangibles, this should not always be the case. Indeed, increasingly, the connected world includes physical objects. Machinery, shipments, infrastructure and devices are equipped with networked sensors that enable them to monitor their environment, report their status, receive instructions and even take action based on the information received. This is what we understand under ‘the Internet of Things’ and it can be used in many ways to improve productivity, enable new types of products and services – in health care, infrastructure and in the public sector.<sup>50</sup>

The Internet of Things is one of the disruptive technologies that is also said to hold a vast future potential. More than 9 billion devices around the world are currently connected to the Internet, including computers and smartphones but this number is expected to increase dramatically within the next decade, with estimates ranging from 50 billion devices to one trillion. The potential for economic impact is equally astounding and ranges from USD 2.7 trillion to USD 6.2 trillion annually by 2025.<sup>51</sup> For this study’s discussion, the importance of the Internet of Things for future digital innovation reminds us that we cannot simply concentrate on services regulation, when we conceive of a regulatory framework for digital trade but must include adequate rules for trade in goods as well.<sup>52</sup>

<sup>46</sup> See e.g. Manyika et al. (2011); Henke et al. (2016); Jacques Bughin et al., *Digital Europe: Pushing the Frontier, Capturing the Benefits* (Washington, DC: McKinsey Global Institute, 2016).

<sup>47</sup> See Anupam Chander, ‘National Data Governance in a Global Economy’, *UC Davis Legal Studies Research Paper* 495 (2016), at 2.

<sup>48</sup> Mayer-Schönberger and Cukier (2013); Urs Gasser, ‘Perspectives on the Future of Digital Privacy’, *Zeitschrift für Schweizerisches Recht* 135 (2015), 335–448; Urs Gasser, ‘Recoding Privacy Law: Reflections on the Future Relationship Among Law, Technology, and Privacy’, *Harvard Law Review* 130:2 (2016), 61–70.

<sup>49</sup> Mira Burri and Rahel Schär, ‘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 (2016), 479–511.

<sup>50</sup> Henke et al. (2016), 51–60.

<sup>51</sup> Henke et al. (2016), 51–60.

<sup>52</sup> 3D printing is another pertinent example in this context. 3D printing belongs to a class of techniques known as additive manufacturing. Additive processes build objects layer-by-layer rather than through moulding or subtractive techniques. 3D printing can create objects from a variety of materials, including plastic, metal, ceramics, glass, paper, and even living cells. With

So cognizant of all these shifts and developments brought about by digitisation, when we think of trade policy and law in the next sections, we ought to carefully consider all layers of the so-called 'communications model'.<sup>53</sup> This model is well established in the IT literature and helpfully depicts contemporary communication architecture along three layers: (i) *physical* layer, consisting of the network plus the hardware attached; (ii) *logical* layer, consisting of software, applications and protocols; and (iii) *content* layer, where the actual human-readable messages are placed. International trade law is directly relevant for all these layers but the level of its potency to accommodate changes along the layers, as well as the political economy behind each of the layers may vary, as we show below.

## 3 The effects of digitisation on trade

### 3.1 Overview of developments and trends

Digitisation has had and continues to have multiple effects on trade – first, taken broadly as an important part of globalisation and second, taken more narrowly, as a trigger of new patterns of trade in services and goods and enabler of new types of competition. The McKinsey Global Institute published in 2016 an influential report on digital globalisation 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.<sup>54</sup> It establishes that the world has never been more deeply connected by commerce, communication and travel than it is today. But it also clearly shows that the pattern of globalisation is shifting – and this to a large extent because of the disrupting effects of digital technologies.

First, digitisation contributes to growth. McKinsey's econometric research indicates that global flows of goods, foreign direct investment and data have increased current global GDP by roughly 10% compared to what would have occurred in a world without any flows.<sup>55</sup> This value was equivalent to USD 7.8 trillion in 2014 alone. Data flows account for USD 2.8 trillion of this effect, exerting a larger impact on growth than traditional goods flows. This is a remarkable development given that the world's trade networks have developed over centuries, while cross-border data flows are relatively young.<sup>56</sup>

Second, the share of digital trade is sizeable. Approximately 12% of the global goods trade is conducted via international electronic commerce, with much of it driven by platforms, such as *Alibaba*, *Amazon*, *eBay* and *Flipkart*. Also critically, some 50% of the world's traded services are already digitised.<sup>57</sup> Digitisation enables instantaneous exchanges of virtual goods. E-books, apps, online games, music and streaming services, software and cloud computing services can all be transmitted to connected customers anywhere in the world. As a result, many media websites are shifting from building national

some techniques, a single object can be printed in multiple materials and colours, and a single print job can even produce interconnected moving parts (such as hinges or mesh). Current limitations of 3D printing include relatively slow build speed, limited object size, limited object detail or high materials cost. See Manyika et al. (2011), at 105–113; Kommerskollegium, *Trade Regulation in a 3D Printed World* (Stockholm: Swedish National Board of Trade, 2016).

<sup>53</sup> See e.g. Tim Wu, 'Application-Centered Internet Analysis', *Virginia Law Review* 85 (1999), 1163–1204; Yochai Benkler, 'From Consumers to Users', *Federal Communications Law Journal* 52 (2000), 561–579; Kevin Werbach, 'A Layered Model for Internet Policy', *Journal of Telecommunications and High Technology Law* 1 (2002), 37–67.

<sup>54</sup> Manyika et al. (2016).

<sup>55</sup> Global flows of data primarily consist of information, searches, communications, transactions, video, and intracompany traffic. They underpin and enable virtually every other kind of cross-border flow. Container ships still move products to markets around the world, but now customers order them online, track their movement using RFID codes, and pay for them via digital transactions.

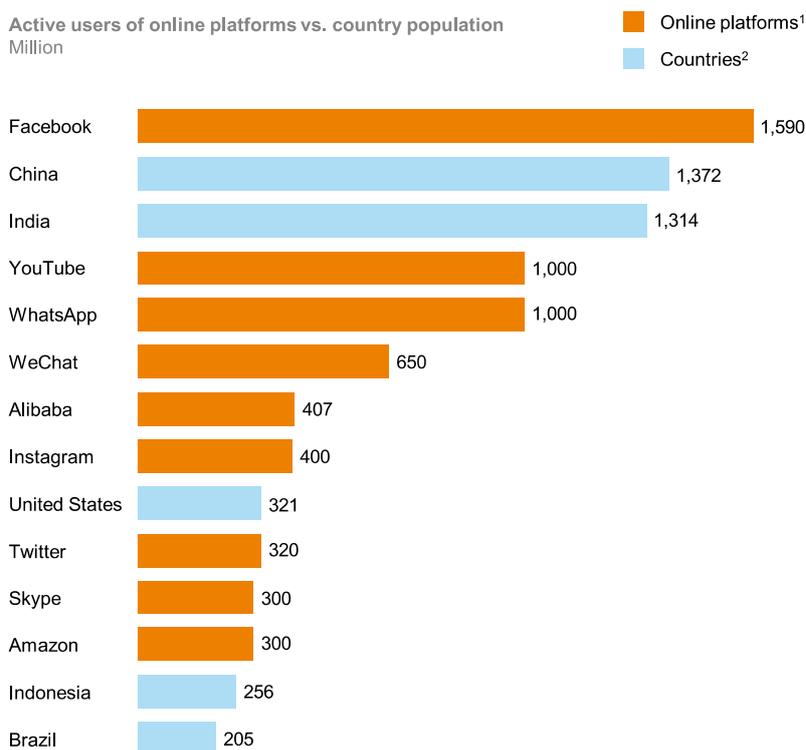
<sup>56</sup> Manyika et al. (2016), at 73 and chapter 4.

<sup>57</sup> Manyika et al. (2016), at 7.

audiences to global ones; a range of publications, including *The Guardian*, *Vogue* and *BuzzFeed*, attract more than half of their online traffic from foreign countries.<sup>58</sup>

Third, digitisation is making 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 (see figure below), as network effects that are intrinsic to digital markets often trigger ‘winner-takes-all’ scenarios.<sup>59</sup> Companies like *Google*, *Facebook*, *Amazon* and *Apple* have dominant positions in multiple markets and ways to leverage this dominance onto other markets. The vast data assets that these firms possess only make these effects stronger and may call for intervention.<sup>60</sup>

**The biggest online platforms have user bases on par with the populations of the world’s biggest countries**



1 4Q15 or latest available.  
2 2015 population.

SOURCE: Facebook; Twitter; Alibaba; *Fortune*; Statista; Population Reference Bureau; McKinsey Global Institute analysis

<sup>58</sup> Manyika et al. (2016).

<sup>59</sup> See e.g. See Carl Shapiro and Hal R. Varian, *Information Rules* (Boston, MA: Harvard Business School Press, 1999).

<sup>60</sup> See e.g. Ariel Ezrachi and Maurice E. Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-driven Economy* (Cambridge, MA: Harvard University Press, 2016).

## 3.2 Global value chains

The first concrete effect of digitisation on trade that we need to mention are the so-called '*global value chains*' (GVCs). In the last decade, international production, trade and investments have increasingly become organised within these GVCs, where different production stages are located across different countries.<sup>61</sup> Production in global value chains is commonly portrayed as the flow of intermediary goods and services being brought together, sold and used. The fast spread of digital technologies and the Internet have been the main driver behind the proliferation of GVCs. They allow manufacturers to manage and optimise complex industrial processes with tasks performed by various partners in different geographical locations.<sup>62</sup> Again, it is essential for GVCs to function that large quantities of data must be moved across borders. It is interesting to stress in this context, as shown by a study of the Swedish Board of Trade that it is not only large companies, like *Google* or *Facebook*, that rely on data flows but smaller ones do as well. It is also shown that the amount of data that needs to be moved to ensure effective production processes is already now immense.<sup>63</sup>

Despite being not an entirely new phenomenon, GVCs have not as yet been properly addressed in trade policies.

## 3.3 Growing importance of services trade and servicification

Another, perhaps more sweeping change that can be attributed to digitisation and the Internet in particular is the increased trade in services. Services were for a long time thought non-tradable, as it is the nature of many services that their provision coincides with the consumption and requires the physical proximity and interaction of the producer and the consumer (hairdressing being the textbook example). Digitisation has changed this. Many services, such as legal, engineering, computer related and financial services can now be provided online in part or in whole, depending on the nature of the service and the extent to which the domestic regulatory framework permits for it. As mentioned above, 50% of the world's traded services are already digitised and this opens entirely new opportunities for global trade in services.<sup>64</sup>

Digitisation also strengthens the current trend of 'servicification', whereby there is an increase in the use, produce and sale of services.<sup>65</sup> This happens as some goods are traded as services: for example, while software has been typically distributed on a tangible medium (CD), 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, music players or video games, inherently include some sort of support, continuous maintenance or new content, which transcend the purchase of the initial product.

<sup>61</sup> See e.g. OECD, WTO and World Bank Group, *Global Value Chains: Challenges, Opportunities, and Implications for Policy*, Report prepared for submission to the G20 Trade Ministers Meeting Sydney, 19 July 2014.

<sup>62</sup> Kommerskollegium, *No Transfer, No Production: Report on Cross-border Data Transfers, Global Value Chains, and the Production of Goods* (Stockholm: Swedish Board of Trade, 2015).

<sup>63</sup> Kommerskollegium (2015).

<sup>64</sup> See e.g. Daniel Castro and Alan McQuinn, *Cross-border Data Flows Enable Growth in All Industries* (Washington, DC: Information Technology and Innovation Foundation, 2015); Manyika et al. 2016.

<sup>65</sup> See e.g. Kommerskollegium, *Everybody Is in Services: The Impact of Servicification in Manufacturing on Trade and Trade Policy* (Stockholm: National Board of Trade, 2012); Rainer Lanz and Andreas Maurer, 'Services and Global Value Chains – Some Evidence on Servicification of Manufacturing and Services Networks', *WTO Working Paper ERSD 3* (2015).

The McKinsey Global Institute has identified another effect of digitisation on the relationship between products and services. They argue that the technology component of some goods can fundamentally affect the value of the good. The so-called 'digital wrappers', as digital add-ons, can enable or raise the value of other activities: logistics companies use for instance sensors to track physical shipments, reducing losses in transit and enabling more valuable merchandise to be shipped and insured. Online user-generated reviews and ratings increase the level of trust for many individuals, so that these would feel more confident in making cross-border transactions – be it by buying a book on *Amazon* or booking a hotel.<sup>66</sup>

Overall, the relationship between trade in goods and trade in services becomes more complex in the digital space; previous distinctions between goods and services may not be valid any longer and this has regulatory implications under current international trade law, as we explain in Part Three.

### 3.4 Implications for domestic regulation

Global digital trade is hard to stop at the border. At the same time, digital content and applications have profound effect on individuals in a certain country as well as on its society as a whole. They may induce certain behavioural patterns, affect the conditions for diversity, social cohesion and democratic practice; they may influence consumer protection, financial stability and safety. They may impact on national security. Overall, digital trade can affect the capacity of domestic regulators to achieve their regulatory aims in many aspects and in many different areas. The increased centrality of data and the importance of cross-border trade flows have brought about a new set of concerns. The sheer volume and the personal nature of the information collected and used can be in themselves worrying.<sup>67</sup> Big Data methods provide new and powerful means to sort, combine and analyse data. The inherent ability of such technologies to capture sensitive details from information that, to the average customer, might seem mundane or meaningless, is astounding.<sup>68</sup> Furthermore are the practices behind Big Data often not transparent and, as mentioned above, under the control of few gatekeepers.<sup>69</sup> Privacy policy reports in the US, as well as in the EU, point out that conventional methods of protecting users, such as anonymisation and de-identification, are no longer effective.<sup>70</sup> The related concerns, such as discrimination or control over individual's future activities, are multiple. The possible permanence of personal data means also that it can be potentially reused in the future for unanticipated purposes.<sup>71</sup> Privacy, which is a fundamental right, under international human rights law and under the constitutions of many countries, as well as the EU Charter of Fundamental Rights, is endangered.<sup>72</sup>

Tensions between domestic and global rules in general, and between privacy and free data flows in particular, are bound to increase and policy-makers will need to find appropriate frameworks to balance the trade-offs between these. This may be particularly hard, as the approaches of the US and the EU

<sup>66</sup> Manyika et al. 2016.

<sup>67</sup> Gasser (2015), at 349.

<sup>68</sup> Gasser (2015); Daniel J. Solove, 'A Taxonomy of Privacy', *University of Pennsylvania Law Review* 154 (2006), 477–560, at 506.

<sup>69</sup> Gasser (2015), at 343–350.

<sup>70</sup> See US President's Advisory Council on Science and Technology, *Big Data and Privacy: A Technological Perspective*, Washington, DC, 2014; European Union Agency for Network and Information Security (ENISA), *Privacy and Data Protection by Design – from Policy to Engineering*, Brussels, 2014.

<sup>71</sup> Gasser (2015), at 353.

<sup>72</sup> See e.g. Gasser (2015, 2016); Colin J. Bennett and Robin M. Bayley, 'Privacy Protection in the Era of "Big Data": Regulatory Challenges and Social Assessments', in Bart van der Sloot, Dennis Broeders, and Erik Schrijvers (eds.), *Exploring the Boundaries of Big Data* (Amsterdam: University of Amsterdam Press, 2016), 205–227.

towards the protection of privacy are at this stage hardly reconcilable.<sup>73</sup> We address this issue again below.

### 3.5 New types of trade barriers

Digital trade has dramatically changed in the last decade. States have reacted to this change and the perils associated with it – such as risks for citizens' privacy and national security – in a number of ways. Some of them have been associated also with a new palette of measures that inhibit digital trade. A number of studies in the last five years have tried to compile and analyse information on these new digital trade barriers.<sup>74</sup> In the following, we provide a brief overview combing this available data without giving priority to one particular source.

One of the first comprehensive taxonomies on digital trade barriers was provided by the reports of the United States International Trade Commission (USITC).<sup>75</sup> Based on enquiries of industry participants and experts, as well as fieldwork, the reports pointed at several types of non-tariff trade barriers. Some of them can be grouped under the so-called 'digital trade localization measures'. Others are not strictly trade measures and encompass issues relating to censorship, divergent approaches to data privacy and IP protection that different countries have adopted, that in different ways disrupt digital trade, increase the cost of doing business and hinder innovation.

**Localisation 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. Russia, Turkey, China but also a number of other countries have installed a variety of these measures, especially post the 2013 Snowden revelations.<sup>76</sup> Such policies essentially limit market access and may result in higher costs and sub-optimal processes for foreign firms.<sup>77</sup> They may however be justified on grounds of privacy or national security protection.

**Data privacy and protection measures:** Divergent approaches to data privacy and protection can also qualify as a trade barrier. Particularly in the context of the data traffic between the US and the EU, it has been often reported that divergence imposed substantial costs and uncertainty on firms, especially SMEs. In the US, digital industry representatives were particularly keen on finding common ground and interoperability in regulatory approaches to data protection. Here, beyond the US perception, it is perhaps useful to note that too low standards of data protection can also be construed as obstacle to

<sup>73</sup> See C-362/14, *Maximilian Schrems v. Data Protection Commissioner*, judgment of 6 October 2015, ECLI:EU:C:2015:650; also Paul M. Schwartz, 'The EU-US Privacy Collision: A Turn to Institutions and Procedures', *Harvard Law Review* 126 (2013), 1966–2009; Paul M. Schwartz and Daniel J. Solove, 'Reconciling Personal Information in the United States and European Union', *California Law Review* 102 (2014), 877–916.

<sup>74</sup> See e.g. United States International Trade Commission (USITC), *Digital Trade in the US and Global Economies*, Part 1, Investigation No 332–531 (Washington, DC: USITC, 2013); USITC, *Digital Trade in the US and Global Economies*, Part 2, Investigation No 332–540 (Washington, DC: USITC, 2014); Rachel Fefer et al., *Digital Trade and US Trade Policy*, Congressional Research Service, CRS Report R44565, 2017. For a country survey, see Anupam Chander and Uyeñ P. Le', 'Data Nationalism', *Emory Law Journal* 64 (2015), 677–739. For a dynamic database, see the Digital Trade Estimates Project, available here: <http://ecipe.org/dte/> (last accessed 18 August 2017).

<sup>75</sup> USITC (2013, 2014), in particular USITC (2013), at Chapter 5.

<sup>76</sup> Chander and Le' (2015).

<sup>77</sup> For a more detailed study, see OECD, *Emerging Policy Issues: Localisation Barriers to Trade*, TAD/TC/WP(2014)17/FINAL, 12 May 2015.

trade, as they do not provide sufficient consumer confidence and trust as a condition for functioning digital trade.

**Intellectual property related measures:** Representatives of digital content providers and of Internet intermediaries report substantial, although different, IPR-related concerns. The content industries, including software, music, movies, books and journals and video games, identify Internet piracy as the single most important barrier to digital trade for their industries (China being the main culprit).<sup>78</sup> By contrast, representatives of intermediaries are particularly concerned about being held liable for IP infringing or illegal conduct of users of their systems.

**Censorship:** Censorship permits states to determine what information is accessible in the country and control internal dissent. Censorship has been one of the early Internet barriers and an immediate (although ill-placed) reaction to the borderless nature of the Internet. It has been typical of autocratic states like China and Russia but over the years has proliferated and diversified. It has also become much more sophisticated and far-reaching.<sup>79</sup> Blocking and filtering of online platforms and content can be compared to customs officials stopping all goods from a particular company at the border. The negative economic effects can be substantial but also those on human rights, in particular the freedom of expression in its both passive and active natures.<sup>80</sup>

**Cybersecurity:** The growth in digital trade has raised issues related to cybersecurity, the act of protecting IT systems and their contents from cyberattacks. Cyberattacks in general are deliberate attempts by unauthorised persons to access IT systems, usually with the goal of theft, disruption, damage or other unlawful actions. Cybersecurity can also be an important tool in protecting privacy and preventing unauthorized surveillance or intelligence gathering.<sup>81</sup>

**Border measures:** Although not necessarily falling under the category of 'new' trade barriers, traditional impediments, such as border measures and regulatory complexity, should not be forgotten, as they can still substantially impede online business, particularly that of SMEs.

Overall, one can maintain that the landscape of digital trade barriers is dynamic and changing over time. Curbing the new 'digital protectionism' should be addressed as a priority in policy agendas.

## 4 Trade policy responses to the digital transformation

### 4.1 The existing regulatory framework for digital trade

Digitisation and digital trade do not happen in a regulatory vacuum. Despite the fact that they may call for governance adjustments of different kind and depth, there are existing rules at the international level that they can be subsumed under. The law of the World Trade Organization (WTO) is at the core of this framework, which has been over time complemented by a number of bilateral and regional trade deals of preferential nature. We discuss these rules in turn, and try to briefly explain what their relevance for

<sup>78</sup> Other examples include: foreign websites that facilitate IPR infringement; software piracy; circumvention of technological protection measures; cybertheft of trade secrets; trademark infringement related to domain names.

<sup>79</sup> See e.g. Jonathan L. Zittrain et al., 'The Shifting Landscape of Global Internet Censorship', *Berkman Klein Center Research Publication* No. 2017-4.

<sup>80</sup> See e.g. Human Rights Council, *Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression*, Frank La Rue, A/HRC/17/27, 16 May 2011.

<sup>81</sup> Fefer et al. (2017).

the contemporary digital economy is, where legal adaptation has failed and where countries have managed to formulate some new rules as a response to the digital challenge.

#### 4.1.1 The World Trade Organization

The WTO Agreements were negotiated and adopted during the Uruguay Round (1986–1994).<sup>82</sup> Despite a few updates – such as the Information Technology Agreement (ITA) – the WTO rules have so far not reacted in a forward-looking manner to the various changes triggered by digitisation. Nonetheless, WTO law does regulate digital trade in many ways – and this as a matter of ‘hard’ law, agreed upon by the now 164 Members and enforceable through the quasi-judicial mechanism of the WTO’s dispute settlement.

The WTO endorses far-reaching principles of non-discrimination: the *most-favoured nation* (MFN) and the *national treatment* (NT) obligations. They ban countries from discriminating between products and services coming from different WTO Members (MFN) and from discriminating between foreign and domestic products and services (NT). The therewith created constraints on national regimes are substantial. Next to these general rules of the WTO architecture, specific WTO Agreements regulating trade in goods, trade in services, the protection of intellectual property rights, the provisions on subsidies, standards, government procurement or trade facilitation, include many rules that matter for the digital economy – either by endorsing and detailing the application of the non-discrimination principles or by specifically addressing certain issues.<sup>83</sup>

With regard to trade in IT products, the WTO secures one of the *most accommodating conditions for free trade*. In addition to the far-reaching framework of the GATT for **trade in goods**, the Information Technology Agreement (ITA), provides for a special regime for trade in IT products and ensures that trade in communication equipment is duty free. The ITA was adopted after the completion of the Uruguay Round at the Singapore Ministerial Conference in 1996,<sup>84</sup> largely as a result of the pressure put by the US IT industry. The proclaimed objective of the ITA is to ‘achieve maximum freedom of world trade in information technology products’.<sup>85</sup> To this effect, the ITA signatories pledged to provide *zero tariffs* for selected IT products, such as computers, semi-conductors, semi-conductor manufacturing equipment, telecommunication apparatus, data-storage media and software.<sup>86</sup> Although only a plurilateral agreement, the ITA has been successful in creating a ‘critical mass’ and attracting the major stakeholders in both the developed and the developing world. Originally signed by 29 countries, the ITA currently lists 82 WTO Members. Together, these Members account for more than 97% of global trade in IT products.<sup>87</sup> In 2015, 50 WTO Members agreed on the expansion of the ITA to cover additional 201 product lines that have been valued at over USD 1.3 trillion per year.<sup>88</sup> Overall and despite some flaws,

<sup>82</sup> The WTO Agreements comprise the Marrakesh Agreement Establishing the World Trade Organization and the annexed to it General Agreement on Tariffs and Trade [GATT]; General Agreement on Trade in Services [GATS]; and the Agreement on Trade-Related Aspects of Intellectual Property Rights [TRIPS].

<sup>83</sup> For a detailed analysis, see Mira Burri, ‘The International Economic Law Framework for Digital Trade’, *Zeitschrift für Schweizerisches Recht* 135 (2015), 10–72; Mira Burri, ‘The Regulation of Data Flows in Trade Agreements’, *Georgetown Journal of International Law* 48 (2017), 408–448; Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press, 2012).

<sup>84</sup> WTO, Ministerial Declaration on Trade in Information Technology Products, WT/MIN(96)/16 (1996).

<sup>85</sup> *Id.*, at Preamble and para. 1.

<sup>86</sup> See WTO, *15 Years of the Information Technology Agreement: Trade, Innovation and Global Production Networks* (Geneva: World Trade Organization, 2012).

<sup>87</sup> WTO, *id.*

<sup>88</sup> As reported by the WTO on the occasion of the expansion of the ITA. See WTO, [https://www.wto.org/english/tratop\\_e/inftec\\_e/inftec\\_e.htm](https://www.wto.org/english/tratop_e/inftec_e/inftec_e.htm) (last accessed 18 August 2017).

the ITA can be deemed as truly successful and has made a real difference in trade practice. It ultimately provided for a very liberal regime for trade in IT-related hardware, which spurred competition and benefited consumers.<sup>89</sup> Together with the far-reaching commitments in the telecommunication services sector, the ITA boosted the emergence of global value chains for IT trade and substantially facilitated the worldwide spread and adoption of technological advances and the emergence of the data economy. It is one of the good examples that vividly shows how regulation matters for shaping innovation.<sup>90</sup>

The effects of the WTO are palpable also in the field of **digital services**. The GATS, similarly to the GATT, aims at protecting equality of competitive opportunities for companies regardless of their origin and the origin of their services, and at facilitating the progressive liberalisation of services markets. Its legal design is however different and allows for flexibility in committing through the so-called *specific commitments* accepted by individual WTO Members and listed in their 'Schedules of Specific Commitments'. These schedules show the positive obligations of a Member with regard to *national treatment* and *market access*.<sup>91</sup> The fairly flexible regime of the GATS allows for opening of services markets but also for keeping them protected, partially or completely.

In terms of services sectors that are pertinent for the digital economy, one commonly reviews the telecommunications, the computer and related and the audiovisual as well as the financial services sectors. The level of openness of these sectors varies substantially. One can maintain generally that while the regime for digital infrastructure and applications is liberal under the WTO, content-related services are almost uncommitted for.

A deep intervention, which may substantially limit the regulatory space available domestically comes from the GATS rules on *computer and related services*. For computer and related services, which was a fairly new sector at the time of the Uruguay Round and thus largely devoid of either domestic regulation or trade barriers, a great number of WTO Members have made far-reaching commitments for both market access and national treatment. The EU has, for instance, committed for all the listed sub-sectors: (a) consultancy services related to the installation of computer hardware; (b) software implementation services; (c) data processing services; (d) data base services; maintenance and repair; and (e) other computer services.<sup>92</sup> The implications of these commitments are real and the wiggle-room available for domestic regulators is severely constrained. If we imagine a situation, where the EU would like to install new measures with regard to search engines that somehow limit the market access or discriminate against foreign companies and their services, this may implicate a violation of WTO law – because search engines can be subsumed under 'data processing services'<sup>93</sup> and because the EU is fully committed for

<sup>89</sup> Copenhagen Economics, *Expanding the Information Technology Agreement (ITA): Economic and Trade Impacts*, Final Report for the European Commission, October 2010.

<sup>90</sup> Anupam Chander, 'How Law Made Silicon Valley', *Emory Law Journal* 63 (2014), 639–694.

<sup>91</sup> 'Market access' is articulated in Article XVI GATS and addresses quantitative restrictions to services trade. The 'national treatment' obligation, specified in Article XVII GATS, is of a broader, qualitative nature and bans discrimination between domestic and foreign services and service suppliers.

<sup>92</sup> The EU has listed no limitations for the first three modes of supply (cross-border; consumption abroad and commercial presence) and remains unbound only for the presence of natural persons (mode 4). See WTO, *European Communities and their Member States, Schedule of Specific Commitments, Trade in Services, Supplement 3, GATS/SC/31/Suppl. 3* (1997).

<sup>93</sup> See Henry Gao, 'Googling for the Trade—Human Rights Nexus in China: Can the WTO Help?', in Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press, 2012), 247–275; also Rolf H. Weber and Mira Burri, *Classification of Services in the Digital Economy* (Bern: Stämpfli, 2012), at 115.

those. Localisation requirements would be also GATS-inconsistent in the sectors where there are specific commitments made.<sup>94</sup> Yet, at least so far, such situations have not been tested before a WTO panel.

The EU and other WTO Members have often looked for an escape in this context by relying on one argument that has to do with the technical issue of services classification but is also linked to a charged political debate. Whenever they want to preserve policy space, WTO Members would argue that such digital services should be classified as 'audiovisual services',<sup>95</sup> because of their inherent function as content platforms.<sup>96</sup> There is arguably room for interpretation and Members make use of the lack of clear distinctions in the existing classification schemes, which is exacerbated by their pre-Internet origin. In the sector of audiovisual services, almost no WTO Members have made commitments and thus remain relatively free to sustain discriminatory measures and adopt new ones.<sup>97</sup> This is the result of a pronounced and politically charged contention between trade and cultural interests that unfolded during the Uruguay Round of negotiations. It was associated with a rupture between the key negotiating parties – the EU and the US – on the question of how to regulate cultural matters and whether to make them subject to the rules of the WTO – the so-called 'exception culturelle' debate.<sup>98</sup>

The current round of trade negotiations – the Doha Development Agenda – launched in 2001 and originally to be completed by 2005, holds no promise of changes in the status quo for audiovisual services.<sup>99</sup> Despite the recognition, widely shared by key WTO Members, that the audiovisual sector has changed dramatically,<sup>100</sup> in particular in the face of the sweeping transformations caused by the Internet, there is little agreement on the best way forward.<sup>101</sup> This is a major setback for data as content and undermines the very liberal regime that the WTO has established with regard to infrastructure and some services sectors like telecom and computer and related services.

It may also be worth to keep in mind this specific case of trade versus culture, its negative spillover effects, and how the distributional conflict between the US and the EU has played out. This situation may very well be replicated in the area of privacy protection, where too the positions of the two key stakeholders diverge, as noted above.

Overall, while the WTO Agreements have fairly comprehensive rules and digital trade can be subsumed under the law of the GATT and the GATS, it is evident that legal adaptation under the auspices of the WTO has not progressed. Despite the utility of the WTO's dispute settlement, illustrated in a number of

<sup>94</sup> See e.g. Cathleen Cimino, Gary Clyde Hufbauer and Jeffrey J. Schott, 'A Proposed Code to Discipline Local Content Requirements', *Peterson Institute of International Economics Policy Brief 4* (2014); Holger P. Hestermeyer and Laura Nielsen, 'The Legality of Local Content Measures under WTO Law', *Journal of World Trade* 48 (2014), 553–592.

<sup>95</sup> 'Audiovisual services' include motion picture and videotape production and distribution services; motion picture projection service; radio and television services; radio and television transmission services and sound recording.

<sup>96</sup> See e.g. WTO, Work Programme on Electronic Commerce, Submission by the European Communities WT/GC/W/497 (2003), at para. 7.

<sup>97</sup> WTO, Council for Trade in Services, Audiovisual Services, Background note by the Secretariat, S/C/W/310 (2010).

<sup>98</sup> See e.g. Mira Burri, 'Trade versus Culture in the Digital Environment: An Old Conflict in Need of a New Definition', *Journal of International Economic Law* 12 (2009), 17–62; Mira Burri, 'The EU, the WTO and Cultural Diversity', in Evangelia Psychogiopoulou (ed.), *Cultural Governance and the European Union: Protecting and Promoting Cultural Diversity in Europe* (Basingstoke, UK: Palgrave Macmillan, 2015), 195–204.

<sup>99</sup> See e.g. Lee Tuthill and Martin Roy, 'GATS Classification Issues for Information and Communication Technology Services', in Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press, 2012), 157–178.

<sup>100</sup> WTO, Communication from the European Union and the United States: Contribution to the Work Programme on Electronic Commerce, S/C/W/338 (2011).

<sup>101</sup> See e.g. WTO, Communication from the European Communities and its Member States, Draft consolidated GATS Schedule, S/C/W/273 (2006).

Internet-related cases, such as *US–Gambling* and *China–Audiovisual Products*,<sup>102</sup> judicial transplants cannot replace political consensus on the substance, particularly in a complex and highly technical domain, such as digital trade. Legal certainty has been seriously compromised. The classification dilemma, as often discussed in the field of services regulation and as particularly critical for the legal categorisation of data flows, exposes vividly the disconnectedness of trade rules from trade practices and the state of paralysis in the WTO.<sup>103</sup> Many other issues discussed in the framework of the 1998 WTO Work Programme on Electronic Commerce have been left without a solution or even a clarification.<sup>104</sup> There is, for instance, still no agreement on a permanent duty-free moratorium on electronic transmissions.<sup>105</sup> The lack of progress under the WTO has triggered forum-shopping – through bilateral, regional and plurilateral initiatives. Many of these efforts have also sought answers to the regulatory challenges posed by digital technologies.

#### 4.1.2 Beyond the WTO: Free trade agreements

The regulatory environment for digital trade has been substantially influenced by FTAs and in particular by those led by the United States. The United States has endorsed and attempted to ensure implementation of its so-called ‘Digital Agenda’<sup>106</sup> through the FTA channel. The agreements reached since 2002 with Australia, Bahrain, Chile, Morocco, Oman, Peru, Singapore, the Central American countries,<sup>107</sup> and more recently with Panama, Colombia and South Korea, all contain critical WTO-plus provisions in the broader field of digital trade. The emergent regulatory template on digital issues is not however limited to US agreements but has diffused and can be found in other FTAs as well, such as Singapore–Australia, Thailand–Australia, Thailand–New Zealand, New Zealand–Singapore, India–Singapore, Japan–Singapore and South Korea–Singapore. The implemented US template regulates key aspects of digital trade in: (1) specifically dedicated e-commerce chapters; (2) the chapters on cross-border supply of services; and (3) the intellectual property chapters.

In this study, we only thematise the e-commerce chapters, as they contain deliberate responses to digital trade. The electronic commerce chapters have also evolved over time – from less to more binding and from a mere compensation for the lack of progress in the WTO towards new (and partially innovative) digital rule-making. In the former sense, they have included a clear definition of ‘digital products’, which treats digital products delivered offline equally as those delivered online, so that technological neutrality is ensured. The chapters also recognise the applicability of WTO rules to electronic commerce, and establish a permanent duty-free moratorium on the import or export of digital products by electronic

<sup>102</sup> 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, *United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services (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 – Measures Affecting Trading Rights and Distribution Services for Certain Publications and Audiovisual Entertainment Products (China – Publications and Audiovisual Products)*, WT/DS363/AB/R, adopted 21 December 2009.

<sup>103</sup> 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. The classification is not trivial since it triggers different obligations. See Weber and Burri (2012).

<sup>104</sup> 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, 2012), 179–221, at 181.

<sup>105</sup> The moratorium has only been temporarily extended several times; the last time for a period of two years following a decision taken during the Nairobi Ministerial Conference in 2015.

<sup>106</sup> See Sacha Wunsch-Vincent, ‘The Digital Trade Agenda of the US: Parallel Tracks of Bilateral, Regional and Multilateral Liberalization’, *Aussenwirtschaft* 1 (2003), 7–46.

<sup>107</sup> The DR–CAFTA includes Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and the Dominican Republic.

transmission. Critically, the e-commerce chapters ensure both MFN and NT for digital products trade; discrimination is banned on the basis that digital products are 'created, produced, published, stored, transmitted, contracted for, commissioned, or first made available on commercial terms outside the country's territory' or 'whose author, performer, producer, developer, or distributor is a person of another party or a non-party'.<sup>108</sup>

The e-commerce chapters do also include rules that go beyond the WTO. These cover different issues in the broader IT policy field, such as those for telecommunications policy, IT standards and interoperability, cyber-security, electronic signatures and payments, paperless trading, self-regulation and e-government projects. More importantly for data flows, they seek to achieve some common ground rules for the digital marketplace, where increasingly inadequate and incompatible national regulations are seen as an important digital trade barrier.

The US–South Korea FTA has been the most advanced in this regard. It includes 'Principles on Access to and Use of the Internet for Electronic Commerce', which detail rights for the consumers to: (a) access and use services and digital products of their choice; (b) run applications and services of their choice; (c) connect their choice of devices to the Internet; and (d) have the benefit of competition among network providers, application and service providers, and content providers.<sup>109</sup> Next to these fairly solid safeguards against censorship and other types of constrained access and use, the US–South Korea FTA, provides for free cross-border information flows and obliges the parties, although in a non-binding manner, 'to refrain from imposing or maintaining unnecessary barriers to electronic information flows across borders'.<sup>110</sup>

The Transpacific Partnership Agreement (TPP),<sup>111</sup> signed (but not ratified) between the United States and eleven countries in the Pacific Rim took things to a different level. The TPP chapter on e-commerce is clearly the most comprehensive so far and entails some new regulatory issues. Critically, the TPP explicitly seeks to restrict the use of data localisation measures. Article 14.13(2) prohibits the parties from requiring a 'covered person to use or locate computing facilities in that Party's territory as a condition for conducting business in that territory'. The soft language from US–South Korea on free data flows is now framed as a hard rule: '[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'.<sup>112</sup>

Measures restricting digital flows or localisation requirements under Article 14.13 TPP are permitted only if they do not amount to 'arbitrary or unjustifiable discrimination or a disguised restriction on trade' and do not 'impose restrictions on transfers of information greater than are required to achieve the objective'. These non-discriminatory conditions are similar to the test formulated by the GATS Article

<sup>108</sup> See e.g. US–Singapore FTA, Article 14.3; US–Australia FTA, Article 16.4. In many FTAs, digital products must not be fully produced and exported through one of the contracting parties of the bilateral FTAs to benefit from the non-discrimination obligations. This is an interesting way to avoid complex rules of origin.

<sup>109</sup> US–South Korea, Article 15.7.

<sup>110</sup> US–South Korea, Article 15.8: 'Recognizing the importance of the free flow of information in facilitating trade, and acknowledging the importance of protecting personal information, the Parties shall endeavor to refrain from imposing or maintaining unnecessary barriers to electronic information flows across borders'.

<sup>111</sup> The Trans-Pacific Partnership Agreement, <https://ustr.gov/trade-agreements/free-trade-agreements/trans-pacific-partnership/tpp-full-text> [hereinafter TPP] (last accessed 18 August 2017).

<sup>112</sup> Article 14.11(2) TPP.

XIV and GATT Article XX – a test that is supposed to balance trade and non-trade interests but is also extremely hard to pass.<sup>113</sup>

The TPP contains also rules on privacy. Article 14.8(2) requires every TPP party to ‘adopt or maintain a legal framework that provides for the protection of the personal information of the users of electronic commerce’. No standards or benchmarks for the legal framework have been specified, except for a general requirement that TPP parties ‘take into account principles or guidelines of relevant international bodies’.<sup>114</sup> Parties are also invited to promote compatibility between their data protection regimes, by essentially treating lower standards as equivalent.<sup>115</sup> Overall, the goal seems to be to prioritise trade over privacy rights. This commitment is clearly pushed by the US, which subscribes to relatively weak and patchy protection of privacy, and can be seen as a reaction to the judgment of the Court of Justice of European Union (CJEU) that struck down the EU–US Safe Harbour Agreement.<sup>116</sup>

The TPP includes also provisions on consumer protection,<sup>117</sup> spam control<sup>118</sup> and cybersecurity.<sup>119</sup> Net neutrality<sup>120</sup> is another important digital economy topic that has been given specific attention in the TPP – all these rules are however of non-binding nature. In contrast, the restrictions on forced disclosure of source code and on encryption requirements are entirely novel and far-reaching.<sup>121</sup>

## 4.2 Deliberate responses to the challenge of digitisation: An appraisal of the current state of affairs

Against the backdrop of failing legal adaptation under the auspices of the WTO, much has happened in preferential trade venues. Although not in a manner of a revolutionary change, there is a new emergent regime for digital trade. It includes a number of WTO-plus commitments and clarifies some issues that the WTO Members could not agree on, such as a duty-free regime for electronic transactions. The FTAs tackle also and perhaps more importantly, certain ‘non-trade’ or ‘WTO-extra’ issues, such as consumer protection, privacy and safeguards for the free flow of data. The TPP stands out with regard to digital trade not only due to its high standards but also because of the breadth of issues covered that matter more or less immediately for the digital economy. The TPP is also in many aspects innovative. Some research shows that the language of the TPP Electronic Commerce Chapter overlaps only some 27% with the language of previous US FTAs.<sup>122</sup> The clear ban on localisation measures and the subscription to a binding norm on free data flows with a potentially broad scope of application are unprecedented. It should also be noted that the TPP appears to take a first, although somewhat vague and insecure, step towards reconciling economic and non-economic interests, as it attempts some sort of a balance between free data flows and other public interests.

Overall, FTA partners do benefit from swifter solutions, from the deeper, as well as often clearer, provisions. It appears that FTAs work better, although not always, for reconciling diverging interests –

<sup>113</sup> The TPP test differs from the WTO norms in one significant element: while there is a list of public policy objectives in the GATT and the GATS, the TPP provides no such enumeration and simply speaks of a ‘legitimate public policy objective’. Further, it should be noted that the localisation ban is softened with regard to financial services and institutions, as it is for government procurement.

<sup>114</sup> Article 14.8(2) TPP.

<sup>115</sup> Article 14.8(5) TPP.

<sup>116</sup> C-362/14, *Schrems*.

<sup>117</sup> Article 14.7 TPP.

<sup>118</sup> Article 14.14 TPP.

<sup>119</sup> Article 14.16 TPP.

<sup>120</sup> Article 14.10 TPP.

<sup>121</sup> Articles 14.17 and Annex 8-B, Section A.3 TPP.

<sup>122</sup> Todd Allee and Andrew Lugg, ‘Who Wrote the Rules for the Trans-Pacific Partnership?’, *Research and Politics* (2016), 1–9.

on long-standing trade topics, such as classification, and in politically charged domains, such as audiovisual services (the US has made far-reaching concessions in this regard – for example, in its FTAs with Australia). FTAs are also in a good position to address the new generation of trade barriers, such as localisation measures.

FTAs' benefits may however be offset by the fact that a patchwork of multiple and overlapping agreements exacerbates world's asymmetric wealth distribution and rule fragmentation, and does not contribute to the free cross-border flow of information on a global scale. In addition, it should be noted that FTAs may be undermining the value and impact of multilateral venues and the role of international law in the general. Without engaging in the debate of preferentialism versus multilateralism, purely from the perspective of digital trade and its demands on seamlessness and interoperability,<sup>123</sup> the multilateral forum appears more sensible a solution.

Finally, it must be underscored that although we concentrated here on the advanced template of the US, many other countries, also developed ones like the EFTA members, do not have a digital strategy and have not entered into any substantial WTO-plus commitments in their FTAs.

## 5 Implications for EU's external trade policies

### 5.1 Current state of affairs

The EU has made digital innovation an essential part of its agenda and seeks to attain a single digital market, opening up digital opportunities for people and business and enhancing Europe's position as a world leader in the digital economy.<sup>124</sup> In this process, the EU has carefully evaluated the effects of digitisation as a disruptive technology on various areas of the European economy, as well as its broader societal effects. The EU seeks to adopt a coherent regulatory approach and accordingly undertake reforms in the telecom, media, copyright, data protection and electronic commerce sectors. This initiative is bold and ambitious. It reflects the developments triggered in the context of the Fourth industrial revolution, as we outlined them at the outset of the study. For instance, with regard to increased importance of data flows, the European Commission aims at realising the full potential of the European data economy, and maintains that any Member State action affecting data storage or processing should be guided by a 'principle of free movement of data within the EU', as a corollary of their obligations under the free movement of services and the free establishment provisions of the Treaty and relevant secondary legislation. Any current or new data localisation restrictions would need to be carefully tested under the Treaty and relevant secondary law to verify that they are necessary and proportionate to achieve an overriding objective of general interest, such as public security.<sup>125</sup>

By contrast, the external trade policy dimension of this discussion is much less pronounced. EU's trade strategy underlines that the free flow of data across borders has become more important for European competitiveness in general but it only cautiously and somewhat vaguely says that, 'regulatory cooperation, mutual recognition and harmonisation of standards are the best tools to address the challenges of the digital economy'.<sup>126</sup> It is nonetheless clarified that the EU subscribes to the absence of

<sup>123</sup> Urs Gasser and John Palfrey, 'Fostering Innovation and Trade in the Global Information Society: The Different Facets and Roles of Interoperability', in Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press, 2012), 123–153.

<sup>124</sup> European Commission (2012).

<sup>125</sup> European Commission, Building a European Data Economy, COM(2017) 9 final, 10 January 2017.

<sup>126</sup> European Commission, 'Trade for All – Toward a More Responsible Trade and Investment Policy', October 2015, especially at Section 2.1.2.

unjustified data localisation requirements and should promote this objective in bilateral, plurilateral and multilateral fora. The Commission will accordingly seek to use FTAs and the TiSA to set rules for e-commerce and cross-border data flows and tackle new forms of digital protectionism, however only in full compliance with and without prejudice to the EU's data protection and data privacy rules.

### 5.1.1 EU's stance in existing FTAs

So far, we have not seen a clear expression of this strategy at the international scene. In comparison to its internal affairs, the EU appears more cautious and incremental in its approach to addressing **digital trade** issues globally, in particular when compared to the US. Apart from the generic differences between the EU and the US approaches to FTAs, the EU template with regard to digital trade is not as coherent as that of the United States.<sup>127</sup> It has also developed and changed over time – both with regard to dedicated provisions on electronic commerce, as well as with regard to services and IP rules of relevance to digital trade.

The agreement with Chile (signed in 2002) was the first to include substantial e-commerce provisions but the language was limited to soft cooperation pledges in the services chapter<sup>128</sup> and in the fields of information technology, information society and telecommunications. In more recent agreements, such as the 2009 EU–South Korea FTA, the language is much more concrete and binding, although the provisions are still only few and framed as part of the general Chapter on services. They imitate some of the provisions of the US template and confirm the applicability of the WTO Agreements to measures affecting electronic commerce, as well as subscribe to a permanent duty-free moratorium on electronic transmissions.<sup>129</sup> Particularly insistent on data protection policies, the EU has also sought commitment of its FTA partners to compatibility with the international standards of data protection.<sup>130</sup> Cooperation is increasingly framed in more concrete terms and includes mutual recognition of electronic signatures certificates, coordination on Internet service providers' liability, consumer protection and paperless trading.<sup>131</sup> The 2014 the EU–Singapore FTA,<sup>132</sup> is very similar to the agreement with South Korea but includes also language recognising the 'importance of the free flow of information on the internet, while agreeing that this should not impair the rights of intellectual property owners'.<sup>133</sup>

The most recent EU agreement with Canada – the Comprehensive Economic and Trade Agreement (CETA)<sup>134</sup> – goes a step further. The CETA provisions concern commitments ensuring (a) clarity, transparency and predictability in their domestic regulatory frameworks; (b) interoperability, innovation and competition in facilitating electronic commerce; as well as (c) facilitating the use of electronic commerce by SMEs.<sup>135</sup> The EU has succeeded in deepening the privacy commitments. The CETA has a

<sup>127</sup> EU FTAs tend, for instance, to cover more WTO-plus areas but have less liberal commitments. For detailed analysis, see Henrik Horn, Petros C. Mavroidis and André Sapir, *Beyond the WTO? An Anatomy of EU and US Preferential Trade Agreements* (Brussels: Bruegel Print, 2009).

<sup>128</sup> Agreement Establishing an Association Between the European Community and its Member States, of the One Part, and the Republic of Chile, of the Other Part, 352 OJ L/3 (2002) [hereinafter EU–Chile FTA], Article 104.

<sup>129</sup> Free Trade Agreement Between the European Union and its Member States, of the One Part, and the Republic of Korea, of the Other Part, 127 OJ L/6 (2011) [hereinafter EU–South Korea FTA], Article 7.48.

<sup>130</sup> EU–South Korea FTA, Article 7.48.

<sup>131</sup> EU–South Korea FTA, Article 7.49. The same is true for the EU–Singapore FTA, see Articles 8.57–6.61.

<sup>132</sup> Which has still not entered into force, as it demands ratification by the Parliaments of the EU Member States. See Court of Justice of the European Union, Opinion 2/15 of 16 May 2017.

<sup>133</sup> EU–Singapore FTA, Article 8.57(3).

<sup>134</sup> Comprehensive Economic and Trade Agreement Between Canada of the One Part, and the European Union and its Member States, of the Other Part, Sept. 14, 2016, 2016/206 (NLE); the consolidated text is available here: <http://ec.europa.eu/trade/policy/in-focus/ceta/ceta-chapter-by-chapter/> (last accessed 18 August 2017).

<sup>135</sup> CETA, Article 16.5.

specific provision discussing 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.<sup>136</sup>

With regard to cross-border **trade in services**, the EU's traditional approach has been to follow the GATS model and only positively and relatively conservatively commit for different services sectors and sub-sectors. The level of commitments has largely mirrored the offers made by the EU during the Doha Round, so unlike the US, the EU has not gone substantially GATS-plus in its FTAs. The EU experimented with a negative list of commitments for the first time with the CETA. This marks a turn in the EU's FTAs strategies and it remains to be seen whether this will be a continued effort or it was merely suitable for Canada as a trading partner with similar priorities and sensitivities. It should be stressed that even in this case and as a reflection of Canada's and the EU's continuing pro-cultural stance, some sectors are a priori excluded. For the EU, these are audiovisual services; for Canada, the caveat relates to its 'cultural industries'.<sup>137</sup>

In addition, there is an Annex attached to the services chapter, which sets out an understanding on new services not classified in the UN Provisional Central Product Classification (CPC) in its 1991 version as used during the Uruguay Round negotiations. The Understanding specifies that the commitments made do not apply in respect to any measure relating to a new service that cannot be classified under the CPC.<sup>138</sup> Parties have an obligation to notify the other party about such new services and enter into negotiations to incorporate the new service into the scope of the Agreement, at the request of one of the Parties. This is a very precautionary approach to future innovation, as it prevents automatism in the coverage and may also relate to a burdensome and costly administration of the FTA. It also diverges from the current US practice.

The convergence between the EU and the US templates is most pronounced with regard to the chapters on **intellectual property protection**. Since the EU–Chile FTA, and in particular in the EU–CARIFORUM and EU–South Korea, the EU has included a number of TRIPS-plus provisions. Digital copyright norms (compliance with the WIPO Internet Treaties; provisions on technological protection measures and ISP liability) have become an intrinsic element of the EU deals too.<sup>139</sup>

## 5.1.2 EU's stance in recent trade negotiations: TiSA, TTIP and the EU-Japan FTA

### TiSA

An important digital trade agreement that evolves outside the WTO umbrella is the presently negotiated Trade in Services Agreement (TiSA). The TiSA is meant to provide deeper market access in the services sector, where liberalization is still quite low, despite the substantial gains from trade expected. TiSA, launched in early 2013, has been supported by the United States, the EU, Japan, and other countries that

<sup>136</sup> CETA, Article 16.4.

<sup>137</sup> CETA, Chapter 32 'Exceptions'. If we compare with the W/120 classification for audiovisual services, which includes motion picture and video tape production and distribution services; motion picture projection service; radio and television services; radio and television transmission services and sound recording, the scope of 'cultural industries' is somewhat broader.

<sup>138</sup> CETA, Annex 9-B – Understanding on new services not classified in the United Nations Provisional Central Product Classification (CPC), 1991, at para. 1.

<sup>139</sup> Henning Grosse Ruse-Khan, 'Access to Knowledge under the International Copyright Regime, the WIPO Development Agenda and the European Communities' New External Trade and IP Policy' in Estelle Derclaye (ed.), *Research Handbook on the Future of EU Copyright* (Edward Elgar: Cheltenham, 2009), 574–612; Josef Drexler et al. (eds.), *EU Bilateral Trade Agreements and Intellectual Property: For Better or Worse?* (Berlin: Springer, 2014).

are part of the group 'Really good friends of services'.<sup>140</sup> The impact of TiSA can be substantial because some of the most important market economies, which in effect cover over 70% of world services trade, support it. TiSA also aims at high market access commitments and at adding a layer of deeper regulatory arrangements.<sup>141</sup>

Despite a number of leaks,<sup>142</sup> as well as publication of some country's offers,<sup>143</sup> the final outcome is uncertain. It appears so far that TiSA has adopted a hybrid approach of committing. This entails a negative type of committing for MFN and NT but positive for market access. In terms of the depth of liberalisation, there is an effort to reach the level of best FTA commitments in all sectors. Even if this is achieved, it may not be sufficient to address the pertinent digital trade issues. The reason for this is that, despite the far-reaching US FTAs, past FTA negotiations involving other TiSA participants have not made significant progress in liberalising sensitive sectors, such as audiovisual services. The EU and Canada are highly unlikely to give up their policy space in these sectors, which again brings back the 'old' GATS problems and the trade versus culture dilemma of the Uruguay Round.<sup>144</sup> The EU remains also sceptical as to the inclusion of 'new services' under the agreement.<sup>145</sup>

Regarding digital trade specifically, the TiSA Chapter on Electronic Commerce has a broad scope and should apply to measures affecting trade in services using or enabled by electronic means. Financial services and government procurement are likely to be excluded, although the United States is pushing for a softer language in this respect. There is still much contestation on the article on the movement of information. The US, together with Japan and Canada, suggest that '[n]o Party may prevent a service supplier of another Party from transferring, accessing processing or storing information, including personal information, within or outside the Party's territory, where such activity is carried out in connection with the conduct of the service supplier's business'.<sup>146</sup> Many countries consider exceptions or conditions to this ban, so as to allow more domestic flexibility. The diverging approaches between the TiSA parties with regard to data protection are further exposed in the following provisions on online consumer protection and personal information protection.<sup>147</sup> An important breakthrough in the TiSA negotiations with regard to digital trade has been the *Annex on Localisation Measures*. While it is framed in a broader, technologically neutral manner, it addresses important digital economy issues and the increasingly used in this context localization requirements. The Annex seeks to ban local presence, local content, and other performance requirements. To allow such far-reaching commitments, the Annex provides for a 'grandfathering' clause for those localisation measures that are inscribed in the schedules of specific commitments, as well as for exceptions on security grounds, for financial services, and government procurement.<sup>148</sup>

<sup>140</sup> Current negotiating parties include: Australia, Canada, Chile, Chinese Taipei (Taiwan), Colombia, Costa Rica, Hong Kong, Iceland, Israel, Japan, Liechtenstein, Mexico, New Zealand, Norway, Pakistan, Panama, Paraguay, Peru, South Korea, Switzerland, Turkey, the US and the EU.

<sup>141</sup> Juan A. Marchetti and Martin Roy, 'The TiSA Initiative: An Overview of Market Access Issues', *WTO Staff Working Paper ERSD-2013-11* (2013), at 27.

<sup>142</sup> <https://wikileaks.org/tisa> (last accessed 18 August 2017).

<sup>143</sup> See e.g. for Switzerland, the information provided by the State Secretariat for Economic Affairs is available at: [https://www.seco.admin.ch/seco/en/home/Aussenwirtschaftspolitik\\_Wirtschaftliche\\_Zusammenarbeit/Wirtschaftsbeziehung/en/Internationaler\\_Handel\\_mit\\_Dienstleistungen/TISA/Schweiz\\_und\\_TiSA.html](https://www.seco.admin.ch/seco/en/home/Aussenwirtschaftspolitik_Wirtschaftliche_Zusammenarbeit/Wirtschaftsbeziehung/en/Internationaler_Handel_mit_Dienstleistungen/TISA/Schweiz_und_TiSA.html) (last accessed 18 August 2017).

<sup>144</sup> Burri (2008, 2015a).

<sup>145</sup> European Commission, 'Report of the 21st TiSA Negotiation Round', 17 November 2016.

<sup>146</sup> Article 2.1 TiSA Chapter on Electronic Commerce.

<sup>147</sup> Articles 3 and 4 TiSA Chapter on Electronic Commerce.

<sup>148</sup> Articles X.4 and X.5 TiSA Annex on Localisation Measures.

## TTIP

Even though the negotiations between the United States and the EU on a Transatlantic Trade and Investment Partnership Agreement (TTIP) have been halted, it is interesting to look at the negotiation texts regarding digital trade. A key cross-cutting trade issue of the TTIP, similarly to TPP, next to comprehensive and robust market liberalisation,<sup>149</sup> has been the quest for regulatory convergence that promotes more seamless and efficient trade among the partners and ensures competitiveness and business facilitation.<sup>150</sup> The TTIP negotiators have repeatedly underscored this goal and have sought to reduce the differences in regulations and standards by promoting greater compatibility, transparency and cooperation, while maintaining high levels of health, safety and environmental protection.

Yet, there are many areas of contestation, some of them affect digital trade.<sup>151</sup> Traditionally, ever since the days of the France-led 'exception culturelle' campaign, a major battlefield between the US and the EU have been audiovisual services. These (including online media services) are presently excluded from the negotiating mandate of the European Commission, as a result of the sizeable pressure of France and the European Parliament. As maintained by the Parliament, this exclusion is necessary to safeguard the 'cultural exception' and protect the cultural and linguistic diversity of the EU countries.<sup>152</sup>

Despite this carve-out, one can anticipate that data protection will likely be the most contentious question, with possible spillover effects to other issue areas. Here, the approaches of the US and EU towards the protection of privacy are at this stage hardly reconcilable. The new EU General Data Protection Regulation, which will be enforced as of May 2018, subscribes to a particularly high standard of privacy protection, as embedded in the Charter of Fundamental Rights of the EU. It seeks to endorse this not only within the borders of the Union but also for cross-border data transfers containing personal data.<sup>153</sup> The leaked TTIP text exposes yet again the divergence between the US and the EU on data protection.<sup>154</sup> There is no agreement on data flows between the negotiating parties, despite signals of US willingness to tolerate the exclusion of audiovisual media services from the scope of the trade deal. Overall, the leaked TTIP revealed no substantial progress on digital issues.<sup>155</sup> E-labelling (setting standards for providing product information to consumers in electronic format that replace labels) and e-accessibility (facilitating ICT use for people with disabilities) seem to be the low hanging fruit but these are issues of very little impact to practical reality of digital trade.

It should also be mentioned that the EU proposal aimed at including horizontal provisions on the right to regulate pursuant to which each party retains the right to adopt, maintain and enforce the measures necessary to pursue legitimate policy objectives, consistent however with the core TTIP disciplines. In addition, the EU proposed a general exceptions clause, very much in the sense of Article XIV GATS.<sup>156</sup>

<sup>149</sup> For an overview of the EU services offers under TTIP and their comparison with TiSA, see Christopher Hartwell et al., *Comparison of the EU Service Offers for the TTIP and TiSA Negotiations*, Study for the European Parliament's Committee on International Trade, Brussels, 2015.

<sup>150</sup> See e.g. Jonathan B. Wiener and Alberto Alemanno, 'The Future of International Regulatory Cooperation: TTIP as a Learning Process toward a Global Policy Laboratory', *Law and Contemporary Problems* 78 (2015), 103–136.

<sup>151</sup> See e.g. Andrea Renda and Christopher Yoo, 'Telecommunications and Internet Services: The Digital Side of the TTIP', *CEPS Special Report* No 112, July 2015

<sup>152</sup> European Parliament, Resolution on EU Trade and Investment Negotiations with the United States of America (2013/2558(RSP)), paras 11–12.

<sup>153</sup> See e.g. Burri and Schär (2016).

<sup>154</sup> Greenpeace Netherlands, TTIP Leaks, May 2016, available at: <https://trade-leaks.org/ttip/> (last accessed 18 August 2017).

<sup>155</sup> The leaked Tactical State of Play document states that, '[d]iscussions on e-commerce covered all proposals except for the provisions on data flows and computing facilities'. See 'Note-Tactical State of Play of the TTIP Negotiations, id.

<sup>156</sup> See European Commission, EU Proposal for Services, Investment and E-commerce, 31 July 2015.

## *EU–Japan FTA*

The EU and Japan are currently negotiating in parallel a strategic partnership as well as a trade agreement.<sup>157</sup> The EU aims at removing substantial barriers to trade and at shaping global trade rules through the alliance with one of the most advanced industrialised economies in the world. From the perspective of specific digital trade rule creation, the trade deal is interesting because Japan has always been very proactive on digital issues, has supported the endorsement of far-reaching digital rules under the TPP and sought their diffusion in other venues.

On 6 July 2017, the EU and Japan reached an agreement in principle on the main elements of the EU–Japan Economic Partnership Agreement. Parts of the draft treaty text have been made available by the European Commission, including the relevant e-commerce provisions, which form part of the Title on *Trade in Services, Investment and E-commerce*.

The rules on electronic commerce are fairly comprehensive and clustered in a dedicated chapter.<sup>158</sup> There are some general norms, whereby, for instance, the parties recognise the principle of technological neutrality in electronic commerce,<sup>159</sup> as well as clearly commit to not imposing customs duties on electronic transmissions.<sup>160</sup> Similarly to under the TPP; the EU and Japan ban the requirements on the transfer of, or access to, source code of software.<sup>161</sup> The rules on electronic contracts, electronic signatures, as well as on consumer protection and spam, are better developed than in previous EU trade deals.<sup>162</sup> Finally, we have the very interesting Article 12 of the agreement, which under the title ‘Free Flow of Data’ says that: ‘The Parties shall reassess the need for inclusion of an article on the free flow of data within three years of the entry into force of this Agreement’. This is novel and signals that the topic of free data flows has been intensely discussed between the two partners.<sup>163</sup> It shows also more generally that the discourse on data flows is evolving and that we are bound to see more deliberate action and commitments in future trade agreements.

<sup>157</sup> <http://ec.europa.eu/trade/policy/in-focus/eu-japan-economic-partnership-agreement/> (last accessed 18 August 2017).

<sup>158</sup> Chapter VI EU–Japan FTA (draft text).

<sup>159</sup> Article 1(3), Chapter VI EU–Japan FTA (draft text).

<sup>160</sup> Article 3, Chapter VI EU–Japan FTA (draft text).

<sup>161</sup> Article 4, Chapter VI EU–Japan FTA (draft text).

<sup>162</sup> Articles 7, 8, 9, 10, Chapter VI EU–Japan FTA (draft text).

<sup>163</sup> Inside US Trade, ‘Japan Urges EU to Develop Data Flow Provisions Despite Political Agreement on FTA’, 7 July 2017, available at: <https://insidetrade.com/daily-news/japan-urges-eu-develop-data-flow-provisions-despite-political-agreement-fta> (last accessed 18 August 2017).

## 5.2 Conclusions and Outlook

The current phase of digital trade policy evolution that the EU finds itself in can be described as particularly challenging, both in terms of disruptive technological changes and in terms of institutional and political economy complexity. On the one hand, it is clear that digitisation and the Internet as a general purpose technology, as a platform for other technological advances, open unprecedented opportunities for growth and innovation. On the other hand, states as sovereign actors must cater for some of the risks that the digital transformation may bring about for its citizens and its society as a whole. Certain interests need thus to be counterbalanced – we stressed in particular the need to pay specific attention to data and data flows as an essential foundation of the new economy and one with far-reaching disruptive effects on existing policies.

To be sure, the EU must not only be a part of the digital (r)evolution but must be at its forefront, shaping it and reaping its beneficial economic and broader social welfare gains for its people and businesses. While the EU has elaborated a fully-fledged digital economy strategy for its internal affairs and launched an ambitious reform of its single market legislation and policies to make them digitally 'fit', the external trade dimension of the EU digital strategy has been only vaguely formulated. It has not been proactive but rather defensive. The EU has reacted in particular in trade domains, where it seeks to protect its policy space – in the fields of audiovisual services and data protection. Such a defensive stance may be however not well placed. First, because it is not in coherence with the EU's bold Digital Single Market Strategy and its overall ambition to lead and master the transformative processes of the Fourth industrial evolution. Second, because such a position may not reflect the demands for legal certainty, for clarity and transparency of the global data economy. The EU will need to grapple at some point with the challenge of interfacing cross-border data flows and the protection of privacy. While the protection of personal data is an intrinsic EU value and fundamental right of its citizens, the safeguards and their implementation vis-à-vis cross-border data flows may need to change in a dynamic data-driven (and potentially later on, Big Data-dependent) world.<sup>164</sup>

The EU will need to pursue a multi-channel digital trade agenda and advance its objectives in many fora, but in a coherent manner. Trade negotiations, like the ones on TTIP, TiSA or the FTA with Japan, provide venues for shaping the discourse and calibrating policy solutions. The multilateral forum of the WTO should not be dismissed either. First, because its value and potential as an institutionalised forum for global trade regulation with almost universal membership and working dispute settlement mechanism are still great. Second, because we do see recent efforts under the WTO that immediately relate to digital trade and extend the discourse on the free flow of data.<sup>165</sup>

Timing can be important too. It is crucial that the EU policy-makers do not simply wait up but forcefully address the digital economy issues in EU's external policy agenda and they do this soon. Otherwise, existing templates and rules in FTAs may increasingly come to reflect the US model – we should not forget that it is in the nature of rules that apply for Internet matters that their effects can rarely be stopped at the border and very often have extraterritorial and ultimately global implications. We do for instance see the TPP template already diffusing, as the recent amendment of the Singapore–Australia

<sup>164</sup> See e.g. Peter Chase et al., *Transatlantic Digital Economy and Data Protection: State-of-Play and Future Implications for the EU's External Policies*, Study for the European Parliament's Committee on Foreign Affairs, 2016.

<sup>165</sup> See e.g. WTO Work Programme on E-Commerce, Non-paper from the United States, WTO Doc JOB/GC/94 (2016); WTO Work Programme on E-Commerce, Non-paper from Brazil, WTO Doc JOB/GC/98 (2016); WTO Work Programme on E-Commerce, Communication from Canada, Chile, Colombia, Côte d'Ivoire, the European Union, the Republic of Korea, Mexico, Paraguay and Singapore, Trade Policy, the WTO and the Digital Economy, WTO Doc JOB/GC/97/Rev.1 (2016).

FTA,<sup>166</sup> which imitates the TPP Electronic Commerce Chapter, signals. Even the United States, which with the Trump administration left the TPP, has been endorsing some of its electronic commerce provisions in NAFTA and other negotiations.

Finally and on a positive note, the EU must proactively react, because it can shape global digital governance in a way that reflects the fundamental EU values of equity, fairness and protection of individual rights. The EU is in a unique position to do so – with its potent and growing economy, as the world's largest exporter of services, with its enormous regulatory capacities and apt, future-oriented governance approaches.

As we suggest in the last section of this study, there are various steps that can be taken to attain the objective of a regulatory environment that enables a prosperous digital economy, which at the same time reflects EU's interests and values. Some of these steps are more general in nature, others demand concrete action, some are arguably also more difficult and politically contentious and may demand intensive stakeholders' dialogue and some measure of regulatory innovation.

<sup>166</sup> See Agreement to Amend the Singapore–Australia Free Trade Agreement (signed 13 October 2016), Chapter 14, available at: <http://dfat.gov.au/trade/agreements/safta/official-documents/Pages/default.aspx> (last accessed July 8, 2017).

## 6 Policy Recommendations

### **Recommendation 1: Get data and gain a clear, unbiased understanding of the dynamics of global digital trade. Know better the existing global regulatory framework and the dimensions of digital protectionism.**

The discussions on rapid technological advances, such as the digital economy, as well as on fundamental rights, such as the protection of privacy, are often charged with hype statements and rhetoric. To enable apt decision-making, there must be a clear understanding of the impact of discrete technological developments, as well as of the value of the trade-offs that we face – e.g. free data flows versus data localisation measures. We also need to know better how new digital trade protectionism looks like, how it is spread across states and importantly, what its effects on the economy actually are.

There is an associated recommendation here that relates to a finer-grained understanding of the existing global regulatory framework. On the one hand, this relates to knowing all the rules and how they interact. As some of the rules, such as those under the WTO are 'older', there is a possibility to know whether and how they have impacted on the practical conditions for engaging in digital trade and for digital innovation. On the other hand, it will be important to know what sorts of rules other states are adopting in the domain of the digital economy. This increased transparency can enable learning and communication among different stakeholders. One concrete idea here will be to use the Trade Policy Review Mechanism under the WTO and demand data on digital trade barriers (these should be defined broadly and concentrate not only on data flows but on all kinds of impediments that may relate to goods and services, to infrastructure, hardware, protocols, applications and content).

For the European Parliament, as an active decision-maker but also an actor with certain democratic functions within the EU architecture, it will be critical to ensure that its constituencies understand the underlying issues and can express their positions on them. Raising awareness as to the pertinent issues may also be critical for building trust in the digital economy.

### **Recommendation 2: Aim for legal certainty in digital trade rules**

This recommendation is two-prong. It relates first and in connection to Recommendation 1 to an improved monitoring of the implementation of EU's own digital economy-related legislation and its impact. This covers both the internal and external dimensions of EU's legal initiatives. It is an essential step in knowing their discrete as well as their overall effects on institutions, businesses and individuals and a prerequisite to ultimately securing the coherence of EU digital law and policy (see Recommendation 4). An important example in point here is the implementation of the Digital Single Market Strategy, in particular the impact of the General Data Protection Regulation that will be enforced as of May 2018 and the EU-US Privacy Shield as a peculiar way of solving the transatlantic data traffic issues. For legal certainty, it will be particularly important to monitor the implementation at the Member States' level too, so as to avoid diverging, more complicated and less transparent rules.

The second part of this recommendation relates more directly to trade policies. Legal certainty for digital business, as well as for users, should be seen as an important basis for flourishing digital trade. This certainty can be provided by a more clearly defined and communicated stance of the European Union in trade negotiations and a subscription to a light, less burdensome, regulatory approach that seeks to enable digital trade (see Recommendation 3).

### **Recommendation 3: Formulate and implement proactive digital strategy for EU's external trade relations**

The EU has been bold and proactive in its digital policies at home but less so in international trade venues. This should change. The EU should develop a strategy that is not only defensive as to certain sensitive services sectors, such as the audiovisual, but in effect seeks to provide enabling conditions for the data-driven digital economy also in its external trade policies. Due to the fragmented landscape of contemporary trade governance, the EU should pursue a multi-channel digital trade agenda and advance its objectives in many fora, including the World Trade Organization. Recent and ongoing trade negotiations, like the ones on TTIP, TiSA or the FTA with Japan, can provide venues for shaping the discourse and calibrating policy solutions.

Due to the inherent political sensitivities in particular in the area of privacy and the protection of personal data, the EU may very well sequence the implementation of its digital trade strategy. The EU has already gathered substantial experience in providing a level-playing field in the telecommunications and computer and related services sectors, in the domain of intellectual property rights protection and in IT standards – these efforts should continue in other trade contexts.

In addition, a clear EU stance and corresponding concrete action can be in the short term formulated for a permanent moratorium on tariffs for electronic transmissions, on mandatory source code disclosure and encryption keys. Language on censorship and filtering, on net neutrality and intermediaries' liability, can also be included in the ongoing negotiations as well as in new trade deals.

Language on the free flow of data should be included only with an accompanying package of safeguards – be it through an explicit exception clause, through an additional 'safe harbour' agreement or in some other way that affirms and guarantees the right to privacy as a fundamental right in the EU. The EU should draw a clear line between digital protection and digital protectionism and set a model in this regard. An express ban on data localisation measures will be an important signal in this context.

### **Recommendation 4: Develop a strategy for Europe's digital economy that is coherent in its internal and external dimensions**

Digitisation affects and changes many economic sectors, the economy and society as a whole. This study showed well that both digitally native and non-digital industries have been affected, both have become strongly dependent on data and need it to be innovative. Furthermore, it should be kept in mind that it is in the nature of disruptive technologies that they develop in a non-linear way and challenge traditional brick-and-mortar trade policy thinking of goods passing borders, of mercantilist zero-sum trade deals. It is important that this becomes reflected in the new EU digital economy initiatives.

Coherence appears absolutely essential too, as it contributes both to a better, more efficient governance, as well as to legal certainty. The Digital Single Market Strategy should in this sense be matched by a EU Digital Trade Strategy that should be implemented in parallel. Also, in light of the rapid and often radical changes that the data-driven economy brings with it, it may not be sufficient to think up to 2020 and visions should be extended beyond this current horizon.

The EU should mobilise its legal entrepreneurship too and try to come up with new innovative design. One could imagine for instance rules with specific regard to Big Data or on algorithms. It will be in any case critical that EU policy-makers anticipate not only the benefits but also the risks of the data-driven economy. Data protection is the topic most commonly mentioned in this regard (and for good reason) but there may be other important issues as well – such as the effects of digitalisation on the European job markets.

**Recommendation 5: Seek and enable fora for apt solution finding and inclusive decision-making**

Trade policy formulation and trade negotiations have traditionally been structured as not transparent processes involving few decision-makers, mostly at the state level. This is already changing but may need to change to an even greater extent under the conditions of the dynamic digital environment. The involvement of many of the stakeholders from the (digital and non-digital) business and user communities, from the privacy activists and trade policy think-tanks, may ultimately contribute to a smoother finding of solutions that are also better suited for the practical reality of global and local digital trade. An example may well be taken from a 'neighbouring' governance domain – that of Internet Governance, where multistakeholderism has worked quite well. In such a way, a contribution to both transparency in decision-making as well as to trust in the system will be ensured.

From a more strategic perspective, it will be also important to mobilise different channels of communication, exchange and dialogue between the EU and the US stakeholders. The reasons for this are multiple – the first that is obvious has to do with the positioning of the EU and the US as key powers and shapers of global rules. Another reason has to do with the apparent need to somehow bridge the currently hardly reconcilable approaches of the EU and the US with regard to data protection.

## Bibliography

Aaronson, Susan (2015): 'Why Trade Agreements Are Not Setting Information Free: The Lost History and Reinvented Debate over Cross-Border Data Flows, Human Rights and National Security', *World Trade Review* 14: 671–700.

Allee, Todd and Lugg, Andrew (2016): 'Who Wrote the Rules for the Trans-Pacific Partnership?', *Research and Politics*, 1–9.

Bayley, Robin M. and Bennett, Colin J. (2016): 'Privacy Protection in the Era of "Big Data": Regulatory Challenges and Social Assessments', in Bart van der Sloot, Dennis Broeders and Erik Schrijvers (eds.), *Exploring the Boundaries of Big Data* (Amsterdam: University of Amsterdam Press), 205–227.

Benkler, Yochai (2000): 'From Consumers to Users', *Federal Communications Law Journal* 52: 561–579.

Benkler, Yochai (2011): 'Growth-oriented Law for the Networked Information Economy: Emphasizing Freedom to Operate Over Power to Appropriate', in Kauffman Taskforce on Law, Innovation and Growth (ed.), *Rules for Growth: Promoting Innovation and Growth through Legal Reform* (Kansas City, MO: Kauffman Foundation, 2011), 313–342.

Brynjolfsson, Erik and McAfee, Andrew (2011): *Race against the Machine: How the Digital Revolution Is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy* (Lexington, MA: Digital Frontier Press).

Bughin, Jacques, Hazan, Eric, Labaye, Eric, Manyika, James, Dahlström, Peter and Ramaswamy, Sree (2016): *Digital Europe: Pushing the Frontier, Capturing the Benefits* (Washington, DC: McKinsey Global Institute).

Burri, Mira (1997): *EC Electronic Communications and Competition Law* (London: Cameron May).

Burri, Mira (2009): 'Trade versus Culture in the Digital Environment: An Old Conflict in Need of a New Definition', *Journal of International Economic Law* 12: 17–62.

Burri, Mira (2015): 'The International Economic Law Framework for Digital Trade', *Zeitschrift für Schweizerisches Recht* 135: 10–72.

Burri, Mira (2015a): 'The EU, the WTO and Cultural Diversity', in Evangelia Psychogiopoulou (ed.), *Cultural Governance and the European Union: Protecting and Promoting Cultural Diversity in Europe* (Basingstoke: Palgrave Macmillan).

Burri, Mira (2015b): *Public Service Broadcasting 3.0: Legal Design for the Digital Present* (Abingdon: Routledge).

Burri, Mira (2017): 'The Regulation of Data Flows in Trade Agreements', *Georgetown Journal of International Law* 48: 408–448.

Burri, Mira and Schär, Rahel (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.

Burri, Mira and Cottier, Thomas (eds.) (2012): *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press).

Castro, Daniel and McQuinn, Alan (2015): *Cross-border Data Flows Enable Growth in All Industries* (Washington, DC: Information Technology and Innovation Foundation).

- Cimino, Cathleen, Hufbauer, Gary C. and Schott, Jeffrey J. (2014): 'A Proposed Code to Discipline Local Content Requirements', *Peterson Institute of International Economics Policy Brief* 4.
- Chander, Anupam (2012): 'Facebookistan', *North Carolina Law Review* 90: 1807–1842.
- Chander, Anupam (2014): 'How Law Made Silicon Valley', *Emory Law Journal* 63: 639–694.
- Chander, Anupam (2016): 'National Data Governance in a Global Economy', *UC Davis Legal Studies Research Paper* 495.
- Chander, Anupam and Lê, Uyên P. (2015): 'Data Nationalism', *Emory Law Journal* 64: 677–739.
- Chase, Peter, David-Wilp, Sudha and Ridout, Time (2016): *Transatlantic Digital Economy and Data Protection: State-of-Play and Future Implications for the EU's External Policies*, Study for the European Parliament's Committee on Foreign Affairs, 2016.
- Chesbrough, Henry and Van Alstyne, Marshall (2015): 'Permissionless Innovation', *Communications of the ACM* 58: 24–26.
- Chui, Michael and Manyika, James (2015): 'Competition at the Digital Edge: "Hyperscale" Businesses', *McKinsey Quarterly*.
- Copenhagen Economics (2010): *Expanding the Information Technology Agreement (ITA): Economic and Trade Impacts*, Final Report for the European Commission.
- Dittmar, Jeremiah E. (2011): 'Information Technology and Economic Change: The Impact of the Printing Press', *The Quarterly Journal of Economics* 126: 1133–1172.
- Drake, William J. (2016): Background Paper for the workshop on Data Localization and Barriers to Transborder Data Flows, 14–15 September 2016, Geneva, World Economic Forum.
- Drexler, Josef, Grosse Ruse-Khan, Henning and Nadde-Phlix, Souheir (eds.) (2014): *EU Bilateral Trade Agreements and Intellectual Property: For Better or Worse?* (Berlin: Springer).
- Ezrachi, Ariel and Stucke, Maurice E. (2016): *Virtual Competition: The Promise and Perils of the Algorithm-driven Economy* (Cambridge, MA: Harvard University Press).
- European Commission (2015): *Trade for All – Toward a More Responsible Trade and Investment Policy*.
- European Commission (2015a): A Digital Single Market Strategy for Europe, COM(2015) 192 final, 6 May 2015.
- European Commission (2016): Report of the 21st TiSA Negotiation Round, 17 November 2016.
- European Commission (2017): Building a European Data Economy, COM(2017) 9 final, 10 January 2017.
- European Parliament (2013): Resolution on EU Trade and Investment Negotiations with the United States of America (2013/2558(RSP)).
- Fefer, Rachel, Shayerah Ilias Akhtar, and Wayne M. Morrison (2017): *Digital Trade and US Trade Policy*, Congressional Research Service, CRS Report R44565.
- Flew, Terry (2014): *New Media: An Introduction*, 2nd edn. /Oxford: Oxford University Press).
- Floridi, Luciano (2014): *The Fourth Revolution: How the Infosphere Is Reshaping Human Reality* (Oxford: Oxford University Press).
- Gasser, Urs (2015): 'Perspectives on the Future of Digital Privacy', *Zeitschrift für Schweizerisches Recht* 135: 335–448.

Gasser, Urs (2016): 'Recoding Privacy Law: Reflections on the Future Relationship Among Law, Technology, and Privacy', *Harvard Law Review* 130: 61–70.

Gasser, Urs and Palfrey, John (2012): 'Fostering Innovation and Trade in the Global Information Society: The Different Facets and Roles of Interoperability', in Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press), 123–153.

Gao, Henry (2012): 'Googling for the Trade–Human Rights Nexus in China: Can the WTO Help?', in Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press), 247–275.

Grimmelmann, James (2016): *Internet Law* (Oregon City, OR: Semaphore Press).

Grosse Ruse-Khan, Henning (2009): 'Access to Knowledge under the International Copyright Regime, the WIPO Development Agenda and the European Communities' New External Trade and IP Policy' in Estelle Derclaye (ed.), *Research Handbook on the Future of EU Copyright* (Edward Elgar: Cheltenham), 574–612.

Harnad, Stevan (1991): 'Post-Gutenberg Galaxy: The Fourth Revolution in the Means of Production and Knowledge', *Public-Access Computer Systems Review* 2: 39–53.

Hartwell, Christopher, Teresinski, Jan, Radzikowski, Bartosz and Beaumont, Karolina (2015): *Comparison of the EU Service Offers for the TTIP and TiSA Negotiations*, Study for the European Parliament's Committee on International Trade.

Henke, Nicolaus, Bughin, Jacques, Chui, Michael, Manyika, James, Saleh, Tamim, Wiseman, Bill and Sethupathy, Guru (2016): *The Age of Analytics: Competing in a Data-Driven World* (Washington, DC: McKinsey Global Institute).

Hestermeyer, Holger P. and Nielsen, Laura (2014): 'The Legality of Local Content Measures under WTO Law', *Journal of World Trade* 48: 553–592.

Horn, Henrik, Mavroidis, Petros C. and Sapir, André (2009): *Beyond the WTO? An Anatomy of EU and US Preferential Trade Agreements* (Brussels: Bruegel Print).

Human Rights Council (2011): Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, Frank La Rue, A/HRC/17/27, 16 May 2011.

Jovanovic, Boyan and Rousseau, Peter L. (2005): 'General Purpose Technologies', in Philippe, Aghion and Steven N. Durlauf (eds.), *Handbook of Economic Growth* (Amsterdam: Elsevier), 1182–1224.

Kauffman Taskforce on Law, Innovation and Growth (ed.) (2011): *Rules for Growth: Promoting Innovation and Growth through Legal Reform* (Kansas City, MO: Kauffman Foundation).

Kuner, Christopher (2011): 'Regulation of Transborder Data Flows under Data Protection and Privacy Law: Past, Present and Future', *OECD Digital Economy Paper* 187.

Kommerskollegium (2012): *Everybody Is in Services: The Impact of Servicification in Manufacturing on Trade and Trade Policy* (Stockholm: National Board of Trade).

Kommerskollegium (2015): *No Transfer, No Production: Report on Cross-border Data Transfers, Global Value Chains, and the Production of Goods* (Stockholm Swedish Board of Trade).

Kommerskollegium (2016): *Trade Regulation in a 3D Printed World* (Stockholm: Swedish National Board of Trade).

Lanz Rainer and Maurer, Andreas (2015): 'Services and Global Value Chains – Some Evidence on Servicification of Manufacturing and Services Networks', *WTO Working Paper ERSD* 3.

Manyika, James, Chui, Michael, Brown, Brad, Bughin, Jacques, Dobbs, Richard, Roxburgh, Charles and Byers Hung, Angela (2011): *Big Data: The Next Frontier for Innovation, Competition, and Productivity* (Washington, DC: McKinsey Global Institute).

Manyika, James, Lund, Susan, Bughin, Jacques, Woetzel, Jonathan, Stamenov, Kalin and Dhingra, Dhruv (2016): *Digital Globalization: The New Era of Global Flows* (Washington D.C.: McKinsey Global Institute).

Manyika, James, Chui, Michael, Bughin, Jacques, Dobbs, Richard, Bisson, Peter and Marrs, Alex (2013): *Disruptive Technologies: Advances that Will Transform Life, Business, and the Global Economy* (Washington, DC: McKinsey Global Institute).

Marchetti, Juan A. and Roy, Martin (2013): 'The TiSA Initiative: An Overview of Market Access Issues', *WTO Staff Working Paper ERSD-2013-11*.

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

Meltzer, Joshua P. (2016): 'Maximizing the Opportunities of the Internet for International Trade', *E15 Expert Group on the Digital Economy – Policy Options Paper*.

OECD (2015): *Emerging Policy Issues: Localisation Barriers to Trade*, TAD/TC/WP(2014)17/FINAL.

OECD, WTO and World Bank Group (2014): *Global Value Chains: Challenges, Opportunities, and Implications for Policy*, Report prepared for submission to the G20 Trade Ministers Meeting Sydney, 19 July 2014.

Renda, Andrea and Yoo, Christopher (2015): 'Telecommunications and Internet Services: The Digital Side of the TTIP', *CEPS Special Report No 112*.

Schumpeter, Joseph A. (1950): *Capitalism, Socialism, and Democracy*, 3rd edn. (New York: Harper).

Schwab, Klaus (2017): *The Fourth Industrial Revolution* (New York: Portfolio).

Schwartz, Paul M. (2013): 'The EU-US Privacy Collision: A Turn to Institutions and Procedures', *Harvard Law Review* 126: 1966–2009.

Schwartz, Paul M. and Solove, Daniel J. (2014): 'Reconciling Personal Information in the United States and European Union', *California Law Review* 102: 877–916.

Shapiro, Carl and Varian, Hal R. (1999): *Information Rules* (Boston, MA: Harvard Business School Press).

Solove, Daniel J. (2006): 'A Taxonomy of Privacy', *University of Pennsylvania Law Review* 154: 477–560.

Tuthill, Lee and Roy, Martin (2012): 'GATS Classification Issues for Information and Communication Technology Services', in Mira Burri and Thomas Cottier (eds.), *Trade Governance in the Digital Age* (Cambridge: Cambridge University Press), 157–178.

United States International Trade Commission (USITC) (2013): *Digital Trade in the US and Global Economies*, Part 1, Investigation No 332–531 (Washington, DC: USITC).

United States International Trade Commission (USITC) (2014): *Digital Trade in the US and Global Economies*, Part 2, Investigation No 332–540 (Washington, DC: USITC).

United States President's Advisory Council on Science and Technology (2014): *Big Data and Privacy: A Technological Perspective* (Washington, DC: Executive Office of the President).

European Union Agency for Network and Information Security (ENISA) (2014): *Privacy and Data Protection by Design – from Policy to Engineering*, Brussels.

van Oranje-Nassau, Constantijn, Cave, Jonathan, van der Mandele, Martin, Schindler, Helen Rebecca, Yeon Hong, Seo, Iliev, Ilian and Vogelsang, Ingo (2008): *Responding to Convergence*, Report Prepared for the Dutch Independent Telecommunications and Post Regulator (Oxford: RAND Corporation).

Warschauer, Mark and Matuchniak, Tina (2010): 'New Technology and Digital Worlds: Analyzing Evidence of Equity in Access, Use, and Outcomes', *Review of Research in Education* 34: 179–225.

Weber, Rolf H. and Burri, Mira, *Classification of Services in the Digital Economy* (Bern: Stämpfli, 2012).

Werbach, Kevin (2002): 'A Layered Model for Internet Policy', *Journal of Telecommunications and High Technology Law* 1: 37–67.

Whitt, Richard S. (2013): 'A Deference to Protocol: Fashioning a Three-dimensional Public Policy Framework for the Internet Age', *Cardozo Arts and Entertainment Law Journal* 31: 689–768.

Whitt, Richard S. and Schultze, Stephen (2009): 'The New "Emergence Economics" of Innovation and Growth, and What It Means for Communications Policy', *Journal of Telecommunication and High Technology Law* 7: 217–315.

Wiener, Jonathan B. and Alemanno, Alberto (2015): 'The Future of International Regulatory Cooperation: TTIP as a Learning Process toward a Global Policy Laboratory', *Law and Contemporary Problems* 78: 103–136.

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

WTO (1997): European Communities and their Member States, Schedule of Specific Commitments, Trade in Services, GATS/SC/31/Suppl. 3.

WTO (2003): Work Programme on Electronic Commerce, Submission by the European Communities WT/GC/W/497.

WTO (2006): Communication from the European Communities and its Member States, Draft consolidated GATS Schedule, S/C/W/273.

WTO (2010): Council for Trade in Services, Audiovisual Services, Background note by the Secretariat, S/C/W/310.

WTO (2011): Communication from the European Union and the United States: Contribution to the Work Programme on Electronic Commerce, S/C/W/338.

WTO (2012): *15 Years of the Information Technology Agreement: Trade, Innovation and Global Production Networks*, Geneva: World Trade Organization.

Wu, Tim (1999): 'Application-Centered Internet Analysis', *Virginia Law Review* 85: 1163–1204.

Wunsch-Vincent, Sacha (2003): 'The Digital Trade Agenda of the US: Parallel Tracks of Bilateral, Regional and Multilateral Liberalization', *Aussenwirtschaft* 1: 7–46.

Wunsch-Vincent, Sacha and Hold, Arno (2012): '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), 179–221.

Yu, Peter K. (2014): 'Trade Agreement Cats and Digital Technology Mouse', in Brian Mercurio and Ni Kuei-Jung (eds.), *Science and Technology in International Economic Law: Balancing Competing Interests* (Abington: Routledge), 185–211.

Zittrain, Jonathan L. (2008): *The Future of the Internet – and How to Stop It* (New Haven: Yale University Press, 2008).

Zittrain, Jonathan L., Faris, Robert, Noman, Helmi, Clark, Justin, Tilton, Casey and Morrison-Westphal, Ryan (2017): 'The Shifting Landscape of Global Internet Censorship', *Berkman Klein Center Research Publication* 4.

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