Centre for International
Governance Innovation

Policy Brief No. 152 — July 2019

World Trade Organization 2.0: Reforming Multilateral Trade Rules for the Digital Age

Dan Ciuriak

Key Points

- The rules-based framework, as instantiated in rules established under the World Trade Organization (WTO), is not equipped to address the issues that are emerging under the technological conditions generated by the digital transformation.
- The emerging knowledge-based and data-driven economy features incentives for strategic trade and investment policy and a confluence of factors contributing to market failure at a global scale; digital social media and platform business models have raised concerns with calls for regulation of cross-border data flows; and newfound security issues raised by the vulnerabilities in the infrastructure of the digitized economy have precipitated a potential decoupling of global production networks along geopolitical fault lines.
- To date, the response has been fragmented, incomplete and, in large part, conducted outside the WTO. A new WTO digital round is required to create a multilateral framework that is fit for purpose for the digital age.

Introduction

International institutions are creatures of their age. They reflect the power structures that exist at their creation and are designed to mediate the frictions that contemporary economic and political frameworks generate.[1] By the same token, their useful half-life can be remarkably short because times change. This is especially the case in an era of rapid technological change that drives transformation of national economic interests and business models and tectonic shifts in international power balances.

The WTO 1.0 was created for an industrial age in which the underlying economics was generating explosive cross-border fragmentation of production through the progressive unbundling of production of goods and services (Baldwin 2016) and in which the global hegemon, the United States, was transforming into a knowledge-based economy with new-found interests in raising the level of protection

1 With regard to the role of power in shaping international institutions, Andrew Bacevich (2002) and John Ikenberry (2005) discuss the institutional implications of America's unipolar moment. Robert Keohane (2015) meanwhile comments on the role of a rising European Union in shaping international institutions that the United States does not support — in particular, the International Criminal Court and the convention on the ban on land mines. For a longer-term perspective, see Kyle Lascurettes (2017) for a comparison of the nineteenth-century Concert of Europe and the postwar era US-led framework and the contrast between these two and the inter-war League of Nations. The Council on Foreign Relations (2008) comments that "the architecture of global governance — largely reflecting the world as it existed in 1945 — has not kept pace with fundamental changes in the international system, including but not limited to globalization." A similar narrative concerning the failure of the multilateral system to cope with the changes in the international economic environment is developed in a volume edited by Meredith Crowley (2019).

About the Author

Senior Fellow Dan Ciuriak joined CIGI's Global Economy Program in April 2016, focusing on the innovation and trade research theme. At CIGI, Dan is exploring the interface between Canada's domestic innovation and international trade and investment, including the development of better metrics to assess the impact of Canada's trade agreements on innovation outcomes. Based in Ottawa, Dan is the director and principal of Ciuriak Consulting, Inc.

He is also a fellow in residence with the C.D. Howe Institute and an associate with BKP Development Research and Consulting GmbH of Munich, Germany. Previously, he was deputy chief economist at Canada's Department of Foreign Affairs and International Trade (DFAIT) (now Global Affairs Canada), with responsibility for economic analysis in support of trade negotiations and trade litigation, and he served as contributing editor of DFAIT's Trade Policy Research series (2001–2007 and 2010 editions). He also served in several other positions at DFAIT, including as deputy to the chair of the Asia-Pacific Economic Cooperation Economic Committee and as finance counsellor at Canada's Embassy in Germany.

of intellectual property (IP) internationally to capture rents (Ciuriak 2017a)

Given the nature of the economy for which it was designed, the WTO agreement — as well as its further refinement in the Trans-Pacific Partnership (TPP)[2] — made perfect sense both in terms of structure and legal articulation. Most trade is conducted by large multinational firms. The WTO/TPP model provides the multinational firm unfettered access to global markets and the freedom to optimize seamlessly across modes: cross-border sales, commercial presence, licensing or joint venture. In this sense, the firm's expanded "freedom to operate" allows it to extract benefits from optimization across different modes to the extent that these modes are not perfect substitutes (Ciuriak 2017b). This is the under-appreciated and non-quantified economic benefit of this regime.

The world for which the WTO was created has moved on. We are now in the early years of the data-driven economy, already well into the disruption of consumer services by internet-based business models, on the cusp of the shift of innovation into machine-learning space and shortly to see the unfolding of the Internet of Things (IoT) on a grand scale with the advent of 5G telecommunications networks. Moreover, with the rise of China, the conditions of international economic competition and geostrategic rivalry have changed decisively.[3]

The WTO in its current form was not designed to mediate the tensions erupting in this emerging economy (Bown 2019). In this sense, it is no longer "fit for purpose" (Schneider-Petsinger 2019). The question becomes the following: looking beyond the immediate crisis (that is, the challenge of establishing a modus vivendi that accommodates China's rise), can a new WTO 2.0 be constructed that preserves the

2 For a comprehensive review of the role of agreements, such as the TPP in advancing a WTO – plus/extra model of regulation suited for the conditions of the twenty-first century industrial/knowledge-based economy, see Benedict Kingsbury et al. (2019).

3 On the economics of the emerging data-driven economy, see Dan Ciuriak (2018). On the implications for market concentration through the rise of "superstar" firms, see David Autor et al. (2017) and Ram Shivakumar (2017). See Michael Porter and James Heppelman (2014) for a discussion of the transformative nature of the IoT against the background of previous major shifts in competitive conditions brought about by the deployment of information technology and the exploitation of informational advantage. For the implications of the emerging technologies and the rise of China for national security and the geo-economic order, see, for example, J. Benton Heath (2019), Ciuriak (2019a) and Chad Bown (2019).

utility of the institution for mediating the trade tensions of the industrial era for which it was designed, while also tackling the emerging trade tensions of the data-driven economy?[4] And what would such a WTO 2.0 look like?

The Substantive Issues of WTO 2.0

WTO 2.0 will be defined by rules developed to channel technological rivalry in the digital era into benign and constructive modes. Various reform efforts and discussions are already underway that are relevant to a reformed WTO for the digital age:

- Plurilateral negotiations have been started on an e-commerce regime with a number of parties tabling proposals and/or non-papers (WTO 2019a; Bridges 2018).
- The WTO is studying the moratorium of customs duties on electronic transmission, motivated in good measure by WTO members concerned about the distribution of the benefits of the digital economy (WTO 2019b).
- Discussions of WTO dispute settlement are underway to address the US blockage of Appellate Body appointments, which, in part, is a tactic in the flaring strategic rivalry between the United States and China (Bown 2019).
- Discussions have been held by some parties about China's industrial policy model (Baschuk and Donnan 2019); these are largely motivated by the technological rivalry engendered in the data-driven economy (Ciuriak 2019b).
- The implications of data governance for IP rights are being actively discussed (Centre for International Governance Innovation [CIGI] 2019)[5]; the WTO has recognized that "The wide adoption of digital technologies is…redefining intellectual property rights in trade" (WTO 2018).
- The competition policy issues raised by the data-driven economy (including regulation of digital platforms to address abuse of dominance and the welfare and competition implications of the use of big data to manipulate consumer choice through techniques such as framing, nudges and defaults) are being actively discussed by competition authorities and the epistemic community in this area worldwide.[6]
- A plethora of data-related regulatory issues have been broached that impact global commerce, including data governance in general, privacy, misinformation and fake news, national security, the application of regulations to the gig economy and others. Canada's new Digital Charter touches on many of these (Innovation, Science and Economic Development Canada 2019); however, these issues are also being raised in many other fora.[7]
- Widespread concerns have, for some time, been raised about the fracturing of the global economy into walled-off and possibly warring data realms (Ciuriak and Ptashkina 2018a; Aaronson and LeBlond 2018; McDonald and Mina 2018; O'Hara and Hall 2018). This appears to be happening (Lake 2019).

There is a sufficient mass of substantive issues on the table to warrant consolidation into a full-fledged negotiation round with the potential to facilitate agreement through trade-offs across issue areas.

4 Stop-gap solutions are being developed to sustain the WTO's ability to continue functioning. The European Union, for example, is working on a proposal for a "shadow" system to get around the US blockage of appointments to the Appellate Body (Nienaber and Miles 2019).

5 For example, a workshop hosted by the Canadian Intellectual Property Office and CIGI focused on the nexus between artificial intelligence (AI), Big Data and IP rights; for a discussion of the trade and economic policy implications at the workshop, see Ciuriak (2019c).

6 See Dominic Thérien, Stéphanie St-Jean and Bianca Annie Marcelin (2019) for a report on the Canadian Competition Bureau's Data Forum: Discussing Competition Policy in the Digital Era. Anthony Durocher (2019) provides an overview of the competition policy issues that are raised in the data-driven economy and being addressed actively at the national level. Robert D. Anderson et al. (2018) survey these issues at the international level against the background of a moribund WTO competition program. See the Stigler Center's series of conferences on competition and anti-trust in the digital age; in particular the white paper on the economy and market structure from the 2019 conference (Morton et al. 2019) and references therein.

7 See for example the range of issues addressed by the International Grand Committee on Big Data, Privacy and Democracy (Hirsh 2019).

Governance of Data Flows — Trade-related Aspects of Data Exchange

Several threads of current work could be brought together to forge a new agreement that could be named the "agreement on trade-related aspects of data exchange."[8] This would subsume the negotiations on electronic commerce and the moratorium on tariffs on digital products, and generalize the treatment of data to establish rules that recognize and reconcile the different roles of data and address the need for neutrality of taxation of digital and non-digital products.

Developing a framework for negotiations would arguably start with a distinction between tangible digital products that are traded with a normal commercial paper trail of invoices and receipts, the electronic transmissions that serve as the means of conveying such goods and services across borders (which can be understood to be an integral part of the tangible digital product itself) and the commercially valuable ancillary information embodied in the data generated by commercial transactions, including those that involve an implicit barter exchange of "free" services for the use of the information that is provided by the digital engagement of individuals for commercial exploitation ("Mode 5" digital trade in Ciuriak and Ptashkina 2018b); alternatively, trade in a zero-price market.[9]

This focus on data — and especially on its value — appears to be largely missing from the current WTO negotiations on electronic commerce. Addressing trade in a zero-price good (or service) — with all the consequential issues that this type of commercial activity raises — would be novel for the WTO. Developing an appropriate framework for addressing this type of trade would seem to constitute square one as the point of departure for WTO 2.0.

Clearly, data, in its role as the medium of delivery of commercial services, must be able to flow unimpeded across borders, consistent with the WTO's General Agreement on Trade Services (GATS) commitments on technological neutrality of services delivery — that is, the transition to digital forms of service delivery does not modify the GATS commitments. However, this freedom cannot be read to entail commitments on the asset value of data generated by nations: some 90 percent of the market capitalization of firms in the Standard and Poor's 500 Index is now comprised by intangible assets, much of which can be attributed to the value of data. The sharing of the ancillary value of data flows across borders would seem to require a negotiation that recognizes this value — and all that this recognition entails — including enabling developing countries to capture part of the rents as quid pro quo for not throwing up barriers to what they would otherwise perceive as digital "colonization" (Kwet 2019).

The economics of the data-driven economy ensure that this negotiation will be far from easy. For example, the data-driven economy seems to take the impact on an industrial economy of increased market access for foreign firms and stand it on its head. In the industrial economy, increased market access for foreign firms increased competition, lowered prices and expanded consumer surplus, while reducing domestic producer surplus; in the data-driven economy, by contrast, increased market access tends to eliminate competition and enables first degree price discrimination, which reduces consumer surplus, transferring the resulting expanded producer surplus from the local economy to the multinational firm.

Quantification will be critical for success. To put these negotiations onto a quantitative footing, there will be a need to measure the value of the barter exchange. This could start with the measurement of the value of free services provided over the internet (for example, Nakamura et al., 2018). These free services clearly are covered by the phrase "content transmitted electronically" (the language in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership [CPTPP]). However, the valuation would also have to take into account the revealed

8 Alternative working titles in play include the "trade-related aspects of electronic commerce" and "agreement on digital trade."

9 Such transactions can be thought of as the manifestation of a zero-price market. Zero-price markets can emerge in the context of a negative market-clearing price (the value of the data generated for the platform is such that the platform might pay the customer to use its services to obtain the data) in a context where the payment mechanism to compensate consumers would be prohibitively cumbersome. The zero-price can also be considered a "special" price, in that behavioural economics has shown that the response of consumers to zero prices is dramatically different than to low prices (Shampanier, Mazar and Ariely 2007), with significant implications for anti-trust policy (Newman 2015). Anti-competitive risks emerge, in particular, in two-sided markets featuring powerful network externalities and thus tipping behaviour (Morton et al. 2019) with the pernicious anti-competitive effects manifesting themselves in secondary markets (Khan 2019).

value of data as captured in market capitalization of data-intensive firms (Ciuriak 2019d).

Legitimate Public Policy Exceptions (A Digital Article XX)

The plethora of issues related to information flows suggests that WTO 2.0 will require a well-articulated regime for what constitutes "legitimate" exceptions from the free flow of data commitments.

These exceptions will need to go beyond online consumer protection, privacy and protection of personally identifiable information (issues considered in privacy measures, such as the EU's General Data Protection Regulation) to cover measures addressing the matters related to "surveillance capitalism" (Zuboff 2019). These include socially harmful uses of data, such as "fake news" and misinformation for personally targeted advertising and/or messaging — for example, the exploitation of psychological vulnerabilities of individuals for marketing purposes or for political manipulation or "manufacturing populism."

Security Exceptions (A Digital Article XX1)

The issue of security for the intangible infrastructure of the digitized economy, as the IoT buildout looms, is a major issue. Across the board, the IoT will likely involve linkages to telecommunications, transportation, the power grid and financial services in one way or another. Each of these areas has traditionally been closely regulated/controlled by national governments because of national security concerns. Already, national security concerns have been raised about the participation of geopolitical rivals in the provision of hardware, let alone managing the flow of data, for the IoT.

Yet, while the focus of attention is on Huawei, the problem of backdoors is pervasive (Armasu 2018; Sanders 2019). As the economy becomes increasingly digitalized, national governments are unlikely to accept the implicit risks to national sovereignty from the level of intrusion into national infrastructure systems that current systems allow, even from "friendly" governments.[10]

Existing WTO measures providing for national security exceptions (Article XXI) were not designed to deal with these kinds of issues. For example, the requirement of an "emergency" to trigger Article XXI protection for measures is hard to read into the IoT buildout, which creates vulnerabilities but not immediate emergencies. At the same time, the consequences of security breaches would also seem to be, apart those that could potentially cripple backbone infrastructure (Macauley 2019), orders of magnitude smaller than the kinds of concerns that are needed to invoke WTO Article XXI, which refers to fissionable materials, traffic in military munitions or actions taken in time of war. Data breaches are almost routine, IP theft is the equivalent of shoplifting and the consequences at the national level of an IoT disruption in an environment of an arms race between hacking and hacking defence are likely to be limited in terms of duration, scale and scope.

This issue is being brought to the WTO 1.0 by China in respect of Australia's ban on Huawei's participation in the development of Australia's 5G network. This is far from the only national security issue that has been raised. However, if ever there was an issue that needed to be decided by the legislative faculty of the WTO rather than a panel, this is it.

Free Trade Agreement Exceptions (A Digital Article XXIV)

The European Union is developing its digital single market, which will give discriminatory access to digital markets within the European Union to member states. It would appear at first blush that a plethora of issues need to be addressed to determine what would be suitable ground rules for such derogations from the most-favoured nation principle as the digital economy expands its coverage of global commerce.

10 See, for example, a discussion of the prevalence of backdoors and the use of them in Jans-Peter Kleinhans (2019, 7). Also, see David Sanger and Nicole Perlroth's (2019) discussion of "deployment of American computer code inside Russia's grid and other targets" and Russian use of such weapons to disable power grids in the Ukraine.

Competition Policy Will Move Front and Centre

Competition policy promises to be to the data-driven economy what trade remedies are to the industrial economy.[11] In the Uruguay Round, competition was part of the negotiations, but ultimately was not addressed and shuffled off into the so-called Singapore issues. This reflected the fact that the industrial economy of the age was inherently pro-competitive and competition policy concerns were mostly focused on addressing behind-the-border measures that limited market access in particular sectors (for example, telecommunications).

Where Uruguay Round concerns focused on *government measures* that reduced competition, the data-driven economy features *market features* that reduce competition, such as economies of scope, economies of scale, network externalities in many cases and pervasive information asymmetries (Ciuriak 2018). Each of these effects is capable of inducing market failure on its own; the combination is a "quadfecta" of factors capable of inducing market failure. Not surprisingly, the data-driven economy is witnessing a steep increase in concentration of markets with the emergence of "superstar firms."

These are not theoretical concerns. Already, as noted by Lurong Chen et al. (2019), "the technology giants have been censured for abuse of dominance, ethical failures in exploiting private information, tax avoidance, leveraging their size to extract public subsidies, and pre-emptive takeovers of potential future competitors."[12] Even in instances where markets have proven to be contestable by data-driven firms, the result tends to be one monopoly or the other — for example, when Uber exited the ride-sharing business in Southeast Asia, it sold its business to Grab, which was its main competitor and backed by Japanese telecoms giant SoftBank and China's leading ride-sharing firm, Didi Chuxing (Mogg 2018).[13]

In all likelihood, identifying a widely accepted set of policies will not be straightforward. With regard to the platform sectors, radically different conceptions have been advanced, ranging from one "corner solution" (regulating the platform firms as utilities) to the other (breaking them up, following the example of the trust-busting era of the early 1900s) and points in between (for example, adopting the German insurance sector policy of requiring the platform firms to share their data with competitors if they acquire a dominant market share). National positions will tend to be based on what is most advantageous for national champions. Further, even though there appears to be a growing sense that competition policy tools need to be sharpened and oversight strengthened to address concerns about market dominance in the digital era, there is no settled consensus on the needed reforms.

The European Union has taken the lead in addressing abuses of market dominance in the digital economy space, but individual governments are also acting.[14] In this environment of policy activism, the aim of WTO 2.0 would be to provide a coherent set of policies tailored to the changing competition landscape and broadly acceptable to the international community.

New International Conventions on IP — the Agreement on Trade-related Aspects of IP Rights 2.0

The profound change in the nature of innovation with the industrialization of innovation through the shift into machine learning space will necessitate a soul-searching review of how society treats IP. As argued in Ciuriak (2019c):

> "...innovation has changed fundamentally, remarkably, and in many different dimensions. The policy on the protection of IP has followed a simple path of steady broadening and intensifying IP protection. The basic instruments for incentivizing innovation were developed

11 The author is indebted to Patrick Leblond for this insight.

12 References in the original quote include: in respect of abuse of dominance, the finding by Germany's competition authority that Google had used its dominance to favour affiliated companies (European Commission 2018); in respect of ethical breaches, Facebook has been censured by the UK House of Commons' Digital, Culture, Media and Sport Committee (House of Commons UK 2019); as regards tax avoidance, *Financial Times* (2018); in respect of leveraging subsidies, Scott Simon (2018); and in respect of pre-emptive takeovers, Steven Davidoff Solomon (2016).

13 The author is indebted to Henry Gao for drawing my attention to this case.

14 For example, in 2017, Germany introduced a major reform of its competition law with the aim of creating a "regulatory framework for the digital economy" (Guerin and Lübbig 2018).

> during the Renaissance. Applied in today's institutional and economic-strategic context, they are often counter-productive in terms of net stimulus to innovation and now require offsetting defensive measures. Accordingly, whether our incentive structures need to be retooled is a major economic policy issue for the data-driven economy."

Inter alia, issues that will need to be addressed include: the ownership of IP created by AI and machine learning; shortened protection terms given the acceleration of innovation; a rethinking of transparency rules related to the secrecy of algorithms (reflecting the distinction between this and the requirement for publication of protected ideas in the patent context); and limits on trade secrets, given the need for competitive access to proprietary data when companies have dominant market positions. Concrete provisions should be based on broad principles of technological neutrality, precautionary principle and transparency.

One key area for WTO 2.0 is trade secrets. This is the new area for expansion of IP protection, with the United States and the European Union both giving an expansive reading of trade secrets in new trade secrets laws. This not only creates risk to the dynamism of their own innovation systems but also undermines the basis for the internationalization of protection. It is possible for countries to agree to protect the IP generated in other jurisdictions if the content of the IP is published and if the protection is time-limited; it is difficult to see countries signing onto this protection if the IP remains secret indefinitely and there is no prospect for eventually gaining access. This rather fundamental point seems not to have been considered at all to date.

An Updated Investment Agreement (TRIMS 2.0)

The current Agreement on Trade-related Investment Measures (TRIMS) in WTO 1.0 was negotiated in a context where foreign direct investment (FDI) was actively sought by host economies because it brought with it new technologies, capital and connections to global markets. Even so, the TRIMS is very thin in terms of content, reflecting the controversial nature of investment regulation at the international level. It covers only investment measures affecting trade in goods, and its main effect is to restrict local content requirements. TRIMS left open certain issues, in particular export performance and technology transfer requirements, that were hotly contested in the Uruguay Round but are addressed in recent preferential trade agreements, such as the CPTPP. The latter issues are now hot buttons in the trade and technology war between the United States and China.

The issues that need to be addressed in the knowledge-based and data-driven economy, go beyond technology transfer requirements. Inward FDI tends to be extractive, reducing the dynamism of local innovation networks. This has been recognized by some countries in response to the inflows of FDI from China into their innovation systems; however, it is a general problem for all economies with respect to FDI from all sources and not only from the standpoint of geostrategic rivalry. In the digital age, investment by state-owned or state-linked enterprises constitutes a new source of friction. Further, in the "winner takes most" context of the digital economy, competition policy issues loom much larger in regulating international investment than they did in the industrial era context that informed the Uruguay Round negotiations.

A new TRIMS would thus have many tasks, including: expanding to cover services and the digital economy to recognize the extractive nature of FDI in the knowledge-based economy; distinguishing between private investment and state investment; and recognizing the anti-competitive nature of mergers and acquisitions of young technology firms by cash-flush tech giants aiming to prevent the emergence of future competition.

A new TRIMS should also acknowledge the primacy of knowledge spillovers in economic development. This argues for allowance for technology transfer conditionality in FDI approvals. It should also broker competitive access to the build-out of the digital infrastructure, such that third countries are not caught in the vise of US-China rivalry. Both of these considerations suggest that framing rules solely to resolve US-China tensions could result in damaging rules for the rest of the world. Hard cases make bad law.

Reframed Disciplines on Subsidies

Perhaps the single most important complaint that has been mounted against China has been that it provides pervasive and massive subsidies to particular high technology sectors in order to tilt the playing field to its advantage. Arguably, however, the problem lies not with China's policies, but with the conventions adopted by the Organisation for Economic Co-operation and Development (OECD) to guide policy. The data-driven economy generates risk-return metrics that favour increased public investment relative to private investment. Evidence of this is the fact that we see corporations sitting on trillions of dollars' worth of retained earnings and not making investments at a time of transformative opportunity, while China, which is not handicapped by OECD principles, has not hesitated to jump into this space with public sector investment.

While things are changing with the announcement of steep increases in public sector investment in the United States and other economies, nonetheless, China has already stolen a march and the West is playing catch-up. The issue for the West, therefore, is not to rein in China's investment support for technology development but to recognize that technological conditions have shifted investment opportunities into a space that suits China's governance model — and to follow it. This means rewriting the disciplines on public sector engagement in the economy to reflect the shift in the division of tasks between private and public capital based on risk/return metrics rather than the prevailing horizontal/vertical characterizations of investment classes; recognizing the effective equivalence of alternative models of state support — state-owned/directed enterprises (as envisioned in the Chinese model) and state-fed enterprises (the US model); and acknowledging the need for policy space for industrial policy at a transformative moment of economic evolution. Again, the extent of revision needed, when compared to what is in the current Agreement on Subsidies and Countervailing Measures, seems quite profound.

Prospects for WTO 2.0

The short list above is not meant to be exhaustive — for example, it does not include various issues such as, inter alia, dispute settlement, agriculture and trade in services that will need to be addressed in a new round beyond the issues directly related to the economic changes brought about by the digital transformation.[15] The list's aim is simply to support the case that there is a sufficient mass of outstanding issues to support a comprehensive reframing of WTO disciplines for the digital age.

Of course, not all the heavy lifting in getting to a new settled multilateral system adapted to the digital age will be done in the WTO. Much of the technical regulation in areas ranging from privacy to competition policy to IP will be developed through parallel processes. Perhaps, most importantly, a path forward is needed to limit the damage from the great power rivalry between the United States and China. Arguably, the most similar past situation to today was the rivalry between the United States and the Soviet Union during the Cold War. The latter rivalry led to two processes: the Helsinki Accord, which codified how the superpower competition would be waged (Haas 2018), and the Strategic Arms Limitation Talks (SALT) agreements, which placed mutual restraints on a weapon with world-destroying potential.

A useful parallel to the Helsinki Accord, which set out a number of non-binding principles to manage international relations in the context of the Cold War, would be a set of principles to restrict the weaponization of interdependence that is threatening to throw up a "silicon curtain" across the Pacific and force countries (including much of the developing world, which sees this as a threat to its development) to choose sides in this destructive contest — which, in the fullness of time, would be for bragging rights of who is number one in a ruined world.

A useful parallel to SALT today would be an agreement limiting the creation and use by states of invasive malware. The example of US state-generated malware used against China, hacked by China, used by China against third

15 For broader perspectives on the agenda for WTO reform, see, for example, Gary Hufbauer et al., (2015), Bernard Hoekman (2018), Simon Evenett (2018) and Marianne Schneider-Petsinger (2019).

parties and eventually leaked out to other, possibly non-state actors, from where it came back full circle to bite America (Perlroth and Shane 2019), serves as an object lesson in why states need to embrace forbearance.

WTO 2.0 will be more a transformation than a resurrection, and arguably, it will only follow a strategic détente between the United States and China. It will also not come quickly. However, the sooner the aggregation of outstanding issues into a formalized new round is accomplished, the better.

Works Cited

Aaronson, Susan Ariel and Patrick Leblond. 2018. "Another Digital Divide: The Rise of Data Realms and its Implications for the WTO." *Journal of International Economic Law* 21 (2): 245–72. doi.org/10.1093/jiel/jgy019.

Anderson, Robert D., William E. Kovacic, Anna Caroline Müller and Nadezhda Sporysheva. 2018. "Competition Policy, Trade and the Global Economy: Existing WTO Elements, Commitments in Regional Trade Agreements, Current Challenges and Issues for Reflection." WTO Staff Working Paper ERSD-2018-12.

Armasu, Lucian. 2018. "Backdoors Keep Appearing in Cisco's Routers." *Tom's Hardware*, 19 July 2018.

Autor, David, David Dorn, Lawrence F. Katz, Christina Patterson and John Van Reenen. 2017. "The Fall of the Labor Share and the Rise of Superstar Firms." National Bureau of Economic Research Working Paper No. 23396, May 2017.

Bacevich, Andrew J. 2002. *American Empire: The Realities and Consequences of U.S. Diplomacy*. Cambridge, MA: Harvard University Press.

Baldwin, Richard. 2016. *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Belknap Press of Harvard University Press.

Baschuk, Bryce and Shawn Donnan. 2019. "U.S., EU, Japan Push for Pact to Rein In China's State Subsidies." Bloomberg, May 20. www.bloomberg.com/news/articles/2019-05-20/u-s-eu-japan-push-for-pact-to-rein-in-china-s-state-subsidies.

Bown, Chad. 2019. "The 2018 trade war and the end of dispute settlement as we knew it." In *Trade War: The Clash of Economic Systems Endangering Global Prosperity*, edited by Meredith A. Crowley, Chapter 2. London, UK: Centre for Economic Policy Research Press.

Bridges. 2018. "WTO Members Submit Proposals Aimed at Advancing Exploratory E-commerce Work." Bridges 22 (13), April 19. www.ictsd.org/bridges-news/bridges/news/wto-members-submit-proposals-aimed-at-advancing-exploratory-e-commerce.

Chen, Lurong, Wallace Cheng, Dan Ciuriak, Fukunari Kimura, Junji Nakagawa, Gabriela Rigoni and Johannes Schwarzer. 2019. "The Digital Economy for Economic Development: Free Flow of Data and Supporting Policies." T20 Japan Task Force 8: Trade, Investment and Globalization Policy Brief No. 4. https://t20japan.org/policy-brief-digital-economy-economic-development/.

CIGI. 2019. Second Annual IP Research Workshop. www.cigionline.org/events/second-annual-ip-research-workshop.

Ciuriak, Dan. 2017a. *Intellectual Property Proliferation: Strategic Roots and Strategic Responses*. CIGI Paper No. 121. Waterloo, ON: CIGI. www.cigionline.org/publications/intellectual-property-proliferation-strategic-roots-and-strategic-responses.

———. 2017b. "How Small Open Economies Can Leverage the Trade in Ideas." In *New Thinking on Innovation*, edited by Rohinton Medhora, 121–25. Waterloo, ON: CIGI.

——. 2018. "The Economics of Data: Implications for the Data-Driven Economy." In *Data Governance in the Digital Age*. Waterloo, ON: CIGI. www.cigionline.org/data-governance-digital-age.

———. 2019a. "Geoeconomic Disruption: A Comment on the Causes, Consequences and Policy Responses." Notes for the Workshop The Shape of Geoeconomics to Come. Cato Institute, Washington, DC, March 26. https://papers.ssrn.com/abstract=3352813.

———. 2019b. "A Trade War Fuelled by Technology." Opinion, January 11. Waterloo, ON: CIGI. www.cigionline.org/articles/trade-war-fuelled-technology.

———. 2019c. "Economics of AI/ML and Big Data in the Data-Driven Economy: Implications for Canada's Innovation Strategy." Notes for remarks given to the to the CIPO-CIGI Workshop on Intellectual Property and Artificial Intelligence and Big Data, Ottawa, ON, March 25.

———. 2019d. "Unpacking the Valuation of Data in the Data-Driven Economy." Notes for Remarks given at the Guarini Law and Tech Centre Conference on Global Data Law, New York University Law School, New York, April 26-27.

Ciuriak, Dan and Maria Ptashkina. 2018a. "Started the digital trade wars have: Delineating the regulatory battlegrounds." Opinion, RTA Exchange, International Centre for Trade and Sustainable Development. https://papers.ssrn.com/abstract=3098982.

———. 2018b. "The Digital Transformation and the Transformation of International Trade." RTA Exchange. Geneva: International Centre for Trade and Sustainable Development and the Inter-American Development Bank. www.rtaexchange.org/; https://papers.ssrn.com/abstract=3107811.

Council on Foreign Relations. 2008. "International Institutions and Global Governance Program World Order in the 21st Century." Council on Foreign Relations, May.

Crowley, Meredith A. 2019. *Trade War: The Clash of Economic Systems Endangering Global Prosperity*. London, UK: CEPR Press.

Durocher, Anthony. 2019. "Competition in the Age of the Digital Giant." Remarks given at Big Data Toronto Conference, Toronto, ON. June 13.

European Commission. 2018. "Antitrust: Commission fines Google €4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine." European Commission press release, July 20.

Evenett, Simon. 2018. "Triage? Assessing the EU's Modernisation Proposals for the WTO." *Intereconomics* 53 (5): 253–256.

Financial Times. 2018. "The quest for a fairer way to tax the tech giants." Financial Times, October 30. www.ft.com/content/59a3b400-dc3c-11e8-9f04-38d397e6661c.

Guerin, Bertrand and Thomas Lübbig. 2018. "Germany to step up digital competition regulation (again)." Freshfields Digital (blog), October 31. https://digital.freshfields.com/post/102f4xm/germany-to-step-up-digital-competition-regulation-again.

Haas, Lawrence. 2018. "Lessons from a more inspired Helsinki." *The Hill*, July 20. https://thehill.com/opinion/international/398105-lessons-from-a-more-inspired-helsinki.

Heath, J. Benton. 2019. "National Security and Economic Globalization: Toward Collision or Reconciliation?" Paper presented at Cato Institute, Washington, DC, March 26.

Hirsh, Jesse. 2019. "What You Need to Know about the Grand Committee on Big Data, Privacy and Democracy." Opinion, May 29. Waterloo, ON: CIGI. www.cigionline.org/articles/what-you-need-know-about-grand-committee-big-data-privacy-and-democracy.

Hoekman, Bernard M. 2018. "Revitalizing Multilateral Governance at the World Trade Organization Report of the High-Level Board of Experts on the Future of Global Trade Governance." Bertelsmann Stiftung, Global Economic Dynamics Series. www.bertelsmann-stiftung.de/en/publications/publication/did/revitalizing-multilateral-governance-at-the-world-trade-organization/.

House of Commons UK. 2019. *Disinformation and "Fake news": Final Report*. Digital, Culture, Media and Sport Committee, Eighth Report of Session 2017–19. February 14. London, UK: House of Commons, UK Parliament. https://publications.parliament.uk/pa/cm201719/cmselect/cmcumeds/1791/1791.pdf.

Hufbauer, Gary, Eujin Jung, Sean Miner, Tyler Moran and Jeffrey Schott. 2015. "From Drift to Deals: Advancing the WTO Agenda." Peterson Institute for International Economics Report to the International Chamber of Commerce, June.

Ikenberry, G. John. 2005. "Power and liberal order: America's postwar world order in transition." *International Relations of the Asia-Pacific* 5 (2): 133–52.

Innovation, Science and Economic Development Canada. 2019. "Canada's Digital Charter: Trust in a digital world." www.ic.gc.ca/eic/site/062.nsf/eng/h_00108.html.

Keohane, Robert. 2015. "After Hegemony, Cooperation is Still Possible." *The International Spectator* 50 (4): 92–94.

Khan, Lina M. 2019. "The Separation of Platforms and Commerce." *Columbia Law Review* 119 (4): 973–1093.

Kingsbury, Benedict, David M. Malone, Paul Mertenskötter, Richard B. Stewart, Thomas Streinz and Atsushi Sunami (eds.) 2019. *Megaregulation Contested: Global Economic Ordering After TPP*. Oxford, UK: Oxford University Press.

Kleinhans, Jans-Peter. 2019. "5G vs. National Security — A European Perspective." Berlin. Germany: Stiftung Neue Verantwortung. February.

Kwet, Michael. 2019. "Digital Colonialism: US Empire and the New Imperialism in the Global South." *Race & Class* 60(4): 3–26.

Lake, Eli. 2019. "Don't Let China Export Its Internet." Bloomberg News, June 4. www.bloomberg.com/opinion/articles/2019-06-04/tiananmen-anniversary-don-t-let-china-control-the-internet.

Lascurettes, Kyle. 2017. *The Concert of Europe and Great-Power Governance Today: What Can the Order of 19th-Century Europe Teach Policymakers About International Order in the 21st Century?* Santa Monica, CA: RAND Corporation. www.rand.org/pubs/perspectives/PE226.html.

Macauley, Tyson. 2019. "The Danger of Critical Infrastructure Interdependency." In "Governing Cyberspace during a Crisis in Trust," 69–73. Waterloo, ON: CIGI.

McDonald, Sean and An Xiao Mina. 2018. "The War-Torn Web." *Foreign Policy*, December 19. https://foreignpolicy.com/2018/12/19/the-war-torn-web-internet-warring-states-cyber-espionage/.

Mogg, Trevor. 2018. "After leaving China and Russia, Uber also exits Southeast Asia rideshare market." Digital Trends, March 26. www.digitaltrends.com/business/uber-exits-southeast-asia-rideshare-market/.

Morton, Fiona Scott, Theodore Nierenberg, Pascal Bouvier, Ariel Ezrachi, Bruno Jullien, Roberta Katz, Gene Kimmelman, A. Douglas Melamed, and Jamie Morgenstern. 2019. "Report: Committee for the Study of Digital Platforms - Market Structure and Antitrust Subcommittee." George J. Stigler Center for the Study of the Economy and the State, The University of Chicago Booth School of Business.

Nakamura, Leonard, Jon Samuels and Rachel Soloveichik. 2018. "'Free' Internet Content: Web 1.0, Web 2.0, and the Sources of Economic Growth." Federal Reserve Bank of Philadelphia Working Paper, WP 18-17, May. www.philadelphiafed.org/-/media/research-and-data/publications/working-papers/2018/wp18-17.pdf.

Newman, John M. 2015. "Antitrust in Zero-Price Markets: Foundations." *University of Pennsylvania Law Review* 164 (1): 149–206.

Nienaber, Michael and Tom Miles. 2019. "EU to propose workaround to avoid U.S. block on WTO judges." Reuters, June 6. https://ca.reuters.com/article/businessNews/idCAKCN1T71YQ-OCABS.

O'Hara, Kieron and Wendy Hall. 2018. *Four Internets: The Geopolitics of Digital Governance*. CIGI Paper No. 206. Waterloo, ON: CIGI. www.cigionline.org/publications/four-internets-geopolitics-digital-governance.

Perlroth, Nicole and Scott Shane. 2019. "In Baltimore and Beyond, a Stolen N.S.A. Tool Wreaks Havoc." *New York Times,* 25 May. www.nytimes.com/2019/05/25/us/nsa-hacking-tool-baltimore.html

Porter, Michael E. and James E. Heppelmann. 2014. "How Smart, Connected Products Are Transforming Competition." *Harvard Business Review*, November. https://hbr.org/2014/11/how-smart-connected-products-are-transforming-competition.

Sanders, James. 2019. "Evidence of backdoors in Huawei equipment collapse under light scrutiny." *TechRepublic*, May 2. www.techrepublic.com/article/evidence-of-backdoors-in-huawei-equipment-collapse-under-light-scrutiny/.

Sanger, David E. and Nicole Perlroth. 2019. "U.S. Escalates Online Attacks on Russia's Power Grid." *New York Times*, June 15. www.nytimes.com/2019/06/15/us/politics/trump-cyber-russia-grid.html.

Shampanier, Kristina, Nina Mazar and Dan Ariely. 2007. "Zero as a special price: The true value of free products." *Marketing Science* 26 (6): 742–57. https://doi.org/10.1287/mksc.1060.0254.

Schneider-Petsinger, Marianne. 2019. "The Path Forward on WTO Reform." Chatham House, May 7. www.chathamhouse.org/expert/comment/path-forward-wto-reform.

Shivakumar, Ram. 2017. "The market power of 'superstar' companies is growing." *Chicago Booth Review*, October 26. http://review.chicagobooth.edu/economics/2017/article/market-power-superstar-companies-growing.

Simon, Scott. 2018. "Opinion: Amazon Deal In New York Creates Some Unlikely Allies." National Public Radio, November 17. www.npr.org/2018/11/17/668766759/opinion-amazon-deal-in-new-york-creates-some-unlikely-allies.

Solomon, Steven Davidoff. 2016. "Tech Giants Gobble Start-Ups in an Antitrust Blind Spot." *New York Times*, August 16. www.nytimes.com/2016/08/17/business/dealbook/expect-little-antitrust-challenge-to-walmarts-bid-for-jet-com.html.

Thérien, Dominic, Stéphanie St-Jean and Bianca Annie Marcelin. 2019. "The New Commissioner of Competition Requests Changes to Address Digital Economy Challenges." McCarthy Tétrault LLP, 4 June 2019.

WTO. 2018. *World Trade Report 2018: The future of world trade: How digital technologies are transforming global commerce*. Geneva: WTO.

———. 2019a. "Joint Statement on Electronic Commerce." WTO press release WT/L/1056, January 25.

———. 2019b. "Workshop on the moratorium on customs duties on electronic transmissions." April 29. Geneva, Switzerland: WTO. www.wto.org/english/tratop_e/ecom_e/wkmoratorium29419_e.htm.

Zuboff, Shoshana. 2019. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York, NY: PublicAffairs.

About the Global Economy Program

Addressing limitations in the ways nations tackle shared economic challenges, the Global Economy Program at CIGI strives to inform and guide policy debates through world-leading research and sustained stakeholder engagement.

With experts from academia, national agencies, international institutions and the private sector, the Global Economy Program supports research in the following areas: management of severe sovereign debt crises; central banking and international financial regulation; China's role in the global economy; governance and policies of the Bretton Woods institutions; the Group of Twenty; global, plurilateral and regional trade agreements; and financing sustainable development. Each year, the Global Economy Program hosts, co-hosts and participates in many events worldwide, working with trusted international partners, which allows the program to disseminate policy recommendations to an international audience of policy makers.

Through its research, collaboration and publications, the Global Economy Program informs decision makers, fosters dialogue and debate on policy-relevant ideas and strengthens multilateral responses to the most pressing international governance issues.

About CIGI

We are the Centre for International Governance Innovation: an independent, non-partisan think tank with an objective and uniquely global perspective. Our research, opinions and public voice make a difference in today's world by bringing clarity and innovative thinking to global policy making. By working across disciplines and in partnership with the best peers and experts, we are the benchmark for influential research and trusted analysis.

Our research programs focus on governance of the global economy, global security and politics, and international law in collaboration with a range of strategic partners and have received support from the Government of Canada, the Government of Ontario, as well as founder Jim Balsillie.

À propos du CIGI

Au Centre pour l'innovation dans la gouvernance internationale (CIGI), nous formons un groupe de réflexion indépendant et non partisan doté d'un point de vue objectif et unique de portée mondiale. Nos recherches, nos avis et nos interventions publiques ont des effets réels sur le monde d'aujourd'hui car ils apportent de la clarté et une réflexion novatrice pour l'élaboration des politiques à l'échelle internationale. En raison des travaux accomplis en collaboration et en partenariat avec des pairs et des spécialistes interdisciplinaires des plus compétents, nous sommes devenus une référence grâce à l'influence de nos recherches et à la fiabilité de nos analyses.

Nos programmes de recherche ont trait à la gouvernance dans les domaines suivants : l'économie mondiale, la sécurité et les politiques internationales, et le droit international. Nous comptons sur la collaboration de nombreux partenaires stratégiques et avons reçu le soutien des gouvernements du Canada et de l'Ontario ainsi que du fondateur du CIGI, Jim Balsillie.

CIGI Masthead

Executive

President Rohinton P. Medhora
Deputy Director, International Intellectual Property Law and Innovation Bassem Awad
Chief Financial Officer and Director of Operations Shelley Boettger
Director of the Global Economy Program Robert Fay
Director of the International Law Research Program Oonagh Fitzgerald
Director of the Global Security & Politics Program Fen Osler Hampson
Director of Human Resources Laura Kacur
Deputy Director, International Environmental Law Silvia Maciunas
Deputy Director, International Economic Law Hugo Perezcano Díaz
Managing Director and General Counsel Aaron Shull
Director of Communications and Digital Media Spencer Tripp

Publications

Publisher Carol Bonnett
Senior Publications Editor Jennifer Goyder
Senior Publications Editor Nicole Langlois
Publications Editor Susan Bubak
Publications Editor Patricia Holmes
Graphic Designer Brooklynn Schwartz
Graphic Designer Melodie Wakefield

For publications enquiries, please contact publications@cigionline.org.

Communications

For media enquiries, please contact communications@cigionline.org.

@cigionline

Copyright © 2019 by the Centre for International Governance Innovation

The opinions expressed in this publication are those of the author and do not necessarily reflect the views of the Centre for International Governance Innovation or its Board of Directors.

This work is licensed under a Creative Commons Attribution — Non-commercial — No Derivatives License. To view this license, visit (www.creativecommons.org/licenses/by-nc-nd/3.0/). For re-use or distribution, please include this copyright notice.

Printed in Canada on Forest Stewardship Council® certified paper containing 100% post-consumer fiber.

Centre for International Governance Innovation and CIGI are registered trademarks.

Centre for International Governance Innovation

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

RECYCLED
Paper made from recycled material
FSC® C023070