ITIF | INFORMATION TECHNOLOGY & INNOVATION FOUNDATION

June 12, 2017

Mr. Ed Gresser
Chair of the Trade Policy Staff Committee
Office of the United States Trade Representative
600 17th Street N.W.
Washington, DC 20508

RE: NAFTA Negotiations: Docket Number USTR-2017-0006 Request for Comments on Negotiating Objectives Regarding Modernization of the North American Free Trade Agreement With Canada and Mexico

Dear Mr. Gresser:

I write in response to your Federal Register Notice requesting public comments on U.S. negotiating objectives regarding the modernization of the North American Free Trade Agreement with Canada and Mexico. The following written submission draws on the expertise of the Information Technology and Innovation Foundation—the top-ranked science- and technology-policy think tank in the United States—including previous work on a range of innovation-related issues that are likely to be negotiated under a revised NAFTA, such as digital trade, data flows, intellectual property, and manufacturing.

Sincerely,

Nigel Cory
Trade Policy Analyst, The Information Technology and Innovation Foundation

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INTRODUCTION

In the 25 years since the North America Free Trade Agreement (NAFTA) was concluded, changes in technology and global production networks have fundamentally changed the structure and function of the U.S. economy and how it trades.

Many of the innovative goods and services at the heart of trade between NAFTA partners could not have been foreseen when the agreement was first negotiated. The role of data, technology, and intellectual property (IP) has reshaped how consumers and businesses in North America operate. The movement of data underpins a large and growing digital economy, but also innovation and trade in many traditional sectors. And innovation-based industries have grown significantly over the past quarter of a century. This means that the issues that NAFTA needs to address have also changed. For NAFTA to continue playing its role as a vehicle for shared economic prosperity, it needs to be updated to address modern barriers to trade and investment between its members. Most importantly, while it would be ideal for the U.S. government to get Canada and Mexico to agree to every single desired change in the agreement, the reality is that tradeoffs will have to be made. In this context, the U.S. government should focus its negotiating efforts principally on the significant array of trade policy issues that most affect America's advanced industries, as detailed in this filing, for these are the industries that are most important to America's economic future.

In manufacturing, U.S. companies have used NAFTA to become and remain globally competitive by leveraging Canada and Mexico's respective comparative advantages as part of continental production networks. NAFTA supported the flow of goods and services across borders as part of complex production networks that source intermediate goods and services from wherever is the most competitive, which is trade as it should be. For example, the United States and Mexico form a high-wage/low-wage partnership, bringing complementary labor forces, investments, innovation capacity, and industry strengths together to be able to compete globally. Within this relationship, the United States is the source of much of the research and development, design, innovation, and high-value-added manufacturing, while Mexico provides some of the lower-tech, lower-cost, and less value-added manufacturing activity. This economic relationship makes regional North American manufacturing value chains globally cost competitive with Asian ones. A revised NAFTA, if done right, could therefore make the region more attractive for global manufacturers, attracting global manufacturing value chains—now centered on Asia—to move back to North America. A revised NAFTA that further reduces trade frictions between the three countries can help the United States attract higher-value-added components of industries, further supporting the United States' comparative advantage as a high-wage, innovation-intensive country.

In services, deeper North American integration is critical as it will enable companies from all three nations to achieve economies of scope and scale gained when serving a much larger market. This will help the U.S. economy as it is highly competitive in services, but it will also help Canada and Mexico as these nations would enjoy lower priced services and help them achieve increased firm size. Indeed, one key reason why Canada and Mexico have lower standards of living than the United States is their smaller average firm size, as

smaller firms are less productive than large firms and their firms are smaller in part because of smaller market size.[1]

In line with this, the Trump administration should see a revised NAFTA as a strategic and tactical tool to encourage U.S. companies to move production networks for advanced technology industries from Asia and elsewhere back to North America, whether by "onshoring" production back to the United States or "nearshoring" operations to Canada or Mexico. Such "nearshoring" should be encouraged as the United States stands to gain much more from such nearby operations. For example, 40 percent of the inputs to finished manufactured goods in Mexico come from the United States, compared to just 4 percent in China.[2] This is why the United States loses out on much more of the same production processes when production shifts to other countries, such as China. Such a focus is win-win for all three countries given it also helps provide jobs, investment, and other benefits to Canada and Mexico.

All members of NAFTA have benefited from the agreement. The United States should start by revising the current agreement, rather than starting from scratch by cancelling NAFTA. Such a move would create economic, political, and negotiating problems given the economic activity, time, and issues involved. The United States should view negotiations as a way to improve a deal that is already working well. On some issues, NAFTA negotiators have the benefit of using the details of the Trans-Pacific Partnership (TPP) trade agreement as a guidepost, which could facilitate swifter completion of an updated agreement. But that is not to say that the administration should not push very hard for improvements in the agreement that would benefit the U.S. economy. We list some of these below.

ENABLE CROSS BORDER DATA FLOWS

Prohibit Data Localization Requirements

Trade agreements need to protect the movement of data across borders—which were practically nonexistent just 15 years ago—as these data flows are now critical to global trade.[3] Indeed, in the globally integrated digital economy, an organization's ability to collect, analyze, and act on data is critical to driving innovation and growth. Fully half of all global trade in services is enabled by information communication technologies (ICT), which depend on cross-border data flows.[4] However, the data-driven economy is under increasing threat as countries impose a slew of non-tariff trade barriers that limit the flow of data across borders, including two measures in Canada that requires data to be stored locally—a concept known as "data localization."[5]

The United States should revise NAFTA to include provisions that prohibit such measures in order to protect cross-border data flows—for all types of data, including financial data. Likewise, a revised NAFTA should also prohibit members from forcing companies to use or locate computing facilities within a country. The United States effectively undermined its own interests in the TPP by pushing for the financial sector to be exempted from the agreement's prohibitions on data localization measures.[6] This carve-out for financial data sent the

wrong message to other nations that somehow storing data locally created more security and accessibility. This created a policy loophole that other countries could misuse to justify further data protectionism—despite the fact being that where data is stored is not an indicator of its security or accessibility.

The United States should not make this same mistake again and it should ensure that provisions that protect data flows apply to virtually all types of data, that any exceptions to these rules are clearly and narrowly defined, and that it does not allow data localization for the misguided reason of privacy or cybersecurity. As ITIF has explained, policymakers focusing on geography to solve privacy and cybersecurity concerns—by requiring data to be stored locally—are missing the point.[7] The confidentiality of data does not generally depend on which country the information is stored in, only on the measures used to store it securely. A secure server in Canada is no different from a secure server in the United States. Data security depends on the technical, physical, and administrative controls implemented by the service provider, which can be strong or weak, regardless of where the data is stored. In the case of inadvertent disclosures of data (e.g., security breaches), to the extent nations have security laws and regulations, a company operating in the nation is subject to those laws, regardless of where the data are stored. What is important is that the company involved (either a company with its own networks or a third-party cloud provider) be dedicated to implementing the most advanced methods to prevent such attacks. The location of these systems has no effect on security.

The United States should use provisions in a revised NAFTA as the next steps toward a broader effort to roll back the growing number of barriers to data flows. The United States is a natural leader for this work given its leading role as a pioneering innovator and early adopter of ICT. As of 2010, U.S. firms held a 26 percent share of the global IT industry and were the world's largest producers of ICT goods and services.[8] Of the top-20 enterprise cloud-computing service providers in the world, 17 are headquartered in the United States.[9] Of the top 10 Internet firms, 7 are headquartered in the United States.[10] The digitally enabled services that these firms provide have become a key growth engine for the U.S. economy, with exports reaching $356 billion in 2011 (the most recent year for which data are available), up from $282 billion just four years earlier.[11] The economic benefits from the data revolution will only increase as the public and private sectors alike become more data driven.[12]

Specific recommendations:

- Prohibit countries from enacting barriers to cross-border data flows, for all types of data (including financial data).
- Prohibit countries from forcing companies to use or to locate computing facilitates in a member country.

Prohibit Customs Duties on Electronic Transmissions

A revised NAFTA should prohibit countries from enacting customs duties on electronic/data transmissions that cross borders. Such a commitment would reiterate and lock-in the United States' long-standing support for the moratorium on e-commerce customs duties that World Trade Organization (WTO) members agreed to in 1998, and which has been periodically renewed.[13]

Specific recommendation:

- Prohibit countries from enacting customs duties on cross-border data transmissions.

INSIST MEXICO JOINS THE INFORMATION TECHNOLOGY AGREEMENT

A revised NAFTA should ensure that Mexico agrees to join the Information Technology Agreement (ITA) and its recent expansion.[14] The TPP fell short here as Mexico only agreed to "endeavor" to join the ITA. The ITA, a multilateral agreement emerging from the Uruguay Round of multilateral trade negotiations, eliminates tariffs on specific technology and telecommunications products for member countries. Goods covered by the original ITA (ITA I) and by the revised ITA list (ITA II) represent almost one-fifth (18 percent) of world merchandise imports (a market value of $3 trillion). The expanded agreement has 54 participants which in 2013 accounted for 87 percent of world imports and 94 percent of world exports of goods covered by ITA I+II.[15] The emergence of complex global supply chains for IT products, rapid deployment of new technologies, and technology convergence since the ITA's inception, makes its goal of zero tariffs critical for U.S. companies.

It is clearly in Mexico's interest to become a member of the ITA, and in many regards, Mexico recognizes this as it has shown a willing to cut tariffs on ICT products in the past.[16] Mexico is the only non-ITA member in the top 10 ITA traders of goods covered by the ITA and its recent expansion. Mexico has the highest share of goods covered by ITA I and ITA II and is the only non-ITA II participant with ICT imports of more than $50 billion.[17] Mexico is obviously not adverse to cutting ICT tariffs given it agreed to eliminate tariffs on all goods in chapters 84, 85, and 90 of the TPP, where virtually all ICT-related goods are classified.[18] Furthermore, in 2002, Mexico unilaterally instituted "ITA plus," which eliminated duties on 576 inputs, machinery, and finished products in the electronics and ICT sectors.[19]

These tariff cuts, and those made under NAFTA, are part of the reason that there are established ICT production networks linking Mexico with the United States and Canada; in 2008, 87 percent of Mexico's ITA exports went to either Canada or the United States.[20] Furthermore, Mexico is deeply embedded in North America's ICT production networks. That's why the foreign content of Mexico's gross electronics exports exceeds 50 percent, with a good share of these inputs U.S.-sourced.[21] That fits with the fact that 40 percent of the inputs to finished manufactured goods in Mexico come from the United States.[22] By contrast, for China, that figure is a mere 4 percent. In short, full ITA accession would be good for Mexico's economy—and America's.

Specific outcome:

- Insist that Mexico join the Information Technology Agreement and its recent expansion.

IMPROVE INTELLECTUAL PROPERTY PROTECTION AND ENFORCEMENT

As the United States Trade Representative's Special 301 annual review of the global state of intellectual property (IP) protection and enforcement shows, many countries, including Canada and Mexico, lack the proper policy environment for intellectual property protection, which undermines the ability of U.S. rights holders to benefit from their IP as part of international trade, especially online. The United States should pursue a range of new provisions that ensure IP in digital form is better protected and enforced in NAFTA. An effective digital trade policy requires robust IP protections, as without them producers will be less able to sell their products and services across borders.

Weak or non-existent IP protection and enforcement is a modern barrier to trade. If a nation promulgates a weak IP regime and turns a blind eye to rampant and deliberate content piracy, imports of IP-based goods and services paid for with an export of money would by definition decline. For an innovative economy, such as the United States, this is important as the knowledge and creativity required to create the goods and services exchanged in the 21st century—from smartphones, to biopharmaceutical drugs, to movies and music—is difficult to develop, but often very easy to steal or pay for at less than full-market value. But without fair payment, U.S. and global innovation and creative output decreases. This remains a major issue for U.S. firms, as U.S. International Trade Commission surveys have shown: 75 percent of large firms and 50 percent of small- to medium-sized enterprises (SMEs) in digital trade view intellectual property infringement as an obstacle to trade, with this being felt most keenly by content creators, large retail firms, and SMEs in the digital communications sector.[23]

Critics of IP, trade, or both, try to exploit the fact that the popular understanding of trade is still based around manufactured goods facing tariffs when crossing borders, while IP is behind the border and nations supposedly have unlimited rights to do whatever they want with it. Liberal economist Paul Krugman speaks for many Trans-Pacific Partnership critics when he asserts that the TPP "is not a trade agreement. It's about intellectual property and dispute settlement."[24] But this narrow focus refuses to acknowledge that what goes on "behind the border" is central to shaping trade in the 21st century. The idea that reducing a tariff on a widget is legitimate in a trade agreement but that reducing the ability of a nation's citizens to steal another nation's goods and services—that is, ensuring robust intellectual property enforcement—is not legitimate makes no sense.

While intellectual property protection and enforcement are two critical parts of an IP framework that supports a dynamic and innovative digital economy, another important component is the need for appropriate exceptions to IP rules, such as for "safe harbors" to limit the liability of Internet service providers (ISPs) and other digital intermediaries from users who infringe copyright. For example, liability limitations

for ISPs and other digital intermediaries in the United States allowed U.S. digital startups to worry about improving and expanding features and attracting and retaining customers, rather than policing and limiting their services for fear of lawsuits.[25] These laws reduced the legal risks in building platforms for the use of millions. The balancing side of this framework are the rules and norms by which ISPs and other digital intermediaries need to work with rights holders to deal with users who use their services to infringe copyright. The problem that U.S. rights holders often face is that countries do not achieve the appropriate balance between IP protection, enforcement, and exceptions. An unbalanced framework can undermine IP, especially online, given the ease, speed, and low-to-no cost of digital piracy.

Getting this framework right in NAFTA is important as Canada is one of the leading markets for online trade in U.S. copyrighted works, and Mexico holds great potential. Exports of digital content to Canada and Mexico are growing. From 2006 to 2015, exports of U.S. ICT services exports to Canada and Mexico—which includes royalties and license fees for the use of intellectual property and telecommunication, information, and computer services—increased 36 and 76 percent, respectively. Over this time, the United States has increased its combined services trade surplus with both countries from $1.05 billion to $1.46 billion.[26]

However, U.S. companies face a variety of IP issues in both countries that undermine the role that IP plays in the North American digital economy. Indicative of this, both countries were on the most recent "Watch List" of countries that the United States Trade Representative's Special 301 report identifies as amongst the worst offenders for not providing adequate and effective protection of IP or fair and equitable market access to U.S. companies that rely on IP. Any renegotiated NAFTA agreement must be premised on ensuring that Mexico and Canada put in place and enforce IP policies that will prevent them from (again) being labeled a "priority country" on the "Special 301" list.

The following sections outline some specific outcomes that a revised NAFTA should seek as part of a comprehensive IP chapter. It also includes ideas on how to address modern IP issues that aren't a specific problem in Canada or Mexico at the moment, but would be worthwhile to do to ensure they don't become issues in the future. Furthermore, embedding rules on new IP issues in a revised NAFTA promulgates higher-standard trade norms and sets a new benchmark for IP protection around the world.

Specific recommendations:

- Commit Canada and Mexico to ensuring that IP enforcement is available to the same extent for online infringement as it is offline.

- Ensure Mexico and Canada provide for criminal procedures and penalties to target individuals involved in, or who aid and abet, in large-scale commercial piracy. Most individuals involved in large-scale often digital, piracy do it for financial gain—as many piracy operations are run as a

business—but others also do it for personal (i.e., ideological), not financial, reasons. However, it's important that IP laws cover both given their respective roles in facilitating large-scale online piracy.

Improve Online IP Enforcement in Canada and Mexico

Canada and Mexico lack an effective mechanism for U.S. rights holders to work with ISPs and other digital intermediaries to fight digital piracy. The issues in both countries are different, but related, in that they concern the legal framework for how digital intermediaries are liable or not for their users who infringe copyright and if/how these intermediaries work with rights holders to remove this material. When this "safe harbor" framework is unbalanced—i.e., when intermediaries are not liable, or when they have limited liability protections, but without corresponding responsibilities and mechanisms to help ensure IP is effectively protected—it undermines the ability of U.S. rights holders to benefit from their IP in today's digital economy. These NAFTA negotiations are an opportunity to re-balance these frameworks in Canada and Mexico to better protect U.S. intellectual property.

It is useful to first look at the United States' approach before looking at Canada and Mexico's. In the United States, the Digital Millennium Copyright Act (DMCA) of 1998 attempts to balance the rights of content owners with those of users and online service providers. Section 512 of the DMCA includes a "notice-and-takedown" regime that means that when a digital intermediary, like Google, receives a notice that infringing content has been made available on its service, it must move expeditiously take it down (i.e., remove from the Internet) the infringing content. This provision shields online intermediaries from copyright infringement liability if they follow certain rules to stop and prevent infringement.[27] For example, after a copyright holder notifies an online service provider of infringing material, the service provider must take steps to remove or disable that content, stop "repeat infringers," and put "standard technical measures" in place to identify or protect copyrighted works.[28] If they follow these rules, digital intermediaries are not liable for copyright-infringing activities taking place on their services. This process gives copyright owners a means to resolve instances of infringement without having to go through the time and expense of pursuing each takedown in court.

Many copyright owners use the U.S. "notice-and-takedown" process to protect their works, and the number of take-down requests has dramatically increased over time, partly due to automation of these processes. For example, in 2008, Google received only a few dozen takedown notices during the year, but by 2015, the company was fielding over 100,000 links to takedown every hour.[29] Indeed, Google removed 918 million infringing URLs in the year from June 11, 2016, to June 11, 2017.[30]

While the U.S. notice-and-takedown process is not perfect, there are clear societal benefits to removing infringing content from the Internet.[31] Widespread piracy has a negative economic impact, seriously harming the artists who create content and the technicians who produce it. Piracy limits the ability of content

producers to create legitimate business models for selling digital content. It hurts U.S. competitiveness as the U.S. economy has a competitive advantage in content industries. And it hurts law-abiding consumers who must pay higher prices for content (or have access to less content or lower-quality content in the marketplace) to compensate for the costs of piracy.[32] And while innovative, legitimate alternatives to piracy have continued to blossom on the Internet in recent years, piracy has also continued to grow. File "sharing" increased in North America by 44 percent from 2008 to 2014, and while some of this sharing is legitimate, a 2013 study found that 78 percent of music file sharing and 93 percent of television file sharing involved infringing content.[33] This is why it is critical for the United States to use NAFTA to improve how Canada and Mexico ensure intermediaries work with rights holders to protect and enforce IP online.

In contrast to the U.S. system, in 2015, Canada introduced a "notice-and-notice" regime whereby ISPs and digital intermediaries are required to forward notices of alleged infringement from copyright owners to their subscribers as identified by their IP address and to retain records that allow copyright owners to identify subscribers to whom notices are sent. Should an ISP or digital intermediary fail to comply, statutory damages range from CAD $5,000-$10,000. Where legal proceedings are commenced against the alleged infringer, the ISP or hosting provider must retain its records for 12 months. To pursue a user who is suspected of copyright infringement, a rights holder must obtain a court order to gain disclosure of the user's identity and then to pursue separate formal legal proceedings to establish liability.[34]

Canada's approach creates a number of problems for content creators. Canada's framework is unbalanced in that it does not condition the limited liability for ISPs and other intermediaries with sufficient responsibilities to help rights holders enforce IP, such as by removing infringing content once it is brought to their attention (as the DMCA requires in the United States). Without such conditions, Canada's framework does not create the necessary legal incentives for ISPs and other digital intermediaries to work with copyright holders to remove infringing content. This is part of the reason why Canada's notice-and-notice system has proven ineffective in fighting digital piracy. The International Intellectual Property Alliance (IIPA), which represents U.S. copyright holders, reports that the notice-and-notice system has not generated any significant change in consumer behavior with regard to infringement and that some ISPs ignore or only partly follow their obligations to send along notices to users.[35] The problem, as the IIPA points out, is that simply sending a notice to a user, without the potential for any meaningful legal consequences, does not always encourage users to stop posting or to remove copyright-infringing content.[36]

Overall, Canada's approach leads to weak online IP enforcement, which undermines the ability of U.S. rights holders to protect and use their IP in Canada's digital economy. The IIPA, in a submission to USTR on the issue, highlights the seriousness of the situation: "[T]he consistent absence of any criminal enforcement in Canada against even the most blatant forms of online theft completes the picture of a system that is still not up to the challenge. … Taken as a whole, these deficiencies in Canada's online liability legal regime still tilt the field of competition against licensed services, and also continue to send the wrong signals to consumers about whether infringing activities are tolerated."[37]

In Mexico, U.S. copyright holders report one of the biggest obstacles to effective online IP enforcement is the fact that Mexico has no laws that directly establish legal liability principles for ISPs and other digital intermediaries in regards to users who infringe copyright.[38] ISPs are only subject to general liability principles in Mexico's Civil and Criminal Codes. Without a clear legal framework, U.S. copyright owners have no clear mechanism to identify infringing material and to work with intermediaries to remove infringing content. In this uncertain legal environment, Mexico's procedures to get ISPs and hosting providers to takedown infringing material is proving ineffective. Some ISPs are unsure how to handle takedown measures, while others ignore them. A separate, but related issue, is that U.S. copyright holders face difficulties in pursuing civil remedies against users who infringe copyright as they can't identify them. Mexico's Telecommunications Law prohibit ISPs from disclosing a customer's personal information (although Article 189 of the Telecommunications Law, as amended in 2014, does allow an ISP to cooperate with an order from any relevant legal authority).[39]

Specific recommendations:

- Ensure Canada commits to a framework that allows copyright holders to work with ISPs to identify and remove copyright-infringing material posted by users in a timely and effective manner, similar to the "notice-and-takedown" regime used in the United States. This framework should include legal consequences for intermediaries that fail to fulfill their obligations under such a framework.

- Ensure Mexico adopts a balanced framework that establishes legal liability for intermediaries and provides copyright holders with an effective mechanism to work with ISPs and other digital intermediaries to identify and remove copyright-infringing material and to identify users who post infringing material and provides for appropriate legal remedies. This framework should include legal consequences for intermediaries that fail to fulfill their obligations under such a framework.

Insist That Mexico Implement Prior WIPO Commitments

Mexico should have a much better IP framework for its digital economy and for digital trade than what it does. Mexico has still not implemented many basic IP provisions that it agreed to in signing the World Intellectual Property Organization's (WIPO) "Internet Treaties" in the 1990s. Mexico has also postponed any meaningful reform of its main legislation—the Copyright Law—awaiting the conclusion of the TPP, which included an extensive IP chapter. Therefore, Mexico is well overdue to not only catch up on its existing commitments, but to move ahead to a comparable level and type of protection as in the United States and elsewhere, where countries have moved past these basic requirements to better address modern IP issues.

Specific recommendation:

- Insist Mexico modernize its copyright regime, including by fully implementing the World Intellectual Property Organization's "Internet Treaties."

Prohibit Forced Technology Transfer: Protecting Encryption and Source Code

Encryption—the technology many companies use to secure high-tech goods and digital services from unauthorized access—is at the forefront of competition in IT goods and services. Encryption plays an important, but often unrecognized, role in the modern economy. Over the last few decades, researches have steadily gotten better at securing data, especially by using encryption, and companies have integrated these advancements into their goods and services to improve security for consumers and businesses. Because proprietary security measures that use encryption are intangible software that is embedded in goods or services, enterprises' source code—the lines of computer code at the heart of software—is susceptible to theft and replication, and therefore relies on intellectual property protections. As many of these products involve high fixed costs for research and development to bring the first copy to market, but low marginal costs in subsequent copies, encrypted products and services represent an attractive target for foreign governments trying to collect and pass along the intellectual property to help local firms.

The United States should ensure that NAFTA protects encryption and source code used in commercial products from discriminatory and arbitrary regulations that require encryption key or source code disclosure as a condition of market entry. While there have been no specific issues in Canada or Mexico, it is worthwhile to use the opportunity of a revised NAFTA to ensure they don't arise in the future. Furthermore, such provisions would serve as building blocks to setting higher-standard rules on these issues more broadly, as countries that recognize the role of these modern protections negotiate their own trade agreements. New rules are needed as some countries, such as China and Vietnam, have enacted or considered such measures to transfer this valuable intellectual property to local companies, which effectively acts as an unfair barrier to the trade of encrypted commercial goods and services.

Specific recommendations:

- Prohibit NAFTA members from requiring the transfer of, or access to, software source code and encryption (whether viewing the source code or by providing an encryption key) as a condition for the import, distribution, sale, or use of commercial software in a member country.

- Clearly and narrowly define exceptions to source code protection provisions. The TPP's broad and undefined exception to rules protecting source code—that is, if such source code was used in "critical infrastructure"—opens the potential for the exception to undermine

Get Mexico to Improve its Protection of Digital Locks: Technical Protection Measures

In today's global digital economy, no copyright can be applied efficiently without the support of Technical Protection Mechanisms (TPMs).[40] TPMs protect access controls and copying for copyright-protected content and the devices/networks that use them, such as Netflix, the Xbox, or Valve's Steam. Such "digital locks" are crucial to fight online piracy. The stakes are high, given that the cost to develop a video game, for example, can frequently exceed $50 million.[41] Furthermore, many U.S. jobs are in sectors that rely on TPMs. In 2015, digital content (such as subscriptions, digital games and add-ons, mobile apps, and network gaming) accounted for 56 percent of the $23.5 billion in U.S. games-sector sales. The games industry employs, directly and indirectly, 146,000 people in 36 U.S. states.[42]

The rights of creators, especially online, are not worth much if they can't be protected. TPMs have facilitated the innovation that leads to new business models to distribute copyrighted content and vastly increased the range of content offerings, all the while increasing consumer access. Digital technologies and widespread high-speed Internet access have not only transformed how creators and companies realize the benefits from their creativity and deliver goods and services, but have also created a vulnerability whereby a single circumvention tool can quickly and easily facilitate piracy on a global scale. This is why it is important to leverage trade negotiations to get countries, such as Mexico, which do not provide proper protection for TPMs to implement them.

These NAFTA negotiations should get Mexico to fulfill the commitments it initially made in signing the World Intellectual Property Organization's Internet Treaties—agreed to in the late-1990s—which included provisions on TPMs.[43] As WIPO outlined in its guide for the treaties, the application of TPMs is "a key condition for the protection, exercise, and enforcement of copyright in the digital networked environment."[44]

Similar to provisions agreed to in the TPP, a revised NAFTA should ensure that Mexico provides legal protection and effective remedies against TPM circumvention and prohibits actors from providing circumvention services and supporting trade/trafficking in circumvention tools.[45] Furthermore, Mexico should ensure its TPM provisions apply to both the domestic manufacture of devices that circumvent TPMs as well as circumvention devices which are imported.[46] At the moment, Mexico has a legal loophole that does not apply its current limited laws to imported circumvention devices, which is the major source of such products. Given incidences whereby individuals disseminate information about how to circumvent TPMs, such as for video games, Mexico should also agree to provide criminal sanctions for when individuals are found to have willfully and for purposes of commercial advantage or financial gain violated the legal protections for TPMs.

Specific recommendation:

- Mexico should fulfill the commitments it made in signing WIPO's Internet Treaties and to adopt measures that effectively protect technical protection measures and prohibit and prosecute

individuals involved in both the manufacture and importation of devices that circumvent such protection measures.

Protect Innovative Life-Sciences Intellectual Property: Canada Should Eliminate Its Promise Doctrine:

The United States should use NAFTA negotiations to advocate for and ensure change in Canada's use of the "promise doctrine." Furthermore, the United States should use negotiations to improve NAFTA's dispute settlement mechanism given its recent decision to not examine whether the doctrine contravened Canada's obligations under NAFTA's IP and investment provisions. The promise doctrine has clearly undermined the intellectual property rights of innovative U.S. pharmaceutical companies. The Canadian government has allowed the courts to follow this doctrine, which applies an unrealistic evidentiary burden on pharmaceutical patent applications—one that isn't used anywhere else in the world—in order to benefit Canadian generic drug producers.[47]

Since 2005, Canadian courts have revoked 25 patents for failing to meet their definition of "usefulness," which is a key part of the World Trade Organization's (WTO) Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. Innovative pharmaceutical companies have suffered over $1.1 billion in lost sales from such premature termination of patents in Canada.[48]

Yet the TRIPS criteria for obtaining a drug patent are clear: The drug must be new, non-obvious, and useful. In the pharmaceutical sector, a patent is typically issued prior to a drug's clinical testing, because if it is commercially viable, it is therefore vulnerable to theft and copying. So patents are filed upon the discovery of a chemical formula. Without the patent, innovative pharmaceutical companies would not have the incentive to research and develop this formula, which can cost hundreds of millions of dollars and take years to bring to market, because the end product would be unprotected.

Given the clearly defined steps, most TRIPS-compliant countries make it straightforward to meet the conditions required to obtain a patent, especially in fulfilling the usefulness criterion. In the United States and Europe, this means identifying a practical and credible utility that pharmaceutical companies can reasonably meet in disclosing how a proposed drug can be useful in treating a specific disease.

In Canada, however, this "promise doctrine, which was established by the Canadian Federal Court of Appeals in 2010, raised the evidentiary requirements for the usefulness criteria by forcing inventors to demonstrate, or "soundly predict," a "promise" of the patent. In effect, this means that a drug must not only be useful for some purpose (as in the United States and Europe), but that it must be useful for *exactly the purpose* that is specifically promised in the patent filing. By using such an unrealistic evidentiary burden, Canada's courts make Canada an outlier in the application of a basic tenet of international intellectual property law.

Canadian courts have continued to apply this impractical evidentiary burden that asks inventors to predict at the date of filing—before research and development and clinical trials have even been completed—specifically

how useful a patented drug will be and for what specific purpose. It has introduced considerable uncertainty into the process, as firms have no way of knowing what "promises" a Canadian court might subjectively find in the patent application, or how much evidence the court will require to satisfy those promises (i.e., in vitro testing, animal testing, or comprehensive human clinical trials). For example, in the case of Pfizer's drug Latanoprost, two panels of the same court reviewed the patent: one found usefulness while the other did not. The end result is that firms, and even patent reviewers, must deal with an unpredictable process.

Yet patent challenges brought under the "promise doctrine" haven't truly been about "usefulness," but rather the profitability of Canadian generic drug producers. Most of these patent cases, including the retrospective patent challenges to drugs already under patent protection, are initiated by Canadian-based generic drug companies for their own self-interest: to get a patent revoked in order to allow them to copy intellectual property and sell their own version of drugs in Canada. The 2015 cases included Canadian generic drug companies Mylan and Apotex. The fact that generic firms are the basis for these challenges proves the irrationality of the situation: If you are a competitor, why challenge the patent of a competitor if that drug is not useful? Why seek the right to produce and sell that drug if it is not useful? Adding to suspicions that this is really just "judicial mercantilism" reflective of an industrial policy designed to help Canada's generic drug producers is the fact that other non-pharmaceutical patents have not experienced the same rate of after-the-fact invalidation (only two since 1990, and no new ones since 2004).

U.S. pharmaceutical companies challenged the promise doctrine using NAFTA's dispute settlement mechanism, but were unsuccessful. The tribunal did not did not rule on whether the doctrine contravened NAFTA IP and investment provisions, instead saying the case did not meet the heightened standards required for cases under NAFTA's dispute mechanism, as the doctrine was only an "incremental" and not "dramatic" shift in policy. Such a decision is mistaken—an incremental change shouldn't result in 25 patents being retrospectively revoked, resulting in over $1 billion in lost sales. This policy has had a dramatic impact on the ability of U.S. companies to use and trade their IP and goods.

The United States should use NAFTA negotiations to get Canada to restore certainty and clarity by ensuring that pharmaceutical patents are assessed using the same commonly accepted criteria already in place throughout the world.

Specific recommendations:

- Use NAFTA negotiations to get Canada to revoke the "promise doctrine" so that U.S. pharmaceutical intellectual property receives the same treatment (in terms of patent utility assessment) in Canada as it does in countries around the world.

- Use negotiations to revise relevant NAFTA dispute settlement mechanisms to ensure that cases, such as this one, which show a clear and significant discriminatory impact on trade, receive a proper hearing.

DO NOT INCLUDE A CARVE OUT FOR NEW SERVICES

The United States should ensure that a revised NAFTA does not include a carve out for members to regulate "new services"—like an innovative new way to use artificial intelligence—in a discriminatory manner. Such a precautionary carve out for new services would allow members to circumvent central tenets of modern trade—that of national treatment and most-favored nation status—for new and innovate services. The European Union (EU) and some other countries supports such a carve out as they want to reserve the right to regulate, potentially in a way that is discriminatory, new services before they go to market.[49] The EU-Canada Comprehensive Economic and Trade Agreement included such a carve out.[50] Such a carve out, if it were to become prevalent in trade agreements around the world, would act as a potential barrier to future U.S. trade, especially given that the United States is a world leader in services innovation and trade. It's important that the United States set rules that protect the ability of innovative firms to use trade agreements in the future to get fair and equal access and treatment in foreign markets.

The default position in trade agreements, such as NAFTA, that use a negative-list approach to outline commitments— in which countries specify what sectors are not covered by a trade agreement— is to automatically grant "new services" both national treatment and most-favored nation status. What this allows is the right to regulate new services, but not the right to regulate them in a discriminatory manner, which is what a carve out for new services would allow. While no new services have been created that fall outside the global classification of economic and trade data that is used in trade agreements—the United Nations Central Product Classification—there is always the potential for new technology, such as artificial intelligence, to create new services that can be traded in the future.

Specific recommendation:

- Ensure NAFTA does not include any carve out from national treatment and most-favored nation commitments for new services.

ESTABLISH A HIGHER DE MINIMIS THRESHOLD FOR SMALL PACKAGES IN CANADA AND MEXICO

The Internet enables firms to access global markets unlike ever before. The rise of small-package trade is most often associated with e-commerce by small and medium-sized enterprises that can easily and cheaply setup their own website or use a third-party platform, such as Amazon, eBay or Etsy to sell to customers around the world. But traditional retailers are also involved as they increasingly sell online. Such small packages trade is made up of relatively low-value shipments. However, such small-package trade still faces traditional market barriers—the cost, time, and ease of getting these packages to customers in other countries.

This where the de minimis threshold—the monetary value below which a physical good is exempted from customs duties, taxes, and all but minimal paperwork—plays an important role. If that threshold is too low it adds unreasonable and unnecessary costs to a relatively low-value item. This additional cost—in terms time,

complexity, and financial resources—acts as a protectionist barrier to small-package e-commerce as it can equal a major part of the value of the actual product, thereby making such trade unprofitable. A low de minimis threshold is a barrier to modern trade that has not been tackled in past trade agreements. Trade liberalization has reduced tariffs and quotas, propelling dramatic growth in trade in recent decades, but it's now at a point in many countries that logistics costs for small-package trade are greater deterrents to trade than remaining tariffs.[51]

It is a relevant barrier to address in a revised NAFTA as technology and online e-commerce platforms make it significantly easier for U.S. firms to engage in small-package trade. For example, 97 percent of U.S. SMEs on eBay export as compared to 4 percent of traditional SMEs. Furthermore, 59 percent of U.S. SMEs on eBay reach 10 or more foreign markets as compared to 8 percent of traditional SMEs.[52] Addressing barriers to such SME-based small package trade holds broad economic significance—SMEs that engage in trade employ more people, pay higher wages, achieve higher sales, and are more productive than SMEs that do not. Exporting SMEs also have a higher chance of surviving.[53] Exporting helps SMEs learn, innovate, diversify sources of revenue, improve capacity utilization, and improve overall competitiveness. In addition, helping SMEs diversify their exports drives further firm productivity.[54]

This is why a reasonable de minimis threshold is important so as to minimize the cost and complexity of trade. For the many U.S. SMEs involved in e-commerce, the frictions associated with trade logistics are a major barrier to trade as they don't have the scale, resources, or administrative capacity to navigate legal and regulatory issues across multiple jurisdictions. SMEs suffer more than other firms from a low de minimis threshold as trade and compliance costs are relatively higher for SMEs than for large firms as they lack the economies of scale and SMEs have a tendency to order and consume relatively more small consignments than larger firms.[55]

Achieving a higher de minimis threshold in Canada and Mexico is important as they are both key markets for U.S. firms engaged in e-commerce, and their respective de minimis levels are so low as to act as a protectionist barrier. Canada only has a de minimis threshold of $20 for customs duties and taxes. Meanwhile, Mexico has a de minimis threshold for taxes of $300 for goods delivered via the postal service and $50 for goods delivered via courier services, like FedEx.[56] This is why the United States should use a revised NAFTA to get Canada and Mexico to raise their de minimis threshold to a level that is commercially significant and to a level that is closer to that of the United States ($800). However, within these negotiations, the focus should be especially on Canada given its extraordinarily low de minimis threshold.

Specific recommendation:

- Ensure Mexico and Canada to increase their de minimis levels to a commercially significant level closer to that in the United States ($800).

INSIST CANADA REMOVE AEROSPACE SUBSIDIES

Canadian aircraft producer Bombardier has a long history of relying on government subsidies to compete, but the subsidies Bombardier received for its C Services aircraft (100- to 150-seat large civil aircraft) were the largest to date and have allowed it to predatorily price its aircraft, thereby displacing potential sales of U.S.-made aircraft around the world. The U.S. Department of Commerce initiated an anti-dumping and countervailing duty investigation against Bombardier after receiving a petition from Boeing in May 2017. A final decision on the issue of countervailing duties is scheduled for October and in December on the issue of antidumping. In the interim, the United States should use negotiations for a revised NAFTA to address the issue by getting Bombardier to stop selling its aircraft below cost and by getting Canada to eliminate trade-distorting subsidies.

Boeing argues that unfair subsidies have allowed Bombardier to predatorily price its aircraft in the U.S. market, to the detriment of U.S. companies. Starting in 2005, the Canadian federal government, the province of Quebec, and the United Kingdom massively subsidized development of the Series C aircraft, starting with hundreds of millions of dollars in "launch aid" and then a $2.5 billion "bailout" (in the form of equity infusions) from the province of Quebec in 2015. Boeing alleges this launch aid was provided at below-market rates and essentially transferred development risk from the company to the Canadian taxpayer, meaning that it is questionable whether the C Series aircraft would have been launched without it. Based on publicly available information, Boeing outlines how Bombardier sell these aircraft in the United States for $20 million when they cost $33 million to produce, meanwhile selling them for $30 million in its home market of Canada. Boeing estimates the margins for unfair subsidization are equal to 79.4 percent and dumping of 79.8 percent.[57] The selling of these aircraft at below cost displaces potential sales of U.S. made aircraft and U.S. aerospace jobs.

The selling of aircraft below cost is particularly harmful for an innovative and capital-intensive sector such as aircraft manufacturing as research and development costs are very high and pricing is set at the time of order, which can be years before the plane is produced, so being unfairly undercut undermines Boeing's ability to invest in future research and development and efficient production facilities. The negative effects are particularly pronounced in aircraft manufacturing as it a relatively low-volume business—therefore losing an order for 75 planes (which is what happened when Bombardier undercut Boeing on a recent order from Delta Airlines) can have cascading effects on future development and on the cost-per-plane for future orders.

Specific recommendation:

- Use negotiations for a revised NAFTA to get Canada (the federal government and the provinces) to permanently withdraw trade-distorting subsidies to Bombardier and to get Bombardier to price its plane at actual market rates.

CONCLUSION

NAFTA has been good for all three nations. The changes outlined here show a number of ways it can be made even better. This is how the United States should view this process—as a way to negotiate an updated agreement that will better support U.S. economic interests, and not as a process that could potentially lead to the U.S. withdrawal from NAFTA. Such an outcome would undermine the role NAFTA plays in supporting some of the United States' most competitive and innovative industries. Starting NAFTA from scratch would also lead to time-consuming and difficult negotiations. Most importantly, it would divert U.S. policymakers and trade officials—and their limited resources—from focusing on much more important U.S. trade issues, such as China.

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