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# Trade Globalization: Effects on Canadian National Security

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# TRADE GLOBALIZATION: EFFECTS ON CANADIAN NATIONAL SECTRITY

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# TRADE GLOBALIZATION: EFFECTS ON CANADIAN NATIONAL SECURITY

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**ABSTRACT**

This paper examines how the globalization of trade has affected the Canadian economy. It argues that Canada has the required policies to, if properly applied, greatly benefit from the global marketplace while overcoming the potential threats to national security that uncontrolled outsourcing and an over-reliance on volatile trading commodities presents. Beginning with an analysis of the rise of trade globalization and the benefits and drawbacks of an open market, the paper then examines the influence globalization has had on Canada's major trading commodities and critical dependencies. Finally, it looks at the measures that the Canadian government uses to combat the threat to national security posed by Canada's extensive reliance on trade for its economic prosperity. While the globalization of trade creates several risks for Canada, including a loss of domestic production capacity for critical commodities, if mitigated through effective checks and balances, the benefits are inviting. Anticipating and adapting to future market trends, as well as having appropriate trade, arms sales, and cyber security policies in place will ensure that Canada is able to protect its national security while still actively participating in the global market

## 1. INTODUCTION

Although Canada only possesses 0.5% of the world's population, according to the World Trade Organization's 2019 Trade Policy Review, the Canadian economy is responsible for 2.4% of global trade.[1] Canada's relative success in the global market is largely attributed to the country's abundance of natural resources. As a resource rich nation, and thanks to advancements in communication and transportation technology, Canada is well positioned to take advantage of the growing world market. Given the need to protect the country's economic interests, it is not surprising that the Canadian government invests a significant amount of effort in promoting rules-based international trading standards and agreements which open foreign markets to Canadian businesses.

With the road blocks that once prevented access to the world economy diminishing, the average Canadian consumer can no longer easily understand how affordable goods are manufactured or the global network that brought them to the shelves of their local store. In addition to seeking inexpensive materials and labour from various parts of the world, it is now rare for manufacturing companies to fabricate all of the components of their products. Instead, assembling components ordered from multiple fabrication companies around the world has become the norm. For example, it now takes more than 800 suppliers spanning over 30 countries to produce an iPhone.[2]

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[1] World Trade Organization, *Trade Policy Review - Report by Canada* (WTO.org: World Trade Organization, 2019), 5.

[2] Hanna Norberg, "Unblocking the Bottlenecks and Making the Global Supply Chain Transparent: How Blockchain Technology can Update Global Trade," *The School of Public Policy Publications* 12, no. 9 (Mar 01, 2019), 2. doi:10.11575/sppp.v12i0.61839. https://doaj.org/article/16ccca2297ab46e19f87f1a09435ec02.

Along with the ever increasing globalization of businesses has come a marked increase in international trade. Between 2000 and 2019, the annual global value of goods exported increased from approximately USD$6.45 trillion to $19 trillion.[3] It should be noted however, that although the COVID-19 pandemic caused a 8.2% drop in world trade by the third quarter of 2020, industry adaptation to meet increased telecommunications demands seems to have limited the economic effects of the pandemic on developed countries.[4] It is therefore unlikely that the continued upward trend of trade globalization will decline as the world recovers in the post COVID-19 environment.

The outsourcing of production has promoted economic growth in much of the developing world. Countries such as China have taken advantage of Western consumers' desires for affordable manufactured goods. Beijing is also investing in trade routes in Eurasia through its Belt and Road initiative in order to link the major economies in the region.[5] According to a December 2020 report from the United Kingdom's Centre for Economics and Business Research, these efforts, and a quick recovery from COVID-19, have laid the groundwork for China to overtake the United States (US) as the number one economy in the world by 2028.[6] China appears to have found a way to take advantage of the global market to strengthen its influence and is poised to become an example for other developing countries.

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[3] "Trends in Global Export Volume of Trade in Goods from 1950-2019," last modified April, accessed 9 Jan, 2021, https://www.statista.com/statistics/264682/worldwide-export-volume-in-the-trade-since-1950/.

[4] "World Trade Volume Rallies in Third Quarter After COVID-19 Shock," last modified 18 December, accessed 9 Jan, 2021, https://www.wto.org/english/news_e/news20_e/stat_18dec20_e.htm.

[5] "China's Belt and Road Initiative in the Global Trade, Investment and Finance Landscape," OECD Publishing, , https://doi.org/10.1787/bus_fin_out-2018-6-en.

[6] "Chinese Economy to Overtake US 'by 2028' due to Covid," last modified 26 December, accessed 10 Jan, 2021, https://www.bbc.com/news/world-asia-china-55454146.

This rapid expansion of trade globalization has also unleashed a backlash of protectionism from some of the other major powers. Leaders from the US and the UK have been critical of international institutions and regimes that they claim to have constrained their national interests.[7] In addition to concerns of being constrained by international organizations, the widespread practice of outsourcing over the last few decades, allegedly to maximize profit, may have indeed inadvertently led to countries becoming less self-sufficient. All of this suggests that there are potential drawbacks in the new global market.

The COVID-19 pandemic has clarified the national security risks stemming from globalized markets and supply chains. In the initial months of the pandemic, stresses on the global supply chain for medical and personal protective equipment (PPE) left states without in-country production facilities and unable to protect their citizens. For Canada and many others, this challenge was exacerbated when the United States – one of the world's largest and most reliable suppliers of PPE – began to limit its exports as well.[8] In addition to the unexpected PPE supply chain challenges, Canada has also felt the ramifications of its outsourcing of vaccine manufacturing. This practice has left the country without a domestic capacity to produce the mRNA vaccines that were the first to be effective against COVID-19, and reliant on imports from Europe.[9] Restricting trade in

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[7] Miles Kahler, "Global Governance: Three Futures," *International Studies Review* 20, no. 2 (Jun 01, 2018), 244. doi:10.1093/isr/viy035.

[8] Department of Homeland Security, "Prioritization and Allocation of Certain Scarce and Critical Health and Medical Resources for Domestic Use," *Federal Register* 85, no. 154 (10 August, 2020), 48113-38119.

[9] "What an EU Crackdown on COVID-19 Vaccine Exports could Mean for Canada," last modified 1 Feb, accessed 15 Feb, 2021, https://globalnews.ca/news/7604633/eu-vaccine-export-ban-canada-explained/.

the name of national security is not uncommon, but in today's globalized economy its implications are particularly worrisome.

This paper will examine how the globalization of trade has affected the Canadian economy and argue that Canada has the required policies to, if properly applied, greatly benefit from the global marketplace while overcoming the potential threat to national security that uncontrolled outsourcing and over reliance on volatile trading commodities presents. This paper begins with an analysis of the rise of trade globalization and the benefits and drawbacks that an open market brings. It then examines the influence globalization has had on Canada's major trading commodities and critical dependencies. Finally, it looks at the measures that the Canadian government uses to combat the threat to national security posed by Canada's status as a trading nation.

## 2. RISE OF TRADE GLOBALIZATION

The ideas and practice of trade between states for economic gain are not limited to the modern era. Early efforts among people to split responsibilities for hunting and gathering could be seen as a form of trading in goods and services. As the world opened up, the expansion of trading practices was natural. People quickly figured out how to use trade to increase their wealth. With this new affluence, so too increased their potential power and influence. Arguments extolling the benefits of free trade have been ongoing for hundreds of years, with Adam Smith being credited with the first in-depth argument on the economic benefits of free trade, in 1776.[10] The reach and scope of trade continued to expand as technology and transportation opened up the world, but it was not until after

[10] Craig VanGrasstek, *The History and Future of the World Trade Organization* (Atar Roto Presse SA, Geneva: WTO Publications, 2013), 5.

the events of the Second World War that the General Agreement on Tariffs and Trade (GATT) was ratified, that the foundations of the modern multilateral trading system really started to develop. GATT evolved over time until, in 1994, it was replaced by the World Trade Organization (WTO).[11]

Canada has a strong history in contributing to the quest for a fair global trading system, and was one of the original signatories of GATT in 1947.[12] Today, fair and open trade continues to play a critical role in the Canadian economy and government strategy. In 2019, one in six Canadians' employment was linked to trade, and trade was responsible for 66% of Canada's gross domestic product (GDP).[13] It is therefore not surprising that continuing to play a leading role in world trade modernization is included in Global Affairs Canada's (GAC's) 2020-2021 departmental plan.[14] In practice, GAC has formed the "Ottawa Group" to discuss WTO reform with the goal of increasing the organization's fairness and effectiveness.[15]

Canada is a firm believer in open and rules based trade agreements that make the world market more accessible. In line with the negotiation frameworks laid out by the WTO, Canada invests significant resources in negotiating bilateral, multilateral and regional trade deals to promote the country's interests. While the Canada-United States-Mexico Agreement (CUSMA) outlines the rules between Canada and its largest trading

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[11] Roy Santana, "70th Anniversary of the GATT: Stalin, the Marshall Plan, and the Provisional Application of the GATT 1947," *Journal of Trade Law and Development* 9, no. 2 (2017), 118-137. http://www.tradelawdevelopment.com/index.php/tld/article/viewFile/9%282%29%20TL%26D%20118%20%282017%29/312.

[12] Santana, "70th Anniversary of the GATT: Stalin, the Marshall Plan, and the Provisional Application of the GATT 1947," , 118-137

[13] World Trade Organization, *Trade Policy Review - Report by Canada*, 4-5

[14] Global Affairs Canada, *Departmental Plan 2020-21* (Canada: Ministers of Foreign Affairs, International Trade and International Development, 2020b), 17.

[15] World Trade Organization, *Trade Policy Review - Report by Canada*, 7-8

partner, Ottawa has also recently negotiated the Canada-EU Comprehensive Economic and Trade Agreement (CETA). According to Global Affairs Canada, this agreement, although not yet fully ratified by all EU countries, will provide "Canadian businesses preferential access to one of the largest economies in the world."[16] Additionally, Canada is a member of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), a free trade agreement with 10 countries in the Asia-Pacific.[17] In addition to CUSMA, CETA and CPTPP, in an ongoing quest to assist Canadian businesses in accessing the global market, Canada is pursuing a potential Canada-Association of Southeast Asian Nations Free Trade Agreement and is in the process of modernizing other existing agreements.[18]

**Benefits**

The benefits that Canadians accrue from international trade are extensive. Trade can improve the quality of life of a population by granting access to goods and services that would otherwise not be available. For example, thanks to trade, Canadians have access to foods year round that either cannot be grown in the country or if they can, only for a short season. Canadian farmers can therefore concentrate on growing crops and raising livestock that prosper in the harsh northern environment. The freedom to specialize in the items that are the most profitable to produce is one of the many benefits the easy access to foreign markets through globalization brings.

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[16] "CETA Explained," Canada, last modified 24 September, accessed 14 Jan, 2021, https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/ceta-aecg/ceta_explained-aecg_apercu.aspx?lang=eng.

[17] "Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)," last modified 31 Dec, accessed 15 Feb, 2021, https://www.international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/cptpp-ptpgp/index.aspx?lang=eng.

[18] Global Affairs Canada, *Departmental Plan 2020-21*, 16-17

However, the natural resource sector is not limited to agriculture. It also includes fishing, forestry, mining and energy. Considering Canada's relatively abundant natural resources, it is only logical that this sector would be an area of focus for the Canadian industry. In fact, the importance of the export of natural resources to the Canadian economy cannot be understated. Crude oil and gold are among the top three exports, by value, and mineral fuel products in general accounted for 22% of all Canadian exports in 2019.[19]

The export of vehicles, aircraft, spacecraft and pharmaceuticals also rank in the top 10 exports, by value.[20] This diversification of traded commodities helps to reduce the risks caused by an over reliance on one sector in case of a market crash. Of the $585 billion in Canadian exports in 2018, $252 billion was from sectors other than natural resources.[21] According to a 2019 Global Affairs Canada report, Canada also exported $121 billion in services in 2018.[22] With such a high percentage of the GDP linked to exports, it is clear that Canada's economy benefits extensively from access to the global market.

While Canada enjoyed a trade surplus in the natural resources sector of approximately $128 billion in 2018, the country did not do as well in other areas. Consumer goods and electronics alone accounted for a $97 billion trade deficit in the same year,[23] indicating a significant dependence on foreign products. Despite strong trade

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[19] "Canada's Top 10 Exports," , accessed 14 Jan, 2021, http://www.worldstopexports.com/canadas-top-exports/.

[20] "Canada's Top 10 Exports,"

[21] Canada, *Canada's State of Trade 2019*, 20th ed.Global Affairs Canada, 2019a).

[22] Canada, *Canada's State of Trade 2019*

[23] Canada, *Canada's State of Trade 2019*

numbers in many sectors, when one looks at all exports, Canada continues to experience an overall trade deficit, the bulk of which is with the United States.

While in the short term a trade deficit could increase quality of life of citizens through access to cheaper goods, over time it can result in the outsourcing of jobs and potential loss of domestic production capacity.[24] Trade deficits therefore are often not seen in a positive light even if they do indicate areas for potential market expansion based on the evident demand for goods or services in a specific sector. With that said, there is a lot of competition in the areas which Canada experiences significant trade deficits, with countries such as China being able to create electronics at a lower cost than possible in Canada due to less stringent labour standards, production costs and currency manipulation.[25] Nonetheless, The increasing of export quantities, the diversification of exports and the acquisition of new trading partners can help to close the gap between import and export values.[26]

The outsourcing of the production of goods and services to developing countries is not only a way to reduce cost, but it can also provide the benefit of opportunities for economic growth in these countries. Some studies have concluded that increased international trade has narrowed global income inequality since lower income countries appear to have benefited from more economic growth than wealthy countries.[27] With an

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[24] "Trade Deficits, their Causes, and Effects," last modified 27 Sep, accessed 15 Feb, 2021, https://www.thebalance.com/trade-deficit-definition-causes-effects-role-in-bop-3305898.

[25] Myeong Hwan Kim, "The U.S.-China Trade Deficit," *The International Trade Journal* 28, no. 1 (2014), 65-83.

[26] Canada, *Canada's State of Trade 2019*

[27] Farhad Rassekh, "Is International Trade More Beneficial to Lower Income Economies? an Empirical Inquiry," *Review of Development Economics* 11, no. 1 (2007), 159-169.

increase in economic prosperity it is also common for citizens' quality of life to increase, a clear benefit to many poor countries.

The Canadian government seems optimistic that the benefits of investing in foreign markets outweigh the costs, and expressed its support for a fair and rules-based multilateral trading system in the 2019 Trade Policy Review. The report states that such a system would create an "economic environment in which businesses can thrive, which is essential to increasing the economic well-being of not just Canada, but of all WTO members, contributing to a more prosperous and stable world."[28]

This view that a fair and open trading market promotes stability is a common theme for those in favour of globalization, with some academic studies suggesting that trade interdependencies promote peace.[29] This theory that state interdependencies reduce the risk of militarized conflict is similar to the one that democratic countries will not go to war with one another and is often referred to as the liberal peace.[30] Unfortunately, this belief that trading partners will not want to risk the economic benefits associated with trade by engaging in a militarized conflict seems to only hold true so long as both sides believe that they are benefiting from the arrangement. If one or both sides believe that an agreement has a negative impact on their national autonomy there remains a potential for conflict.[31] Therefore, it is critical to ensure both parties believe they are benefitting from any trade agreement if conflict is to be prevented.

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[28] World Trade Organization, *Trade Policy Review - Report by Canada*, 6

[29] Jong-Wha Lee and Ju Hyun Pyun, "Does Trade Integration Contribute to Peace?" *Review of Development Economics* 20, no. 1 (2016), 327-344.

[30] John R. Oneal and Bruce Russett, "Assessing the Liberal Peace with Alternative Specifications: Trade Still Reduces Conflict," *Journal of Peace Research* 36, no. 4 (1999), 423-442. doi:10.1177/0022343399036004003. https://doi-org.cfc.idm.oclc.org/10.1177/0022343399036004003.

[31] Lee and Pyun, "Does Trade Integration Contribute to Peace?" , 328

While there are many benefits associated with the globalization of trade they can only be realized if there are appropriate safeguards to prevent or address trade disputes arising from unequable arrangements. The RAND report on the *Economic Dimension of National Security* champions the benefits that access to foreign markets can bring if "international trade is governed by understandable and predictable rules rather than by the changeable whims of national governments."[32] Canada's investment of resources in trade negotiations and its support for the WTO demonstrates that Ottawa also believes in the benefits a fair and open global market can bring.

**Drawbacks**

As stated in *Canada in a New Maritime World: Leadmark 2050,* "There are few nations more globalized than Canada or whose citizens are more dependent upon on the integrity of the global system for their prosperity and security."[33] This report is another example of the Canadian Government recognising how important a stable global trading system can be to maintaining and improving the current quality of life of its citizens. However, there are still some areas of concern with the globalization of trade that countries such as Canada need to be aware of. These include, but are not limited to, potentially (inadvertently) supporting questionable labour practices or organizations, increased reliance on other countries for critical resources and commodities, loss of jobs for unskilled workers, theft of intellectual property and constraints of national interests.

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[32] C. Neu and Charles Wolf, *The Economic Dimensions of National Security* (Santa Monica, CA: RAND, 1994), xvi.

[33] Canada, Department of National Defence, *Canada in a New Maritime World: Leadmark 2050* (Ottawa: Commander, Royal Canadian Navy, 2016), iii.

Unfortunately, in today's profit driven global market place, it is not unusual to see unnecessary risks being taken in many of these areas.

The previous section reviewed the potential economic benefits that outsourcing can have on developing countries, and specifically on the quality of life an influx of foreign investment can bring. However, it should be noted that this benefit is not always guaranteed and is strongly dependant on the labour laws, politics and the government in a specific country. For example, even though China's economy is forecast to overtake that of the US by 2028, it is anticipated that Chinese citizens will remain far poorer on average than US citizens.[34] This does not mean that the quality of life in China will not have improved, but one needs to take into account that other factors may limit the benefits people see from a strong economy. It is not uncommon for sweatshops or other unethical labour practices to be openly used in some developing countries to meet the demands for cheap consumer goods. This highlights the importance of understanding the practices used to produce goods in order to avoid inadvertently supporting unethical behaviors.

Over the past few decades, China has benefited from the lowering of trade barriers and the ramping up of its consumer goods manufacturing capabilities. Between 1991 and 2007, exports from China to the US increased by 1,156%.[35] With this upward trend continuing, some studies suggest that exposure to trade from Chinese markets has increased unemployment and lowered wages in the US.[36] Meanwhile, other studies have

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[34] "Chinese Economy to Overtake US 'by 2028' due to Covid,"

[35] David H. Autor, David Dorn and Gordon H. Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," *The American Economic Review* 103, no. 6 (2013), 2121-2168.

[36] Autor, Dorn and Hanson, "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," , 2121-2168

suggested that although these findings are valid, they fail to account for the shift of employment to other industries that resulted.[37] Whether beneficial or not, increased trade has disrupted industries and forced changes in manufacturing activities in wealthy countries.

The increased manufacturing of inexpensive goods or components in countries with cheap labour has led to difficulty in tracing a product's true country and company of origin. With many items that claim to be made in a certain country actually only being assembled there, it is getting increasingly difficult for consumers to know who they are supporting when they buy a product. This quandary leads to issues when trying to export a finished product to another country with which there exists a reciprocal trade agreement, as it can be difficult or impossible to prove your product meets the requirements to qualify for free trade. For example, Honda had to fight with US customs over whether its vehicles, made in Ontario, met the 50% local content requirement stipulated by NAFTA.[38]

These changes in manufacturing practices have also meant that developed countries are becoming increasingly reliant on a variety of cheap consumer goods from countries such as China. Outsourcing the manufacturing of common consumer goods or components has resulted in limited or non-existent manufacturing capabilities and when combined with stringent environmental and labour laws, Canada and many other western countries end up finding themselves unable to compete.[39] Although there is a growing

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[37] "What's the Impact of Globalization on Wages, Jobs and the Cost of Living?" Global Change Data Lab, last modified 22 Oct, accessed 20 Jan, 2021, https://ourworldindata.org/trade-wages-cost-living.

[38] Jagdish Bhagwati, *Termites in the Trading System: How Preferential Agreements Undermine Free Trade* (New York: Oxford University Press, 2008), 68.

[39] Kim, "The U.S.-China Trade Deficit," , 65-83

trend to buy local or made-in-Canada goods, the value of doing so may not be understood or financially feasible for members of lower income groups.[40]

Another big concern with globalization is the possibility of intellectual property theft. China has a bad reputation for corporate espionage, as demonstrated in the case of suspected theft of intellectual property from the Canadian wireless technology company NORTEL Networks Corp.[41] Beijing also seems to have a different understanding and cultural acceptance of copyright laws than the West, and it is therefore common for China to make similar products at a fraction of the cost. The companies that engage in this practice not only save money on research and development, but they also tend to use lower quality materials to mass produce their imitations. The result is significantly lower costs to the consumers, which can make it difficult for the average person to justify spending more money on the original products. This is a vicious cycle that makes it difficult for new, innovative companies to thrive. Canada's Five Eyes partners have recognised the threat that IP theft presents and are taking measures to block the Chinese company Huawei from their 5G networks over security concerns.[42] While the Canadian government has not blocked Huawei yet, nor has Ottawa sanctioned Canadian communications companies to use their equipment, forcing the market to look elsewhere.

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[40] Martin Richardson and Frank Stähler, "Buy Local? Governmental Incentives to 'Inform' Consumers," *World Economy* 39, no. 5 (2016), 636-650.

[41] "Did a Chinese Hack Kill Canada's Greatest Tech Company?" last modified 1 July, accessed 27 Jan, 2021, https://www.bloomberg.com/news/features/2020-07-01/did-china-steal-canada-s-edge-in-5g-from-nortel.

[42] "Canada has Effectively Moved to Block China's Huawei from 5G, but can'T Say So," last modified 25 Aug, accessed 27 Jan, 2021, https://www.reuters.com/article/us-canada-huawei-analysis-idUSKBN25L26S.

China has benefited from a consistent government trade strategy over the past few decades.[43] Chinese manufacturers have found ways to make western countries reliant on their inexpensive products which has resulted in not only growth in the Chinese economy but also more power and influence for Beijing across the world. If China were to stop exporting its goods, the cost of living in the West would increase dramatically and there would be large holes in the supply chain that could cripple domestic companies. This vulnerability has not gone completely unnoticed, and many states are therefore starting to see the value in maintaining critical industries. Canada's current National Ship Building Strategy is an example of the government trying to bring technical skills and manufacturing capability back to the country.[44] The protectionist policy of the US also does not appear to be going away anytime soon, as President Biden signed an executive order to strengthen Buy American provisions within his first few days in office.[45]

As the world becomes more interdependent, countries need to take a hard look at the critical links in their supply chains. It may not be feasible for a country such as Canada to be completely self-sufficient and still maintain its current level of prosperity. However, Ottawa needs to be aware of what constitutes a critical capability and ensure that when outsourcing, it only does so with trusted partners. The WTO is not blind to these concerns and allows countries to protect critical resources and commodities by

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[43] Changyuan Luo and Jun Zhang, "China Trade Policy Review: A Political Economy Approach," *World Economy* 33, no. 11 (2010), 1390-1413.

[44] Edward Lundquist, "Canada's National Shipbuilding Strategy: It's Not just about Building Ships, it's about Building an Industry," *Naval Forces* 40, no. 5 (2019), 17-19.

[45] "President Biden to Sign Executive Order Strengthening Buy American Provisions, Ensuring Future of America is made in America by all of America's Workers," last modified 25 Jan, accessed 27 Jan, 2021, https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/25/president-biden-to-sign-executive-order-strengthening-buy-american-provisions-ensuring-future-of-america-is-made-in-america-by-all-of-americas-workers/.

means of a national security exemption outlined in Article XXI of the GATT.[46] However, the COVID-19 pandemic, along with the US leadership at the time, has unfortunately highlighted that countries, when faced with a crisis, may be more likely to resort to protectionism than work together. The pandemic has also highlighted that when countries block critical exports – like PPE or vaccines – for national security reasons, it can have a major impact on the now globalized supply chain.[47] Although it may be too early to tell whether the pandemic will create or reinforce long lasting protectionist attitudes, it is clear that countries are becoming more aware of their critical commodities and will likely be more careful with where and how they outsource them in the future.

## 3. CRITICAL CAPABILITIES

Public Safety Canada has identified ten sectors as critical to the health, security and economic stability of the country: the "energy and utilities, information and communications technologies, finance, health, food, water, transportation, safety, government and manufacturing"[48] sectors. Be it by way of strengthening the Canadian economy or as a way to gain critical goods and services from trading partners, trade plays an important role, whether direct or indirect, in all of these sectors. Therefore, special attention needs to be paid to ensure the supply chains for critical resources are reliable if Canada is going to continue to depend on trade in these sectors.

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[46] "The General Agreement on Tariffs and Trade," , accessed 27 Jan, 2021, https://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm.

[47] "COVID-19 and International Trade: Issues and Actions," OECD Publishing, , accessed 15 Mar, 2021, https://read.oecd-ilibrary.org/view/?ref=128_128542-3ijg8kfswh&title=COVID-19-and-international-trade-issues-and-actions.

[48] "Guidance on Essential Services and Functions in Canada during the COVID-19 Pandemic," last modified 15 Jan, accessed 27 Feb, 2021, https://www.publicsafety.gc.ca/cnt/ntnl-scrt/crtcl-nfrstrctr/esf-sfe-en.aspx.

Canada is not the only country concerned with maintaining a healthy supply chain for critical resources. On 24 February 2021, President Biden signed an Executive Order which prompted a 100 day review of the supply chains for the critical commodities of the semi-conductor, critical mineral, battery production and pharmaceutical sectors.[49] Much like this executive order, this section will examine how trade influences Canada's critical energy, technology, manufacturing and health sectors and the importance of understanding the benefits and risks associated with the global supply chain.

Before looking more closely at the aforementioned sectors, it is important to understand some of the limitations Canada faces due to the vast nature of the country and low population. With approximately two thirds of the Canadian population living within 100 km of the US border,[50] the country's transportation infrastructure has been built to support an imbalanced population distribution. This has resulted in it often being more cost effective to trade with the US than to sell Canadian products in Canada. The lack of sufficient transportation infrastructure and the sheer size of the country have also made it more economical to import resources, like crude oil, to Eastern Canada,[51] from other countries instead of exploiting and utilizing domestic sources from the prairies. This situation is unlikely to change in the near future as the cost to exploit many of the resources in the harsh Canadian climate, and the costs associated with transporting them to market across Canada makes it likely that doing so will remain cost prohibitive for

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[49] "Remarks by President Biden at Signing of an Executive Order on Supply Chains," last modified 24 Feb, accessed 27 Feb, 2021, https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/02/24/remarks-by-president-biden-at-signing-of-an-executive-order-on-supply-chains/.

[50] "Population Size and Growth in Canada: Key Results from the 2016 Census," last modified 8 Feb, accessed 27 Jan, 2021, https://www150.statcan.gc.ca/n1/daily-quotidien/170208/dq170208a-eng.htm.

[51] "Canadian Refinery Overview 2018 – Energy Market Assessment," last modified 29 Sept, accessed 7 Mar, 2021, https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/crude-oil-petroleum-products/report/2018-refinery-report/canadian-refinery-overview-2018-energy-market-assessment-western-canada.html.

years to come. With that said, as global demand increases and countries starts to deplete their easily accessible resources, the cost to expand Canada's transportation network to allow for further exploitation of resources could become more viable.

**The Energy Sector**

The energy and utilities sector is one of the areas Ottawa has identified as critical to national security. Canada's cold climate, large landmass and the public's desire for modern amenities make Canadians, who are consistently ranked among the top 10 energy consumers per capita, particularly reliant on a healthy energy sector.[52] In addition to being a large energy consumer, Canada is among the top energy exporters as well: the third largest exporter of electricity[53] and crude oil[54] as well as the sixth for natural gas exports, although this is primarily to the US.[55] In order to meet the needs of both its citizens and its trading partners, Canada uses a mix of hydroelectric power, natural gas, nuclear energy, non-hydroelectric renewables, coal and oil.[56] If required, Canada would likely be able to sustain its energy needs without imports, but the ability to capitalize on trading opportunities in the global market have made it so it is often more beneficial to import energy to certain areas of the country than to try to build the infrastructure to be self-sufficient.

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[52] "Energy Consumption Per Capita Globally in 2015," , accessed 7 Mar, 2021, https://www.statista.com/statistics/268151/per-capita-energy-consumption-in-selected-countries/.

[53] "Electricity Exports by Country," , accessed 15 Mar, 2021, http://www.worldstopexports.com/electricity-exports-country/.

[54] "Crude Oil Exports by Country," , accessed 1 Feb, 2021, http://www.worldstopexports.com/worlds-top-oil-exports-country/.

[55] "World's Leading Gas Exporting Countries in 2019," , accessed 15 Mar, 2021, https://www.statista.com/statistics/217856/leading-gas-exporters-worldwide/.

[56] "Canada's Energy Outlook," last modified May, accessed 7 Mar, 2021, https://ccpabc2018.files.wordpress.com/2018/05/cmp_canadas-energy-outlook-2018_full.pdf.

When it comes to electricity, Canada produces enough to be self-sufficient. Nonetheless, Canada still imports a significant amount of electricity from the US.[57] This is due to the interconnected nature of the Canadian and US electrical grids providing an opportunity to benefit from an electricity trading relationship. Canadian electricity companies often sell electricity to the US during peak demand hours when the price is high and then buy back electricity at lower rates when demand drops.[58] Since 59.6% of Canada's electricity is produced by hydroelectric sources,[59] this tactic is particularly beneficial: companies can let reservoirs recover during low demand or low rainfall.[60] This mutually beneficial relationship allows each country to be able to buy the electricity it requires to meet peak demand without having to invest in additional infrastructure that would be idle in low demand scenarios.

Natural gas is used to yield 9.4% of Canada's electricity production[61] but it is also used to meet other energy needs such as heating. Canada's natural gas reserves, although significantly smaller than those possessed by the US, could maintain the current level of production for 300 years.[62] With 45% of Canadian natural gas production exported to the US, which equates to three times the amount that Canada imports, the country has the

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[57] "Electricity Annual Trade Summary – 2019," Canada Energy Regulator, last modified 29 Sep, accessed 19 Mar, 2021, https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/electricity/statistics/electricity-summary/electricity-annual-trade-summary-2019.html.

[58] "Electricity Annual Trade Summary – 2019,"

[59] "Electricity Facts," Natural Resources Canada, last modified 6 Oct, accessed 19 Mar, 2021, https://www.nrcan.gc.ca/science-data/data-analysis/energy-data-analysis/energy-facts/electricity-facts/20068.

[60] "Market Snapshot: Even Though Canada Exports a Lot of Electricity, it Imports a Lot Too," last modified 2 Jan, accessed 19 Mar, 2021, https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2020/market-snapshot-even-though-canada-exports-lot-electricity-it-imports-lot-too.html.

[61] "Electricity Facts,"

[62] "Natural Gas Facts," Natural Resources Canada, last modified 6 Oct, accessed 19 Mar, 2021, https://www.nrcan.gc.ca/science-data/data-analysis/energy-data-analysis/energy-facts/natural-gas-facts/20067.

potential to meet its own demands.[63] However, much of the national reserves are located in Western Canada and when combined with the lack of sufficient transportation infrastructure means it is much more cost effective to rely on imports of natural gas from the US to meet the needs of Eastern Canada. With the existing trade agreements in place between the two countries, the Canadian and US natural gas industry has become highly integrated, much like the electricity sector.

While Canada is a leading exporter of natural gas and has significant reserves, the fact that its exports are limited to the US, a major producer on its own, means there is a risk of declining demand. Therefore it would be wise for Canada to look to other markets in order to ensure a healthy future for the promising industry. However, in order to export to countries with which one does not share pipelines, one must export Liquefied Natural Gas (LNG). Canada currently does not export LNG but the government has issued 24 long-term LNG export permits for projects which have been proposed across the country.[64] If these projects can come to fruition Canada will be able to diversify its trading partners in the natural gas sector which should make for a bright future for the industry. However, it should be noted that the future of the gas industry could be significantly affected by the fight against climate change and the wider development and implementation of less environmentally damaging energy sources.

Although not the main source of energy for Canadians, oil is still extremely important as it has an enormous impact on the economy, with mineral fuels and oil

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[63] "Natural Gas Facts,"

[64] "Canadian LNG Projects," Natural Resources Canada, last modified 6 Aug, accessed 19 Mar, 2021, https://www.nrcan.gc.ca/our-natural-resources/energy-sources-distribution/clean-fossil-fuels/natural-gas/canadian-lng-projects/5683.

accounting for $98 billion USD or 22% of all exports in 2019.[65] Canada is in a good position to capitalize on the market, as it possesses the third largest proven oil reserves, equaling approximately 10% of the world's supply.[66] Despite the challenges associated with capitalizing on the Canadian reserves due to their location and the complex extraction methods required, the country was still ranked as the fourth largest oil exporting country in the world, behind Saudi Arabia, Russia and Iraq, in 2019.[67] Although the oil industry is also threatened by green energy initiatives, Canada's sizeable reserves and the historically persistent world demand means that oil exports have been, and will likely remain, important to the economic success of Canada in the coming years.

Similar to the need to import natural gas to Eastern Canada due to a lack of sufficient infrastructure to efficiently transport western products across the country, Canada's oil industry faces similar infrastructure problems. As a result, in 2019 Canada imported $18.9 billion of oil to Eastern Canada.[68] Despite the demand for infrastructure to support certain areas of the country, the oil industry sees investing in export infrastructure as a more profitable business model. In 2008 TransCanada Energy proposed an expansion of the Keystone XL pipeline in an attempt to decrease the overhead associated with transporting Canadian oil sands crude to the US market.[69]

If constructed, this pipeline would further connect the Canadian Oil Sands to the refineries in the US and increase the current Keystone pipeline's capacity by 830,000

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[65] "Canada's Top 10 Exports,"
[66] "World Oil Reserves," , accessed 31 Jan, 2021, https://www.worldometers.info/oil/.
[67] "Crude Oil Exports by Country,"
[68] "Canada's Oil Imports," , accessed 7 Mar, 2021, https://www.capp.ca/energy/markets.
[69] "What is the Keystone XL Pipeline?" last modified 20 Jan, accessed 12 Feb, 2021, https://www.nrdc.org/stories/what-keystone-pipeline.

barrels a day.[70] It is estimated that the augmented export capacity the Keystone XL pipeline would bring could contribute $5.8 billion to the Canadian and US economies.[71] However, although there are potential financial benefits to expanding the Keystone pipeline, the project has struggled to gain support due to environmental concerns. If constructed, the pipeline would result in increased exploitation of the Canadian oil sands. This could be concerning because the current extraction and processing methods of oil sands crude results in three to four times the amount of carbon pollution when compared to traditional oil extraction and refinement methods.[72] The oil sands crude is also more corrosive than traditional crude which has resulted in significant concerns of spills, especially with the pipeline's proposed route crossing significant environmental and agricultural features.[73] Although TransCanada PipeLines Ltd, the company behind the Keystone XL pipeline, is trying to address the environmental concerns by promising to operate the pipeline at a net zero emissions level,[74] it does not mean the project will have no negative effects on the environment. Net zero emissions just means that the company will invest in enough green energy projects to, on paper, balance out the negative impacts.

The environmental concerns over the Keystone XL pipeline have caused mixed political support for the expansion since its initial proposal. With the current focus of world leaders on fighting climate change, the Keystone XL pipeline's construction is seen by many as contrary to meeting emissions targets. While in office, President Obama refused to grant the necessary cross border permits for the pipeline to be constructed

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[70] "Keystone XL Pipeline," , accessed 12 Feb, 2021, https://www.keystonexl.com/.
[71] "Keystone XL Pipeline,"
[72] "What is the Keystone XL Pipeline?"
[73] "What is the Keystone XL Pipeline?"
[74] "Keystone XL Pipeline,"

stating that "approving this project would have undercut that global leadership."[75] Although President Trump quickly reversed this decision, the pipeline has hit another road block with President Biden revoking the cross border permit on his first day in office.[76]

The persistent roadblock encountered by the Keystone XL project is a big blow for the Canadian oil industry. However, seeing as the pipeline's main purpose would be to increase exports to the US, perhaps the pushback from the US indicates a change in the demand for oil. The profits the Canadian oil industry has seen over the years by focusing on trade has resulted in the industry directing more effort towards exports than fulfilling domestic demand. Instead of is looking to expand trading opportunities with a reluctant party, perhaps Canada should look at addressing the infrastructure issues which prevent Eastern Canada from accessing crude oil from Western Canada.[77]

With abundant natural resources and focused infrastructure investments Canada's ability to support its own energy needs is not likely to be an issue in the future. However, the country needs to pay attention to how the energy sector is evolving if it is to continue to tie its economic prosperity to it. As the demand for energy has increased so too has the demand to protect the environment through use of green energy sources. While Canada is a world leader in hydroelectric energy, its main energy exports are not particularly environmentally friendly. More investment in green energy technology is likely to help the country maintain its energy and economic security in the future. However, as research

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[75] "What is the Keystone XL Pipeline?"

[76] "Investing in Keystone XL Pipeline," , accessed 12 Feb, 2021, https://www.alberta.ca/investing-in-keystone-xl-pipeline.aspx.

[77] "Canadian Refinery Overview 2018 – Energy Market Assessment,"

into green energy is a highly competitive market at the moment it will be important for Canada to invest in cyber security if it is to protect any intellectual property that could give the country a competitive advantage in the green energy market.[78]

**Critical Minerals**

The modern world is reliant on steel, electronics, batteries and a plethora of industrial activities in order to sustain and improve the quality of life of the ever increasing world population. With the global market spurring the rapid economic advancement of countries such as China and India, the demand for the raw materials required for these items is only going to increase in the coming years. The expansion of trade globalization has resulted in countries depending on a complex supply chain to support these activities which, if disrupted, could have detrimental effects on their economies, quality of life of their citizens and ultimately their national security. In 2018, in a move to understand and reduce supply chain vulnerabilities in these areas, the US Department of Interior released a list of the 35 critical minerals that it deemed require supply chain protection.[79] Similar to the US, the Mining Association of Canada defines these critical minerals as minerals and metals that are "vital in aerospace, defence, telecommunications, computing, and an array of clean technologies such as solar panels and electric car batteries."[80]

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[78] John Stewart, *Canada's Energy Security: Would Deglobalization Change the Game?* (Calgary, AB: Canadian Global Affairs Institute, 2020).

[79] "Interior Releases 2018's Final List of 35 Minerals Deemed Critical to U.S. National Security and the Economy," last modified 18 May, accessed 14 Feb, 2021, https://www.usgs.gov/news/interior-releases-2018-s-final-list-35-minerals-deemed-critical-us-national-security-and.

[80] "Critical Minerals," , accessed 12 Feb, 2021, https://mining.ca/our-focus/critical-minerals/.

Canada has significant mineral resources, possessing large amounts of 13 of the 35 minerals identified as critical by the US.[81] Considered a world leader in sustainable mining practices, Canada is the number one producer of potash, an important mineral for fertilizers, and the number two producer of niobium and uranium.[82] Canada also possesses significant reserves of many rare earth metals which are the critical minerals required for technology and battery production. As the third largest producer of platinum group metals, the country has recognised the potential benefits of this sector and currently has several initiatives underway to increase and optimize rare earth metal production.[83]

While Canada is one of the world leaders in critical mineral mining, its exports are dwarfed by the Chinese industry. China plays a major role in the world supply chain, currently producing 70% of the world's rare earth metals used in electronics and battery production.[84] The US has not been shy to voice concerns with its reliance on China for these critical minerals. While some of the concerns are due to fears of supply interruptions arising out of tensions between the two countries there are also concerns over Chinese mining practices. With this in mind and the US predicting up to a 1000% increase in demand for critical minerals by 2050, the US created the Energy Resource Governance Initiative (ERGI) in an attempt to diversify the supply chain and promote

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[81] "Canada and U.S. Finalize Joint Action Plan on Critical Minerals Collaboration," last modified 9 Jan, accessed 14 Feb, 2021, https://www.canada.ca/en/natural-resources-canada/news/2020/01/canada-and-us-finalize-joint-action-plan-on-critical-minerals-collaboration.html.

[82] "Critical Minerals,"

[83] "Critical Minerals in Canada," , accessed 15 Feb, 2021, https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/Critical%20Minerals_EN_2020_accessible.pdf.

[84] "US Dependence on China for Rare Earth Minerals is a Disaster Waiting to Happen," last modified 12 Sep, accessed 14 Feb, 2021, https://thehill.com/opinion/energy-environment/529229-us-dependence-on-china-for-rare-earth-minerals-is-a-disaster.

best mining practices.[85] While ERGI is a US led initiative, the five founding members also include the resource rich countries of Canada, Australia, Peru and Botswana.[86]

Green energy technologies are currently being pursued by world leaders in order to meet climate goals. On the surface, green technology such as electric cars, solar panels and wind turbines may appear to offer environmentally friendly solutions to fossil fuels. Unfortunately, the mining practices used to extract the rare earth metals required to manufacture the technology and batteries can also have significant environmental impacts. This is especially concerning when importing raw materials from China, a country whose environmental practices are questionable.[87] ERGI's goal of sharing best mining practices is an important step in ensuring future mining activities are sustainable and have as little environmental impact as possible.[88]

Canada is already widely recognized as a preferable and more reliable trading partner for western countries compared to China.[89] Further commitment to ethical mining practices could make Canada the go to supplier for more countries in the future. This, combined with the recent western concerns of over dependence on Chinese mining practices and mineral exports, puts Canada in a good place to benefit from involvement in initiatives like ERGI. The recent US-Canada joint agreement for critical minerals

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[85] "Energy Resource Governance Initiative FACT SHEET," last modified 11 Jun, accessed 14 Feb, 2021, https://2017-2021.state.gov/energy-resource-governance-initiative/index.html.

[86] "EGRI About," , accessed 14 Feb, 2021, https://www.ergi.tools/about.

[87] "China's Rising Demand for Minerals and Emerging Global Norms and Practices in the Mining Industry ," United States Agency for International Development, , accessed 5 Mar, 2021, http://serc.carleton.edu/files/earthandmind/posts/chinas_rising_demand_commoditi.pdf.

[88] "EGRI About,"

[89] "Critical Minerals,"

indicates that the major powers like the US are ready to shift supply chain dependencies away from China and onto more likeminded allies.

With the Canadian and US economies and national defence so intertwined it is not surprising that the governments have recognised they have a shared interest in securing the critical mineral supply chain.[90] When speaking about finalizing the US-Canada joint agreement on critical minerals, Canada's Minister of Natural Resources stated "With $2.6-billion worth of goods and services moving between Canada and the U.S. every day, both of our economies are better off when we work together."[91] Although US protectionism has been a hot topic in recent years, agreements such as this signal that Canada is still and is likely to remain a trusted partner of the US for the foreseeable future.

Given the complexity of the global supply chain, it is unlikely that a country could be completely self-sufficient and still enjoy the comforts of the modern world. Therefore, the practice of countries outsourcing critical minerals is likely to continue. This presents an opportunity for Canada to capitalize on the ever increasing demand for critical minerals. Investment in ethical and sustainable mining practices as well as the favourable reputation as a trusted partner of western countries should further benefit Canada in the coming years.

The strong future of the critical mineral industry should not be ignored as it has the potential to ease Canada's economic dependence away from the volatile oil industry. With that said, it should be noted that in the long term it could face a similar fate as

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[90] "Canada and U.S. Finalize Joint Action Plan on Critical Minerals Collaboration,"
[91] "Canada and U.S. Finalize Joint Action Plan on Critical Minerals Collaboration,"

demand outstrips supply. Therefore while Canada will benefit from investments in the mining industry, a focus on recycling technology is also needed. This will not only prolong critical mineral reserves and aid with future supply shortages but also demonstrate to the world that Canada is dedicated to sustainable and environmentally friendly practices.

The focus by the US on the need to diversify and protect the critical mineral supply chain is an example of how while globalization may have many benefits, if it goes unchecked there could be significant threats to national autonomy and security. Understanding a country's critical supply chain dependencies and securing them by investing in domestic capabilities or by acquiring trusted trading partners should be a top priority of a country's government. While Canada is likely to benefit from the global dependence on critical minerals and gain an increased influence over an important link in the global supply chain there are other critical sectors and capabilities where Canada is accepting significant risk.

**Semi-Conductors Technology and Manufacturing**

While countries are starting to recognise the importance of ensuring a reliable supply chain for critical minerals, the COVID-19 pandemic has also highlighted a weakness in the supply chain for the manufacturing of technology. More specifically, semi-conductors are essential to the manufacturing of the modern computer chips used in everything from laptops and cellphones to automobiles and aircrafts. The pandemic caused an unexpected and significant uptick in the demand for communication technology, computers and consumer electronics which thereby resulted in an increase in

the need for semi-conductors.[92] Considering that in 2018 approximately 75% of the world's semi-conductor supply was used to manufacture these types of products, it is not surprising that further increases would stress the industry.[93]

One industry that is suffering from the insufficient supply of semi-conductors is the automotive industry. In recent years the automotive industry has accounted for 10-12% of the semi-conductor supply,[94] but this was significantly reduced in 2020 due to the COVID-19 pandemic forcing many vehicle manufacturing companies to shut down or limit their production lines. To further exacerbate the problem, the pandemic resulted in many companies, like ones in the automotive industry that relied on just in time delivery of semi-conductors, to reduce or cancel their orders when they ramped down or ceased production.[95] This demand void was quickly filled by the increased demand from the communication technology, computers and consumer electronics sectors. Since the chips used for these products are more profitable to produce then those used in the automotive industry, there has been little incentive for companies to switch their production lines back to pre-pandemic norms.[96] This means that many automotive companies now find themselves without a supply.[97] The shortage of semi-conductors available for use in the automotive industry is of particular concern to Canada since automobiles are the number two Canadian export behind oil.[98]

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[92] Kana Inagaki, "Global Chip Shortage Puts Car Supply Chain Under the Microscope," *FT.Com* (2021). https://search-proquest-com.cfc.idm.oclc.org/docview/2492577333?pq-origsite=summon#.

[93] "Semiconductor Industry Association Factbook 2019," , accessed 2 Mar, 2021, https://www.semiconductors.org/wp-content/uploads/2019/05/2019-SIA-Factbook-FINAL.pdf.

[94] "Semiconductor Industry Association Factbook 2019,"

[95] Inagaki, "Global Chip Shortage Puts Car Supply Chain Under the Microscope,"

[96] Inagaki, "Global Chip Shortage Puts Car Supply Chain Under the Microscope,"

[97] Inagaki, "Global Chip Shortage Puts Car Supply Chain Under the Microscope,"

[98] "Canada's Top 10 Exports,"

While Canada is not a major producer of semi-conductors, the US is a power house in the industry, holding 45% of the global market share in 2018.[99] While this should mean that the Canadian supply chain is well protected, the global shortages due to the pandemic and recent US protectionism puts the country's supply at risk. With that said, large investments would be required to make Canada a significant producer of semi-conductors, and the US is likely a more reliable trading partner for Canada then alternative Asia-pacific countries. Therefore, the most logical solution for Canada in the near term is to invest effort in securing reliable and diversified trade agreements that protect critical supply chains. In the long term, Canada could try to attract more semi-conductor manufacturing companies in order to augment the supply chain.

**Health Sector**

Not only is Canada is generally well positioned to profit from the increased opportunities trade globalization presents for exporting the country's natural resources, globalization has also made it possible to accept risk in other sectors. Due to Canada's geographic size, small population, historical political ties and proximity to a major power it only makes sense that the country would outsource certain products, capabilities and services. Outsourcing often occurs when skills or materials do not exist or are not economically viable to produce domestically. While in some cases it makes sense to obtain goods or services through trade, there are certain critical capabilities, like those in the health sector that, when outsourced, can present a risk to national security.

The COVID-19 pandemic has shone a light on the risks that come from not protecting critical industries. One of these industries that has been ignored in Canada is

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[99] "Semiconductor Industry Association Factbook 2019,"

vaccine production. Canada was once a world leader in the vaccine industry and even operated the publicly owned Connaught Laboratories. Unfortunately, Connaught Laboratories did not have a sustainable business model and the Mulroney government sold the laboratory to a French pharmaceutical company in the 1980's[100] and since then Canada has not put much priority on the industry. The sale of the Connaught Laboratories, however, was likely the right thing to do and most likely resulted in the success of the now Connaught campus, which "is the world's only manufacturer of five-component acellular pertussis combination vaccines to treat whooping cough, the only manufacturer of inactivated polio vaccine (IPV) in North America."[101] Nonetheless, these actions also resulted in a loss of public control over the type and quantity of vaccines produced domestically as companies focus on how to make their operations more profitable.

While it is not unusual for pharmaceutical companies to be privatized, doing so made it easy for the government to ignore a critical capability. The lack of sufficient attention is particularly apparent when one looks at the aftermath of the H1N1 pandemic of 2009-2010. The Public Health Agency of Canada identified concerns about the domestic vaccine production capacity when Canada was not able to simultaneously produce both the seasonal influenza vaccine and the H1N1 vaccine.[102] Unfortunately, little was done to resolve the issue in the decade between H1N1 and the COVID-19

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[100] "The Public Lab that could have Helped Fight COVID-19 Pandemic," last modified 11 Mar, accessed 22 Feb, 2021, https://www.thestar.com/opinion/contributors/2020/03/11/the-public-lab-that-could-have-helped-fight-covid-19-pandemic.html.

[101] "Privatized Connaught Labs is Still Going Strong," last modified 10 Dec, accessed 13 Mar, 2021, https://financialpost.com/opinion/charlie-mayer-privatized-connaught-labs-is-still-going-strong.

[102] "Lessons Learned Review: Public Health Agency of Canada and Health Canada Response to the 2009 H1N1 Pandemic," last modified 8 Dec, accessed 22 Feb, 2021, https://www.canada.ca/en/public-health/corporate/mandate/about-agency/office-evaluation/evaluation-reports/lessons-learned-review-public-health-agency-canada-health-canada-response-2009-h1n1-pandemic/findings-vaccine.html.

pandemic, which has left the country scrambling to invest in manufacturing infrastructure that will not be operational until late 2021.[103]

It should be noted that Canada has not completely ignored the importance of maintaining domestic capacity in the pharmaceutical industry. The country still has a fairly significant pharmaceutical industry and is ranked fourteenth in the world for pharmaceutical exports, accounting for 1.9% of the global pharmaceutical exports in 2019.[104] In fact, Canada has several private domestic vaccine production companies, but they have limited capacity and are only equipped to produce protein-based vaccines, like the annual influenza vaccine, instead of the mRNA versions used for the Pfizer and Moderna COVID-19 vaccines.[105]

While the inability to produce mRNA vaccines does leave the country without the means to domestically produce the first two COVID-19 vaccines that were approved by Health Canada, the country would be able to produce a protein-based COVID-19 vaccine. Unfortunately, even to produce a protein-based vaccine in sufficient quantities to meet domestic needs requires significant investments in order to retool and expand the existing Canadian vaccine production facilities. The Canadian government has recognized this and is investing $126 million in the National Research Council's (NRC) vaccine production facility in Montreal with a plan of being able to produce the protein-based Novavax COVID-19 vaccine by late 2021.[106] This facility is not likely to be ready in time to make

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[103] "COVID-19 Response: Building the Infrastructure," last modified 2 Feb, accessed 27 Feb, 2021, https://nrc.canada.ca/en/covid-19-response-building-infrastructure.

[104] "Drugs and Medicine Exports by Country," , accessed 22 Feb, 2021, http://www.worldstopexports.com/drugs-medicine-exports-country/.

[105] "Canada can make Vaccines, just Not the Ones to Stop COVID-19," last modified 26 Nov, accessed 22 Feb, 2021, https://www.nationalobserver.com/2020/11/26/news/canada-vaccines-covid-19-manufacture.

[106] "COVID-19 Response: Building the Infrastructure,"

a significant impact on the Canadian vaccination campaign but it will allow Canada to contribute to a global vaccination strategy and hopefully be better prepared for future vaccination requirements. Consequently, for the immediate future Canada will be reliant upon trade agreements to purchase vaccines from other countries.

While the lack of attention to improving domestic vaccine production capacity likely should have been addressed after the H1N1 pandemic, one must also consider that prior to the COVID-19 pandemic and the recent US protectionism it would have been logical to believe Canada's closest ally would be a dependable source for critical commodities. It is therefore not surprising that Canada would not have invested in acquiring domestic mRNA vaccine production facilities when there were several facilities just south of the boarder that could be leveraged. With an approximate $2.6 billion of goods and services crossing the border between the US and Canada daily, the interdependent nature of the countries[107] makes it especially surprising that they would not work together in combatting the pandemic.

Whether this lack of cooperation was an anomaly due to the Trump presidency or a sign of a new and persistent protectionist American attitude is yet to be known. The Biden administration's announcement to share approximately four million doses of unused AstraZeneca COVID-19 vaccines with Canada and Mexico could be a sign that the US will be a reliable trading partner once again. However, these doses would not have affected the US's vaccine roll out plans since they have yet to approve AstraZeneca's vaccine and already have enough doses to vaccinate their population by May 2021[108]

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[107] "Canada and U.S. Finalize Joint Action Plan on Critical Minerals Collaboration,"

[108] "U.S. to Send 4 Million Doses of AstraZeneca Vaccine to Mexico, Canada in Loan Deal: Official," last modified 18 Mar, accessed 18 Mar, 2021, https://www.reuters.com/article/us-health-

Either way, it highlights the importance for Canada to understand what dependencies the country's critical sectors have and make sure there are robust mitigation measures in place to protect them.

While robust contracting mechanisms were utilized to secure supplies of approved vaccines, the process was far from smooth. Much like the restrictions the Americans put in place to protect their supply of PPE, they also restricted the export of COVID-19 vaccines until they had met the vaccination needs of their citizens.[109] This left Canada without access to supplies of vaccines from the production facilities just south of the border and instead having to source vaccines from Europe. Unfortunately, the European Union (EU) also put in place restrictions on vaccine exports 29 January 2021, to ensure sufficient supplies for their citizens.[110] While the Canadian vaccine supply only faced a mild disruption due the EU vaccine export regulations for a time it was not clear if Canada would continue to receive its contracted doses.[111] Since even Canada's largest and most reliable trading partners have become willing to restrict supplies of goods which are critical to public health, there is now a clear need for domestic capacity for critical capabilities.

In addition to unexpected trading restrictions from trusted allies, Canada has also seen research deals fall through during the COVID-19 pandemic. In May 2020 the NRC

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coronavirus-usa-mexico/u-s-to-send-4-million-doses-of-astrazeneca-vaccine-to-mexico-canada-in-loan-deal-official-idUSKBN2BA22S.

[109] "Executive Order 13962 Ensuring Access to United States Government COVID–19 Vaccines," last modified 11 Dec, accessed 3 Mar, 2021, https://www.govinfo.gov/content/pkg/FR-2020-12-11/pdf/2020-27455.pdf.

[110] "Commission Puts in Place Transparency and Authorisation Mechanism for Exports of COVID-19 Vaccines," last modified 29 Jan, accessed 3 Mar, 2021, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_307.

[111] "What an EU Crackdown on COVID-19 Vaccine Exports could Mean for Canada,"

and the Chinese pharmaceutical company CanSino Biologics had a deal to start human trials of the promising Ad5-nCoV vaccine candidate.[112] The Canadian trials never came to fruition as Chinese customs prevented samples from being shipped to Canada.[113] The blocking of the samples may have been due to political tensions between the two countries, but even if that was not the root cause it was a lost opportunity to work together to produce a vaccine that could have benefited both countries. This highlights that while it is important to have reliable trading partners for critical commodities, there is always a risk that a country's national interest will trump longstanding trade deals.

With all this said, even if it was financially viable, Canada is not likely to be able to become self-sufficient in the pharmaceutical sector anytime soon. Therefore, much like other sectors where it is not viable for Canada to become self-sufficient, the country needs to invest effort in diversifying and reinforcing trade deals with trusted partners. Canada should also review what critical pharmaceutical capacity does exist domestically and determine whether it is sufficient to ensure national security. If not, a decision must be made on whether investments in the industry are needed or if outsourcing is acceptable to make up for a lack of capability or capacity.

## 4. TRADE AND CANADIAN NATIONAL SECURITY

The primary priority of the Canadian government is national security, a concept that ensures Canadians and their interests are protected both domestically and

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[112] "Canadian COVID-19 Clinical Trial Scrapped After China Wouldn't Ship Potential Vaccine," last modified 26 Aug, accessed 27 Feb, 2021, https://www.cbc.ca/news/canada/nova-scotia/canada-china-covid-19-vaccine-trial-plug-pulled-1.5701101.

[113] "Vaccine Promised for Human Trials in Canada Held Up by Chinese Customs," last modified 9 Jul, accessed 27 Feb, 2021, https://ipolitics.ca/2020/07/09/vaccine-promised-for-human-trials-in-canada-held-up-by-chinese-customs/.

internationally.[114] National security is a broad concept that includes protecting Canadians by ensuring economic stability, the protection of public health, cyber security and maintaining military capabilities to counter threats including conventional threats, the proliferation of weapons of mass destruction and terrorism.[115] All of these national security domains are affected by the global marketplace and therefore measures need to be in place to ensure Canada can capitalize on the benefits associated with globalization while avoiding the possible pitfalls. This section will look at measures Canada has put in place to address some of the national security concerns that trade globalization presents as well as examine areas where the country may be taking risk.

## Economic Security

### Trade Safe Guards

As a trading nation, it is important that Canada has robust measures in place to respond to potential national security issues that arise from its imports and exports. These issues could range from a trading partner whose conduct undermines Canadian foreign policy or has adverse effects on Canadian trade practices or industry. Section 53 of *Customs Tariff* outlines the measures and safeguards Canada has in place to help prevent potential adverse effects of trade.[116] These measures include ceasing or temporarily suspending trade agreements, imposing tariffs, surtaxes or duties or add specific items to the Import Control List.[117]

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[114] "National Security," last modified 10 Mar, accessed 15 Mar, 2021, https://www.publicsafety.gc.ca/cnt/ntnl-scrt/index-en.aspx.

[115] "National Security,"

[116] Canada, *Customs Tariff* (http://laws-lois.justice.gc.ca: Minister of Justice, 2020e). https://laws-lois.justice.gc.ca/PDF/C-54.011.pdf.

[117] Canada, *Customs Tariff*

It is not unusual for a country to have trade policy safeguards in place to protect its national interests and security. Section 301 of the *Trade Act of 1974* is an important part of how the US protects its interests from the potential adverse effects of foreign governments' trade policies. This Act gives the President the power to take action against a foreign government that is in violation of a trade agreement or whose acts are, in the eyes of the US, "unjustifiable or unreasonable tariff or other import restrictions which impair the value of trade commitments made to the United States or which burden, restrict, or discriminate against United States commerce."[118] Section 301 also puts in place a formal investigation process to investigate questionable foreign practices as well as an official process for industry to file complaints.[119] The US recently enacted Section 301 for the 2017 investigation into Chinese intellectual property, innovation and technology policies which led to the US implementing tariffs on $250 billion of Chinese goods in 2018.[120]

In addition to Section 301, Section 232 of the US *Trade Expansion Act of 1962* provides similar powers to the President for implementing tariffs and other safeguards, but in the name of national security.[121] Although rarely used prior to the Trump administration, China, the EU and Canada were all on the receiving end of Section 232 measures in recent years.[122] In June 2018, when the US industry reportedly felt imports of Canadian steel and aluminum were having an adverse effect on the US industry and

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[118] *Trade Act of 1974,* Public Law Section 301, (1975): , 2041.
[119] *Trade Act of 1974,* , 2042
[120] "Enforcing U.S. Trade Laws: Section 301 and China," last modified Updated June 26, accessed 13 Mar, 2021, https://fas.org/sgp/crs/row/IF10708.pdf.
[121] *Trade Expansion Act of 1962,* Public Law Section 232, (1962): .
[122] Lawrence Herman, *A Call for More Surgical use of Existing Trade Laws* (Calgary, AB: The Canadian Global Affairs Institute, 2020).

thereby posed a national security risk, President Trump invoked Section 232 in order to put in place tariffs on Canadian steel and aluminum.[123] Canada quickly responded with its own Section 53 measures, implementing proportionate tariffs on American goods which, after intense negotiations, resulted in all tariffs imposed by both sides being dropped within a year.[124]

It is questionable, to say the least, whether or not there was actually a risk to US national security from Canadian steel and aluminum imports. Canada's deliberate and retaliatory tariff response was not under the guise of national security and was specifically intended to have the most adverse effect on the US market as possible.[125] The targeted tariffs, combined with the ongoing CUSMA negotiations, leads one to the conclusion that the 2018 US-Canada tariffs were used more as a way to promote a political agenda than to actually protect national security.

The validity of the US tariffs being invoked under Section 232 due to national security concerns is further questioned when President Trump made a second attempt to put in place aluminum tariffs in 2020, again using Section 232, which was blatantly a re-election tactic and not due to an actual national security threat posed by the Canadian industry.[126] While it is true that the US industry was suffering due to low aluminum prices, President Trump was advised that China's overproduction was more at fault for

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[123] "Steel and Aluminum," last modified 10 Oct, https://www.international.gc.ca/trade-commerce/controls-controles/steel_alum-acier_alum.aspx?lang=eng.

[124] "Steel and Aluminum,"

[125] "Canada Targets Whiskey, Toilet Paper in Trump Tariff Response," last modified 29 Jun, accessed 5 Mar, 2021, https://ampvideo.bnnbloomberg.ca/canada-targets-whiskey-toilet-paper-in-trump-tariff-response-1.1101000.

[126] "Aluminum Tariffs an Example of Rising U.S. Protectionism, Trade Expert Says," last modified 7 Aug, accessed 13 Mar, 2021, https://www.bnnbloomberg.ca/aluminum-tariffs-an-example-of-rising-u-s-protectionism-trade-expert-says-1.1476916.

the falling aluminum prices than Canada.[127] Unfortunately, imposing tariffs on Canada to demonstrate action before an election was simpler and likely had less long lasting repercussions than going after China. If the US was really concerned about the threat of Canadian aluminum they likely would not have dropped the tariffs one day be the Canadian retaliatory tariffs were to commence.[128]

The recent aluminum trade war is not the first time that the Canada-US trade agreement has been stressed. The softwood lumber dispute, in which the US has been intermittently imposing duties on Canadian softwood lumber, has been ongoing for over 25 years.[129] In this debate, the US has accused Canada of selling softwood lumber at a price which is below that which the US industry can compete with, claiming that Canada is unfairly subsidizing the industry.[130] In this dispute the US invoked the *Tariff Act of 1930*, which authorises the US to impose duties on imports that are "or is likely to be, sold in the United States at less than its fair value" and so doing would result in damage to an existing US industry due to unfair competition.[131] Over the years the two countries have come to multiple agreements which unfortunately have not been long lived.[132] With neither country willing to accept the others claims they have repeatedly appealed to the WTO in an attempt to resolve the debate.[133]

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[127] "Trump Re-Imposes Tariffs on Canadian Aluminum, Prompting Trudeau to Vow Retaliation," last modified 6 Aug, accessed 13 Mar, 2021, https://www.washingtonpost.com/business/2020/08/06/trump-canada-aluminum-tariffs/.

[128] Herman, *A Call for More Surgical use of Existing Trade Laws*

[129] "Softwood Lumber," last modified 5 Mar, accessed 5 Mar, 2021, https://www.international.gc.ca/controls-controles/softwood-bois_oeuvre/index.aspx?lang=eng.

[130] "Softwood Lumber,"

[131] "Tariff Act of 1930," last modified Amended February 24, accessed 13 Mar, 2021, https://enforcement.trade.gov/regs/title7.pdf.

[132] Daowei Zhang, *The Softwood Lumber War: Politics, Economics, and the Long US-Canadian Trade Dispute* Earthscan, 2010), 254.

[133] "Softwood Lumber,"

While it is important for countries to be able to protect their national security from threats the global market place can present, it is also possible for these same measures to be abused, even by close trading partners. If trade tensions can exist between two countries with as close economic and security ties as Canada and the US, then robust safeguards must apply to all trade agreements. The ability of Canada to invoke Section 53 is therefore vital to ensure that Canadian interests are protected from unfair competition or practices of the foreign markets that are now so easily accessible due to globalization. In fact, as Lawrence Herman suggested in his paper for the Canadian Global Affairs Institute, perhaps Canada should be more willing to use Section 53 not only to resolve existing disputes but also as a means to proactively deter future disputes[134] if the country is to protect its national interest in the complex global market place.

## The Oil Industry

The Canadian economy is currently and likely to continue to be heavily reliant on the global demand for oil. Unfortunately, the oil industry has proven to be extremely volatile over the years with prices fluctuating from $145.31 p/b in 2008 to $ 11.26 p/b in 2020[135] which has had a direct effect on the Canadian economy. In addition to the volatile nature of the commodity there are other risks associated with the reliance of the Canadian economy on the production and sale of oil. First, petroleum is not a renewable resource and some estimates indicate there is less than a 47 year supply remaining in the world. Second, the bulk of the Canadian reserves are located in the land locked Albertan oil sands which are difficult to exploit in an economical or environmentally friendly manner.

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[134] Herman, *A Call for More Surgical use of Existing Trade Laws*

[135] "WTI Crude Oil Prices - 10 Year Daily Chart," , accessed 5 Feb, 2021, https://www.macrotrends.net/2516/wti-crude-oil-prices-10-year-daily-chart.

Since the 1970's there have been concerns that the world oil supply and production capacity would be unable to keep up with demand.[136] This concept, commonly referred to as Peak Oil, predicts that oil prices will continue to rise as reserves are depleted and become difficult or cost prohibitive to exploit. Emerging economies, such as China and India, and their significant increase in demand for oil, have added to the argument that Peak Oil is imminent. The timeline for the world hitting Peak Oil has historically been shifting to the right due to discovery of new reserves and advances in exploitation technology. With that said, prior to the COVID-19 pandemic it was widely accepted that Peak Oil was likely to occur between 2030 and 2040.[137]

The COVID-19 pandemic had a major impact on the oil industry, and consequently the Canadian economy, seeing an estimated 9% drop in the world's oil and liquid fuel consumption in 2020.[138] This drop was mainly due to state enacted lockdown measures which limited industrial production and reduced travel both for business and pleasure. Although this decrease in consumption is a result of the pandemic, its effects may be felt long after lockdowns are a thing of the past. The prolonged nature of the COVID-19 response has forced companies to adapt their business models and, where possible, adopt widespread work from home opportunities. The savings in not having to maintain office infrastructure may result in many businesses maintaining these practices long into the future. If this is the case, then these measures would mean that oil consumption might not rebound to 2019 levels due to the reduced requirement to

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[136] Dieter Helm, "Peak Oil and Energy Policy—a Critique," *Oxford Review of Economic Policy* 27, no. 1 (2011), 68.

[137] "Peak Oil is Suddenly upon Us," last modified 1 Dec, accessed 5 Feb, 2021, https://www.bloomberg.com/graphics/2020-peak-oil-era-is-suddenly-upon-us/.

[138] "EIA Estimates that Global Petroleum Liquids Consumption Dropped 9% in 2020," last modified 29 Jan, accessed 5 Feb, 2021, https://www.eia.gov/todayinenergy/detail.php?id=46596.

maintain and heat large office buildings and the elimination of many people's need to commute or travel. This drop in oil consumption due to COVID-19 makes one question whether pre pandemic Peak Oil predictions are still valid.

In addition to the pandemic related reduction in oil consumption, the effects of recent advancements in renewable and alternative energy sources and the electrification of vehicles may further reduce oil demand. Additional demand reductions are also likely to be seen as battery technology becomes more affordable and efficient. With Tesla claiming it will be able to manufacture batteries for $58 per kilowatt hour by 2023, electric vehicles could quickly become more affordable than the current gasoline competitors.[139] The current focus on developing these technologies, due to the growing environmental concerns surrounding oil, have led some to believe that we no longer have to worry about Peak Oil.[140]

With that said it should be noted that, although perhaps slowed do to the pandemic, developing countries are not likely to curb their demand for oil anytime soon as increased energy demands come hand in hand with increased economic prosperity.[141] In addition, there is also likely to be a lingering effect of avoiding public transport in the years to come which could actually increase the number of people choosing to use personal vehicles to commute. The future of the air travel industry is also unclear, with some estimating that it will take until 2024 for the industry to return to pre-pandemic

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[139] "What Ever Happened to Peak Oil?" last modified 29 Jun, accessed 5 Feb, 2021, https://www.forbes.com/sites/michaellynch/2018/06/29/what-ever-happened-to-peak-oil/?sh=37860442731a.; "Peak Oil is Suddenly upon Us,"

[140] Helm, "Peak Oil and Energy Policy—a Critique," , 68-91

[141] "Fast-Growing Developing Countries Will Spur Demand for Oil for Decades," last modified 27 Sep, accessed 7 Mar, 2021, https://www.fraserinstitute.org/blogs/fast-growing-developing-countries-will-spur-demand-for-oil-for-decades.

levels.[142] The dramatic drop in the number of passenger flights due to the pandemic forced many airlines to cancel routes, layoff staff and mothball planes to stay afloat. However, there was a bit of a silver lining for the industry, as airfreight demands increased with the growth in online shopping and some companies have been quick to convert unused passenger planes to air freighters.[143] If e-commerce continues post pandemic and passenger-flights return to pre-pandemic norms in the next few years, it is possible that the world oil demand may have experienced a temporary dip but maybe it may yet recover.

It would appear that the hot topic is no longer when the world will hit Peak Oil but when we will hit peak oil demand[144] which could present economic challenges to Canada as the demand for its primary export declines. Questions surrounding future oil demands in an increasingly electrified post pandemic world have resulted in some debate on whether or not the world hit peak oil consumption in 2019.[145] Since the Canadian oil sands are immense, Peak Oil could place Canada in a good place to capitalize on the increased demand and decreased supply resulting in a short term but significant profit. Meanwhile, the concept that the world hit peak oil consumption in 2019 might not be as beneficial, as a drop in demand could result in a drop in oil prices which would have a direct and negative impact on the Canadian economy.

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[142] "Falling Plane Values, E-Commerce Rise Fuels Boom in Converting Passenger Planes to Freighters," last modified 13 Dec, accessed 7 Mar, 2021, https://www.reuters.com/article/us-health-coronavirus-airlines-freight-idUKKBN28O02U.

[143] "Falling Plane Values, E-Commerce Rise Fuels Boom in Converting Passenger Planes to Freighters,"

[144] "What Ever Happened to Peak Oil?"

[145] "Peak Oil is Suddenly upon Us,"

The peak oil or peak oil demand problem is not the only issue with Canada's current economic reliance on oil. Exploiting the Canadian oil sands is more expensive than many traditional drilling operations. This means that low oil prices could result in exploitation no longer being profitable. In 2017, it was estimated that oil needed to stay at $55 p/b in order for the Canadian operation to be profitable.[146] With oil prices averaging $51 p/b since the oil market crashed in in 2014[147] and getting as low as $11.26 p/b in 2020, it is not surprising that there has been reduced expansion in the exploitation of the oil sands in recent years. Although the price of oil is back up to sustainable, if not overly profitable, levels in early 2021 it is a demonstration of the potential economic pitfalls resulting from Canada's heavy dependence on the oil industry.

Thus the loss of, or a major crash of, the oil industry would have a significant and adverse effect on the Canadian economy and in turn national security. Unfortunately, although Canada's oil industry is likely to continue to be a large contributor to the economy for years to come, its future is far from certain. With protection of the environment through clean energy the new focus of world leaders, Canada should be investing in industries that will support national clean energy goals.

Moreover, with Canada's current economic dependency on oil production it will be difficult to be taken seriously as a world leader in the fight against climate change. Without enforcing significant and costly carbon pricing and environmental protection measures Canada's major exports are like to be subject to carbon border adjustments in

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[146] "Canada's Oil Sands Survive, but can't Thrive in a $50 Oil World," last modified 18 Oct, accessed 5 Feb, 2021, https://www.reuters.com/article/us-canada-oilsands-economics-analysis-idUSKBN1CN0FD.

[147] "WTI Crude Oil Prices - 10 Year Daily Chart,"

the future.[148] Either way the profitability of the industry is likely to be adversely affected by future climate protection measures. Investments in green energy and technology development could help protect Canada's economic prosperity, diversify trading opportunities and create a potential pathway to transition away from the current economic dependence on oil. As stated in the RAND report on *The Economic Dimensions of National Security* "sometimes it will be wise to sacrifice some current prosperity to make that of the future more stable, more certain, or less subject to loss."[149]

## NATIONAL DEFENCE

In 2017 the Canadian government published its latest defence policy, *Strong, Secure, Engaged* (SSE). In this policy the government committed to meeting the needs of the CAF by increasing annual defence spending "from $18.9 billion in 2016-17 to $32.7 billion in 2026-27."[150] The increased spending outlined in SSE is to be used to replace outdated equipment, and weapons platforms across the CAF as well as introduce new capabilities such as cyber operators. These investments are required not only to ensure Canada has a well-equipped force that is capable of defending Canadians from future threats but also allow the CAF to meet its commitments to its allies.[151] This fully funded policy is a clear statement that the Canadian Government is committed to national security and understands the role a properly equipped military plays in the protection of

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[148] "Carbon Border Adjustment: A Powerful Tool if Paired with a just Energy Transition," last modified 27 Oc, accessed 6 Apr, 2021, https://oecd-development-matters.org/2020/10/27/carbon-border-adjustment-a-powerful-tool-if-paired-with-a-just-energy-transition/.

[149] Neu and Wolf, *The Economic Dimensions of National Security*, xii

[150] Canada, *Strong Secure Engaged* (Ottawa: Minister of National Defence, 2017), 11.

[151] Canada, *Strong Secure Engaged*

Canada. The following sections will explore how globalization has effected the Canadian defence industry and some of the policies that have developed as a result.

## Offsets and Joint Defence Ventures

In the global market place, a country could easily purchase weapons from another country instead of developing its own. There are several issues with this approach. As with other critical capabilities, outsourcing could lead to a loss of domestic manufacturing capabilities that could be needed in a time of war. In addition, any supply chain interruptions could lead to critical shortages. Sole reliance on outsourcing defence procurement may also limit the research and development opportunities required to stay at the leading edge of defence. Defence spending has the potential to stimulate the economy and promote innovation which could have potentially useful civilian applications in the future. For example the Global Positioning System (GPS), which is now used extensively for civilian navigation, was developed and launched by the US military.[152]

Many countries, including Canada, use offsets for defence contracts in order to ensure the large defence expenditures benefit their economy by boosting domestic industries and innovation. In Canada, this practice is referred to as Industrial and Technological Benefits (ITB). ITBs are part of all high value defence and coast guard contracts.[153] Companies that wish to receive a major Canadian defence or coast guard contract must submit a Value Proposition which demonstrates how the company would

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[152] "Global Positioning System History," last modified 7 Aug, accessed 16 Mar, 2021, https://www.nasa.gov/directorates/heo/scan/communications/policy/GPS_History.html.

[153] "Industrial and Technological Benefits," last modified 4 Mar, accessed 16 Mar, 2021, http://www.ic.gc.ca/eic/site/086.nsf/eng/home.

perform business in or invest in Canadian businesses or research institutions to an extent that is deemed equivalent to the contract value.[154] This process is designed to ensure that the Canadian economy, and not just the CAF or the Coast Guard, reaps the benefits from major procurement contracts.

In 2018, to ensure the Canadian defence and security industry remains competitive on the global stage, the Canadian government published a list of 16 Key Industrial Capabilities (KICs) to help guide ITB investments.[155] These KICs were developed to support SSE and Canada's Innovation and Skills Plan and included *Emerging Technologies* such as artificial intelligence, cyber and space based technology and *Leading Competencies and Critical Industrial Services* which is more focused on military technology, maintenance and training.[156] This publication is a clear demonstration that the Canadian government has assessed which industries are likely to be critical to defence in the future and is taking steps to protect them. Although Canadian defence contracts are open for global competition, the ITB policy ensures that Canadian businesses and research institutions benefit from the contract no matter the origin of the winning bidder.

Offsets, however, are not without criticism and are even not allowed by the WTO unless under the clause of National Security.[157] In addition, there is an ongoing debate on whether or not offsets truly provide the economic benefits they promise. This is due to a typical lack of information on the performance of offset contracts, fear of corruption and

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[154] "Industrial and Technological Benefits,"

[155] "Key Industrial Capabilities," last modified 23 Apr, accessed 16 Mar, 2021, http://www.ic.gc.ca/eic/site/086.nsf/eng/h_00175.html.

[156] "Key Industrial Capabilities,"

[157] "Defence Procurement Offsets and their Economic Value in Canada," , accessed 16 Mar, 2021, https://cdainstitute.ca/defence-procurement-offsets-and-their-economic-value-in-canada/.

the possibility of artificially creating an industry that cannot sustain itself after offset support ends.[158] There are also often difficulties in fulfilling offset agreements as transferring technology and intellectual property can present security and capacity issues. Additionally, offsets can force companies to use less efficient labour forces to fulfil a contract which can result in much more expensive contracts.[159] The European Commission limited the use of offsets in 2009 as they were deemed not to be cost effective and restrict competition which has a detrimental effect on the EU's defence industry.[160] Nevertheless, many EU countries still frequently use offsets in their defence contracts through the National Security exemption.[161]

Offsets have been, and are still, widely used to protect a country's defence industry from the risk of relying on trade to fulfil a critical capability. However, there are other ways a country can stimulate its defence industry without the use of offsets. One of the benefits of globalization is that it has made it easier for allies to share the burden of technological development. It is now common for a military platform to integrate technology from several countries. For example, Portuguese frigates have a Canadian sonar system, a French 100mm gun and fire-control systems from the Netherlands.[162] Being able to acquire top of the line sub-systems from several sources, to integrate in a

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[158] "Offset Arrangements," , accessed 16 Mar, 2021, https://securitysectorintegrity.com/best-practices/offset-arrangements/.

[159] "Canada's Defence Industrialization: Offsets and the F-35," last modified 6 Oct, accessed 16 Mar, 2021, https://natoassociation.ca/canadas-defence-industrialization-offsets-and-the-f-35/.

[160] "Defence Procurement Offsets and their Economic Value in Canada,"

[161] Ron Matthews, "The Rise and Demise of Government-Mandated Offset Policy," in *The Political Economy of Defence* (Cambridge University Press, 2019), 155.

[162] James D. Hessman, "The Globalization of the Defense Industrial Base," *Sea Power* 40, no. 12 (1997), 53-54. https://search-proquest-com.cfc.idm.oclc.org/docview/235972604?accountid=9867.

domestically produced platform, helps reduce the research and development costs typically associated with developing a new capability.

Although this approach does mean countries will be reliant on the global supply chain, it may actually be more sustainable as allies can each specialize. A self-sufficient defence industry comes at a huge cost which is difficult to justify in a world of low or declining defence budgets. Joint Defence Ventures (JDVs), in which allied countries pool capacity to design and build new weapons platforms or capabilities, are one way to capitalize on the ease of trade between allies. In the case of the F-18 Hornet, it is estimated that the cost per unit was reduced by 11% due to the JDV between the US and its allies.[163]

The F35 Lightning II fighter is another, and more current, example of a JDV with eight countries, including Canada and the US, participating in the development of the new aircraft and a number of other allied countries planning to buy the aircraft in the future.[164] With the goal of producing a more advanced and interoperable fighter at a lower price per unit than a country could do on their own, the F35 program has the potential to benefit the participating countries. In theory, the program should provide technology and intellectual property transfer across the participants while also creating a wide defence industrial base for future development and support.[165]

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[163] Hessman, "The Globalization of the Defense Industrial Base," , 53-54

[164] "F-35 Joint Strike Fighter (JSF) Program," last modified 6 Nov, accessed 17 Mar, 2021, https://www.ic.gc.ca/eic/site/ad-ad.nsf/eng/h_ad03961.html.

[165] "F-35: The Right Choice for Canada," , accessed 17 Mar, 2021, https://www.f35.com/f35/global-enterprise/canada.html.

The history of the F35 JDV project has been far from smooth, sparking much debate over the years on whether or not Canada should have invested in the project.[166] In addition to the concerns over the challenged rollout, participating in the JDV means that Canada will not be able to use its ITB policy in the purchase of the fighters with some believing the Canadian economy would see more benefit from a fighter purchase that allows for the use of the country's 100% offset policy.[167] There are also concerns over the cost of participating in the program; however, to date Canada's participation has already resulted in the Canadian defence industry securing contracts that amount to twice the value of the investments that has been made.[168] Even if Canada does not procure the F35 fighters there has already been significant technology and intellectual property transfer to the defence industry.[169]

Arms Sales

According to Innovation, Science and Economic Development Canada's (ISED) 2019 report on the state of Canada's defence industry, only 28% of the industry's sales were to the federal government and 15% to other Canadian customers in 2016.[170] This would indicate that the government, although important to the industry, is not the only client sustaining the sector. Nevertheless, this is not an unusual situation as defence contracts tend to have limited life spans which force the defence industry to look externally for business if they are to remain in business after their governments contracts

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[166] Kim Richard Nossal, "Late Learners: Canada, the F-35, and Lessons from the New Fighter Aircraft Program," *International Journal (Toronto)* 68, no. 1 (2013), 167-184.

[167] "Canada's Defence Industrialization: Offsets and the F-35,"

[168] "F-35: The Right Choice for Canada,"

[169] "Canada's Defence Industrialization: Offsets and the F-35,"

[170] "State of Canada's Defense Industry ," Innovation, Science and Economic Development Canada, last modified 25 May, accessed 3 Mar, 2021, https://www.ic.gc.ca/eic/site/ad-ad.nsf/eng/h_ad03978.html.

end.[171] While it is important to have a strong defence industry that could be spooled up in the event of war, in order to maintain an innovative sector with skilled workers during peacetime, the industry must have other clients than just the Canadian government. With the Canadian defence industry exporting $3.76 billion of controlled military goods and technology in 2019, the importance of exports to the industry cannot be understated.[172]

While security, and therefore the defence industry, has been identified by the Canadian government as a critical sector[173] and therefore needs to be sustainable, there are risks associated with selling defence technology. For example, it is important that countries do not inadvertently equip their adversaries or those who would violate international laws. In an attempt to mitigate the risk of Canadian arms being used in a manner that is counter to the country's foreign and defence policies, Canada claims to have one of the world's strictest arms control regimes.[174] Under the Export and Import Permits Act (EIPA), companies who wish to export arms must apply for a permit from Global Affairs Canada, which will vet the request.[175] For an application to be successful, the proposal must not undermine peace and security, be counter to international humanitarian or human rights law, violate any arms embargos or sanctions, be counter to international conventions to which Canada is a signatory, pose a threat to Canada or its allies, contribute to the creation of weapons of mass destruction or lack mitigation measures to prevent transfer to an unauthorised party.[176]

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[171] Hessman, "The Globalization of the Defense Industrial Base," , 53-54

[172] "2019 Exports of Military Goods," last modified 18 Sept, accessed 3 Mar, 2021, https://www.international.gc.ca/trade-commerce/controls-controles/reports-rapports/military-goods-2019-marchandises-militaries.aspx?lang=eng#_Toc38893600.

[173] "Guidance on Essential Services and Functions in Canada during the COVID-19 Pandemic,"

[174] "2019 Exports of Military Goods,"

[175] "2019 Exports of Military Goods,"

[176] "2019 Exports of Military Goods,"

Furthering its resolve to ensure arms trade is done in a controlled, transparent and ethical manner Canada joined the international Arms Trade Treaty (ATT) in 2019.[177] The ATT currently consists of 110 countries. An additional 31 countries are in the process of ratifying the agreement. The treaty "regulates the international trade in conventional arms and seeks to prevent and eradicate illicit trade and diversion of conventional arms by establishing international standards governing arms transfers."[178] In order to join the ATT, Canada passed Bill C-47 which added additional checks and balances to the already stringent EIPA. Bill C-47 made brokering arms deals without a permit a criminal offense, increased transparency on arms deals through an annual Military Exports Report and increased transparency on the sale of controlled goods to the US.[179]

While the Canadian vetting process might seem rigorous, it is not intended to hinder the defence industry but to ensure due diligence in any transactions and prevent unwanted parties from benefiting from Canadian arms sales. Unfortunately, when it comes to arms sales, changing political agendas can result in even a thorough vetting process failing to foresee potential issues. In recent years, Canada has risen to be the number two exporter of arms, behind the US, to the Middle East, mainly due to significant sales of light armoured vehicles (LAVs) and other arms to Saudi Arabia.[180] While once considered by some to be an achievement to be proud of, and representing 75% of Canada's arms exports to non-US countries, recent concerns over human rights

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[177] "2019 Exports of Military Goods,"

[178] "The Arms Trade Treaty," , accessed 4 Mar, 2021, https://thearmstradetreaty.org/.

[179] "Overview of the Arms Trade Treaty Regulatory Implementation Package," last modified 26 Aug, accessed 4 Mar, 2021, https://www.international.gc.ca/trade-commerce/consultations/export_controls-controle_exportations/overview-apercu.aspx?lang=eng.

[180] "Canada Now the Second Biggest Arms Exporter to Middle East, Data Show," last modified 16 Jun, accessed 3 Mar, 2021, https://www.theglobeandmail.com/news/politics/canada-now-the-second-biggest-arms-exporter-to-middle-east-data-show/article30459788/.

violations and the possible use of Canadian made arms in Yemen have cause some to call into question if Canada should halt arms trade with Saudi Arabia.[181]

Despite these concerns, the large value of the contract and the Canadian government's strategic interest in the region make the LAV contract too important to cancel without a thorough understanding of the repercussions.[182] Cancelling the LAV contract would have had massive economic effects on Canada. Not only would it have meant a loss of jobs in the country but it also would have demonstrated that Canada is not a reliable trading partner which likely would have resulted in the closing of doors for Canada to expand its access to the Middle Eastern markets.[183] It is therefore understandable that the country would be hesitant to cancel such a large contract.

While Ottawa did not cancel the LAV contract, it did put in place a limited moratorium on arms sales to Saudi Arabia while an investigation was underway on the potential use of Canadian arms being used to commit atrocities in Yemen. The moratorium prevented new deals, but it did not cancel or suspend existing ones. This means that the $14.8 billion contract for light armoured vehicles was unaffected and Canada therefore had record arms sales to Saudi Arabia in the same year.[184] The fact that arms sales actually increased during the moratorium, whether due to pre-existing contracts or not, does not create the appearance that the country is committed to

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[181] "Trudeau Urged to End Arms Exports to Saudi Arabia After Canada Cited for Fuelling Yemen War," last modified 17 Sep, accessed 3 Mar, 2021, https://www.theglobeandmail.com/politics/article-trudeau-urged-to-end-arms-exports-to-saudi-arabia-after-canada-cited/.

[182] "Canada and Saudi Arabia: A Deeply Flawed but Necessary Partnership," last modified July, accessed 17 Mar, 2021, https://www.cgai.ca/canada_and_saudi_arabia.

[183] "Canada and Saudi Arabia: A Deeply Flawed but Necessary Partnership,"

[184] "Canada Doubles Weapons Sales to Saudi Arabia Despite Moratorium," last modified 9 Jun, accessed 3 Mar, 2021, https://www.theguardian.com/world/2020/jun/09/canada-doubles-weapons-sales-to-saudi-arabia-despite-moratorium.

maintaining peace and security. Perhaps Canada should have at least temporarily suspended or delayed the delivery of the contracted arms until the investigation was concluded. At the very least, Ottawa should endeavour to bring more transparency to future arms deals through clear and consistent messaging.[185]

The Saudi Arabia arms trade dilemma begs the question of whether Canada is doing enough to control who is allowed to purchase Canadian arms. Once they are sold, is it really reasonable to assume that a country will not use them or divert them to a country that will use them for something that is contrary to Canadian interests? Unfortunately, this dilemma is one that should be expected when dealing in the controversial arms industry.

Despite fairly rigorous checks and balances that the arms sector is subject to, the globalization of trade has opened up more potential markets to the industry. Unfortunately, the ease of global trade also makes it possible for arms to be diverted to unintended parties or used in ways that are counter to the original agreements. Although it would be convenient to only sell arms to one's closest allies, the sale of arms to non-NATO countries is almost equal to those purchased by the Canadian government.[186] Therefore, unless there is an increased appetite for Canadian arms amongst the country's closest allies, sales to countries with weaker alliances are likely to continue well into the future.

Moreover, even when trading with NATO countries there is a risk that arms may be used in ways that are counter to Canadian policy. Canada took a stand against its NATO ally, Turkey, in 2019 and ceased issuing new export permits for arms sales after

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[185] "Canada and Saudi Arabia: A Deeply Flawed but Necessary Partnership,"
[186] "State of Canada's Defense Industry ,"

the country's incursion into Syria.[187] Issues like the one with Turkey is why it is important for Canada to apply a robust risk assessment on all arms sales, even if the recipient is an ally. Currently with the exception of the arms sales to the US, which enjoys a privileged relationship due to the unique defence relationship it shares with Canada, all exports are subject to the same robust permitting and reporting process.[188] Canada's application of the same in-depth scrutiny to all arms deals is how the country tries to mitigate the risk associated with the arms sales that are an integral part of maintaining a healthy defence industry.

**CYBER SECURITY**

Trade, banking, commerce and modern economies in general have become heavily dependent on the World Wide Web for almost every aspect of operation. Unique in that it knows no national borders, the cyber domain is now the cornerstone of modern society. It has made the global marketplace possible by streamlining the transfer, transportation and tracking of goods, services and financial transactions. In addition, intellectual property can now be easily sold or shared allowing companies to collaborate in the development of new technology. With the world economy now so dependent upon this domain, cyber security is becoming increasingly important to the maintenance of a healthy economy.

The global trade of intellectual property is important to countries such as Canada which have limited expertise, due to a relatively small population. Much like in other sectors, globalization allows countries to share the burden of innovation and specialize in

[187] "2019 Exports of Military Goods,"
[188] "2019 Exports of Military Goods,"

specific areas of technology development. The technology can then be traded on the global market for the benefit of all. However, if a company's technology is to be marketable the intellectual property behind it must be protected. Therefore, intellectual property is a critical commodity, which Canadian companies must not only protect but are also reliant upon the trade of for future technological innovation.[189] In order to do this, cyber security is paramount to prevent unwanted theft like that which contributed to the collapse of Canada's world leading telecommunication company NORTEL.[190]

Unfortunately, anytime there is a dependence there is an opportunity of exploitation by those with mal intent. Cybercrime, which has been growing exponentially as the world has become more dependant on the internet, can be used for financial gain, theft of intellectual property, cause mass confusion or to inflict physical damage to critical infrastructure. This means that cyberattacks directly threaten both economic and physical aspects of national security.[191] To make matters worse, many countries' critical infrastructure, such as hydroelectric dams or water treatment facilities, are especially vulnerable to cyberattacks as cyber security was largely an afterthought in the development of the control systems.[192] These vulnerabilities must be addressed if a country is to safeguard the national security of its citizens.

Cybercrimes offer many advantages to a country's adversaries or criminal organisations. For one, tracing the origin of a cyberattack is often difficult.[193] In addition

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[189] Stewart, *Canada's Energy Security: Would Deglobalization Change the Game?*

[190] "Did a Chinese Hack Kill Canada's Greatest Tech Company?"

[191] Public Safety Canada, *National Cyber Security Strategy* (Canada: , 2018), 13-14.

[192] James Christopher, "Architecture for Community-Scale Critical Infrastructure Coordination for Security and Resilience," in *Critical Infrastructure Protection and Situational Awareness* (Cham: Springer International Publishing, 2017), 19.

[193] Nicholas Tsagourias, "Cyber Attacks, Self-Defence and the Problem of Attribution," *Journal of Conflict & Security Law* 17, no. 2 (2012), 233.

to this potential ambiguity a cyberattack provides, cyber defence is often lacking or difficult for, as noted by one cyber specialist, "an attacker has to be successful only once, whereas the defender has to be successful all of the time."[194] It is therefore not surprising that cyber security professionals predict that the cost of cybercrime will continue to climb in coming years, with Cybersecurity Ventures estimating that by 2025 it could cost the global market $10.5 trillion annually.[195] It should, however, also be noted that, while there are many non-state actors performing cyberattacks, complex attacks are resource intensive and normally require state sponsorship.[196]

The Canadian government has recognised the importance of cyber security to the country's national security and has designated Public Safety Canada (PSC) as the cybersecurity lead. PSCs cyber security policy focuses on the security of government systems, critical infrastructure, the online security of Canadians, the ability of the Royal Canadian Mounted Police to respond to cybercrimes and the development of a Canadian cyber talent pool.[197] With the Canadian Defence Policy, SSE, also identifying the need to increase cyber capabilities[198] it is clear that the government understands that cyber security is critical to the national security of Canada.

However, Canada is a bit late to the cyber game only releasing its first cyber security policy in 2010. Additionally, the 2017 Horizontal Evaluation of Canada's Cyber Security Final Report noted that confusion about the cyber governance structure still

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[194] John B. Sheldon, "Deciphering Cyberpower Strategic Purpose in Peace and War: SSQ," *Strategic Studies Quarterly* 5, no. 2 (2011), 98.

[195] "Cybercrime to Cost the World $10.5 Trillion Annually by 2025," last modified 13 Nov, accessed 17 Mar, 2021, https://cybersecurityventures.com/cybercrime-damages-6-trillion-by-2021/.

[196] Mette Eilstrup-Sangiovanni, "Why the World Needs an International Cyberwar Convention," *Philosophy & Technology* 31, no. 3 (2018), 379-407. doi:http://dx.doi.org.cfc.idm.oclc.org/10.1007/s13347-017-0271-5.

[197] Public Safety Canada, *National Cyber Security Strategy*

[198] Canada, *Strong Secure Engaged*, 72

exists, there has been limited sharing of information between organizations and there is still widespread and significant underspending on cyber security.[199] It also assessed that the "progress to secure systems of importance to Canada (i.e., vital infrastructure) has been limited. The Strategy's overall investment in securing systems of importance to Canada was described as inadequate."[200] Hopefully identifying cyber as one of the KICs for the ITB policy will pay dividends in the creation of a cyber talent pool for the country. Currently, as was reported in 2017, Canadian companies have been finding it hard to recruit cyber professionals to assist with improving cyber security.[201] In the fast paced, technology driven and globalized world, Canada cannot afford to continue to be playing catch up in the cyber domain.

## 5. CONCLUSION

This paper examined the effects trade globalization has on the Canadian economy and the measures the country uses to protect its national security in the complex global market place. Trade globalization has the potential to have negative impacts on a the stability of a country's economy, ability to protect public health, defence sector and cyber security. It has made it possible for many countries, including Canada, to outsource critical capabilities and become reliant on complex and potentially unreliable supply chains. This over confidence in supply chains and trading partners has led to a lack of domestic capacity and in turn resulted in Canadians dealing with an unexpected PPE

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[199] Public Safety Canada, Horizontal Evaluation of Canada's Cyber Security Strategy and Final Report, *Public Safety Canada Horizontal Evaluation of Canada's Cyber Security Strategy Final Report*.

[200] Public Safety Canada, Horizontal Evaluation of Canada's Cyber Security Strategy and Final Report, *Public Safety Canada Horizontal Evaluation of Canada's Cyber Security Strategy Final Report*, 23

[201] Public Safety Canada, Horizontal Evaluation of Canada's Cyber Security Strategy and Final Report, *Public Safety Canada Horizontal Evaluation of Canada's Cyber Security Strategy Final Report*

shortage during the COVID-19 pandemic. In addition, the global demand for oil and Canada's vast reserves has tied the Canadian economy to a volatile trading commodity with an uncertain future. Cyber security is becoming increasingly important to protecting Canadian businesses and citizens from the ever increasing cybercrimes that have come with the increasingly technologically dependant world. All of these are risks to national security.

This examination of globalization and Canada's critical capabilities uncovered a couple common themes. First, Canada is a trading nation, rich in natural resources and it is therefore likely that the exploitation of natural resources will remain important to Canada's economic security for the foreseeable future. Second, there are significant economic benefits that can be associated with access to the global trading market. Third, outsourcing can have an adverse long term effect. Finally, in the contemporary economic environment, countries need to identify their critical capabilities and resources and determine whether it is possible to encourage domestic capacity or if it is preferable to outsource to a reliable trading partner.

While trade globalization has several potential pitfalls, the benefits can outweigh the drawbacks. An open world market has been seen to stimulate the economies in many developing countries. It can also create inter-reliance between countries which, if managed correctly, could promote peace due to the mutual benefits the countries receive. Therefore, a well-managed, rules based, international body to oversee trade deals and assist with trade disputes is of great importance in the complex global market. While there will always be a potential for a country to get into trouble by outsourcing critical capabilities or becoming over reliant on volatile commodities, this too can be avoided.

Countries must be diligent about identifying their critical capabilities and ensure they are either maintained domestically or only outsourced to trusted trading partners. The diversification of trading partners and commodities can be used to help manage the risk of uncertain future demands as well as prevent a country from becoming over reliant on questionable partners or commodities.

Although Canada is not, and is likely not ever going to be, fully self-sufficient, the Canadian government's trade policies demonstrate that Ottawa understands the risks and benefits that globalization brings. Canada has robust safeguards at its disposal to protect its national interests in trade deals under Section 53 of *Customs Tariffs*. In addition, Ottawa's ITB policy and the identified KICs are in place to help the country maintain a healthy and innovative defence and technology sector. Canada's membership in the ATT is meant to ensure that the arms sales, which are critical to the sustainment of the domestic defence industry, are ethical. The government's focus on expanding trading partners beyond the US demonstrates an understanding of the economic opportunities that exist in the global market. Diversification also allows for a more robust supply chain, as was seen when Canada leveraged EU trade deals to acquire COVID-19 vaccines when the US restricted its exports. Therefore, although globalization, if gone unchecked, does presents some risks to national security, Canada appears to have the policies in place to ensure the country can reap the benefits and avoid the pitfalls of the complex global market. Nonetheless, it will be important for Ottawa to learn from how the world's markets were affected by the recent global health crisis if the country is to protect its national security in the future.

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