



Atlantic Council

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FOR STRATEGY AND SECURITY

ISSUE BRIEF

The Security of Defense Trade with Allies: Enhancing Contact, Contracts, and Control in Supply Chains

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JULY 2021

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SUMMARY: A Signal of Enduring Defense-Industrial Relationships

Security of supply is a conviction that the goods and services commensurate with a government's security commitments will be available when its foreign and military policies demand action. Around NATO, the European Union, and in other contexts, governments have entered into various forms of agreements designed to ensure that security in a crisis. The United States has such agreements with twenty-eight countries, though of varying scope, enforceability, and reciprocity. These include the legislated designations of the national technology and industrial base (NTIB), security of supply arrangements (SOSAs), reciprocal defense procurement memoranda of understanding (RDP MOUs), and reciprocal government quality assurance agreements (RGQAAs). Beyond those, there are commercial contracts with foreign suppliers.

Why discuss these now? Protectionism has recently been rising around the world and particularly in the United States, where enthusiasm for rewarding domestic producers has often been conflated with the actual demands of national security. The more proximate prompt has been the COVID-19 pandemic, in which several countries initially restricted exports of medical supplies on which trading partners depended—and the United States was at times on both sides of that problem. Some of the more nationalistic responses to this global medical emergency beg the question of whether even the more reciprocal and salient of these agreements, the SOSAs, would be honored in a national military crisis.

To answer that question, this paper relies on three lines of research: a study of the text of the arrangement documents themselves, interviews with diplomats and defense officials in and around Washington, DC, and a historical analysis of the few contemporary cases in which US security of supply has been tested. This issue brief concludes that the SOSAs themselves say little, and that in practice, they have almost never been tested. However, even if the implicit contracts are unenforceable, the agreements have value as easily arranged signals of underlying, enduring relationships between governments.¹ These arrangements are thus worth reinforcing, and perhaps extending to several other important US partners: Mexico, Japan, and Taiwan.

BACKGROUND: COVID-19 and Other “Buy American” Impulses

“For all the rhetoric about the united fight” against COVID-19, Shawn Donnan of Bloomberg Canada intoned in April 2020, “the current obsession in almost every country is how to ban exports and hoard protective masks, clothing, and ventilators.”² China made half the world’s surgical face masks before the pandemic, and subsequently expanded production twelvefold, but in March 2020 its government was loath to allow exports of them.³ That same month, the Swiss and Austrian federal governments complained to the German federal government about seizures of surgical masks at their borders. In Berlin, Health Minister Jens Spahn insisted that he took “this issue of European solidarity very seriously” and that he merely wanted to ensure that masks went “where they were most needed” and not merely “where the most was paid.”⁴ Of course.



Air crew from Travis Air Force Base and the 164th Airlift Wing unload COVID-19 testing swabs at the Memphis Air National Guard Base in Memphis, Tennessee, March 19, 2020. Source: *US Air National Guard* photo by Airman 1st Class Tra’Vonna Hawkins <https://www.dvidshub.net/image/6145792/covid-19-testing-swabs-arrive-memphis>

By the next month, US officials were behaving no better. On April 7, following presidential orders of a few days prior, the Federal Emergency Management Agency (FEMA) banned exports of “N95 masks, other respirators, surgical masks, and gloves” under section 101 of the Defense Production Act of 1950.⁵ Just ten days after that, FEMA permitted some broad exceptions, specifically exports to important trading partners Mexico and Canada.⁶ Scott W. Atlas and H. R. McMaster, both of the Hoover Institution and former White House advisers, were writing in the *Wall Street Journal* that “relying on foreign[-made] drugs is dangerous.”⁷ Arthur Herman, author of a popular history of industrial mobiliza-

1 Here, of course, we are alluding to Keith J. Crocker and Kenneth J. Reynolds, “The Efficiency of Incomplete Contracts: An Empirical Analysis of Air Force Engine Procurement,” *RAND Journal of Economics* 24, 126-146, no. 1 (Spring 1993), doi.org/10.2307/2555956.

2 Shawn Donnan, “The Pandemic Protectionism Is Spreading,” BNN Bloomberg (Canada), April 6, 2020, <https://www.bnnbloomberg.ca/the-pandemic-protectionism-is-spreading-1.1417858>.

3 Keith Bradsher and Liz Alderman, “The World Needs Masks. China Makes Them, but Has Been Hoarding Them,” *New York Times*, March 13, 2020, <https://www.nytimes.com/2020/03/13/business/masks-china-coronavirus.html>.

4 Jan Dahinten and Matthias Wabl, “Germany Faces Backlash from Neighbors Over Mask Export Ban,” Bloomberg, March 9, 2020, <https://www.bloomberg.com/news/articles/2020-03-09/germany-faces-backlash-from-neighbors-over-mask-export-ban>.

5 Joy Sturm et al., “Trump Invokes DPA to Block Exports of PPE,” research note, Hogan Lovells, April 9, 2020; and “FEMA to Temporarily Prohibit Most Exports of PPE from the United States,” research note, Venable LLP, April 9, 2020, <https://www.engage.hoganlovells.com/knowledgeservices/news/trump-invokes-defense-production-act-to-block-exports-of-personal-protective-equipment>. See Defense Production Act of 1950, as amended and current through Pub. L. 115-232, 50 U.S.C. §4511 (2018).

6 Chandri Navarro et al., “FEMA Releases Exceptions to Rule Prohibiting Exports of PPE—Exports to Canada and Mexico Are Excluded and Other Important Exclusions Apply,” research note, Hogan Lovells, April 20, 2020, <https://www.jdsupra.com/legalnews/fema-releases-exceptions-to-rule-97185/>.

7 Scott W. Atlas and H. R. McMaster, “Relying on Foreign Drugs Is Dangerous,” *Wall Street Journal*, April 28, 2020, <https://www.wsj.com/articles/relying-on-foreign-drugs-is-dangerous-11588093635>.

tion in the 1940s, was opining in the same newspaper that the United States should thus itself become “the medicine chest of the world.”⁸

Yet for all this *Sturm und Drang*, and “despite the pressure that the recent surge in COVID-19 cases has put on supply chains,” as two analysts wrote in November 2020, there have been no significant shortages of [personal protective] or other equipment since early spring.⁹ By September, when even the contracts for artificial intelligence were still behind schedule, the US federal government was canceling orders for further ventilators as excess to need.¹⁰

Short-term pressure for protectionism thus abated, but a fear of overseas vulnerabilities in the supply chain lingered. Over the summer of 2020, Pentagon officials leveraged the pandemic as a lesson in *military* vulnerabilities. Will Roper, head of procurement for the US Air Force (USAF), took the main message of COVID-19 as the need for “a strategic focus on the supply chain.”¹¹ Ellen Lord, head of procurement for the entire US military, intoned with a sweeping but seemingly nuanced—if not dissonant—demand: that “we reshore as much as possible and also have partners and allies supporting us wherever possible.”¹² While decrying possible “Chinese backdoors” in microelectronics, she spoke highly of allies’ industrial contributions to US security, “specifically highlighting Leonardo’s work on ground vehicles, Fincantieri’s winning bid to design the Navy’s

new frigate, and US-Norwegian cooperation on missile development.”¹³

At roughly the same time, however, the US House of Representatives was taking up legislation for a less-nuanced mandate that 100 percent of the components of “all major defense acquisition programs” be manufactured in the United States by 2026.¹⁴ On August 5, Pieter-Henk Schroor, the Dutch defense cooperation attaché and chairman of the twenty-five nation Defense Memorandum of Understanding Attachés Group (DMAG), sent a letter to the Senate Armed Services Committee asking for opposition to the House’s provisions.¹⁵

Both the attachés and the senators found the House’s idea inadvisable and ultimately unworkable. The provision did not survive conference and did not advance into the 2021 National Defense Authorization Act (NDAA). Former Pentagon official Dov Zakheim described the proposed legislation as lacking “strategic sense,” but “actually full of loopholes,” such as authority for the defense secretary to waive its provisions, and exclusion of trade under existing agreements.¹⁶ Yet what sorts of agreements would that cover? After all, as Schroor insisted, the nations represented by the DMAG all had exchanged RDP *memoranda* of understanding with the US Defense Department, agreeing that each country would treat industry in the other as exempt from its trade protections. Nine of those coun-

8 Arthur Herman, *Freedom’s Forge: How American Business Produced Victory in World War II* (New York: Random House Trade, 2012); and Arthur Herman, “Make America the Medicine Chest of the World,” *Wall Street Journal*, March 19, 2020, <https://www.wsj.com/articles/make-america-the-medicine-chest-of-the-world-11584637124>.

9 Jerry McGinn and Daniel Kamieski, “Where Does the Defense Production Act Go from Here?” *Defense One*, November 24, 2020, <https://www.defenseone.com/ideas/2020/11/where-does-defense-production-act-go-from-here/170301/>.

10 John Dowdy, “Shark versus Minnow. Human versus Machine. My discussion with Brett Darcey of Heron Systems,” LinkedIn, September 10, 2020, <https://www.linkedin.com/pulse/shark-versus-minnow-human-machine-my-discussion-brett-john-dowdy/>; and Stephanie Armour, “COVID-19 Ventilator Orders Canceled by Trump Administration,” *Wall Street Journal*, September 2, 2020, <https://www.wsj.com/articles/covid-19-ventilator-orders-canceled-by-trump-administration-11599075158?mod=mhp>.

11 Theresa Hitchens, “DOD Needs Supply Chain Strategy to Survive Future Crises: Roper,” *Breaking Defense*, July 17, 2020, <https://breakingdefense.com/2020/07/dod-needs-supply-chain-strategy-to-survive-future-crises-roper/>.

12 Justin Doubleday, “Pentagon Acquisition Chief Calls to ‘Reshore as Much as Possible’ in Wake of COVID Supply Chain Challenges,” *Inside Defense*, July 8, 2020, <https://insidedefense.com/daily-news/pentagon-acquisition-chief-calls-re-shore-much-possible-wake-covid-supply-chain>.

13 Lord spent much of her last year in the office on the issue; here she is referring to Leonardo SpA, a Rome-based multinational company, and an Italian shipbuilding company, Fincantieri SpA. See Paul McLeary, “Worried About Chinese Backdoors, Lord Pushes For New Tech Strategy,” *Breaking Defense*, September 29, 2020, <https://breakingdefense.com/2020/09/worried-about-chinese-backdoors-lord-pushes-for-new-tech-strategy/>; Tony Bertuca, “Lord Says Pandemic Sharpened DOD’s Focus on Reshoring, Especially Microelectronics,” *Inside Defense*, September 29, 2020, <https://insidedefense.com/daily-news/lord-says-pandemic-sharpened-dods-focus-re-shoring-especially-microelectronics>; and Justin Doubleday, “Pentagon Acquisition Chief Proposes ‘Step-by-Step Process’ to Bring Microelectronics Back to U.S.,” *Inside Defense*, November 10, 2020, <https://insidedefense.com/daily-news/pentagon-acquisition-chief-proposes-step-step-process-bring-microelectronics-back-us>.

14 Justin Doubleday and Justin Katz, “House Advances Legislation to Ramp Up ‘Buy American’ Requirements on Pentagon,” *Inside Defense*, July 13, 2020, <https://insidedefense.com/daily-news/house-advances-legislation-ramp-buy-american-requirements-pentagon>.

15 Tony Bertuca, “U.S. Military Allies Seek to Block New ‘Buy American’ Initiatives,” *Inside Defense*, August 27, 2020, <https://insidedefense.com/daily-news/us-military-allies-seek-block-new-buy-american-initiatives>.

16 Dov Zakheim, “When ‘Buy American’ and Common Sense Collide,” *The Hill*, September 8, 2020, <https://www.msn.com/en-us/news/politics/when-buy-american-and-common-sense-collide/ar-BB18P9cj>.

tries had further security of supply *arrangements* with the United States, in which each government pledged to work to resolve any subsequent problems that might arise with industry under their governance.

With allies like these, would the restrictions be anything more than protectionism? Or are such agreements defective in a way that demands attention in law and regulation? If they are useful, could they be yet more useful for enhancing the security of the United States and its many allies and partners? As intertwined as international trade and international security have long been, we should frame the problem in its economic and political aspects.

ECONOMICS AND POLITICS: The Value of Trade in Armaments among Allies

As Adam Smith explained 245 years ago, specialization lowers costs and improves quality, and the extent of that specialization depends on the extent of the market, domestic or global.¹⁷ The economic options of a nation of 330 million people are a small fraction of those possible for a world of 7.7 billion—or just an alliance of some 950 million. As David Ricardo effectively predicted 204 years ago, the great globalization of the past several decades has resulted in a thoroughgoing industrial restructuring, in which national economies specialize where they have comparative advantages, and thus develop mutual interdependence.¹⁸ Until very recently, reliability of the supply had facilitated acceptance of the interdependence.¹⁹

Barriers to that trade steer economic rents toward domestic producers, at a net cost borne by domestic consumers, and

a deadweight loss to the global economy. Bald-faced protectionism can thus make for “good domestic politics, but really dumb economics and national security.”²⁰ The Jones Act of 1920 has failed for a century to foster an oceangoing merchant fleet of US-flag ships.²¹ For another old-is-new example, consider the 1941 Berry Amendment, which governs military purchases of end-items containing certain specialty metals. The 2021 NDAA shamelessly extended its application to stainless flatware. Decoupling from China may be more or less possible or helpful in microelectronics, but decoupling from the whole world’s knives, forks, and spoons is of no military utility.²² The passage of a law to further national security was thus hijacked to provide a handout to Sherrill Manufacturing of upstate New York, the sole US maker of those products.²³

While that is a regrettable example, it is a trivial one—the more complex the product, the more challenging reordering the supply chain. Protectionist legislation can become an exercise in “how to make America less productive,” because “a technonationalist view of the world and the reality of global supply chains are simply incompatible.”²⁴ Cost advantages generally do not change quickly, so rebuilding cost-effective domestic supply chains for all military production would be costly and challenging. Meanwhile, buyers will still tend to prefer lower prices and higher quality in their commercial purchases. Further, with advanced technologies and complex products, vertical integration from scratch can be difficult and costly. This is true about both the specialized aluminum from Russia (briefly subject to sanctions by the Trump administration) needed by European automobile manufacturers and the nucleoside phosphoramidites from South Korea and China needed for

17 Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (London: W. Strahan and T. Cadell, 1776).

18 David Ricardo, *On the Principles of Political Economy and Taxation* (London: John Murray, 1817).

19 Hélène Masson, “Building Conditions of Security of Supply: A Prerequisite for Mutual Dependence” in *Security of Supply Challenges and European Defence Technological and Industrial Base: Debates & Dilemmas (II)*, ed. Hélène Masson, Fondation pour la Recherche Stratégique, note no. 26/13 (October 2013), 10-13, <https://www.frstrategie.org/en/publications/notes/security-supply-challenges-and-european-defence-technological-and-industrial-base-debates-dilemmas-ii-2013>.

20 Comment by William “Bill” Greenwalt, former US deputy undersecretary of defense for industrial policy, in Bertuca, “U.S. Military Allies Seek to Block.”

21 Colin Grabow, “Rust Buckets: How the Jones Act Undermines U.S. Shipbuilding and National Security” Policy Analysis No. 882, Cato Institute, Washington, DC, November 12, 2019, <https://doi.org/10.36009/PA.882>.

22 For caution regarding the enthusiasm for economic decoupling, see Keith Johnson, “The Great Decoupling,” *Foreign Affairs*, May 14, 2020, <https://foreignpolicy.com/2020/05/14/china-us-pandemic-economy-tensions-trump-coronavirus-covid-new-cold-war-economics-the-great-decoupling/>; and Henry Farrell and Abraham Newman, “The Folly of Decoupling from China,” *Foreign Affairs*, June 3, 2020, <https://www.foreignaffairs.com/articles/china/2020-06-03/folly-decoupling-china>.

23 Austen Hufford and Bob Tita, “Manufacturers Want Biden to Boost ‘Buy America’ Practices,” *Wall Street Journal*, January 3, 2021, <https://www.wsj.com/articles/manufacturers-want-biden-to-boost-buy-american-practices-11609678802>.

24 Daniel W. Drezner, “How to Make America Less Productive: Regarding the Bizarre Argument that Decoupling from China Would Increase Productivity,” *Washington Post*, June 10, 2020, <https://www.washingtonpost.com/outlook/2020/06/10/how-make-america-less-productive/>; and Eric Boehm quotes Adam Weinstein, a research fellow at the Quincy Institute for Responsible Statecraft, in “A Silicon Curtain Descends,” *Reason*, February 2021, <https://reason.com/2021/01/09/a-silicon-curtain-descends/>.

DNA- or mRNA-based COVID-19 vaccines.²⁵ International trade sometimes provides “access to the latest technologies,” not all of which are developed and produced in the United States.²⁶ Chauvinistic sensibilities notwithstanding, this is even true in military technologies, many of which depend on underlying civilian technologies, some of which are efficiently sourced around the world.²⁷

Further, it is particularly true for small states, which cannot aspire to produce all the military materiel required in crisis. For them, security generally demands supply of armaments from beyond one’s borders, but that itself creates demand for security of the supply itself.²⁸ For large states, well-tailored barriers can foster domestic industrial and logistical capabilities that ensure security of supply in crises, but this still comes at a cost of net output. Not everything can be so cost-effectively subsidized, and single foreign sources, particularly those of complex, hard-to-replicate products, may present particular logistical and political challenges. Thus, governments and even firms may want some sense of security about that supply. If security of supply is a conviction, then security of supply agreements are a comparative guarantee of that supply so that (again) a government will be able to further its security commitments in accordance with its foreign and military policies.²⁹

Where might assurances of international supply fall short? There are cases of force majeure, to be sure.³⁰ But beyond the routine exigencies of global manufacturing which afflict plenty of firms, governments may interfere with such trade for either economic or political reasons. In a crisis, domestic demand may crowd out export orders, perhaps by governmental diktat—as with personal protective equipment

in many countries in early 2020. Governments or even high-minded firms may also object to another country’s policies on arms export licensing, as was recently the case with German components in French weapons destined for Saudi Arabia, as discussed below.

All this increasing specialization in globalized supply chains is good, but it does come with an increased need for coordination, and thus transaction costs.³¹ There are political, legal, regulatory, industrial, contractual, and technological means of managing those costs, and the risks of yet greater cost—such as full interruption in supply.³² Effective management of those transaction costs depends on the quality of the institutions upon which the parties rely to effect the transaction. Contracts between commercial parties depend on legal and regulatory regimes, which do not cross national borders without national consent. Trust among allies depends on the cultural and political bonds, but also threats to the reputation of any one ally.³³ Forgoing commitments now should mean that beneficial supply deals may not be extended later.

Managing any such transaction proceeds through three phases, with different types of associated costs, some of which bear benefits too. *Contacting* potential suppliers means searching for opportunities, marketing one’s own needs to providers, and receiving the marketing of those firms and their governments. *Contracting* means negotiating deals, dividing proceeds, and protecting respective rights. *Controlling* the relationship means monitoring and enforcing deals, which can come with particularly high transaction costs.³⁴ All this requires management by defense and economics departments and ministries on both sides. As nations go to war with existing supply chains, they

25 Farrell and Newman, “The Folly of Decoupling”; and Willy C. Shih, “Global Supply Chains in a Post-Pandemic World,” *Harvard Business Review*, September–October 2020, <https://hbr.org/2020/09/global-supply-chains-in-a-post-pandemic-world>.

26 See the “About Us” page of the Defense MOU Attachés Group (DMAG) website: <https://www.dmagdc.info>. The DMAG has been meeting monthly since 1979.

27 For a detailed examination of the commercial roots of military technology in three modern US systems, see Eugene Gholz, Andrew D. James, and Thomas H. Spiller, “The Second Face of Systems Integration: An Empirical Analysis of Supply Chains to Complex Product Systems,” *Research Policy* 47, no. 8 (October 2018), 1478–1494, <https://www.sciencedirect.com/science/article/abs/pii/S0048733318301148>.

28 Marri Mikkola, “A Small State Perspective on the European Military Security of Supply: Finland Needs to Further Boost its International Defense Cooperation,” in *Security of Supply Challenges and European Defence*, ed. Masson, 6–7.

29 The preceding sentence is a paraphrasing of the definition in Antonio Fonfría, “Security of Defence Supply in EU Countries: Some Critical Aspects,” in *Security of Supply Challenges and European Defence*, ed. Masson, 2–3.

30 For some of the panic over the purely domestic effects of COVID-19 on US naval shipbuilding, see Paul McLeary, “Shipyards Not at Risk, Despite DoD Warning It Needs \$\$ to Save Them,” *Breaking Defense*, August 12, 2020, <https://breakingdefense.com/2020/08/shipyards-not-at-risk-despite-dod-warning-it-needs-money-to-save-them/>.

31 Frank A. G. den Butter, “The Transaction Management Perspective on Procurement in the Era of Globalization,” *International Journal of Procurement Management* 5, no. 2 (2012), 123–138.

32 Hélène Masson, “Building Conditions of Security of Supply,” 10–13.

33 Avner Greif, “The Fundamental Problem of Exchange: A Research Agenda in Historical Institutional Analysis,” *European Review of Economic History* 4, no. 3 (December 2000), 251–284.

34 Frank A. G. den Butter and Kees A. Linse, “Rethinking Procurement in the Era of Globalization,” *Strategic Management Review* 50, no. 1 (Fall 2008), 80.

might try to secure those chains in advance. That is where security of supply *agreements* come in.

AGREEMENTS: How Security of Supply Works in Practice

Security of supply problems are not unique to bilateral relationships involving the United States. With smaller national armaments industries, European countries have been dealing with this problem almost since the aftermath of World War II. In 1998, the so-called Letter of Intent was signed among “six of the leading defense industry countries in Europe”—France, Germany, Italy, Spain, Sweden, and the United Kingdom—which collectively “sought to facilitate the restructuring of the European defense industry.” In 2000, the same six signed a framework agreement implementing the letter of intent on facilitating transnational military-technological research, harmonizing military requirements, standardizing export procedures, and assuring security of supply.³⁵ The European Defence Agency has maintained its own multilateral program in security of supply since 2006, but as with many security institutions of the EU, its effectiveness is unclear. A smaller and more recent multilateral arrangement exists among Nordic countries, formed by Sweden, Norway, and Finland in April 2019, and joined by Denmark in November 2020.³⁶

European nations have bilateral agreements in the area as well, but based more on mutual respect than binding provisions. The 2010 Lancaster House agreement between France and the United Kingdom commits the two parties to undertake “to increase their security of supply,” but says little more on the issue.³⁷ One of the most enduring—but troubled—bilateral relationships has been between France and the Federal Republic of Germany. The 1971 Debré-Schmidt

agreement “successfully governed exports of jointly developed arms until Germany decided to ban exports to Saudi Arabia,” following the murder of Saudi national and Virginia resident Jamal Khashoggi in October 2018.³⁸ This affected not just France’s foreign policy, but the fortunes of companies in third countries, which “lost sales on products that use German components.”³⁹

Germany was not alone, of course. Denmark, Finland, Flanders, the Netherlands, Norway, Sweden, and Wallonia had all ceased exporting armaments to the Saudis by 2016, over the ongoing war against the Houthis in Yemen.⁴⁰ However, the extent of Franco-German industrial cooperation, and the size of their respective national arms industries, meant that a lack of alignment could be particularly damaging. Failure to fully reestablish the agreement became a major factor slowing the progress of the Franco-German cooperative programs for the European Main Battle Tank and the Future Combat Air System. The 2019 Treaty of Aachen (a furtherance of the 1963 Élysée Treaty) aimed at renewing the Debré-Schmidt agreement by “defining a common approach to armaments exports,” but it did “not get much more concrete than that.”⁴¹ There is thus reason to think that “bilateral defense cooperation between Paris and Berlin will remain complicated and underwhelming.”⁴²

With considerable continuity across administrations, and over many decades, the US government has sought independence in choosing where it will permit arms exports. To safeguard this latitude, and its own security of supply, its dealings with foreign industry and national security are structured in three tiers. At the top, the United Kingdom, Canada, and Australia—“three of its closest historical allies”—are gathered inside the fence of domestic de-

35 Jan Joel Andersson, “European Defence Collaboration: Back to the Future,” Issue Brief no. 2015-19, European Union Institute for Security Studies, June 2015, 2, https://www.iss.europa.eu/sites/default/files/EUISSFiles/Brief_19_Defence_collaboration.pdf.

36 “Nordic Agreement on Security of Supply,” press release, Swedish Defense Materiel Administration (*Försvarets materielverk*, or FMV), April 11, 2019; and Frederikke Laursen, Department of Acquisitions and Capability, Finnish Department of Defense, email message to author, February 8, 2021. I thank Lieutenant Colonel (ret.) Per Lyse Rasmussen, the former long-serving Finnish armaments attaché in Washington, DC, for making this connection.

37 See Treaty between the United Kingdom of Great Britain and Northern Ireland and the French Republic for Defence and Security Co-operation, article 9 (“Industry and Technology”), paragraph 1, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/238153/8174.pdf.

38 Sophia Besch and Beth Oppenheim, “Up in Arms: Warring over Europe’s Arms Export Regime,” policy brief, Centre for European Reform, September 2019, 2 and 13, <https://www.cer.eu/publications/archive/policy-brief/2019/arms-warring-over-europes-arms-export-regime>.

39 Professor Richard Shipe, Eisenhower School for National Security and Resource Management, National Defense University, email message to author, August 28, 2020.

40 Besch and Oppenheim, “Up in Arms,” 2. Note that in Belgium, the regional parliaments of Flanders and Wallonia are legally responsible for approving or disapproving arms exports. This situation would be akin to devolving decisions over which countries might receive F-35 Joint Strike Fighters to the Texas Legislature in Austin.

41 Ronja Kempin and Barbara Kunz, “The Treaty of Aachen. New Impetus for Franco-German Defense Cooperation?,” *Éditoriaux de l’Ifri*, Institut Français des Relations Internationales, commentary, January 2019, p. 2, https://www.ifri.org/sites/default/files/atoms/files/edito_kempin_kunz_aachen_treaty_jan_2019.pdf.

42 Barbara Kunz, “The Three Dimensions of Europe’s Defense Debate,” Policy Brief 2018 No. 24, German Marshall Fund of the United States, June 2018, <https://www.gmfus.org/publications/three-dimensions-europes-defense-debate>.

fense-industrial planning as part of the national technology and industrial base (NTIB, pronounced *en-tib*).⁴³ Note that the designation is not an indication that any agreement has been concluded. Rather, inclusion in the NTIB is a unilateral signal—perhaps an “incredibly important signal” by the legislature to the procurement bureaucracy that a given country’s industry should be trusted.⁴⁴ As such, NTIB designation is not so much a lever for securing supply as a means for securing the *ex ante* benefits of that security.

Those three countries, however, have also entered into SOSAs with the United States, as have six more countries that are not included in the NTIB: Finland, Italy, Norway, Spain, Sweden, and the Netherlands. Note that these are not technically international agreements, which could be taken as enforceable, but merely pledges of commitment to attempt to work through mutual problems.⁴⁵

A further rung down are the aforementioned RDP MOUs, which cover twenty-five countries—the preceding nine plus Austria, Belgium, Czech Republic, Denmark, Egypt, France, Germany, Greece, Israel, Japan, Luxembourg, Poland, Portugal, Slovenia, Switzerland, and Turkey. A similar set of twenty-one countries have RGQAAs with the United States. Some of these are simply annexes to their RDP MOUs, and some are stand-alone documents that simply note that each government will perform quality assurance work for the other when necessary.⁴⁶ Note further that Romania, Slovakia, and South Korea have RGQAAs, but not RDP MOUs.⁴⁷ (For clarification, see the attached table titled Countries with Bilateral Agreements with the United States.) Quite apart from these, there are the quotidian contractual obligations of particular programs—most notably, those of the F-35 Joint Strike Fighter.

What, however, are these SOSAs, and what do they provide that contracts do not? Most notably, they are not treaties. All but those with the Netherlands and Sweden are not even between governments, but just ministries. The one with Canada is actually between the Canadian Department of Public Works and Government Services and the US

Department of Commerce, which managed defense trade before the George W. Bush administration. The most recent version was signed in 1998, though it has antecedents dating back to 1950. Moreover, it is neither agreement nor arrangement, but technically an MOU. All these arrangements exclude commercial items generally available in the country of supply. Some include or exclude construction materials, without explanation either way. Perhaps most notably, all the arrangements state that they are not binding under international law.

That raises the question of enforceability, apart from fears regarding international trust and reputation. On the US side, coercing misbehaving firms depends on the tools of the 1950 Defense Production Act (DPA) and its Defense Priorities Allocation System (DPAS, pronounced *dee-pass*). The first title of the act is one of the most powerful laws available to the president, as it theoretically permits control of the economic output of almost any company or person in the United States. In practice, the “regulations implementing Title I authorities provide practical exemptions to this mandate,” and specifically for firms not already contracting with the US government.⁴⁸ This power for coercion is still far in excess of what most allied governments can legally achieve. Only on the Canadian side is similar authority found, in an analogous priorities system for the Canadian defense industry.

In the aftermath of the pandemic, it is possible that governments in other countries will seek similarly expansive authorities. Today, however, on the part of European countries, the arrangements largely call upon the counterpart government or ministry to employ its “good offices” or perhaps “best efforts” in securing the cooperation of companies that have already agreed to uphold a voluntary “code of conduct” in dealing with the United States and its domestic industry. The code membership lists are maintained and published on the internet by the Office of the Deputy Assistant Secretary of Defense (soon to be assistant secretary of defense) for Industrial Policy. The idiosyncratic nature of the lists and their lack of maintenance are remark-

43 Legislation on the NTIB is encoded at 10 U.S.C. §2536 (2019), <https://www.govinfo.gov/content/pkg/USCODE-2019-title10/html/USCODE-2019-title10-subtitleA-partIV-chap148-subchapV-sec2536.htm>. For an extensive analysis of the NTIB concept and recommendations for how it can be better utilized by the US government, see William Greenwalt, *Leveraging the National Technology and Industrial Base to Address Great-Power Competition*, Atlantic Council, April 2019, https://www.atlanticcouncil.org/wp-content/uploads/2019/04/Leveraging_the_National_Technology_Industrial_Base_to_Address_Great-Power_Competition.pdf.

44 Comment by a federal legislator participating in a roundtable discussion of this paper, May 2021.

45 Jerry McGinn, former acting deputy under secretary of defense for industrial policy, email message to the author, April 10, 2021.

46 See Defense Federal Acquisition Regulation Supplement (DFARS) 246.406(3), <https://www.acquisition.gov/dfars/part-246-quality-assurance>.

47 *Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States*, a September 2018 report by the Interagency Task Force in fulfillment of US Exec. Order No. 13806 (of July 2017), 3 C.F.R., September 2018.

48 Jared T. Brown and Daniel H. Elise, “The Defense Production Act of 1950: History, Authorities, and Reauthorization,” Congressional Research Service, July 2014, 6, <https://fas.org/sgp/crs/natsec/R43118.pdf>.

able. At the most recent revision of the Italian list, in January 2016, sixty-three firms were members. The undated British list covering an industry with much wider and deeper ties to the United States, however, shows just eight firms. The only other two countries with published lists are Finland and Sweden. As of January 2021, only these four countries had even published their codes of conduct.⁴⁹

Are these arrangements valuable, then? The present author asked former defense officials from several of the governments involved, including some who had signed the arrangements, for their recollections and considered opinions. At face value, one might say that “they don’t really mean anything,” because they are largely unenforceable outside the United States and Canada. However, that nine such arrangements have been concluded over a span of several decades suggests that someone has seen lasting value in them. Legislatures and some firms on both sides wanted written arrangements for confidence-building, in “reciprocal acknowledgement” of lasting relationships. Beyond the focus on enforceability, the arrangements provide a “very natural trust-setting” around “something we can do anyway.” In theory, lower-level bureaucrats can use a common understanding of the arrangements to negotiate in the shadow of the not-quite-law. However, as we will discuss below, the actual commercial contracts may be the legally enforceable part. The arrangements usefully encourage governmental cooperation in enforcing those contracts. For either party, an arrangement with the other signals that “you’re probably one of our closest allies” and thus merit those best efforts.⁵⁰

RESPONSES: How Firms and Governments Have Ensured Security of Supply

Perhaps then, as the chairman of the DMAG said, “it can’t do any harm to have [these arrangements] . . . and we all think that they are valuable, but they are never tested.”⁵¹

Indeed, representatives from most of the nine countries—and specifically all those interviewed—said that so far as they could tell, the various security of supply arrangements have never been invoked.⁵² This is not to say that the United States and the nine other countries have never had, in the period in which the arrangements have been in force, bilateral supply problems that merited governmental attention. It is simply that they have been generally less than newsworthy and most often resolved through working-level discussions.

Indeed, in the past twenty years, seemingly only three serious cases of actual interruptions in supplies important to production for the US military have become public. The ease with which they were resolved says a great deal about the value of the bilateral relationships.

Swiss Watch Parts in JDAMs (2003)

On March 31, 2003, Nicholas Hayek, president and majority owner of well-known watchmaker Swatch, told Swatch subsidiary Micro Crystal to halt shipments of oscillators to Honeywell, a supplier to Boeing of GPS receivers used in the production of the Joint Direct Attack Munition (JDAM), a family of drop-and-forget guided bombs. Hayek was somewhat concerned by the US invasion of Iraq: was he now shipping war materiel to a belligerent, in violation of the law in famously neutral Switzerland? Honeywell and Boeing asked the US government to intervene, and diplomatic conversations ensued. The Swiss government determined that the oscillators were dual-use products, not exclusively military ones. Under Swiss law, shipments of dual-use products to belligerents is legal in wartime, so the contracts had to be honored. By April 11, shipments were again flowing.⁵³ In the interim, however, Honeywell scrambled to buy oscillators from a US firm at nearly twice the price.⁵⁴ The reaction from then-Rep. Duncan Hunter, a Republican from California, was quite sharp. He entitled his amendment to the 2004 NDAA “Elimination of Unreliable Sources of Defense Items and

49 See Department of Defense, Industrial Policy, Security of Supply webpage, accessed 2021, <https://www.businessdefense.gov/security-of-supply/>.

50 Particularly helpful to this analysis were interviews with Eric Chewning, Bill Greenwalt, Steve Grundman, Brett Lambert, and Jen Santos, all former deputy under secretaries for industrial policy (and its predecessor offices); Ken Krieg, former under secretary of defense for acquisition, technology, and logistics; Håkan Seipel and Håkan Söderstedt of the Swedish FMV; Peter-Henk Schroor, defense cooperation attaché from the Kingdom of the Netherlands; and Richard Shipe, professor at the Eisenhower School of the National Defense University. Several other interviewees provided insights, entirely supporting these views, under an agreement for anonymity.

51 Peter-Hen Schroor in conversation with the author, January 28, 2021.

52 This characterization is deliberately vague because some of the embassies and defense ministries contacted by the author requested nonattribution of their comments. Remarkably, whether replying openly or not, they all conveyed essentially the same view.

53 M. Hailstone, “Bullet Background Paper on JDAM IMU Crystals,” mimeo, US Air Force, June 13, 2003; and Bill Greenwalt, email message to the author, February 23, 2021.

54 Bill Gertz, “Swiss Delay of Military Parts Sparks ‘Buy American’ Push,” *Washington Times*, July 25, 2003.



U.S. Air Force F-15E Strike Eagles, from the 335th Expeditionary Fighter Squadron, drop 2,000 pound Joint Direct Attack Munitions on a cave in eastern Afghanistan, Nov. 26, 2009. Source: US Air Force photo by Staff Sgt. Michael B. Keller, <https://www.flickr.com/photos/usairforce/4158051965/>

Components” and sought to require in effect that all firms outside the United States be removed from the supply of critical components for US weapons.⁵⁵

Hunter overreacted: there was no actual interruption in JDAM production, as buffer stocks were sufficient to keep the line running. Moreover, while Switzerland was and remains an RDP MOU country, the United States and Switzerland have never had a security of supply agreement, arrangement, or otherwise. That did not matter, as the contract ensured the flow of electronic components.

Cooler heads thus prevailed. In this case, the response from the JDAM program office, from the Pentagon’s industrial policy office, and the Bush administration as a whole was more measured, as at least one overseas supplier—another microchip manufacturer—had already performed yeoman service for the program in a previous war.⁵⁶

In 1999, while readying its first JDAMs for the Kosovo campaign, the USAF asked Boeing to assess its ability to rapidly expand its then-trickle of production to support the gathering war effort, taking into consideration any limita-

⁵⁵ This section is substantially drawn from James Hasik, *Arms and Innovation: Entrepreneurship and Alliances in the Twenty-First Century Defense Industry* (Chicago: University of Chicago Press, 2008), 67-68, (under the heading “Building the Bombs: The JDAM Factory and Supply Chain”). The story has been updated with insights from Greenwalt, email message to the author, February 23, 2021.

⁵⁶ Leonard Shapiro, past consultant to the Office of the Assistant Secretary of the Air Force for Acquisition and the Office of the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy, insights conveyed to the author.

tion attributable to supply constraints. The limiting factor was determined to be the supply of tuning crystals for the GPS receivers. The best source was Navman, a small, private maker of navigation equipment in Auckland, New Zealand, that had built its own microchip fabrication plant a few years before in Christchurch. The company had developed a proprietary process for rapidly aging new crystals to achieve the desired level of timation stability. Some in the USAF were understandably nervous about buying an essential part overseas from a firm with no track record as a US military supplier, but since Navman's process ran an order of magnitude faster than anyone else's, there was arguably little reason to get another firm involved. The company delivered enough crystals to build enough bombs to keep the USAF's entire wing of B-2 bombers supplied for the war, and it was well paid for its exertions. Indeed, Navman's efforts attracted considerable attention. Immediately after the war, Darlene Druyun, then the USAF's head of procurement, traveled to New Zealand to present the owners with an award—and Druyun was known to hate business travel.⁵⁷

In the Swiss matter, establishing contact for the initial supply was likely no problem for either Honeywell or Swatch, as both were brand-name companies with large commercial businesses. In this case, the actual contract was ultimately what led to control of the situation—with a little help from the United States' friends in Bern.

Swedish Steel for MRAPs (2008)

The campaigns in 1999 and 2003 over Kosovo and Iraq initially required modest mobilizations of US industry. In 2007, the surge of US forces and proper armored vehicles into Iraq to crush the insurgency required rather more. In the rush to provide mine-resistant, ambush-protected (MRAP)

vehicles to US and other coalition troops in Iraq, no bottleneck was as threatening as that of steel plate.

As Matt Riddle, vice president for survivability systems at BAE Systems, put it to *National Defense* magazine, “you want 1,000 [MRAP] vehicles a month, but that’s 4,000 tons of steel” for the armor. Only two domestic suppliers were certified by the Defense Department to supply the three-eighths of an inch armor plate used in MRAP construction: International Steel Group and Oregon Steel Mills.⁵⁸ Only the former was actually in operation at the start of the war. Its production was 35,000 tons annually in 2004, and had been 6,500 tons annually in 2003. The Defense Department would suddenly be demanding 21,000 *per month* [emphasis added].⁵⁹ Interestingly, International was owned by Arcelor Mittal, the world’s largest steelmaker; while headquartered in the Netherlands, its chairman and largest shareholder was Indian steel magnate Lakshmi Mittal. More interestingly, Oregon Steel Mills was owned by the Evraz Group; while its shares are traded on the London Stock Exchange, the company itself was headquartered in Luxembourg and Moscow, and was the largest steel producer in Russia. Those foreign-owned firms absolutely supported the war effort.⁶⁰

Speaking about the top category of the DPAS, Mittal USA spokesman David Allen told *National Defense* that “DX ratings are nothing new. We’ve seen them on and off since 1980. We would respond to any DX rating as we have in the past.”⁶¹ To further the process, the Pentagon’s Office of Industrial Policy helped manufacturers find supplies overseas, particularly in Israel, Germany, and Sweden.⁶² Svenska Stål AB (SSAB), “a Swedish specialty steel manufacturer well-known for armor plate, had already supplied

57 Shapiro, insights conveyed to the author.

58 Sandra Erwin, “Surge in Vehicle Orders Calls for Unconventional Buying Methods,” *National Defense*, April 2007, <https://www.nationaldefensemagazine.org/articles/2007/4/1/2007april-surge-in-vehicle-orders-calls-for-unconventional-buying-methods>; and Renae Merle and Ann Scott Tyson, “Racing to Defeat the Roadside Bomb,” *Washington Post*, July 3, 2007, <https://www.washingtonpost.com/wp-dyn/content/article/2007/07/02/AR2007070201708.html>.

59 Tom Cross, *Mine Resistant Ambush Protected (MRAP) Vehicle*, The University of Virginia Darden School of Business, Case No. UVA-OM-1375, January 21, 2009, <https://ssrn.com/abstract=1422887>.

60 James Hasik, *Securing the MRAP: Lessons Learned in Marketing and Military Procurement* (College Station: Texas A&M University Press, 2021, forthcoming).

61 Erwin, “Surge in Vehicle Orders.”

62 Greenwalt, in conversation with the author, January 2021.



Mine Resistant Ambush Protected (MRAP) vehicles are staged, waiting to have a full agriculture wash aboard Camp Leatherneck, Helmand province, Afghanistan, April 3, 2014. Source: *US Marine Corps photo by Cpl Dustin D. March, Marine Expeditionary Brigade Afghanistan/Released*<https://www.dvidshub.net/image/1222465/mine-resistant-ambush-protected-agriculture-wash>

two MRAP producers,” including one of the early firms in the business, Force Protection.⁶³ “SSAB had other priorities too, including supplying steel for the booming business of erecting cellular telephone towers in China.”⁶⁴ Resolving potential supply shortages through its mills in Sweden began with intergovernmental discussions. While the United States and Sweden did and still do have a security of supply arrangement, it did not actually cover SSAB. That firm had not signed the US code of conduct, as it was not primarily a defense contractor. Addressing the US need required a personal appeal to the SSAB CEO, Olof Faxander, a Swede who had been born in New Jersey.

US firms owned largely by Americans were remarkably less interested in helping. William “Bill” Greenwalt, then deputy under secretary of defense for industrial policy, sought to bring more US capacity into making that armor-grade steel. After initial entreaties by his office were rebuffed, he sought to use the DPA to compel compliance. Lawyers

across the steel industry “laughed at us,” he said, and “told us to pound sand,” because they knew that their firms were not already direct suppliers to the Defense Department.⁶⁵ The legacy of the Supreme Court’s refusal to allow Harry Truman’s seizure of the entire US steel industry would continue to the present.⁶⁶ If patriotism would not pay enough, then US steel companies would do otherwise.

Instead, Force Dynamics—the joint venture of South Carolina’s Force Protection and Ontario’s General Dynamics Land Systems—“diversified its sources of steel for components other than armor in 2007, adding Canada’s Algoma Steel to Mittal as a second supplier on the Cougar program. That year, though, Algoma was purchased by India’s Essar Group, and retitled Essar Steel Algoma. In a globalizing economy, there was simply no wholly American, or even North American, solution to the industrial problem.”⁶⁷

The next March, while foreign firms were fulfilling and domestic firms were ignoring US military needs, Robert Lighthizer would write an editorial in the *New York Times* decrying free trade as not “conservative”—regardless of its economic efficiency.⁶⁸ He was a steel industry lawyer who would later become Donald Trump’s trade representative. Working with Lighthizer and White House economic adviser Peter Navarro, lobbyists for that same steel industry would later convince President Donald Trump to impose “emergency” tariffs on foreign steel, asserting that US steel manufacturers needed protection from foreign competition in the interest of national security. In 2007, those firms had nothing to do with national security.⁶⁹ As Greenwalt said in an interview, “That is why I like our allies. When needed, they put our orders ahead of theirs—unlike what the US steel industry did at the time with MRAPs.”⁷⁰

In this case, contacting foreign firms was not difficult, as the MRAP surge had finally brought the Defense Department

63 Hasik, *Securing the MRAP*.

64 Hasik, *Securing the MRAP*.

65 William Greenwalt, in conversation with the author.

66 Patricia L. Bellia, “The Story of the Steel Seizure Case,” in *Presidential Power Stories*, Christopher H. Schroeder and Curtis A. Bradley, eds., Foundation Press, 2008, Notre Dame Legal Studies Paper No. 08-20, <https://ssrn.com/abstract=1147039>.

67 Hasik, *Securing the MRAP*.

68 Robert E. Lighthizer, “The Venerable History of Protectionism,” opinion, *New York Times*, March 6, 2008, <https://www.nytimes.com/2008/03/06/opinion/06iht-edlighthizer.1.10774536.html>.

69 See James Hasik, “Is Imported Steel a Threat to American National Security?,” *Defense Industrialist*, Atlantic Council blog, May 10, 2017, <https://www.atlanticcouncil.org/content-series/defense-industrialist/is-imported-steel-a-threat-to-american-national-security/>.

70 Greenwalt, in conversation with the author.

to the “war footing” that then-Secretary Robert Gates had sought.⁷¹ The existing contracting was helpful, but not enough, as SSAB was fulfilling its commitments for modest amounts of steel. Controlling the domestic firms proved challenging, despite the authorities of the DPA. After a few telephone calls, control of the relationship in Sweden was no problem, even for a firm that had not previously been covered by the formal bilateral arrangement.

Mexican (and Other) Aircraft Parts (2020)

Shortly after the onset of the pandemic, production for military contracts was generally deemed “essential” across the United States, after some initial fencing with state governors and their invocations of emergency powers. Across the various states of Mexico, where the defense and navy ministries focus as much on domestic threats, this business did not evoke the same sense of essentiality. That US aircraft manufacturers bought large volumes of parts in Mexico was generally known, but perhaps not fully understood.⁷² As an official US government briefing put it in 2013, lower manufacturing costs, proximity to aircraft plants in the United States, “duty-free access to other important aerospace markets,” and a bilateral aviation safety agreement with the United States all contributed to the great expansion of that trade, which grew from \$1.3 billion in 2004 to \$9.6 billion in 2019.⁷³

The US Defense Department was unamused by the lack of priority. Pentagon acquisition chief Ellen Lord then communicated “directly with the Mexican leadership to identify those companies and express the essentiality and the importance of those companies” in US military supply chains.⁷⁴ The letter, notably, went to the Mexican foreign minister, and not the defense or navy minister. Mexico has no security of supply arrangement with the United States, no RDP MOU, and a long history of avoiding military en-

tanglements with other countries—particularly the United States. Even so, the threat to the Mexican aircraft-parts industry seems to have been enough to encourage the Mexican federal government to lift orders closing the factories in question, as the problem quickly dropped out of the news. Regardless, the episode usefully focused attention on the US government’s ability to understand its own supply chain.

In this case, contact was never an issue for governments, as Mexico’s cost-effectiveness in manufacturing was already widely known. Contracts were not helpful, as the governmental fiat, not corporate reticence, had effected the interruption. Control on the US side was achieved with a simple if implicit economic threat to move the sources of supply back north of the border.

RECOMMENDATIONS: Enhancing Relationships with Formalities

Beyond this refocusing on supply chain visibility, there is a widely held presumption that “when the COVID-19 pandemic subsides, the world is going to look markedly different.”⁷⁵ However, whatever the aspirations of protectionist politicians, the underlying economics cannot be wished away. The challenge then for managers in industry and responsible officials in government, as a Harvard Business Review article put it, “will be to make their supply chains more resilient without weakening their competitiveness.”⁷⁶ What could make things different yet again by sparking another crisis is hard to know. Just consider how the 1957 Asian flu was not followed by a global reaction remotely akin to that of the 2019 coronavirus.⁷⁷ With such imperfect foresight, security of supply merits periodic reconsideration. Bilateral conversations about the arrangements often start from the vantage point of enhancing the rela-

71 Robert Gates, speech at the national meeting of the Association of the United States Army, Washington, DC, October 10, 2007.

72 Marcus Weisgerber, “Pentagon Urges Mexico to Reopen COVID-closed Factories That Supply US Weapon Makers,” *Defense One*, April 20, 2020, <https://www.defenseone.com/business/2020/04/pentagon-urges-mexico-reopen-covid-closed-factories-supply-us-weapon-makers/164756/>.

73 David Coffin, “The Rise of Foreign Aerospace Suppliers in Mexico,” Executive Briefing on Trade, US International Trade Commission, February 2013, https://www.usitc.gov/publications/332/coffin_mexico_aerospace4-25.pdf; and Joe Gould, “COVID Closed Mexican Factories that Supply US Defense Industry. The Pentagon Wants Them Opened,” *Defense News*, April 21, 2020, <https://www.defensenews.com/2020/04/21/covid-closed-mexican-factories-that-supply-us-defense-industry-the-pentagon-wants-them-opened/>.

74 Justin Doubleday, “Pentagon ‘Learning More Than Ever’ about Supply Chain Vulnerabilities during COVID-19 Crisis,” *Inside Defense*, April 28, 2020, <https://insidedefense.com/daily-news/pentagon-learning-more-ever-about-supply-chain-vulnerabilities-during-covid-19-crisis>.

75 Shih, “Global Supply Chains in a Post-Pandemic World.”

76 Shih, “Global Supply Chains in a Post-Pandemic World.”

77 Clark Whelton, “Say Your Prayers and Take Your Chances: Remembering the 1957 Asian Flu Pandemic,” *City Journal*, March 13, 2020, <https://www.city-journal.org/1957-asian-flu-pandemic>.

tionship, not repairing its missing defects.⁷⁸ So what can be enhanced, at least on the US side?

Contact

These arrangements would seem to be mostly about control, but actually, their greatest value may be in enhancing contact. Membership on a code of conduct list is an important signal of willingness to support the needs of a formal or informal alliance for security. Foreign purchasing, however, is the exception to a presumption of monopsony in the US market. Foreign firms have alternatives, without the sales constraints of the export controls of the Departments of State and Commerce or the press-ganging threats of the DPA. When foreign firms offer technologies not fully available domestically, it is thus particularly important for government to understand how the marketing should be done.⁷⁹ For if the politicians in the Trump administration did not care about the NTIB, the security of supply arrangements, and the RDP MOUs, most program officials still simply do not know about them.⁸⁰

To improve the marketability and utility of interallied supply:

- ◆ The assistant secretary of defense for acquisition should send a memorandum to the acquisition community reminding them of the specific value of the NTIB, the security of supply arrangements, the RDP MOUs, and the RGQAAs. The assistant secretary should further note, as articulated by the Office of Management and Budget in June 2021, that the Biden administration's emphasis on domestic sourcing does not apply to a wide range of products and suppliers in countries covered by the Trade Agreements Act of 1979.⁸¹
- ◆ The faculty of the Defense Acquisition University and the Dwight D. Eisenhower School for National Security and Resource Strategy (part of the National Defense University) should consider undertaking further research on the utility of these arrangements, and whether to include that discussion in their teaching.

- ◆ The assistant secretary of defense for industrial policy should develop and recommend consistent branding for code of conduct companies to employ in visual marketing efforts, to remind US buyers of their pledge to US security.

So much for thinking about contact on the US side. There remains an outstanding question of how agreements with the United States figure into other countries' various agreements. As noted above, Norway, Sweden, and Finland each have security of supply arrangements with the United States, but also have an agreement among themselves and Denmark too. Buyers of military materiel in any of these countries may want to know how the various governments may prioritize shipments to the United States in the event of war against, notably, Russia. A fully valid pecking order may be impractical to demand, but some ideas and assurances might merit discussions, both bilateral and multilateral, before a need for action becomes unilateral.

Contracts

Contractual obligations do matter, even to officials who might claim sovereign immunity. Consider the recent ejection of Turkey from the F-35 program. The idea of Russian-built radars in constant proximity with Joint Strike Fighters was intolerable, but the Defense Department allowed participating Turkish firms to continue in the program through 2022, "to honor signed contracts."⁸² Note as well how neither the Turkish government nor Turkish firms sought to end that relationship early; political spite should not interfere with making money.

Enhanced contractual arrangements can thus be leveraged as a means of enhancing security of supply. Domestic surge capacity is expensive, but domestic stockpiling through advance orders can be both a confidence-building and time-buying measure. While lean manufacturing has proven to offer great economic advantages, it is perhaps not advisable for all things required in crises.⁸³ Subsequently, if emergencies interrupt physical flows of goods, or induce

78 Interview with a past deputy undersecretary of defense for industrial policy; and Håkan Seipel and Håkan Söderstedt of the Swedish FMV, conversations with the author.

79 Hasik, *Securing the MRAP*.

80 Greenwalt, in conversation with the author.

81 See Shalanda D. Young, "Increasing Opportunities for Domestic Sourcing and Reducing the Need for Waivers from Made in America Laws," Office of Management and Budget, June 11, 2021, 5.

82 Anthony Capaccio, "Turkey to Keep Making F-35 Parts through 2022, Pentagon Says," *Bloomberg*, June 20, 2020.

83 For an economic analysis of why countries might systematically choose stockpiling or surge capacity, see Martin C. McGuire, "Uncertainty, Risk Aversion, and Optimal Defense against Interruptions in Supply," *Defense & Peace Economics* 17, no. 4 (August 2006), 287-309.



Capt. Brad Matherne conducts preflight checks inside an F-35A Lightning II before a training mission April 4 at Nellis Air Force Base, Nev. Source: US Air Force photo by Senior Airman Brett Clashman <https://www.flickr.com/photos/usairforce/8642748355/>

governments to interrupt those flows, then at least the flow of intellectual property could be facilitated—with appropriate compensation. By arranging in advance the terms for local manufacturing in the event of crisis, a sense of security over that supply can be enhanced. In World War II, the allies built thousands of Swiss Oerlikon and Swedish Bofors guns under license, when access to Swiss and Swedish factories could only come across Axis-controlled territory or waters. In March 2020, Medtronic published on the Internet

the design specifications and software code for its Puritan Bennett 560 ventilator. The device was already sold in thirty-five countries, but the company's generosity with its intellectual property opened the possibility that other firms could bring spare production capacity to bear.⁸⁴

By building these arrangements into at least a few products essential in various crises, swing capacity can be arranged later, as demand emerges and options unfold.⁸⁵ So, to lever-

84 Peter Loftus, "Medtronic Publishes Design Specs for Ventilator to Combat Coronavirus," *Wall Street Journal*, March 30, 2020, <https://www.wsj.com/articles/medtronic-publishes-design-specs-for-ventilator-to-combat-coronavirus-11585572382>.

85 Micah Maidenber, "Fewer Products, Localized Production—Companies Seek Supply Chain Solutions," *Wall Street Journal*, April 26, 2020, <https://www.wsj.com/articles/coronavirus-disrupted-supply-chains-that-companies-are-still-fixing-11587893401>.

age the contracts that the United States and its domestic suppliers already have and could yet develop with foreign firms, the assistant secretary of defense for industrial policy should open discussions with his counterparts in security of supply countries about adding provisions, to industry's contracts and codes of conduct, for compulsory but compensated licensing of designs in crises, should the physical flow of those products be interrupted, and should the simplicity of the product allow it.⁸⁶

Control

In the wake of pandemic disruptions, Pentagon officials have been advised to take charge of their supply problems, notably through funding investments in domestic manufacturing with Title III of the DPA. US capacity for hubris is impressive, but the nation's capacity for autarky should not be overestimated. Reshoring is harder than politicians imagine, so remember that the United States is stronger with its allies.⁸⁷ If the Great Decoupling from China is alluring but difficult, ideas for any other decoupling should be forgotten immediately.⁸⁸

Consider the case of the agreement that got away. Amid angst over Chinese control of rare-earth mining, the Obama administration attempted to conclude not just an arrangement or agreement, but a security of supply treaty with Japan. The particular issue forcing the diplomatic initiative was a shortage of neodymium magnets. Each of Boeing's JDAMs needed just 30 grams, but neodymium was unavailable in the United States, and the alternative of samarium-cobalt magnets was an imperfect substitute. A Japanese firm with important patents in the area had considered opening a factory in South Carolina, with promises of Title III money, but this investment did not come to fruition. Instead, the administration tried to negotiate the

treaty, but failed due to opposition from Japanese corporate lawyers, who saw little advantage for their firms.⁸⁹

In this case, the ease of a nonbinding arrangement may be preferred to both the difficulties of a binding treaty and the cost of a Title III DPA investment. Similarly, if concerned about those aforementioned Chinese backdoors, the United States government could "pay semiconductor makers to compete [sic] versus China," or it could simply enter into a bilateral security of supply arrangement on semiconductors with Taiwan.⁹⁰ With less similarity, but similar importance, the United States could seek a bilateral security of supply arrangement with Mexico, to add political formality to the existing monetary incentives of the shared North American economy.

Therefore, to expand the reach of the security of US supply, the Departments of Defense, State, and Commerce should hold interagency discussions with the aim of advancing security of supply arrangements or agreements with Japan, Taiwan, and Mexico.

The arms-trading relationships with Japan, Taiwan, and Mexico are quite asymmetrical, but for other dyadic pairs of countries, such mutual interdependence can create "weaponized interdependence" through a mutual exchange of hostages.⁹¹ Part of the price extracted by Britain and France for abandoning their own airborne early warning aircraft programs, and joining the NATO Airborne Warning & Control System program, was a mandate that Boeing purchase lots of British and French components for those aircraft. That provided a certain security of supply against US underappreciation of their common Alliance, as supply could be held up in both directions.⁹² Such damaged trust hurts not just the companies, and the bilateral political relationships, but perhaps the whole Alliance.⁹³ Before contem-

86 For some of the difficulties in successfully appropriating the intellectual property underpinning complex weapons, see James Hasik, "Better Buying Power or Better Off Not? The Managerial Challenge of the Pentagon's New Attention to Purchasing Technical Data for Weapon Systems," *Defense Acquisition Research Journal* 21, no. 2 (July 2014), 694-714.

87 Willy C. Shih, "Bringing Manufacturing Back to the U.S. Is Easier Said Than Done," *Harvard Business Review*, April 2020, <https://hbr.org/2020/04/bringing-manufacturing-back-to-the-u-s-is-easier-said-than-done>.

88 Jerry McGinn, "Reshoring Does Not Mean 'Buy America' Only," commentary, *Defense News*, September 15, 2020, <https://www.defensenews.com/opinion/commentary/2020/09/15/reshoring-does-not-mean-buy-america-only/>.

89 Brett Lambert, former deputy under secretary for manufacturing and industrial base policy, in conversation with the author, January 2021.

90 Kelsey Atherton, "Should US Pay Semiconductor Makers to Compete vs. China?" *Breaking Defense*, July 28, 2020, <https://breakingdefense.com/2020/07/should-us-pay-semiconductor-makers-to-compete-vs-china/>.

91 See Henry Farrell and Abraham Newman, "Weaponized Interdependence: How Global Economic Networks Shape Coercion and Surveillance," *International Security* 44, no. 1 (Summer 2019), 42-79, <http://henryfarrell.net/wp/wp-content/uploads/2018/05/Weaponized-Interdependence-April-2018.pdf>.

92 James Hasik, "Offsets Offer Efficiency, Not Extortion," *Defense News*, May 31, 2004.

93 Frank A. G. den Butter and Robert H. J. Mosch, "Trade, Trust, and Transaction Costs," Working Paper No. 2003-082/3, Tinbergen Institute, October 2003, <http://dx.doi.org/10.2139/ssrn.459501>.



Capt. Brian O'Shea, the officer in charge of the 1st Marine Division (Forward)'s Personal Security Detail, provides overwatch for his Marines and a team of geologists, Aug. 16, while on a patrol in support of Operation Centrum. O'Shea led a team of 16 Marines and one Navy Corpsman who provided security for 6 geologists as they searched for rare earth elements and industrial minerals. *Source: US Marine Corps photo by Cpl Ryan Rholes <https://tinyurl.com/3sfpkrijp>*

plating such a nuclear option, one should simply remember that all of these arrangements are with significant importers of US armaments. The international arms market is a competitive one, and those countries have options. “In the end,” as one of the attachés told us, “we buy much more from [the Americans] than they buy from us. Don’t mess with that.”⁹⁴

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Dr. James Hasik is a nonresident senior fellow at the *Forward* Defense practice of the Atlantic Council's Scowcroft Center for Strategy and Security, and a senior research fellow at the Center for Government Contracting in the George Mason University School of Business. Since 2001, he has been studying global security challenges and the economic enterprises that provide the tools to address them. Over the past sixteen years, his advisory work has assisted defense contractors and defense ministries with their problems in business strategy, planning, and policy analysis. He has undertaken over fifty discrete advisory projects in sectors spanning armored vehicles, shipbuilding, armaments, ammunition, precision munitions, and training & simulation.

ACKNOWLEDGMENTS

This report is the culmination of a research project, “The Security of Defense Trade with Allies,” which has been directed by Senior Fellow Steven Grundman. It is made possible in part through the generous support of Leonardo DRS, Safran, and Thales Group. The Atlantic Council also thanks the wide group of participants in its roundtable discussion of a draft of the paper in May 2021.

⁹⁴ Interview with an attaché from a DMAG country, January 2021.

Table 1:
Countries with Bilateral Defense Trade Agreements with the United States

COUNTRY	NTIB	SOSA	RDP MOU	RGQAA
Australia	✓	✓	✓	✓
Canada	✓	✓	✓	✓
United Kingdom	✓	✓	✓	✓
Finland		✓	✓	✓
Italy		✓	✓	✓
Netherlands		✓	✓	✓
Norway		✓	✓	✓
Spain		✓	✓	✓
Sweden		✓	✓	✓
Austria			✓	
Belgium			✓	✓
Czech Republic			✓	✓
Denmark			✓	✓
Egypt			✓	
France			✓	✓
Germany			✓	✓
Greece			✓	✓
Israel			✓	✓
Japan			✓	
Luxembourg			✓	
Poland			✓	✓
Portugal			✓	
Slovenia			✓	
Switzerland			✓	
Turkey			✓	✓
Romania				✓
Slovakia				✓
South Korea				✓



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