

REPORT OF THE DEFENSE CRITICAL SUPPLY CHAIN TASK FORCE



House Armed Services Committee
July 22, 2021

The Honorable Adam Smith
Chairman, House Armed Services Committee
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Mike Rogers
Ranking Member, House Armed Services Committee
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Smith and Ranking Member Rogers:

Thank you for your support in standing up the Defense Critical Supply Chain Task Force. We are pleased to provide you with the Task Force final report which includes six legislative recommendations we will submit as amendments for the Fiscal Year 2022 National Defense Authorization Act full committee mark up.

Sincerely,



Elissa Slotkin
Chair
Defense Critical Supply Chain
Task Force



Mike Gallagher
Chair
Defense Critical Supply Chain
Task Force



Donald Norcross
Member of Congress



Don Bacon
Member of Congress



Chrissy Houlahan
Member of Congress



Michael Waltz
Member of Congress



Mikie Sherrill
Member of Congress



Stephanie Bice
Member of Congress

Executive Summary:

Over the past 18 months of the COVID-19 pandemic, it has become clear that US supply chains have firmly established themselves as an issue of both economic security and national security. Late night calls in search of masks for our nurses, hand sanitizer for our citizens, and microchips for our automakers, laid bare these vulnerabilities in the commercial sector. That searing experience put new focus on *defense* supply chains – meaning the international networks that provide the goods and services needed to deliver finished products to the Department of Defense – the defense industrial base, and the ways that our defense supply chains were prepared to respond to supply shocks. The COVID-19 pandemic likewise taught the United States and our allies that adversaries, particularly China, are capable of weaponizing supply chain vulnerabilities to threaten our national security should they choose to. The COVID-19 crisis tested the United States, but our response gave us valuable insights and underscored the imperative to act on them. It is now incumbent on the US Government, in concert with industry and allied nations, to mitigate critical defense supply chain risks, increase surge capacity, and enhance resilience by increasing the diversity of sources.

It is clear to us that failure to address our current cumbersome supply chain procedures will weaken American leaders' ability to respond to strategic challenges. A foreign adversary that can leverage supply chain vulnerabilities and divert decisionmakers' attention from provocative acts, can also fundamentally impact the choices the United States makes in response to military escalation. We have already seen evidence of this growing danger: in the early days of the pandemic, when the Chinese government used its power over nationalized industries to control exports of medicines and raw materials¹, a technique that can be used to withhold shipments of ingredients for life-saving pharmaceuticals and critical microelectronics to the United States. In the future, such threats could come, for example, in retaliation for American support for Taiwan, or in concert with aggressive actions in the South China Sea. In short, overreliance on China in critical supply chains, particularly in the defense sector, creates significant strategic and competitive risk for the United States.

The Defense Critical Supply Chain Task Force was established to make the security of our supply chain a legislative priority, and to provide specific, legislative proposals to mitigate our risk now, instead of waiting to respond to the next crisis. Given our experience as Members of Congress during the pandemic, we took a bipartisan look at our defense supply chains to understand where the Department of Defense (DOD) is most vulnerable when it comes to procuring military-essential items. The Task Force's work has highlighted critical supply chain risks, revealed the need to build supply chain resilience, and thereby decrease our reliance on overseas resources, especially from China. The goal of the four-Democrat, four-Republican

¹ Karen M. Sutter, et al., *COVID-19: China Medical Supply Chains and Broader Trade Issues*, (Congressional Research Service, December 23, 2020), 15.

member Task Force was to produce concrete, actionable legislative solutions for the Fiscal Year 2022 National Defense Authorization Act (NDAA).

The defense critical supply chain was an ambitious topic for a three-month task force study. The Task Force formally met 12 times since March 3rd and held nine roundtables with former and current DOD officials, leading experts representing major industry associations, think tanks, academia, and non-traditional industry to solicit their views. The mandate of the Task Force was to identify: (1) the processes by which DOD analyzes supply chain vulnerabilities and develops mitigation strategies; (2) DOD's processes to prioritize and mitigate identified vulnerabilities; and (3) the steps Congress and others can take to help build resilience against future shocks to the supply chain, both in the near term with respect to selected cases, and over the longer term, leveraging the lessons learned from the initial actions.

During the nine Task Force roundtables, we heard consistent themes from the witnesses: neither DOD nor the majority of the Defense Industrial Base (DIB) has sufficient visibility on the supply chain to understand its vulnerabilities; DOD cannot build resilience and mitigate risk in the supply chain without a firm understanding of where its materials and supplies are sourced and manufactured; and DOD must have visibility on the defense supply chain to understand its current vulnerabilities and understand its surge capacity in the next crisis. The information is within reach, however, and just as many in the private sector have painfully learned over the COVID crisis, DOD must use the available tools, scale efforts, and partner with industry to achieve supply chain transparency and make strategic assessments.

The Task Force's legislative proposals reflect our analysis of the high-priority challenges and take action to respond to them. They do not represent a comprehensive campaign. Instead, this legislation seizes the initiative in securing defense critical supply chains. As a Congress and as a country, we must follow through with coordinated action to ensure that we align our formidable resources with the critical importance of supply chain security. Although the formal work of the Task Force is complete, we are united and resolute in our commitment to continued oversight and success in this endeavor.

Task Force Members:

Task Force Co-Chairs

Elissa Slotkin
Chair
(D-MI)

Mike Gallagher
Chair
(R-WI)

Members

Donald Norcross
(D-NJ)
Chrissy Houlahan
(D-PA)
Mikie Sherrill
(D-NJ)

Don Bacon
(R-NE)
Michael Waltz
(R-FL)
Stephanie Bice
(R-OK)

Background:

It has been almost eighteen months since COVID-19 first brought to public light the sensitivities of the global supply chain. The pandemic response shows how some supply chains not previously deemed critical can have an acute impact on everyday life and strain critical systems, such as the healthcare industry. Simultaneously, it has demonstrated how, in times of crisis, global demand for specific items can exacerbate economic and political differences between nations and magnify the impact of supply shortages.

The COVID-19 crisis has amplified Defense Industrial Base (DIB) challenges, stemming from the 30-year movement of manufacturing overseas. In the Department of Defense (DOD) Fiscal Year 2020 Industrial Capabilities Report to Congress, DOD highlights four major evolutions, stretching over more than a half century, that have impacted the DIB²: 1) the steady deindustrialization of the United States over the past five decades, including workforce and manufacturing innovation; 2) the end of the Cold War, which many viewed as rendering obsolete the requirements that drove a legacy DIB aimed at defeating a peer competitor; 3) the advent of high-tech and advanced digital technology; and 4) the rise of the People's Republic of China (PRC) as a dual military and economic threat.

A recent Department of the Air Force-commissioned RAND report titled *Managing Risk in Globalized Supply Chains* explained, "Supply chains form the foundation on which all U.S. Air Force (USAF) operations depend," and recommended a whole of government approach, to include partnering with industry and allied nations.³ This perspective is relevant to all the services, not just the USAF. In the current economic environment, the United States will continue to rely on a global economy and to source supplies and products from adversarial nations. DOD must have the tools to conduct a strategic risk assessment to identify vulnerabilities in the supply chain, throughout the procurement and sustainment phases, and to develop mitigation strategies to decrease the risk to our national security. This Task Force sought to understand the tools and capabilities the Department currently uses, as well as identify those capabilities available by partnering with industry and allies.

Purpose of The Task Force and Key Questions:

The goal of the Task Force was to work with the Department to identify actionable legislative proposals for incorporation in the Fiscal Year 2022 National Defense Authorization Act, and to set the Department on a path toward improved Supply Chain Risk Management (SCRM) and resilience against further shocks to the supply chain. With this goal in mind, Task

² Office of the Secretary of Defense for Acquisition and Sustainment Policy, Fiscal Year 2020 Industrial Capabilities, Report to Congress, 9.

³ Caolionn O'Connell et al., RAND Project Air Force *Managing Risk in the Global Supply Chains* (RAND Corp. February 2021), 1.

Force Members carefully scoped the purpose statement to identify three elements: (1) the processes through which DOD analyzes supply chain vulnerabilities and develops mitigation strategies; (2) DOD's process to prioritize and mitigate those identified vulnerabilities; and (3) the steps Congress and others can take to help build resilience against future shocks to the supply chain, both in the near term with respect to these selected cases, and over the longer term, leveraging the lessons learned from the initial actions and scaling appropriate responses to meet the Department's priority strategic requirements.

When inviting leading experts representing industry, academia, and government, as well as former DOD officials to share their perspectives with the Task Force, Members presented the same three framing questions to each panelist:

- (1) Does DOD use a structured strategic analysis to determine risk and vulnerabilities in the supply chain for these four critical supplies: semiconductors and critical electronic components; Rare Earth Elements (REE); energetic materials (propellants and explosives and supporting chemicals); active pharmaceutical ingredients (APIs) and therapeutics? Although workforce is not part of the supply chain, it is a key element in manufacturing and production. How does the workforce factor into the analysis both abroad and in the United States.?
- (2) How does DOD prioritize the vulnerabilities in supply chains for the four critical supplies and in the manufacture of those critical supplies?
- (3) Identify the steps Congress and others can take to build resilience against the most dangerous future shocks and vulnerabilities to the DIB in the near term.

DOD participated in an early roundtable before the Task Force had finalized its key questions, therefore the Task Force tasked DOD with providing the answers to questions #1 and #2. Below is a summary of the answers:

For key question #1 and the four critical supplies listed, DOD uses a structured strategic analysis as outlined below:

- Semiconductors and critical electronic components. DOD performs strategic analysis of the semiconductor and electronics industry. DOD's small market presence (<1% demand) in the semiconductor and critical electronics markets, however, impedes direct access to corporate data required to fully and independently assess the microelectronics (ME) supply chain. Additionally, much of commercial ME industry is centralized in the Asia Pacific geographical region. Thus, DOD leverages the resources, data, and analysis of outside experts when analyzing the ME supply chain.

- Rare Earth Elements (REEs). As a congressional reporting requirement, the Strategic and Critical Materials Stock Piling Act (50 U.S.C. 98 et seq.), requires DOD to examine on a biennial basis, supply and demand for strategic and critical materials under a National Emergency situation (conflict scenario). DOD has an economic model (Institute for Defense Analyses) and an analytical team at Defense Logistics Agency (DLA) Strategic Materials dedicated to this mission.
- Energetic materials (propellants and explosives and supporting chemicals). The DOD Critical Energetic Materials Working Group (CEMWG) assesses risk to the availability of energetic materials for DOD systems, and recommends and implements mitigations. The CEMWG includes membership from the Army, Navy, Air Force, and the Missile Defense Agency, and is overseen by the office of the Deputy Assistant Secretary of Defense for Industrial Policy. It also includes permanent industry liaisons to ensure continual interaction with CEM suppliers and users. The CEMWG conducts Fragility and Criticality (FaC) assessments of the industrial base using data from surveys of industry, DOD databases, DOD subject matter expertise, and open source data mining. These analyses are used to prioritize and pursue risk mitigations for vulnerable energetic materials. Risk mitigations including leading government/industry responses to major supply disruptions, recommending specification updates, investing in alternative sources or materials (including on-shoring), and policy reform.
- Active pharmaceutical ingredients (APIs) and therapeutics. DOD purchases pharmaceuticals primarily through the Defense Logistics Agency via their Prime Vendor contract. The Prime Vendor is fully dependent on the U.S. pharmaceutical supply chain, which can be fraught with risks (see below). DOD's pharmaceutical supply is further limited by the Trade Agreements Act (TAA) limitations, which only allow DOD to purchase pharmaceuticals that have been "substantially transformed" in the United States or in a signatory country designated by the TAA.

For key question #2 DOD prioritizes each of the four critical supplies listed as follows:

- Semiconductors and critical electronic components. In general, ME supply chain vulnerabilities are prioritized by criticality and strategic significance. The centralization of the commercial ME industry off-shore, and the corresponding lack of domestic semiconductor manufacturing capacity, create critical supply chain vulnerabilities that impact the national security and economic prosperity of the United States. It is also important to consider supply chain vulnerabilities that occur at a tactical level, as they can have a disproportionate strategic or operational impact if incorrectly prioritized. For example, stabilization of a small, lower-tier vendor supplying a critical component to multiple programs would clearly require prioritization.

- Rare Earth Elements (REEs). The statutorily required Biennial Report on Stockpile Requirements (50 U.S.C. 98h-5) directs assessments of defense, industrial, and essential civilian requirements during a National Emergency scenario (military conflict), so DOD categorizes shortfalls in these three areas. DOD analyses have consistently shown that the essential civilian economy will bear the brunt of the impact from a supply disruption for REEs, as well as multiple other strategic and critical materials.
- Energetic materials (propellants and explosives and supporting chemicals). DOD prioritizes vulnerabilities for energetic materials using the FaC analysis. The highest priority materials are those where DOD is dependent on foreign adversaries for materials that affect a large number of weapons systems. Other high priorities are materials manufactured by fragile suppliers or markets, sole sources, or those at risk of future regulatory constraints. Materials with broad or critical systems use within the service are also prioritized over those in use by a small number of weapons systems.
- Active pharmaceutical ingredients (APIs) and therapeutics. DOD prioritizes vulnerabilities through proper load-balancing (where supply equals demand), development of critical medications lists, and working directly with the military treatment facilities (MTFs) to ensure proper allocation of medications and prevent stockpiling. During the COVID-19 pandemic, DOD's clinical communities, medical logistics, defense logistics, and pharmacy developed a list of essential medications used to treat the symptoms of COVID-19. This list was used to create a Stoplight Report to track pharmaceutical availability. The Stoplight Report tracks the MTFs most recent ordering quantities of essential medications against their historic baseline ordering to identify where limited allocations should be directed.

The Task Force asked DOD to provide insight on how the workforce factors into the analysis both abroad and in the U.S.?

- Without skilled labor at all levels of expertise – from trades to engineering – and scalable systems to train workers, supply chains are unable to provide the goods, services, and materials for DOD's weapons systems. As part of DOD's analysis of supply chain risk, they consider inputs on workforce trends from organizations such as the Department of Labor, think tanks, trade associations, and industry. The same is true in assessing workforce challenges of partners and allies, who are part of our global supply chains, as well as our adversaries who use workforce as a mechanism for economic warfare. As an example, commercial semiconductor manufacturers consider the skill and education levels of the local workforce when deciding the location of manufacturing facilities. Thus, future manufacturing capacity and domestic on-shoring strategies are strong functions of workforce trends.

Summary of Task Force Activities:

The Task Force conducted eight roundtables with leading experts representing industry associations, think tanks, representatives of new entrants to the DIB, and current and former DOD officials. The following is a summary of each roundtable discussion:

Roundtable # 1: Perspectives from Former Department of Defense Officials (March 11, 2021)

The Task Force held its first briefing with former DOD officials who had served in senior leadership roles responsible for acquisition and supply chain security policy. These officials served under various presidential administrations and offered uniquely insightful perspectives gained from senior federal service and significant private sector experience.

The panelists underscored the size and complexity of defense supply chains and explained that any static, “comprehensive list” of priorities would be out of date almost immediately. They noted, however, that legislation can shape dynamic policy by highlighting key focus areas and providing support – and accountability – for successes and failures in management. Panelists urged the Task Force to press for a dynamic, risk management approach using modern artificial intelligence (AI)-driven tools, to assess risk and flag problems as early as possible. An effective industrial base risk management process for improved visibility on supply chains, they noted, should address certain critical questions: How long would it take to generate replacements for at-risk inputs? Do we have insight into lower tiers of supply chains? With the right data, do acquisition leaders at multiple levels have a platform to manage data and adjust operations as assumptions change? Once such a platform is in place, how should the Department scale it across various services and components to integrate operational and contingency planning?

The panelists recommended a balanced approach to assessing foreign dependencies, accounting for multiple goals, including strengthening alliances, promoting interoperability with allies and partners, and “buying American” or “buying allied” whenever possible. Promoting competitiveness of domestic manufacturing would automatically create some resiliency. At the same time, preserving options, especially with our closest allies, is in the national interest and can generate a “virtuous cycle” of collaborative investment and development. The panelists encouraged deeper, more meaningful expansion of the National Technology and Industrial Base (NTIB), comprised of United States, Canada, the United Kingdom, and Australia. Two officials, both of whom had significant experience directly related to the implementation of the expanded NTIB, recommended identifying and funding, even at relatively low levels, pathfinder activities with the potential to scale across the markets of these trusted allies.

Throughout the discussion, data emerged as a critical component of a supply chain risk mitigation strategy. Two panelists emphasized the value of data as a commodity to protect, analyze, and develop. They underscored the importance of funding appropriate human capital to analyze increasing volumes of data, particularly in secure cloud environments. In particular, one panelist emphasized the importance of digital designs for acquired weapon systems. Having possession of the designs will give the Department the option to establish new sources, should they be needed, with minimal overhead cost. Fellow panelists agreed and encouraged steps to incentivize and mandate digital engineering, while acknowledging in the importance of associated infrastructure.

Roundtable #2: Perspectives from Industry (March 18, 2021)

This briefing hosted experts who served in and with member companies of the DIB. The panelists included leaders of industry associations and experts in defense acquisition policy. All the panelists had previously served in senior roles in the DOD.

Task Force Members took note of the forceful emphasis by each panelist on the importance of developing a robust national security workforce. As a result, the Members agreed to address the workforce as an overarching component of secure defense supply chains. The briefers highlighted the importance of encouraging skilled workers to join the DIB workforce and for employers reach the broadest talent pool possible. Central to success is for industry and DOD to enhance the attractiveness of skilled jobs at various levels of sophistication, including trades that undergird key components of the DIB.

To set the scene, one briefer summarized how various policy choices over the past thirty years introduced some of the risks the United States faces today. The end of the Cold War brought underinvestment in defense supply chains and declining research and development investments by the federal government. Commercial incentives skewed towards offshore production, especially in China, and “just-in-time” logistics. These trends were profitable but introduced technical and logistical vulnerabilities. Accordingly, mapping the critical supply chains will provide fundamental data to understand, mitigate, and prevent the risks associated with policy choices made to date.

The briefers explained that the member companies in the DIB concurred that the Task Force had chosen critical issues to confront. Because the DIB is part of a larger national industrial base, it is difficult to separate the macro-level forces facing industry more broadly. Therefore, the briefers encouraged Congress to ensure that the Department has continuous visibility into supply chain risks and makes meaningful investments in supply chain security.

Briefers encouraged the Task Force to be “strategic” in supporting onshoring proposals. Where the cost curve may not support a purely domestic solution, they encouraged Congress to develop strategies and incentives to move production to close allies, partners, and friendly nations with similar values and market-based approaches.

Industry responds to clear, consistent, predictable demand signals and budgets. Accordingly, briefers encouraged the Task Force to consider ways to ensure that the DIB has access to global suppliers, both to ensure multiple points of access to global markets and to foster innovation domestically. They urged the Members to identify tools for the DOD to aggregate key data, including from other agencies like the Department of Commerce, and to share it as much as possible with the DIB in support of a strategic approach to supply chain security.

Roundtable #3: Supply Chain Risk Assessment with DOD and DLA (April 15, 2021)

This briefing provided insights from current DOD and Defense Logistics Agency (DLA) officials that focused on current and future challenges and the work being done to address them. The briefers used the COVID-19 pandemic to frame their remarks, noting that gaps exposed by the pandemic and the need to strengthen the DIB were not created by the pandemic, nor will the end of the pandemic mean an end to these problems. The briefers informed the Task Force that the United States’ most powerful tool is to remain united in efforts to bolster the DIB, and assured Members that DOD is focused on investing in, protecting, and partnering with the DIB, particularly with small businesses that are critical to innovation.

The briefers emphasized that a whole of government approach for planning and partnering with industry is critical for several reasons. First, a unified approach can provide a more consistent demand signal that companies in the DIB can use to understand the full extent of government requirements and invest accordingly. Second, a whole of government approach provides a much more powerful tool for the government to drive market behavior in key target sectors, as opposed to each department or agency trying to influence markets on their own. Third, this approach allows for better engagement on best practices and for data sharing, where DOD and DLA may be able to exchange information on supply chain concerns with other agencies to prevent potentially problematic procurements.

A key theme emphasized by the briefers was the importance of regular and continued engagement with industry and with international allies. The unique capabilities of American allies have led to valuable partnerships, particularly in processing rare earth minerals, and the NTIB is a helpful venue for facilitating that cooperation. The briefers discussed challenges related to social perceptions of industrial and manufacturing work and to ensuring the diversity of skill and background of the American people is incorporated into the workforce. They also

emphasized the need to overcome these challenges in cooperation with industry to develop the workforce required to carry out industrial, manufacturing, and next generation digital work.

Roundtable #4: ODNI, DOD and DLA discussion on the classified details pertaining to the Industrial Capabilities Report and the E.O. 13806 analysis. (April 22, 2021)

This briefing provided the opportunity to have a discussion in a classified setting on the risks associated with the defense supply chain with experts from the intelligence community and the acquisition and sustainment workforce. The briefers noted that the intelligence community is involved in supply chain risk assessments, but the infrastructure is in its infancy because it is a relatively new requirement enacted in the National Defense Authorization Act for Fiscal Year 2020 (Section 6306 was the Intelligence Reauthorization Act that was included as part of the NDAA). DOD does track foreign source risks across all sectors of stockpiles. The briefers showed a Green-Amber-Red chart for ammunition supplies and explained how it is used to adjust stockpiles where possible. DOD still lacks detailed information across the supply chain. With regard to active pharmaceutical ingredients (APIs), the Defense Logistics Agency briefer noted they are required to purchase Food and Drug Administration (FDA) approved drugs, but do not have visibility on where the APIs are sourced or where the drugs are manufactured. The FDA does have access to most of this information, which further illustrates the need for a whole of government approach beyond DOD and the intelligence community.

Roundtable #5: Adversaries' Influence on the Defense Supply Chain (April 29, 2021)

This briefing provided an overview of the ways that nations in competition with the United States have impacts on the defense supply chain. These impacts were broadly categorized into supply dependence, technological advantage, and foreign investment. The briefers discussed rare earth minerals as an example of a supply dependency that is influenced by the United States' reliance on China for processing. The proposed solution to this influence is to mitigate it by innovating and seeking alternative technologies that do not require rare earth minerals, as well as by strengthening ties with trusted allies to build capability in concert with one another. The briefers noted that allies in some cases exclude the United States because of punitive tariffs and "Buy America" requirements. One briefer commented that the United States cannot ask allies to make difficult domestic decisions for the greater good but be unwilling to do so ourselves. Engagement with allies as trusted partners is key to building economies of scale and moving away from sole-source dependencies on adversaries.

The briefers also discussed the threat to American technological dominance through ongoing competition with adversaries. One briefer remarked that the United States is not ready or organized for the competition and lags behind due to the lack of a strategy, resources, and benchmarks. The briefers discussed several proposals to better posture the United States for

competition, including adoption of several recommendations from the National Security Commission on Artificial Intelligence. These recommendations include establishment of a Technology Competitiveness Council in the Office of the Vice President, creation of a national microelectronics strategy, and aligning a technology steering group within DOD with the Technology Competitiveness Council, once established. One briefer also recommended implementing the AI Commission's proposal for the creation of an Emerging Technology Coalition, which would start with Five Eyes allies and then expand to include NATO and EU allies, India, Japan, and others. Finally, the briefers warned that the current technological competition is a values competition at its core, and that technologies will reflect the values of the government that deploys them.

Briefers also discussed the role that foreign investment plays in allowing adversaries to impact the defense critical supply chain. One briefer commented that while the Committee on Foreign Investment in the United States (CFIUS) is an effective tool that brings together government agencies to focus on issues, the structure of CFIUS forces it to focus solely on the problem in front of it rather than a broader national security view. CFIUS was also described as effective in diagnosing problems, but not as good at prescribing the solution. While CFIUS is a useful tool to have in the federal government's toolbox, there are issues with considering it the sole mechanism for addressing broader risk. Another briefer mentioned that because of CFIUS's nature as an exclusionary process, the United States should offer an inclusionary process for trusted partners. Finally, the briefers mentioned that in addition to discussions of using supply chain risk management to illuminate vulnerabilities and provide transparency, additional disclosures should be required from companies who receive foreign capital.

Roundtable #6: Non-Traditional Industry Views on Defense Supply Chain Risk Management (May 6, 2021)

In this briefing the Task Force heard from representatives of firms that are new entrants to the DIB and hold contracts or agreements with DOD to provide emerging technologies. Many of the firms' representatives were former government officials so their perspectives on supply chain risk management were particularly insightful.

The perception among new DIB entrants is that DOD's current supply chain exists to build the military we have. Currently there is significant activity in DOD to address supply chain risk management, but it is decentralized, repetitive, and not scaled. Companies looking to enter the DIB seek opportunities to participate in new supply chains that create and leverage a more resilient foundation to deliver critical technology to DOD. To date, DOD has relied on prime contractors to provide supply chain data. This approach has proven inadequate because many primes do not understand their own chains. It has become imperative for DOD to have its own view into the global marketplace that is its supply chain. Even with a mandate to prime

contractors, DOD needs to be able to “trust but verify” with its own tools. Briefers emphasized that DOD should invest in an existing software solution that can be acquired and configured from the commercial sector. Briefers observed that within DOD today, program managers are watching their own data, but not centralizing it. They recommended that DOD craft policy at the Secretary of Defense level to build a central, interoperable data set that can share. With centralized management, the Department can leverage artificial intelligence and machine learning to collect multiple inputs, connect disparate data sets, and then share with the services to identify and address obsolescence or single-source risks.

Representatives of firms newly entering the DIB also observed that there is no DOD-wide focus on establishing jobs where supply chain risk management is the principal responsibility and expressed concern that DOD currently lacks the talent/human capital to understand and address the weaknesses in the current program. They recommended DOD expand collaboration with allies and partners such as India and South Korea to garner market and talent to support DOD. They observed a need to achieve a closer match between technologists and the government. Rather than force a cybersecurity expert to leave the government to garner a salary increase, and then be effectively barred from further US government service, some DOD programs are exploring using corporate fellows, but none are at scale, and none are integrated into the promotion track. Representatives explained the real obstacle to government service is the administrative logjam, not the salary differential.

Roundtable #7: Supply Chain Challenges and Management (May 20, 2021)

This briefing provided the Task Force the opportunity to hear from a former service secretary as well as a supply chain expert from the Pharmaceutical Research and Manufacturers of America (PhRMA) on their experience with supply chain and thoughts on how to improve the Department’s Supply Chain Risk Management. Both briefers brought keen insights from their extensive and diverse experience.

The former service secretary stated that understanding the supply chain was more important than current weapons research because the supply chain could be used as a weapon to challenge our national security. The secretary believes the most threatening areas to the national security of the United States are cyber and the supply chain. The tools and capability to view or illuminate the supply chain are available and DOD needs to leverage those tools and industry partnerships to increase resilience in the defense supply chain. The secretary acknowledged this will not be an easy effort and will take resources and continued emphasis.

The PhRMA representative highlighted the global distribution of the companies in its organization and noted that just over 50% of the pharmaceuticals are produced in the United States, and sourced globally for redundancy. The generic drug industry brings a different set of challenges to the pharmaceutical production in the United States. Labor costs and environmental

laws are the main deterrent to production in the United States. Most antibiotics and Intensive Care Unit medicines are generic. To increase and incentivize production in the United States, the panelist recommended increased investment in science, technology, engineering, and mathematics (STEM), specifically chemistry, to innovate around the raw material sourcing issue. DOD, through the Defense Advanced Research Projects Agency, is sponsoring research efforts for alternatives to generic APIs sourced from adversaries. The challenge is the scale of production and incentives to build and maintain a large footprint for production in the United States.

Roundtable #8: Workforce Experts View on Defense Supply Chain (May 20, 2021)

In this briefing the Task Force heard from workforce experts from academia, industry, and the nonprofit space. The briefers hailed the recommendations of the National Security Commission on Artificial Intelligence, which concluded that the United States needs a workforce with digital expertise in order to modernize and identified three priorities for federal investment in human capital: military/civilian career fields in digital/artificial intelligence in order to attract and retain talent, a U.S. digital service academy to award degrees in software and electrical engineering with a 5-year service obligation, and a national reserve digital corps that allows DOD to tap into a talent pool for 6 weeks a year for instructors or mentors.

The briefers also observed a significant need to raise the image of machining as a profession that embraces diversity and provides a pathway from skills development to a fulfilling career. Highly technical jobs need to be recognized as rewarding and critical to national security to create a broader sense of government service. Industry can assist by partnering with high schools to remove the stigma of entering the workforce rather than university upon graduation. The briefers emphasized that students embrace service as creating a sense of purpose, rather than just a job, especially when the career opportunities offer a 5-year plan and diverse problems to solve, from the environment, to policy, to technology.

Globally, the top 500 companies are investing in training to keep pace with technology evolution. The briefers provided examples such as Dow, which pays for internships for community college students in Michigan to prime the pump for its own hiring. This practice of “home grown” talent has been expanding among some industry leaders, but not widely enough. Some companies invest in local high schools by helping them establish the most relevant, digitally complex curriculum and donating equipment for students to learn on. DOD can help by encouraging and incentivizing industry to donate equipment and place students in career pipelines.

The briefers further noted that within the DOD Office of Industrial Policy, the Office of Industrial Base Analysis and Sustainment currently has efforts underway to celebrate the

machining profession and encourage participation through competitions, including frequent conversations between the Under Secretary of Defense for Acquisition and Sustainment and the Big 6 DOD prime contractors about career development within the workforce. The briefers recommended Congress encourage defense contractors to expand their commitment and investment in workforce.

Task Force Recommendations:

The Task Force's goal was to produce actionable legislation to be introduced as part of the FY 22 NDAA. After hearing from experts on various parts of the defense critical supply chain, the Task Force has developed six recommendations as legislative proposals for inclusion in the NDAA:

- 1) DOD must treat supply chain security as a defense strategic priority. Although DOD conducts assessments for critical supplies and is required by section 2509 of title 10, United States Code, to establish a framework to mitigate risk in the acquisition process, it lacks a comprehensive strategy for the entire supply chain across the Department and the services. The Task Force recommends a statutory requirement for a Department-wide risk assessment strategy and system for continuous monitoring, assessing, and mitigating risk in the defense supply chain.
- 2) DOD must have visibility on the defense supply chain to understand its vulnerabilities and develop risk mitigation strategies. Commercially available tools are used by some in industry and certain military service-level acquisition programs, but the Department should not rely solely on industry to provide the information. The Task Force recommends a statutory requirement for the Department to employ commercially available tools to map the defense supply chain within one year of enactment.
- 3) DOD (and the United States more broadly) needs to reduce reliance on adversaries for resources and manufacturing. The defense supply chain presents a national security risk: a significant amount of material in the Defense Industrial Base is sole-sourced from the People's Republic of China. With the requirement for a strategic framework and illuminating the supply chain, the Department must use this information to work with industry, allies, and partner nations to lessen the reliance on the People's Republic of China. The Task Force recommends a statutory requirement to identify supplies and materials for major end items that come from adversarial nations and implement a plan to reduce reliance on those nations.
- 4) DOD must use its influence to facilitate workforce improvement by creating a productive partnership between the Department, industry, education partners, labor, and other federal

and local entities. The decline in manufacturing in the United States has also resulted in a decline in demand for certain trade skills. Not only has the number of skilled workers in the trade and manufacturing industries declined, so too has the availability of education and training opportunities, to develop those skills. The Department must work with industry, education partners, labor, other federal and local entities to incentivize and increase the education and training of the workforce. Without this effort and the resulting increase in manufacturing capability and capacity, resiliency-building in the supply chain will falter. The Task Force recommends a statutory requirement for DOD to establish a coalition among industry groups representing defense industrial base contractors, education partners, organizations providing workforce training and development, and other federal partners to focus on career development within manufacturing fields and other areas necessary to secure critical supply chains. The goal of the coalition shall be to (1) raise the profile of valued expertise in skilled trades, (2) share experiences of successful partnerships with local educational institutions to create hiring pipelines, (3) encourage opportunities for donating used technology to educational institutions for use in training the future industrial base workforce, and (4) to develop relationships with state, local, and non-profit training and educational institutions to create programs to address specific regional and national workforce needs.

- 5) DOD should strengthen the ability to leverage close ally and partner capabilities through the National Technology and Industrial Base (NTIB). The NTIB is an underutilized forum and should be leveraged to shape policy and partnerships with allies. To reduce reliance on adversaries and expand partnerships, the NTIB will need to help shape global policy. The Task Force recommends updating statutory authority to emphasize the value of a broad collaboration with the NTIB allies beyond acquisition, to strengthen the alliance; directing the NTIB Council to identify particular policies and regulations that could be expanded to the NTIB allies, in order to use the NTIB as a test bed for closer international cooperation and supply chain resiliency; and authorizing an NTIB “International Council” to harmonize industrial base and supply chain security policies. The NTIB countries and other close allies and partners undoubtedly face similar challenges with over-reliance on Chinese and Russian suppliers. Effective policy to reduce the associated supply chain vulnerabilities requires meaningful, sustained dialogue and collaboration. Accordingly, the Task Force encourages the Department’s leaders to prioritize supply chain security policy in bilateral and multilateral discussions.
- 6) DOD should deploy the full range of American innovation to secure the supply chains involving rare earth elements. This includes diversifying the source of rare earths, minimizing dependence on sources and processes in the People’s Republic of China, seeking global solutions by seeking agreements and collaboration with allies and partners, and increasing relevant capability in the United States. Developing alternative

technologies and methods for extraction, processing, and recycling in support of diversification is critical. The Task Force notes research and development is funded by the Department of Energy and Department of Interior and recommends a requirement for the Secretary of Defense to coordinate with both the Secretaries of Energy and Interior to ensure research and development includes the DOD's interest.

The Task Force makes the following additional recommendations for action by DOD, the White House and Congress to continue to build resilience in the United States and defense supply chains:

Industrial Base Issues:

- 1) A government-wide approach provides a powerful tool for driving market behavior in sectors critical to national security, gathering best practices, and sharing data related to supply chain risk management across government and industry. The White House and Congress should consider:
 - a. incentivizing infrastructure development through public-private partnerships and tax incentives to increase domestic manufacturing capability and bring redundancy to the supply chain.
 - b. developing strategies and incentives to move production to close allies, partners, and friendly nations with similar values and market-based approaches, when the cost curve does not support a purely domestic solution.
 - c. requiring planning from a whole-of-government approach alongside industry to ensure government communicates to industry the full extent of its requirements.
 - d. establishing mechanisms to ensure all government agencies have access to data from other sources and can aggregate it for supply chain risk management. This cooperation can be accomplished through interagency agreements and the Supply Chain and Counterintelligence Risk Management Task Force.
 - e. increasing federally funded research for microelectronics.
 - f. authorizing and funding a national microelectronics industrial strategy to build on the CHIPS Act from the FY21 NDAA.
 - g. developing an industry-focused incentive structure to increase capability for recycling of rare earth elements
 - h. increasing Department of Energy research and development for alternative technologies and methods for extraction, processing, and recycling of rare earth minerals to lessen the reliance on the People's Republic of China.
 - i. developing agreements with allies to collaborate on rare earth minerals to collectively reduce dependence on the People's Republic of China.

- j. establishing data sharing agreements with U.S. allies to create economy of scale on big data and counter advantages among adversaries.
- 2) Foreign influence is a national security risk for the U.S. industrial base, and the Committee on Foreign Investment, or CFIUS, is one tool within the broader supply chain security framework to mitigate risk from adversaries. The White House and Congress should consider:
 - a. establishing a reporting requirement for companies to disclose foreign capital they receive from adversaries.
 - b. creating an inclusionary process for trusted partners that U.S. companies can work with, exempting them from CFIUS requirements.
- 3) Congress should consider authorizing the Food and Drug Administration to share proprietary data on sourcing of active pharmaceutical ingredients with DOD and the Department of Veterans Affairs to allow for better supply chain risk management.
- 4) The Administration should evaluate the costs and benefits of adjusting the clearance process to remove barriers to entry for smaller companies and consider allowing the federal government to continue to hold an individual's clearance for five years after their departure from government service to expedite collaboration with trusted industrial partners.

Defense Production Act (DPA)

DOD must use DPA authorities proactively and efficiently to increase resilience in the supply chain to avoid crisis-driven decision-making, which can result in appropriations-related delays.

The White House and Congress should consider:

- 1) ensuring adequate funding through appropriations for existing authorities that DOD currently has in DPA Title III.
- 2) modernizing DPA authorities for “low end” supplies and basic materials to increase capabilities in areas like masks, gloves, and gowns.
- 3) removing the \$50 million statutory spending limitation for individual shortfalls from DPA Title III authorities.
- 4) including in DPA Title III a general transfer authority that would permit transfer of funds from other defense and non-defense agencies into the DPA fund to allow for more timely reactions during a crisis.

Workforce

The Administration must use a whole of government approach to develop data on workforce needs across the industrial base to develop targeted talent pipelines beginning at the secondary level. The White House and Congress should consider:

- 1) directing DOD to assess the ability to use the National Defense Education Act to develop the science, technology, engineering, and mathematics, or STEM, workforce and assess the feasibility to garner STEM talent through partnerships with allies.
- 2) directing DOD to expand, through Office of Industrial Base Analysis & Sustainment funding, prize competitions related to machining and welding.
- 3) directing DOD to evaluate the degree requirements for defense support roles that may act as barriers to entry for individuals whose career advancement would be constrained without a 4-year degree.
- 4) directing DOD to review, authorize, and properly fund staffing resources necessary to establish a professional corps of individuals with experience and training in Supply Chain Risk Management, capable of systematic and regular engagement with international and industry partners.
- 5) directing the Departments of Commerce, Education, Labor and Defense to study means to incentivize national service through STEM education, career, and technical education, and for key skills, and then employ this talent in government or defense industry (specifically welding, manufacturing, and STEM careers).
- 6) allocating funds for STEM teacher education and for summer skills programs (for example, cyber camps).

Relationship to Administration Initiatives

The Task Force began its work at the same time the Biden-Harris Administration launched a series of initiatives to analyze and strengthen the United States industrial base. Under Executive Order 14017, the Departments of Defense, Commerce, Energy, and Health and Human Services conducted 100-day reviews of supply chain risks to critical sectors: critical minerals, including rare earths; semiconductors; high-capacity batteries; and active pharmaceutical ingredients. The Task Force Members identified large amounts of common ground with the findings and recommendations in these intensive reviews and believe that the complementary executive and legislative efforts will generate successful outcomes.

In particular, the Administration's report underscores the importance of aligning resources with policy direction and authorization, and scaling appropriations to match the policy goals. In "mapping the supply chain" of each of the four key industries, the Administration's report illustrates the complexity of steps in the development and production process, which the

Task Force examined through its roundtables, and the importance of establishing robust supply chain illumination capabilities in the Department and in the Defense Industrial Base. Relatedly, the report also includes helpful recommendations to increase the frequency and utility of communication and coordination between government and industry. Increased transparency, consistent with security precautions, can improve the exchange of data about market developments and security risks. The Administration consistently emphasized the importance of working with allies and partners, particularly those in the National Technology and Industrial Base. Where on-shoring is not feasible or not advantageous, the authors encourage resilience through “ally and friend-shoring,”⁴ a construct the Task Force Members endorse. The United States can expand the capacity and capability of the domestic DIB. And finally, like the Task Force, the report makes clear that a strong, well-trained, robust workforce is central to supply chain security.

⁴ Page of White House 100 Day Supply Chain Review.

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