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THE U.S. INDUSTRIAL DEFENSE STRATEGY AFTER UKRAINE

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AUTHOR'S PRESENTATION

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INTRODUCTION

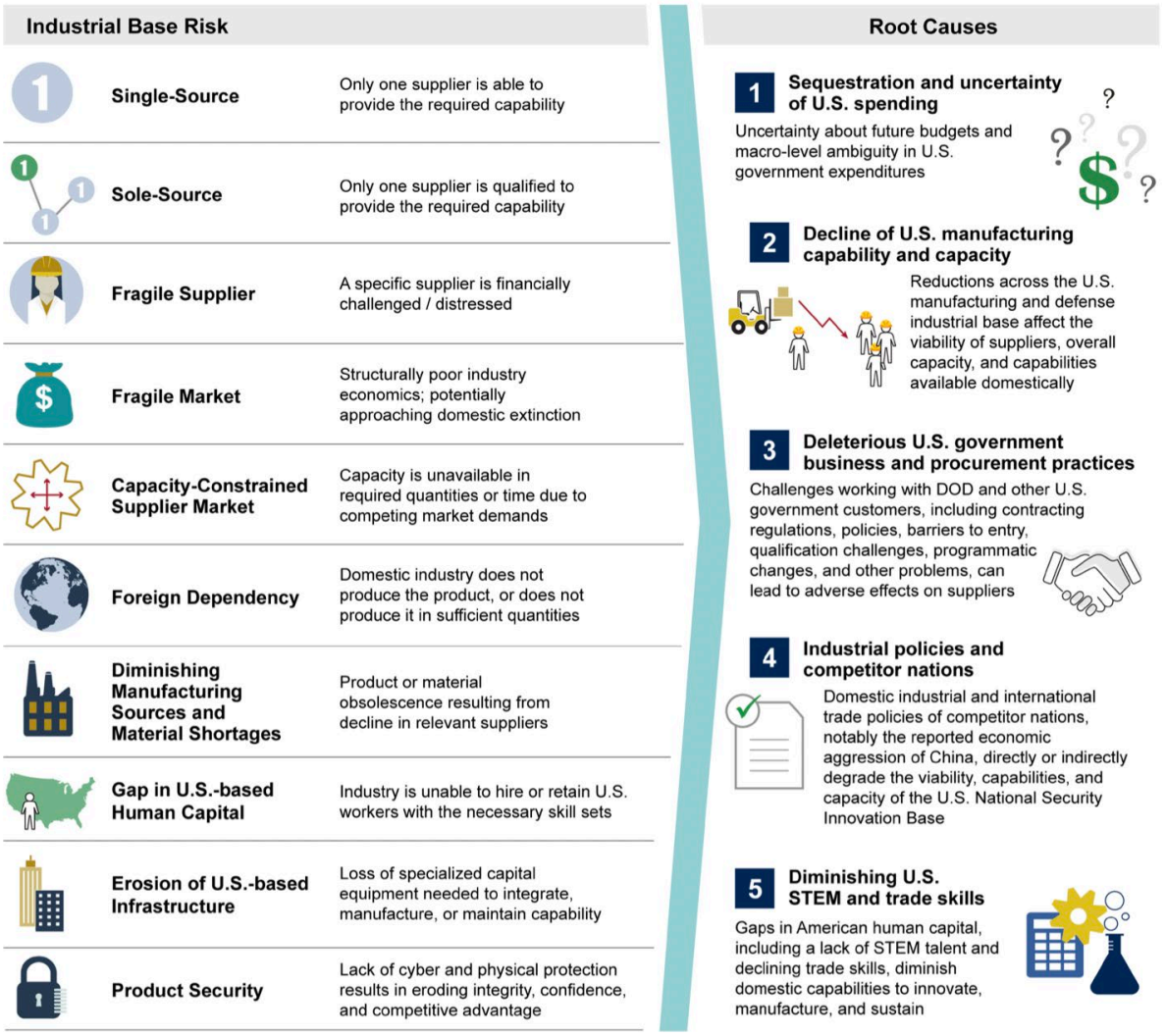
"We need a paradigm shift to meet the needs of today and the future fight."[1] With these words, Under Secretary of Defense for Acquisition & Sustainment, William A. LaPlante, acknowledged the changes that the US Defense Industrial Base (DIB) must undergo to adapt to the rapidly changing strategic environment, particularly with the return of high-intensity conflict.

The ongoing challenges of COVID-19 (industrial workforce shortages and constrained supply chains) have been compounded by those of the war in Ukraine, with the classic triptych: support to Ukraine, replenishment of stocks, and ramping up of industrial capacity. In that respect, the world's largest defense industrial base faces issues similar to those encountered by European countries. However, the situation in the United States differs significantly from that in Europe, at least in one respect: the United States is simultaneously preparing for a potential major confrontation with the People's Republic of China (PRC), identified as "the pacing challenge" in the National Defense Strategy (NDS) of October 2022. Thus, the US must grapple with the challenge of prioritizing its responses to numerous threats. This is all the more evident as a new theatre of conflict has opened up - or reopened - in the Middle East, and Washington has supported Israel in its fight against Hamas by supplying it with precision-guided munitions.

These simultaneous challenges have strained the American DIB, shaped by three decades of industry consolidations through mergers, inconsistent demand signals from the Pentagon, “just-in-time delivery”, low stocks, and closing of production lines. A CSIS 2023 study estimated that in a Taiwan Strait conflict, “the United States would likely run out of some munitions—such as long-range, precision-guided munitions—in less than one week”, underlining that shortfalls in defense industrial capacity would prevent the country to sustain a protracted conflict[2], especially not on three fronts. A report by the US Government Accountability Office (GAO) published in July 2022 had already identified the following types of risk weighing on the US DIB[3]:

[1] U.S. DoD. (2023, Oct). Resilient Defense Industrial Base Critical for Deterring Conflict. DoD News. link
[2] Jones, S. (2023). Empty Bins in a Wartime Environment. CSIS report. link
[3] U.S. Government Accountability Office. (2022, July 7). Defense Industrial Base: DOD Should Take Actions to Strengthen Its Risk Mitigation Approach. GAO report. link

Figure 1. Department of Defense-Identified Industrial Base Risk Types and Root Causes



Source. GAO analysis of Department of Defense Information

Over the past two years, the Department of Defense (DoD) has taken several steps to minor these risks and reshape the defense industry to "provide capabilities at the speed and scale required for the U.S. military to deter conflict, and if necessary, prevail in a near-peer conflict."[4]

In the spring of 2022, the DoD's Industrial Policy Office underwent organizational changes to meet these challenges effectively. In particular, the reform created two new deputy assistant secretaries, one to focus on industrial base resilience and the other on industrial base development and international engagement. The most recent milestones include the publication of the first-ever National Defense Industrial Strategy (NDIS) in January 2024, which lays guidelines for implementing the "paradigm shift" advocated by William A. LaPlante. This

[4] Laplante, W. (2024). Statement before the US House of representatives armed services committee on Outpacing China: expediting innovation to the warfighter. Link

strategy brings together policy priorities detailed in other documents, providing background to the note.

This note thus delves into the measures adopted or put forward by the Pentagon to strengthen the national defense industry in the context of the war in Ukraine. It aims at providing an overview of some of the major trends and dynamics in the US defense industrial policy since February 2022. However, as we will see in the following section, most of the long-term reforms in the U.S. were launched before the Russian aggression war towards Ukraine and were pursued and/or strengthened after February 2022.

CONTINUATION OF A MAJOR LONG-TERM REFORM LAUNCHED BEFORE THE WAR IN UKRAINE: IMPROVING SUPPLY CHAINS RESILIENCE

Ensuring supply of critical raw materials and strategic components

Several defense industrial policy initiatives were launched in the United States in 2019-2021, against the backdrop of the COVID-19 crisis and the rapid rise in tensions with China, albeit some of these measures unfolded after February 24th, 2022. The aim was to secure and improve resilience of defense supply chains, within the broader framework of measures targeting all the strategic sectors of the US industry, with particular attention paid to critical materials and microelectronics[5]. In Executive Order 14017[6], published in February 2021, the US president asked for a 100-day supply chain review to the Departments of Energy, Commerce, Health, and Defense. The latter was tasked to identify risks in the supply chain for critical minerals and other identified strategic materials, including rare earth elements, and to submit a report on the DIB within one year[7]. These documents were published by the DoD respectively in February 2022 – "**Securing Defense-Critical Supply Chains**"[8] – and in March 2023 – "**Industrial Capabilities report**". They both target four critical areas: **kinetic capabilities, energy storage and batteries, castings, and forgings and microelectronics**. Amongst other recommendations, the documents advocate a building of domestic production capacity, the mitigating of Foreign Ownership, Control, or Influence (FOCI), aggregating demand, developing common standards with the commercial sector, and updating acquisition policies in consultation with industry stakeholders.

[5] Already in 2020, the DoD granted $197 million to the microelectronics sector via 2 of its programmes. see DoD. (2020). Department of Defense Announces $197.2 Million for Microelectronics. Immediate release. link
[6] Executive Order 14017 on America's Supply Chains. link
[7] In parallel, the House Armed Services Committee (HASC) bipartisan critical supply chain task force released its final report in July 2022, with recommendations to the DOD. See HSAC (2021). Report of the Defense Critical Supply Chain Task Force. link
[8] U.S. DoD. (2022, Feb.). Securing Defense-Critical Supply Chains**.** An action plan developed in response to President Biden's Executive Order 14017. link

Subsequent measures were taken against the backdrop of this reference framework, including through the Department's Acquisition and Sustainment (A&S) office's Industrial Base Analysis and Sustainment (IBAS) program, which invests in the areas identified by Executive Order 14017[9]. More importantly, the **Defense Production Act (DPA) has been repeatedly invoked to incentivize the expansion of domestic production of critical materials and components**[10]. The NDIS reports that "**since the EO 14017 was issued in February 2021, the DoD has obligated over $893 million using the Defense Production Act** for investments in five critical sectors: kinetic capabilities, microelectronics, energy storage and batteries, strategic and critical materials, and castings and forgings."[11]

Box 1. Defense Production Act

In essence, the Defense Production Act (DPA), adopted by Congress in 1950, stands as a cornerstone of national security strategy, empowering the executive to mobilize resources effectively in times of crisis. This Act provides authorities to the US President "to expedite and expand the supply of materials and services from the U.S. industrial base needed to promote the national defense."[12] Under its provisions, the President can:

- compel entities to accept and prioritize orders for materials and services deemed necessary for national defense (Title I).

- incentivize and assist the expansion of the production and supply of critical materials and components by guaranteeing loans, direct purchases, or procuring equipment for private industrial facilities (Title II).

- provide antitrust protection and establish voluntary agreements with private businesses, block foreign mergers or takeovers that could pose a threat to homeland security (Title VII).

For example, in March 2022, the president gave the Department of Defense (DoD) the authority to increase domestic mining and processing of critical materials for the large-capacity battery supply chain[13]. Another DPA Title III determination waived certain requirements[14] to expand the domestic production capability for airbreathing engines,

[9] Industrial Base Policy IBR – MCEIP website. Innovation capability and modernization. link
[10] Federal Emergency Management Agency website. Defense Production Act. link
[11] U.S. DoD. (2024). The National Defense Industrial Strategy (NDIS). link
[12] FEMA website. About the Defense Production Act. link
[13] Presidential Determination No. 2022–11 of March 31, 2022. link
[14] Requirements and limitations set by Section 303(a)(1)–(a)(6) of the DPA can be waived under Section 303(a)(7) during national emergencies, or if the POTUS finds that "action is necessary to avert an industrial resource or critical technology item shortfall that would severely impair national defense capability.". These limitations include for example the determination that the actions taken in contracts "are the most cost-effective, expedient, and practical alternative method" for meeting national defense needs, and the prohibition on the government from reselling purchased commodities below certain prices. See Congressional Research Service (CRS). (2022, May). 2022 Invocation of the Defense Production Act for Large-Capacity Batteries: In Brief. CRS report. link

advanced avionics position navigation and guidance systems, and constituent materials for hypersonic systems[15]. The DoD also launched a pilot program under DPA Title III, aimed at testing the development of common requirements between commercial and military applications as an accelerator of technology scaling to production. Focusing on the pilot stage of chemicals used both for military munitions and for agriculture products, the program will eventually extend to other critical sectors, such as microelectronics[16].

For its part, Congress has passed bipartisan acts aimed at securing and strengthening critical supply chains by increasing domestic manufacturing capacity, such as the CHIPS and Science Act in July 2022. In 2021, the Infrastructure Investment and Jobs Act already Act (not specific to defense) already appropriated $7 billion for battery supply chains, including critical mineral production[17]. The National Defense Authorization Act (NDAA) for fiscal year (FY) 2024 contains measures on sourcing and supply chain resilience, as the House and Senate NDAA bills each proposed restrictions or requirements concerning the sources from which DoD may procure materials, products, or services[18].

Washington also counts on its international partners to ensure the stability of critical mineral supply. In June 2022, the State Department launched the Minerals Security Partnership: a cooperation framework between 14 countries[19] and the European Union, aimed at diversifying and stabilizing global supply chains and mobilizing investment in critical mineral supply chains by promoting ESG standards in the sector[20] .

Increasing strategic stockpiles

Critical materials supply is also ensured through strategic stockpiling. The NDAA 2023 thus **authorized $1 billion for the National Defense Stockpile to acquire strategic and critical materials** "required to meet the defense, industrial, and essential civilian needs of the United States"[21]. This is $750 million more than the DoD request. As for the NDAA 2024, "Sec. 181 authorizes DOD to enter into multiyear procurement contracts for rare earth elements (generally, a group of elements used in many products, such as rechargeable batteries and defense applications) that are processed in the United States by qualified domestic sources, and to enter into related advance procurement contacts."[22].

[15] Presidential Determination No. 2023-05 of March 1, 2023. link
[16] Acquisition & Sustainment (A&S). (2022, Aug. 29). Defense Department Launches Innovative Manufacturing Pilot Program. Immediate release. link
[17] Wischer, G. (2023). Industry Perspective: U.S. Needs Industrial Policy for Critical Minerals. National Defense. link
[18] CRS. (2023, Aug. 15). FY2024 NDAA: Defense Industrial Base Policy. Insight. link
[19] Australia, Canada, Estonia, Finland, France, Germany, India, Italy, Japan, Norway, the Republic of Korea, Sweden, the United Kingdom, the United States
[20] U.S. DoS. Minerals Security Partnerhip. link
[21] U.S. Senate Committee on Armed Services. Summary of the Fiscal Year 2023 National Defense Authorization Act. link
[22] H.R.2670 - National Defense Authorization Act for Fiscal Year 2024. link

Box 2. The National Defense Stockpile[23]

The National Defense Stockpile (NDS) is a strategic reserve of critical materials managed by the Department of Defense to ensure national security readiness in times of emergency. Established under the Strategic and Critical Materials Stock Piling Act in 1939, its primary goal is to reduce dependence on foreign sources for essential materials vital to defense and critical infrastructure. These stockpiled materials are allocated to domestic manufacturers during emergencies to maintain production for national defense purposes. Operational management of the NDS is delegated to the Defense Logistics Agency's Strategic Materials field activity (DLA-SM), whose task include the purchasing of strategic and critical materials of domestic origin, and contracting domestic facilities to receive, process, and recycle NDS materials.

Through the National Defense Stockpile Transaction Fund, financed by stockpile sales revenue, the NDS operates independently of annual congressional appropriations, ensuring timely response and readiness in safeguarding national security interests.

As a CRS report points out, the value of stockpiled materials fell from $9.6 billion at the end of the Cold War to $888.1 million in 2021. The challenges faced since then have apparently triggered a rebound, as the NDS value has crossed the $1 billion threshold again, with **$1.3 billion in total assets in March 2023**. However, April 2023 NDS inventory "mitigates less than half of estimated strategic and critical materials shortfalls for military requirements."[24]

While the cost of strategic storage is, therefore, partly borne by the Federal Government, the Biden Administration has suggested in 2021 that the effort implemented under the NDS could "provide a model for the private sector, while recognizing that private sector stockpiles and reserves can differ from government ones"[25]. Excessive reserves could indeed strain finances of private competitive firms, diverting resources from productive activities.

Coping with industrial workforce shortages

Another challenge closely linked to the supply chain resilience one is the industrial workforce, that is, the 'gap in U.S.-based human capital'[26], faced by defense companies since the COVID-19 pandemic and the beginning of the war in Ukraine. Already in the DoD's February 2022 action plan, the workforce was identified as one of the main "strategic enablers", whose gaps needed to be addressed to build overall supply chain resilience[27].

Annual Material Plan (AMP) – potential acquisitions of new NDS stocks for FY 2024. Link

[23] CRS report. Emergency Access to Strategic and Critical Materials: The National Defense Stockpile. November 14, 2023. link

[24] Ibid.

[25] U.S. Gov. (2021). Executive Order on the Designation to Exercise Authority Over the National Defense Stockpile. link

[26] Gould, Joe. (2022, Apr. 19). Pentagon, industry wrestle with how to boost weapons production for Ukraine. Defense News. link

[27] U.S. DoD. (2022, February). Securing Defense-Critical Supply Chains.

The DoD has put different programs in place to tackle this issue as early as 2019, with the Defense Manufacturing Community Support program[28], the 2020 National Imperative for Industrial Skills (NIIS)[29] or the presentation of the 2021 "Department of Defense's Perspectives on Industrial Workforce Challenges"[30]. However, concrete measures are yet to be announced. Indeed, in September 2023, Keith DeVries, managing director of manufacturing technology for the Office of the Secretary of Defense, acknowledged that **the demand for skilled workers remains an acute and growing problem**, and declared that the DoD was taking a "long-term approach to shore up the supply of skilled workers into the future"[31].

Increasing opportunities for small businesses

In February 2022, the DoD released a report on the State of Competition within the Defense Industrial Base[32], underlining the substantial decline of major weapons system suppliers' number over the past three decades[33] and pointing these consolidation trends in the DIB as a risk for national security. Consequently, "promoting competition and ensuring it is fair and open for future programs is a critical Department priority"[34]. The report lays out recommendations to achieve this objective, including strengthening merger oversight[35] and attracting new entrants by reducing barriers and increasing opportunities for small businesses (SB).

This second orientation is coherent with the DoD's vaster effort towards small businesses, called for in the National Defense Strategy 2022[36] and planned in the **Small Business Strategy**, released in January 2023[37]. The latter document highlights both the benefits SB represent for the DIB – **increased resilience of supply chains** and innovation, stimulated competition – and the difficulties they still face entering it. To tackle this issue, the DoD is committed to better support SB, ensuring, in return, their engagement with national security priorities. This involves establishing common guidance and training to better navigate the DoD's acquisition process and opportunities. In December 2022, the DoD and the Small Business Administration

[28] which allocated $80 million to assist 2200 defence businesses in developing workers' critical skills. See Office of Local Defense Community Cooperation website. Defense manufacturing community support program. link
[29] U.S. DoD. (2020, Nov. 23). Defense Department Launches Initiative to Boost U.S. Industrial Workforce. Immediate release. link
[30] Martin, N. (2021, Aug. 30). DOD Presents Strategy to Address Industrial Workforce Challenges. ExecutiveGov. link
[31] U.S. DoD. (2023, Sept. 27). DOD Is Taking Steps to Shore Up Industrial Workforce. DoD News. link
[32] Office of the Under Secretary of Defense for A&S. (2022, Feb.) State of Competition within the Defense Industrial Base. DoD report. link
[33] «Tactical missile suppliers have declined from 13 to 3, fixed-wing aircraft suppliers declined from 8 to 3, and satellite suppliers have halved from 8 to 4. Today, 90% of missiles come from 3 sources". Ibid.
[34] Ibid.
[35] In the spirit of the blocking in February 2022 of Lockheed Martin's $4.4-billion plan to acquire Aerojet Rocketdyne. See Lockheed Martin's press release. link
[36] "The Department will strengthen our defense industrial base. […] We will bolster support for […] small businesses and innovative technology firms." U.S. DoD. (2022, Oct.). National Defense Strategy of the U.S. link
[37] U.S. DoD. (2023, Jan.) Small Business Strategy. link

(SBA) signed a MOU to strengthen and expand small business development nationally and locally[38], in particular through freshly rebranded "APEX Accelerators" (formerly known as Procurement Technical Assistance Centers, which have existed before the war in Ukraine started). As part of the DOD's Office of Small Business Programs (OSBP), these centers help small businesses find contracts with DoD and other federal agencies[39]. Besides the rebranding of old tools and the launch of research programmes, few concrete measures have been taken to implement the SB Strategy, as underlined in a Congress report of June 2023[40].

ACCELERATION OF REFORMS AND CONVERGENCE OF NEW MEASURES AROUND THE AMMUNITION ISSUE

"Production is deterrence"

Even though several U.S. defense industrial policy measures were initiated with a long-term perspective before 2022, Russia's massive invasion of Ukraine prompted an acceleration of reforms on production, stockpiling, and procurement strategies, which crystallized over one particular domain: munitions and missiles. The munitions and missiles situation is being raised with particular acuity since the ones used in the Ukraine theater do not necessarily overlap with those that would be used in the Indo-Pacific area, except for air defense weapons. The U.S. industry must thus simultaneously refill the depleted stocks of mainly land-attack precision-guided munitions and surge its production capacity in antiship and naval-attack weapons[41]. After Russia invaded Ukraine, the Under Secretary of Defense for A&S thus established a **Munitions Industrial Deep Dive (MIDD)** team tasked with the acceleration of weapons production for Ukraine. The MIDD supported the industry by mitigating supply chain issues. In March 2023, this team went off the crisis-response mode and became the **Joint Production Accelerator Cell (JPAC)**, focused on "building enduring industrial production capacity, resiliency, and surge capability for key defense weapon systems and supplies"[42].

[38] U.S. DoD. (2022, Dec.) Agencies Partner to Aid Small Businesses. DOD News. link
[39] U.S. Small Business Administration (SBA) website. Federal contracting assistance. link
[40] The House Appropriations Committee's report on H.R. 4365 (H.Rept. 118-121 of June 27, 2023) states that:
"The Committee encourages the Secretary of Defense to contract with small businesses through multiple paths including the Office of Small Business Programs Mentor Protégé Program, APEX Accelerators, the Small Business Innovation Research Program, and the Small Business Technology Transfer Program. However, the Committee is concerned by the execution of the Department's small business programs." See CRS report. link
[41] Pettyjohn, Stacie & Dennis, Hannah. (2023, June). "Production Is Deterrence". Investing in Precision-Guided Weapons to Meet Peer Challengers. CNAS report. link
[42] A&S. (2023, March). Establishment of the Joint Production Accelerator Cell. Memorandum for A&S direct reports. link

As of December 2022, the US had already sent about a third of its stock of Javelin anti-tank missiles to Ukraine and a third of its stockpile of anti-aircraft Stinger missiles[43] both through the Presidential Drawdown Authority - to provide military assistance quickly during a crisis by transferring weapons from existing U.S. stockpiles to another country - and using Ukraine Security Assistance Initiative (USAI) authorities[44], which enabled procurement of units directly for Ukraine instead of tapping into U.S. stocks. In total, supplemental appropriations have increased the Army's FY2023 budget by around 30%[45]. **To quickly refill stockpiles, the Army launched several replenishment contracts in the Spring of 2022, including $352 million in funding for replacing Javelin missiles, $624 million for Stinger missiles[46], and then $431 million for HIMARS systems in December the same year**[47]. Congress is setting the ground for consequent investment to build munitions stockpiles, by authorizing $5.9 billion for the procurement of Navy munitions ($1.1 billion more than in the President's budget request) in NDAA FY2023[48].

The DoD and the Army Contracting Command are concerned with the expansion of domestic capacity and acceleration of production. $600 million in supplemental funding were announced in June 2022 for the DPA Title III fund for Missiles & Munitions Defense Industrial Base (DIB) and the Strategic & Critical Materials DIB, to be used to "enable faster missile production in order to resupply U.S. stocks transferred to Ukraine"[49]. In June 2023, the DoD signed a $45.5 million agreement (under DPA Title III) with Arconic Corporation to provide surge capacity of the company's High Purity Aluminum production, with the final aim of ramping up the production of munitions and missiles[50]. Secretary of the Army Christine Wormuth declared that the manufacturing capacity of 155mm would surge by 2025, jumping from 20,000 shells per month in March 2023, to 100,000 over the same period by 2025[51]. A particularity of the US defense industrial base, compared to some European ones, is its government-owned or government-operated component, known as the "Organic Industrial Base" (OIB). Part of the DoD's efforts have thus focused on the facilities that make up the OIB. Overall, **the NDAA FY2023 authorized more than $2.7 billion for additional munitions production and capacity expansion for increased future production**[52].

[43] Rathbone, John & Pfeifer, Sylvia & Chavez, Steff. (2022, Dec. 2). Military briefing: Ukraine war exposes 'hard reality' of west's weapons capacity. Financial Times. link
[44] CRS. (updated 2023, Oct. 5). US Security assistance to Ukraine. link
[45] Judson, Jen. Did Ukraine funding spare the US Army from budget cuts? Defense News. link
[46] A&S. (2022, May). Army Awards Contracts to Accelerate Javelin and Stinger Production. Office news. link
[47] A&S. (2022, Dec.) Army awards $431 million contract for HIMARS. Office news. link
[48] U.S. Senate Committee on Armed Services. Summary of the Fiscal Year 2023 National Defense Authorization Act. link
[49] DPA. (2022, June). Defense Production Act (DPA) Title III Receives Emergency Supplemental Funding for Ukraine. link
[50] U.S. DoD. (2023). DoD Enters Agreement to Expand Domestic Manufacturing to Strengthen U.S. Missiles and Munitions Supply Chains. Link
[51] Pettyjohn, Stacie & Dennis, Hannah. (2023, June). "Production Is Deterrence". CNAS report
[52] U.S. Senate Committee on Armed Services. Summary of the Fiscal Year 2023 National Defense Authorization Act. link

The DoD's efforts seem to have started bearing fruit, as some companies already increased their production capacities[53] and new lines have opened to produce critically needed munitions[54]. But to achieve convincing defense companies to make consequent investments and open new production lines and factories, Congress and the Pentagon had to send a clear signal to the industry that the orders would follow in a sustained manner.

Multiyear procurement planification for munitions and missiles

Historically, the Pentagon has pursued a "feast or famine approach" for the munitions sector, with peaks in demand followed by dry periods, which added to the fact that munitions have often been the adjustment variable of defense budgets. In response to this, defense companies adopted a "just-in-time manufacturing" strategy, with low inventories. To put an end to these inconsistent demand signals, the Under Secretary of Defense for A&S William LaPlante launched the **multiyear procurement (MYP) contracts for high-priority weapons and ammunition**. So far, a program had to meet several criteria to qualify for MYP, including significant savings, realistic cost estimates, and stable need for the items[55]. Consequently, contracts for munitions did not fall under this scope, but the war in Ukraine has prompted a transition from an economic logic to a strategic one, enshrined by Congress in the NDAA FY2023. The Act **includes an emergency provision allowing the Pentagon to sign multiyear, non-competitive agreements for certain types of munitions used in Ukraine**[56]. The NDAA FY2024 expanded this provision to certain "Indo-Pacific types" of munition[57]. The **President's 2024 budget request for the DoD amounted to $842 billion**, including $30.6 billion for munitions using the MYP authorities provided by Congress for several kinds of missiles (JASSM,

[53] "Last year, Lockheed could produce 7,500 of the artillery rockets that Ukrainian troops have fired to great effect from HIMARS launchers. This year, that number will jump to 10,000." see The New York Times article (March 2023) link

[54] "In November 2022, contracts were awarded to expand shell production by retooling a facility in Ontario and creating a new assembly line in Texas. New facilities for loading, assembling, and packing 155mm shells may be established in Arkansas, Iowa, and Kansas" Pettyjohn, Stacie & Dennis, Hannah. (2023, June). "Production Is Deterrence", CNAS report.

[55] CRS. (2023, Aug.) Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress. link

[56] Section 1244(c) of the FY2023 NDAA (H.R. 7776/P.L. 117-263 of December 23, 2022) provides authority for using multiyear contracting for the following munitions: 864,000 XM1128, XM1113, M107, and M795 155mm artillery shells; 12,000 AGM-179 Joint Air-to-Ground Missiles (JAGMs); 700 M142 High Mobility Artillery Rocket Systems (HIMARS); 1,700 MGM-140 Army Tactical Missile Systems (ATACMS); 2,600 Harpoon anti-ship cruise missiles; 1,250 Naval Strike Missiles (NSMs) (anti-ship missiles); 106,000 Guided Multiple Launch Rocket Systems (GMLRS); 3,850 PATRIOT Advanced Capability-3 (PAC-3) Missile Segment Enhancement (MSE); 5,600 FIM-92 Stinger air defense missiles; 28,300 FGM-148 Javelin anti-tank missiles; 5,100 AIM-120 Advanced Medium-Range Air-to-Air Missiles (AMRAAMs); 2,250,000 Modular Artillery Charge System (MACS); 12,050 155m Excalibur M982A1 artillery shells; 950 Long Range Anti-Ship Missiles (LRASMs);3,100 Joint Air-to-Surface Standoff Missiles (JASSMs); 1,500 Standard Missle-6 (SM-6) surface-to-air missiles; and 5,100 Sidewinder Missiles (AIM-9X) air-to-air missiles.

[57] The House FY2024 National Defense Authorization Act (H.R. 2670/S. 2226) proposes that the list also includes Tomahawk cruise missiles; Precision Strike Missiles (PrSMs); Mark 48 torpedoes; RIM–162 Evolved Sea Sparrow Missiles (ESSMs); RIM–116 Rolling Airframe Missiles (RAMs); and Small Diameter Bomb IIs (SDB–IIs).

LRASM, AMRAAM, SM-6, NSM, GMLRS, and MSE)[58]. In the end, Congress passed a $825 billion defense funding bill[59].

In addition, the FY2024 NDAA introduced a new instrument, the **"large lot procurement" (LLP) concept**, that seeks to generate efficiencies across related programs by structuring production up to tier III sub-contractors and taking those savings to increase missile production and speed up delivery[60]. The pilot LLP program includes two pairs: the AMRAAM and SM-6, and the LRASM and JASSM. As the CNAS report explains, "these weapons are paired together because they are produced at the same factory, share some parts, and have in common the original equipment manufacturer and many subcontractors. By allowing the contractor to manage the paired production lines flexibly, **the LLP enables adjustments as demand between the two weapons shifts, thus reducing the risk of having excess production capacity**. LLP also provides the DoD with more flexibility by permitting the same contract to be adjusted to procure upgraded variants of the weapon."[61]

The Government's FY 2025 budget request for the DoD, submitted to Congress on March 11, 2024, includes $29.8 billion for munitions, including both conventional ammunition and Precision Guided Munitions[62].

Co-production and co-development partnerships

Co-production or co-development efforts on certain systems have also been put forward as a possible solution to the production issue, as shown for example with the $1.2 billion contract awarded by the DoD to the Raytheon-Kongsberg joint project on the NASAMS system[63]. Opening manufacturing lines in allied countries under co-production agreements, as was envisaged with Poland for HIMARS and GMLRS rockets[64], would reduce the burden of US industry and strategically position stocks of these high demand rockets closer to potential conflict zones. Under deeper forms of cooperation (AUKUS partnership), the United Kingdom and Australia could also be partners in this effort, which would also help create redundancy in supply chains, another DoD stated objective[65].

[58] U.S. DoD. (2023, March). Department of Defense Releases the President's Fiscal Year 2024 Defense Budget. link
[59] Insinna, V. (2024). Congress passes $825 billion defense spending bill amid political battles, government shutdown threat. Breaking Defense. link
[60] CRS. (2023, Aug.) Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition.
[61] Pettyjohn, S. & Dennis, H. (2023, June). "Production Is Deterrence". CNAS report
[62] U.S. DoD. (2024). Department of Defense Releases the President's Fiscal Year 2025 Defense Budget. link
[63] U.S. Army Public Affairs. (2022, Nov.) Army announces contract award for NASAMS. link
[64] Pettyjohn, S. & Dennis, H. (2022, nov). Precision and Posture: Defense Spending Trends and the FY23 Budget Request. CNAS publications. link
[65] U.S. DoD. (2022, Sept.) Defense Official Speaks on Supply Chain Investments. DOD news. link

THE REFORMS THAT STILL LIE AHEAD

Improving the export strategy

Some other reforms have been either initiated in the context of the war in Ukraine and still lack implementation or remain to be launched even though they have been floating around for some time. This is the case of the U.S. export strategy. In 2022, Lloyd Austin tasked a tiger team to work on possible improvements to the Foreign Military Sales (FMS) process. The team released its report in July 2023, highlighting six broad categories of recommendations that the Secretary of Defense already instructed FMS agencies to implement[66], including:

- Establishing a Defense Security Cooperation Service to better understand partner requirements;
- Improving the efficiency of the review and release of technology to allies and partner nations;
- Accelerating acquisition and contracting support;
- Incorporating ally and partner requirements into ongoing efforts to expand DIB production capacity.

These measures should be implemented in the months to come, under the supervision of the newly established FMS Continuous Process Improvement Board (CPIB). In May 2023, the Defense Security Cooperation Agency (DSCA) had already released its roadmap for FMS reforms, which includes measures related to FMS strategic planning, adjudication, and implementation[67]. In its NDAA for FY2024, the Senate also advanced several propositions for FMS process enhancements[68].

Streamlining procurement processes and improving defense innovation adoption process

The complexities and shortcomings of the DoD's acquisition process have been highlighted by the National Defense Strategy 2022, which pointed out that the current system is "too slow and too focused on acquiring systems not designed to address the most critical challenges" and advocated for more rapid acquisition and fielding of emerging technologies. In particular, the DoD has started taking measures to simplify and accelerate the procurement of AI-related capabilities. In 2022, the DoD created a Chief Digital and Artificial Intelligence Office (CDAO), in charge of centralising and leading the DoD policy on AI procurement[69]. The NDAA for FY2023 directed organizations within DoD to support CDAO's efforts to reform AI procurement

[66] U.S. DoD. (2023, July). Department of Defense Unveils Comprehensive Recommendations to Strengthen FMS. link
[67] U.S. DoS. (2023, May). FMS 2023: Retooling Foreign Military Sales for An Age of Strategic Competition. link
[68] U.S. Senate Committee on Armed Services. Fiscal Year 2024 NDAA Executive Summary. link
[69] CDAO website. link

processes. An example of how the CDAO streamlined and simplified the procurement process for AI is the Marketplace. This platform enables industry, academia, and other innovators to pitch their solutions in five-minute videos that are then reviewed by the DoD organizations, instead of submitting a bid to a government customer[70].

Innovation is another of the DoD's current reform priorities, as William A. LaPlante recalled in a statement on the subject to Congress in February 2024[71]. The National defense science & technology strategy 2023 underlined that the DoD should, among other priorities, create and field capabilities at speed and scale, and ensure better foundations for research and development[72]. The FY2024 defense bill acknowledged these priorities, by **increasing the allocation to the Defense Innovation Unit (DIU) to $842 million**[73], from the $191 million the year before[74]. Since its establishment in 2015, DIU's purpose has evolved from attracting commercial technology to the Pentagon to now spearheading initiatives within the DoD aimed at deploying such technology to the field on a larger scale[75], reflecting the Department's priorities.

In addition, Deputy Secretary of Defense Kathleen Hicks launched the **Replicator initiative** in August 2023, with aims to field thousands of autonomous, attritable drones before August 2025 to counter China[76]. The programme would cost $1 billion over the two years of its duration, divided between FY 2024 and 2025. The defense bill approved by Congress in March allocated $200 million to this project.

Implementing the new NDIS

In January 2024, the Pentagon released a new National Defense Industrial Strategy (NDIS), which confirmed the trends engaged over the past few years. The document brings together existing policies and tools within a long-term overarching strategy built around 4 priorities: resilient supply chains (1), workforce readiness (2), flexible acquisitions (3) and economic deterrence (4). Although there is no major trend break to report, a few points are worth noting:

[70] Tradewinds Solutions Marketplace website. link
[71] Laplante, W. (2024). Statement before the US House of representatives armed services committee on Outpacing China: expediting innovation to the warfighter. Link
[72] U.S. DoD. National defense science & technology strategy 2023. link
[73] Insinna, V. (2024). Congress passes $825 billion defense spending bill amid political battles, government shutdown threat. Breaking Defense. link
[74] Albon, C. (2024). Defense Innovation Unit would get major funding boost in spending bill. DefenseNews. link
[75] Ibid
[76] Albon, C. & Robertson, N. (2024). Pentagon says $1 billion planned for first two years of Replicator. DefenseNews. link

- The DoD distinguishes between “commercial Defense Industrial Base (DIB)” and “USG-owned Organic Industrial Base (OIB)”[77] and intends to leverage the latter to "provide rapid surge capability and capacity to support contingencies". **The Army, for e.g., is thus preparing to invest $4.5 billion over the next 15 years to modernize its OIB capabilities**. In regards to the DIB, the DoD wants to encourage investment in spare production capacity and is calling on Congress to explore allocating additional funding for contracts and other incentives targeting this specific objective (pillar 1).
- The NDIS concerns all stakeholders in the defense ecosystem and calls for **inter-agency and cross-department implementation**. It is interesting to note, for e.g., that measures relating to public policies on employment and education are an integral part of a strategy for the US defense industry (pillar 2), while Commerce will be involved in increasing enforcement against "adversarial ownership and predatory investment practices" (pillar 4).
- Under pillar 3 (flexible acquisitions), the DoD emphasizes the need to **strike a balance between customization and standardization** to reduce development times, costs, and increase scalability. It also recommends considering interoperability and exportability requirements early and through the acquisition process (consistently with the stated objective of increasing FMS). In addition, the NDIS calls for reflection on reforming the legal and regulatory framework for industrial mobilization in times of national emergency.
- The strategy also considers the role of US' allies, with a view to aggregating demand and building redundancy of supply chains. The industrial cooperation framework favored by the US and highlighted first in the NDIS is not NATO but the AUKUS format, since Australia and the U.K. are considered domestic sources in the last NDAA[78].

The implementation of this strategy remains rather vague since it does not include precise milestones or a defined timeframe apart from its ambition for "generational change". The NDIS implementation plan will be classified[79], and the process will depend on the appropriations voted by Congress, which points out in a dedicated report that certain DoD recommendations "may require funding beyond the current DoD budget".[80] As pointed out by the US National Defense Industrial Association (NDIA) in its 2024 report, the biggest challenge for the NDIS is “its silence on the specific additional resources required to implement the actions defined in the strategy. […] As reasserted in the 2021 DoD report, the order of magnitude of financial investment is in the billions, not millions, of dollars.”[81]

[77] “The OIB includes a network of maintenance depots, shipyards, fleet readiness centers, air logistics complexes, manufacturing arsenals, munitions plants, and software engineering activities”. NDIS. 2023. link
[78] The National Defense Industrial Strategy: The Way Ahead. CSIS event transcript. Jan. 11, 2024. Link
[79] except for an overview to be published in February
[80] The 2024 National Defense Industrial Strategy: Issues for Congress. CRS report. Jan. 29, 2024. Link
[81] NDIA. (2024, April). Vital signs 2024. The Health and Readiness of the Defense Industrial Base. Link

CONCLUSION

On March 23, 2024, Congress finally passed its defense fund bill for FY 2024, allocating $825 to the DoD, after the latter operated for six months under a continuing resolution (CR). In the absence of budget adopted in due time, CR keeps funding at the level of the previous year and prohibits the department from starting new programs. Deputy Defense Secretary Kathleen Hicks regretted the “devastating” impact that the time spent under these conditions had on the Pentagon’s working programme[82]. With the passing of the bill, the DoD will now be able to continue advancing its reforms to prepare the American defense industry for the future.

The U.S. DoD started to address long-identified DIB issues as early as 2019-2021, conscious of reducing its strategic dependencies to China, and preparing for a possible confrontation between the two long-term foes. As such, the war in Ukraine threw off the agenda by adding the challenge of urgency. This has been the occasion to accelerate reforms already initiated and to confront important issues such as multiyear planning for munition procurement. Even if some measures are only temporary, in particular those concerning Ukraine-related equipment, the anticipation of a possible conflict in the Indo-Pacific should ensure sustained support in ramping up industrial production capacities. The 2022 National Security Strategy indeed states that “the post-Cold War era is definitely over and a competition is underway between the major powers to shape what comes next.”

[82] Insinna, V. (2024). Congress passes $825 billion defense spending bill amid political battles, government shutdown threat. Breaking Defense. link

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