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# Defense Primer: The National Technology and Industrial Base

## What Is the NTIB?

The *National Technology and Industrial Base* (NTIB) consists of the people and organizations engaged in national security and dual-use research and development (R&D), production, maintenance, and related activities within the United States, Canada, the United Kingdom, Australia, and New Zealand. The NTIB, as established by 10 U.S.C. §4801, is intended to support national security objectives of the United States, including: supplying military operations; conducting advanced R&D and systems development to ensure technological superiority of the U.S. Armed Forces; securing reliable sources of critical materials; and developing industrial preparedness to support operations in wartime or during a national emergency.

## Establishing the NTIB

During World War II, shipments of critical wartime materials to the United States were disrupted. To ensure a supply of defense articles in future conflicts, Congress and the executive branch sought to establish a more robust domestic defense industrial base. Over the next half-century, evolving U.S. national security objectives led to new legislation and regulations addressing the defense industrial base, dual-use critical technologies, and manufacturing technology. Defense spending, particularly significant R&D investment, was critical to the advancement of U.S. military and industrial technologies.

Following the end of the Cold War, Congress grappled with the economic implications of reduced defense spending. Responding to the perceived “failure of the Department of Defense to undertake serious technology and industrial base planning”—and the need to maintain a national technology and industrial base capable of meeting future national security and economic challenges—Congress mandated a more active federal government role in shaping the U.S. technology and industrial base through provisions in the FY1993 National Defense Authorization Act (P.L. 102-484; NDAA). These provisions enacted various related policies and requirements, including establishing the NTIB, formalizing in statute what had been a traditionally close United States-Canada defense-industrial relationship.

## Expanding the NTIB

While the U.S. military has historically used advanced technological capabilities as a strategic counterbalance to superior force size and geographic advantages of geopolitical rivals, recent trends have led some to question the ability of the Department of Defense (DOD) to maintain this dominance in the future. The sharp decline in U.S. defense R&D spending as a share of global R&D spending, together with the rise of the private sector in driving innovation, pose challenges to DOD’s reliance on technology for battlefield advantage. Analysts and DOD officials increasingly assess that allies and potential adversaries alike are achieving technological parity with—

and in some sectors, superiority over—the U.S. military. In the FY2017 NDAA (P.L. 114-328), driven in part by this concern, Congress expanded the NTIB to include the United Kingdom and Australia. S.Rept. 114-255 describes global R&D as shifting abroad, in part to avoid U.S. technology transfer and export control rules, raising concerns that

innovation may be increasingly conducted overseas with technology more readily available to potential adversaries than to the U.S. military because of the lack of civil-military integration of the [NTIB].

In the FY2023 NDAA (P.L. 117-263), Congress further expanded the NTIB to include New Zealand.

## How Does the NTIB Operate?

Among other matters, the National Defense Technology and Industrial Base Council (10 U.S.C. §4812) is responsible for ensuring interagency cooperation in promoting the NTIB. The council consists of the Secretaries of Defense, Energy, Commerce, and Labor, and other officials appointed by the President. While the U.S. government has a governing body to coordinate activities across agencies, no such structure with representation of all NTIB member countries exists. The Secretary of Defense is also required to establish a national security strategy for the NTIB (10 U.S.C. §4811) and submit an annual report to Congress addressing NTIB capabilities, performance, and vulnerabilities (10 U.S.C. §4814).

## Statutory Benefits of NTIB Membership

NTIB countries benefit from certain limited statutory preferences. Procurement of conventional ammunition can be restricted to NTIB sources and must be from the NTIB in a national emergency or when necessary for industrial mobilization (10 U.S.C. Ch. 223 note proceeding). Fire-resistant rayon fiber in uniforms may only be procured from a non-NTIB member if NTIB sources are not available (10 U.S.C. §4862 (note)). Buses, chemical weapons antidotes, ball and roller bearings, satellite “star trackers,” and certain components for naval vessels may only be procured from NTIB manufacturers, unless the Secretary of Defense waives this restriction (10 U.S.C. §4864).

Some NTIB entities may also be exempted from the foreign ownership, control, or influence requirements of the National Industrial Security Program, and may also be exempted from the requirement to obtain a national interest determination to be awarded a contract under a national security program (10 U.S.C. §4874).

## How Effective Is the NTIB?

Some analysts argue that domestic sourcing requirements, such as the Buy American Act (41 U.S.C. Ch. 83) and the Byrnes-Tollefson Amendment (10 U.S.C. §8679), as well as policies implementing preferential treatment for

domestic entities (e.g., small business set-asides for which only U.S. firms are eligible) hinder effective integration of NTIB industrial capabilities. Cross-border partnerships with U.S. small businesses could help foreign firms circumvent these obstacles, but policy inconsistencies among NTIB countries, such as different thresholds to qualify as a small business in the United States, may limit the efficacy of such measures.

Observers also point to the U.S. export control system for certain categories of defense articles and services as a barrier to closer integration. For example, the International Traffic in Arms Regulations (ITAR), administered by the State Department, restricts the export of defense-related articles and services that are inherently military in character and, if exported, could jeopardize U.S. national security or foreign policy interests. Compliance with the ITAR requires individuals or business entities to obtain a license from the State Department in order to export covered materials.

The ITAR provides licensing requirement exemptions for some U.S. exports to Canada and temporary imports from Canada to the United States; however, not all ITAR-controlled items fall under the Canadian exemptions. Similar ITAR exemptions are not currently available to other NTIB members. While the United States has bilateral defense trade cooperation treaties with the United Kingdom and Australia that provide limited licensing exemptions, some analysts do not consider these exemptions to meaningfully facilitate increased industrial cooperation.

### DOD Cooperation with Other Allies

DOD is actively strengthening defense cooperation partnerships with non-NTIB countries. DOD has promoted cooperation with other allies and partners through mechanisms such as the U.S.-India Defense Technology & Trade Initiative (DTTI), as well as security of supply arrangements and reciprocal defense procurement agreements. Seven allied countries (including all NTIB members except New Zealand) are also participating in the F-35 Joint Strike Fighter Program.

While U.S. allies and partners include some of the most economically developed nations in the world, most are not part of the NTIB. For example, the World Intellectual Property Organization's *2022 Global Innovation Index* describes Switzerland, the Republic of Korea, and Israel as some of the most innovative economies globally. Together with the current NTIB members, these countries represented nearly 35% of the world's estimated GDP in 2022. Some have argued that working closely with some of these countries—whether by expanding NTIB membership, strengthening bilateral agreements, or leveraging other multilateral arrangements—could increase U.S. access to technology and other critical innovations.

### Policy Options for Congress

Some officials from the United States and other NTIB member countries have stated that, while increased cooperation continues to be a priority of NTIB members, the industrial bases are not meaningfully unified, and falls short of the aspiration of seamless integration called for in the FY2017 NDAA.

Potential related options for Congress include:

**Establishing a governing body of NTIB members:** A 2019 Atlantic Council report called for establishing a high-level group of senior officials from member countries to facilitate better coordination and cooperation. Likewise, a 2021 House Armed Services Committee (HASC) report called for an NTIB “International Council” as a means of synchronizing “industrial base and supply chain security policies.” While DOD reports indicate that NTIB members have committed to regular meetings and have established information-sharing agreements, it is unclear whether these activities are steps toward establishing a governing body.

**Amending laws affecting integration of the NTIB:** Some analysts and government officials have called for overhauling technology transfer, socioeconomic preferences, export control, and related laws and regulations to promote NTIB integration. Many reform proposals have advocated changing or modifying provisions of the ITAR to extend the Canadian licensing exemptions to all NTIB members—particularly given the scale of defense-industrial cooperation necessary for implementation of the Australia-United Kingdom-United States (AUKUS) security pact. Others have argued for tightening these policies to promote domestic industry.

**Directing DOD to harmonize international cooperation efforts:** The NTIB is part of a broader landscape of international defense cooperation mechanisms and authorities (e.g., trade agreements, defense trade cooperation treaties, bilateral or multilateral supply arrangements, and other security cooperation programs). While these programs and policies represent a spectrum of integration, some analysts argue their relationships to each other and to broader national objectives have not been adequately delineated. Congress may consider harmonizing these efforts—whether by statutory changes or by directing modifications to DOD policies—particularly in light of recent concerns regarding the capacity of domestic producers to meet the requirements of geopolitical crises.

**Increasing international cooperation:** Congress could further expand the NTIB to include other allies with shared interests and robust industrial bases. A successful expansion of the NTIB would likely rely on current members' acquiescence; without the buy-in of current members, expansion could decrease integration. An increase in membership could also make it more difficult to coordinate joint activities and policies. Some officials suggest focusing instead on improving current NTIB integration. Alternatively, Congress could strengthen international agreements to increase access to, and collaboration in developing, technologies and critical items.

#### Other Resources

Title 22, *Code of Federal Regulations*, Appendix Supplement No. 1 to Part 126.

Atlantic Council, *Leveraging the National Technology Industrial Base to Address Great-Power Competition*, 2019.

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