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AUKUS Collaboration Throughout the Capability Life Cycle

Implications for Planning, Programming, Budgeting, and Execution Processes

In the 1960s, the U.S. Department of Defense (DoD) created what later became known as DoD's Planning, Programming, Budgeting, and Execution (PPBE) System. It was intended to be a structured approach for aligning resources to strategies, planning long-term resource development, and assessing program cost-effectiveness. Such a system must continue to evolve to ensure continuing relevance. Recognizing changes in the strategic environment, the industrial base, and military capabilities, in 2021, Congress called for the establishment of a Commission on PPBE Reform.¹

To support the Commission on PPBE Reform, RAND researchers conducted case studies of the budgeting processes of two near-peer competitors (China and Russia),² of international defense organizations in eight allied and partner nations (Australia, the United Kingdom, Canada, France, Germany, Japan, Singapore, and Sweden),³ and of six non-DoD U.S. federal government agencies.⁴ RAND



also published two executive summaries that synthesize key findings and lessons learned from these case studies for DoD PPBE reform efforts.⁵ These earlier analyses of comparative PPBE-like processes suggest that DoD resource policies and decisions have major implications for interdependent, co-development efforts with allies and partners.⁶

Our analysis of PPBE reform comes at a time when the critical significance of allied and partner relationships

in deterring and responding to global security threats has become increasingly apparent. U.S. Secretary of Defense Lloyd J. Austin has emphasized the importance of “integrated deterrence” as a means of using existing and new capabilities, networked together, and hand-in-hand with allies and partners.⁷ The 2022 National Defense Strategy (NDS) has called for a reduction in “institutional barriers that inhibit collective research and development, planning, interoperability, intelligence and information sharing, and export of key capabilities.”⁸

There is also a renewed emphasis on deepening U.S. technology cooperation with like-minded nations. Foremost among these efforts—and the most ambitious—is the Australia–United Kingdom–United States (AUKUS) trilateral security partnership. AUKUS aims not only to deliver new shared technologies that will enhance the military capabilities of the three partner nations but also to integrate their underlying defense sectors. Such technology cooperation and international defense-industrial integration could contribute to integrated deterrence through enhanced collaboration, innovation, interoperability, collective military capability, and industrial capacity.⁹

Pursuing a strategy of integrated deterrence that relies on stronger, more-interoperable capabilities; greater technology cooperation; and deeper industrial ties has enormous implications for the PPBE-like processes within these countries. Australia, the United Kingdom (UK), and the United States will need to align their national resource allocation processes with their international strategy and shared vision to achieve the goals exemplified by AUKUS.

This commitment to increased cooperation, embodied in the AUKUS agreement, was a key driver of our analysis. In this paper, we examine the shift toward greater technol-

Abbreviations

AUKMIN	Australia-UK Ministerial Consultations
AUKUS	Australia–United Kingdom–United States
AUSMIN	Australia-United States Ministerial Consultations
DoD	U.S. Department of Defense
FMS	Foreign Military Sales
I-JROC	International Joint Requirements Oversight Council
ITAR	International Traffic in Arms Regulations
JCIDS	Joint Capabilities Integration and Development System
JROC	Joint Requirements Oversight Council
MOD	UK Ministry of Defence
NATO	North Atlantic Treaty Organization
NDAA	National Defense Authorization Act
NDS	National Defense Strategy
NTIB	National Technology and Industrial Base
PPBE	Planning, Programming, Budgeting, and Execution
R&D	research and development
RDT&E	research, development, test, and evaluation
UK	United Kingdom

ogy cooperation under AUKUS, PPBE-like practices supporting interdependencies between partner nations, and the prospect of further reforms to align national resources with the strategy of integrated deterrence. Our assessment concludes with several observations.

Technology Cooperation Associated with AUKUS

As defined in the 2022 NDS, *integrated deterrence* “entails working seamlessly across warfighting domains, theaters, the spectrum of conflict, all instruments of U.S. national power and our network of Alliances and partnerships.”¹⁰ Integrated deterrence means, in part, leveraging a multinational network to deter aggression.¹¹ DoD recognizes that it must invest in long-term relationships to build this interdependence and mutual support.¹²

Integrated deterrence could have different implications for different relationships.¹³ Partnerships can be short term or involve information exchanges and activities under security cooperation programs.¹⁴ Alliances are more formal and enduring, involve expectations of mutual commitment, and will have greater implications for PPBE-like processes, especially when allies who share advanced capabilities and associated technologies expect a high level of interoperability across these capabilities. Although the distinction between partnerships and alliances is generally useful, it is important to recognize that while the members of AUKUS are indeed allies, the agreement constitutes a *partnership for technology cooperation* among these three countries rather than an alliance.

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The AUKUS agreement provides an opportunity for Australia, the UK, and the United States to enhance their capabilities, improve interoperability, and strengthen integrated deterrence.

bilities, improve interoperability, and strengthen integrated deterrence.¹⁵ It comprises two areas of focus, or pillars. Pillar I supports the Royal Australian Navy’s acquisition of nuclear-powered submarines, initially from the United States then through cooperative development, to build and sustain future highly capable and interoperable fleets of submarines for the three nations. Pillar II promotes technology sharing to support accelerated development and fielding of advanced systems that might yield capability offsets (or advantages) for the three nations in eight technology “workstreams.”¹⁶ These workstreams cover cyber capabilities, artificial intelligence, quantum technologies, advanced undersea capabilities, hypersonic and counter-hypersonic capabilities, electronic warfare, innovation, and information-sharing.¹⁷

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Importantly, Pillar II is not associated with all defense technology development but on emerging technologies that will enable advanced military capabilities in the future. This focus on advanced weapon systems is a key reason for the exclusive nature of the AUKUS membership. AUKUS collaboration is intended to complement Australia's and the UK's membership in the United States' National Technology and Industrial Base (NTIB),¹⁸ as well as the Five Eyes Technical Cooperation Program.¹⁹

Such technology sharing could be impeded, however, by several barriers. Prominent among them are U.S. export control arrangements, most notably the International Traffic in Arms Regulations (ITAR), which have long been a source of criticism by and frustration for U.S. allies and partners. Changes enacted in the National Defense Autho-

rization Act (NDAA) for Fiscal Year 2024 aim to address these barriers on the U.S. side. Of note, Sections 1331–1333 put in place administrative provisions supporting AUKUS, Sections 1341–1345 streamline the processes under ITAR, Sections 1351–1354 facilitate the transfer of submarines to Australia and the conduct of related cooperation, and Section 1080 modifies the definition of *domestic source* with respect to the Defense Production Act, which will enable the U.S. government to engage UK and Australian industry directly in its defense contracting.²⁰

The true value of AUKUS is not in the already established government-to-government interaction but in the expansion of technology cooperation into academia and industry. This expansion will spur innovation in developing and inserting future technologies and can also improve production and support capacities. While the U.S. government is reforming ITAR and designating the UK and Australian defense sectors as domestic sources for the purposes of the NDAA, it also is looking to these nations to enhance their own approaches to export controls, investment security, academic security, and supply-chain security. This combination of moves could enable academic institutions, research bodies, and industrial players in all three countries to deepen their ties with each other, while mitigating the security risks associated with sharing.²¹ In essence, creating such interdependencies would break down barriers among AUKUS nations while shoring up the defense capabilities protecting them collectively against technology theft by, or leakage to, hostile states outside the partnership. This cooperation also could help align these countries' philosophies and processes associated with defense and technology exports to outside parties.

Whereas the core membership of the AUKUS agreement is not likely to change in the near term, there has been speculation of further expanding technology cooperation activities under Pillar II on a project-by-project basis with other nations—such as Japan, Canada, and New Zealand.²² The fact that nations such as Japan are facing similar challenges and are considering force modernization could lead to synergies in capability investments and downstream advantages from interoperability and commonality, as reflected in the prospective cooperation between Japan, Australia, and the United States on developing unmanned aerial systems.²³ Moreover, the defense secretaries of the AUKUS nations have specifically acknowledged the prospect of cooperation with Japan on Pillar II advanced capability projects.²⁴ Japan is also planning to cooperate with the UK and Italy on the Global Combat Air Program to develop a next-generation fighter.

Adding more partners would bring more complexity in terms of aligning PPBE-like processes and timelines and overcoming national differences in defense requirements, available resources, and industrial, offset, and export policies. Two current examples of the potential benefits and challenges of expanding multilateral defense cooperation projects are (1) the growth of the Franco-German Future Combat Air System program to include Spain and Belgium and (2) the public debates over whether and how to fold such countries as Saudi Arabia or Sweden into the UK-Italian-Japanese Global Combat Air Program.²⁵

Ultimately, both political and financial capital will be needed to support multinational cooperation in the face of policy, organizational, and cultural barriers. Empowering allies, increasing collective capabilities, and strengthen-

ing integrated deterrence can all be facilitated by resource allocations through PPBE-like processes. A key question is whether the extant processes used by allies will indeed facilitate close cooperation or instead frustrate efforts to work together. This question is especially pressing for the AUKUS partners, who represent the highest level of desired cooperation, thus necessitating the greatest reform to their PPBE-like processes.

Although DoD's Foreign Military Sales (FMS) program or analogous mechanisms could lead allies and partners to converge on strategies and acquire common systems, other bureaucratic factors often block progress on achieving these goals.²⁶ Even if combined interoperability were a priority in setting requirements, interoperability may not be prioritized, let alone applied, consistently. A lack of allied involvement in resource planning and development activities, compounded by FMS-related limitations, could lead the AUKUS partners away from

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convergence and back toward divergence—their three bureaucratic systems failing to deliver on the stated political aims of the partnership.

To address this risk, in 2023, the International Joint Requirements Oversight Council (I-JROC) was established to help harmonize requirements among the three AUKUS nations.²⁷ The purpose of the I-JROC is to help identify areas to enhance, align, and accelerate international collaboration on combined warfighting concepts and capability developments. The council, which is the most visible change that AUKUS has already had on DoD planning and programming processes, intends to fulfill its purpose by identifying capability gaps that are best addressed through international collaboration, addressing combined interoperability, identifying collaborative development opportuni-

ties, and maintaining collaboration during concept and force development.

The initial priorities of the I-JROC will focus on capability applications for AUKUS Pillar II technologies. Although initially limited to the AUKUS partners, the I-JROC might open its membership to other partners (or invite nonmembers to participate in specific I-JROC meetings).²⁸ Critically, the I-JROC is designed to support joint and combined warfighting concepts by pursuing interoperability and interchangeability from the outset.²⁹ This support would help align not only DoD resource plans but also allied defense resource plans. Nonetheless, the support from the I-JROC alone might not be enough to ensure sufficient alignment throughout the PPBE-like processes of allies, which raises the question of whether there needs to be further synchronization of efforts to improve those processes. First, we examine extant processes relevant to allied interdependencies.

PPBE Interdependencies with Allies

Other than the multinational co-development of new capabilities, the FMS program, predominantly from the United States to other nations, is an important mechanism for capability convergence and interoperability among allied defense organizations. However, exports of military equipment or technology involve challenges in coordination, approvals, and resource planning.³⁰ For instance, allied use of the FMS system typically depends on (and therefore lags) DoD's PPBE processes. This means that partner nations are less able to act independently and with flexibility.

Exchange rate volatility poses an additional challenge for FMS and may necessitate such mitigations as foreign exchange hedging. For example, the UK Ministry of Defence (MOD) suffered from a series of shocks to the value of the pound in the wake of the Brexit vote in 2016 and subsequent leadership turnover into the early 2020s. These events added pressure to UK purchases of U.S. military equipment denominated in dollars.

Aligning the PPBE processes of various countries is further complicated by the fact that those processes differ, which makes coordination and joint procurement activities more complex. Moreover, national approaches are not static; they evolve in response to changing conditions and policy objectives. The AUKUS nations face such common challenges as keeping pace with new threats, executing longer-term plans alongside mitigating near-term shocks and pressures, and ensuring sufficient oversight of resources without stifling risk-taking and innovation.³¹ The two U.S. allies considered here—the UK and Australia—benefit from having less legislative intervention in their defense budgeting processes relative to those of the United States, but both countries are seeking to improve the effectiveness of their respective PPBE-like processes. All three nations are seeking to introduce reforms to enable innovation and the faster fielding of disruptive new capabilities.³²

With shared interests in dealing with evolving strategic threats, such as the Chinese threat to Taiwan and the Indo-Pacific region or the Russian threat to Ukraine and the North Atlantic Treaty Organization (NATO), these allied nations will need to cooperate more closely in their resource planning and management to effectively respond to such threats. Ultimately, investment and management of

defense resources is what turns words on the importance of cooperation into concrete actions to deliver joint capability programs. Toward that end, we review key aspects of each nation's existing PPBE-like processes, highlighting collaborative practices as a foundation on which to build further cooperation.

United States

DoD's PPBE System is an annual process in which DoD aligns strategy to programs and resources. PPBE provides inputs to the President's Budget and to a five-year time horizon budgeting program called the Future Years Defense Program (FYDP).³³ The goal of the PPBE process is "to provide the DoD with the most effective mix of forces, equipment, manpower, and support attainable within fiscal constraints."³⁴ PPBE consists of four distinct processes, each with its own outputs and stakeholders:

- **Planning:** "[I]ntegrate assessments of potential military threats facing the country, overall national strategy and defense policy, ongoing defense plans and programs, and projected financial resources into an overall statement of policy."³⁵
- **Programming:** "[A]nalyze the anticipated effects of present-day decisions on the future force" and detail the specific forces and programs proposed over the FYDP period to meet the military requirements identified in the plans and within the financial limits.³⁶
- **Budgeting:** "[E]nsure appropriate funding and fiscal controls, phasing of the efforts over the funding period, and feasibility of execution within the budget year"; restructure budget categories for

submission to Congress according to the appropriation accounts; and prepare justification material for submission to Congress.³⁷

- **Execution:** “[D]etermine how well programs and financing have met joint warfighting needs.”³⁸

Stakeholders across DoD (e.g., the Office of the Secretary of Defense, military departments, Joint Staff, combatant commands), the executive branch, Congress, and industry partners interact with each other in the course of PPBE. Congress plays a critical role by providing budget authority to DoD through specific appropriations titles (e.g., operations and maintenance [O&M]; military personnel; research, development, test, and evaluation [RDT&E]; and procurement).³⁹ These appropriations titles are broken down into *appropriation accounts*. The budget authority provided in these accounts is generally available for obligation only within a specified period (e.g., military personnel and O&M accounts are for one year, RDT&E is

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for two years, and most procurement funding is for three years with some exceptions). Budget authority must be obligated within those periods, or with only a few exceptions, the funds are sent back to the U.S. Department of the Treasury.⁴⁰

DoD’s PPBE System (initially called the Planning, Programming, and Budgeting System) has been in existence since the 1960s, and in 2024, the Commission on PPBE Reform concluded that updates are needed to DoD’s PPBE processes. Most notably, the commission stated that

a new approach to the defense resourcing process is required to better maintain the security of the American people. The Department of Defense (DoD) needs a new process, one that enables strategy to drive resource allocation in a more rigorous, joint, and analytically informed way. The new process should also embrace changes that enable DoD to respond effectively to emerging threats while leveraging technological advances.⁴¹

DoD PPBE processes should support U.S. strategic objectives to develop, combine, and coordinate the U.S. military’s strengths to maximum effect, using every tool of national power in close collaboration with allies and partners.⁴² This aspiration requires early and continuous engagement with allies in planning and in making the right technology investments.⁴³

Overall U.S. priorities for allied collaboration are outlined in DoD’s Guidance for Development of Alliances and Partnerships, which informs defense planning, resourcing, and assessments in general terms.⁴⁴ In contrast, the specific requirements for meeting the objectives of the NDS are determined through the Joint Capabilities Integration and Development System (JCIDS), which

accounts for allies in its Joint Interoperability section.⁴⁵ However, JCIDS has been criticized for considering allied interoperability too late in the process, treating allied requirements as complications rather than as opportunities, and excluding allied participation from all six acquisition pathways.⁴⁶ In Section 811 of the NDAA for Fiscal Year 2024, Congress has instructed DoD to come up with a plan to modernize JCIDS.⁴⁷

DoD guidance and acquisition policies direct program managers to consider strategies that leverage international acquisitions—with the aims of improving economies of scale, strengthening the defense industrial base, and enhancing coalition partner capabilities.⁴⁸ This approach is consistent with the U.S. Air Force’s concept of integrated by design, which asserts that early cooperation based on mutual trust and common capability goals will enable a stronger interoperable force.⁴⁹ Taking such an approach under AUKUS Pillar II, which focuses on jointly developing advanced capabilities for the three countries, could help overcome limitations that have been experienced even in cooperative programs, such as the F-35 Joint Strike Fighter.⁵⁰

In general, U.S. priorities and policies suggest that DoD PPBE processes are intended to account for the capabilities of allies and partners throughout the capability life cycle. At the front end, the Joint Staff conducts net assessments of U.S. *and* allied capabilities. The Office of the Under Secretary of Defense for Research and Engineering then develops roadmaps that include allies and prospective partners in research and engineering. Likewise, the Office of the Under Secretary of Defense for Acquisition and Sustainment develops and maintains acquisition roadmaps in close coordination with allies.⁵¹

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United Kingdom

For its part, the MOD begins its PPBE-like process with the Defence Command Paper, which aligns the MOD’s priorities with a broader cross-governmental review—called the Integrated Review of Security, Defence, Development and Foreign Policy—which is published by the Prime Minister’s Cabinet Office.⁵² The MOD then develops subordinate departmental and command strategies and plans. It also publishes a yearly *Defence Equipment Plan* with a ten-year estimate of procurement priorities and costs, sending demand signals to both domestic and international industry for acquisition and investment in research and development (R&D). Each year, parliament approves the resources needed to achieve these long-term priorities, without the budget turbulence from government shutdowns and the annual restrictions inherent within continuing resolutions that affect all U.S. federal agencies.

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To identify which capabilities must be fully sovereign and which can draw on foreign sources, the MOD uses an *own-collaborate-access* framework, as defined in the UK's Defence and Security Industrial Strategy. Using this framework, the MOD decides when it needs to *own* critical sovereign capability through UK-only programs; when it can *collaborate* through joint programs with allies and partners to spread costs and risks while achieving economies of scale for production, exports, and life-cycle support; and when it can simply *access* certain capabilities from the open market by buying off-the-shelf goods and services.⁵³

The MOD currently lacks the fiscal resources to train and equip large-scale forces while also delivering on its global commitments (e.g., to protect UK overseas territories) and its ambition to fight on “day one” of any conflict involving the United States or NATO. Therefore, the MOD has long chosen to focus on quality over quantity and look to interoperability and a network of alliances to provide

additional mass and global reach.⁵⁴ Examples of UK participation in cooperative acquisition networks and programs (and date established) include the following:

- the Organisation for Joint Armament Cooperation, involving Belgium, France, Germany, Italy, Spain, and the UK (1996)
- the Lancaster House treaties, notably on missile development, with France (2010)
- the F-35 Joint Strike Fighter, for which the UK is the United States' sole Tier 1 partner, responsible for manufacturing about 15 percent of the aircraft (1995)
- the Global Combat Air Program with Italy and Japan (2022)
- the European A400M airlifter program (2010)
- the AUKUS partnership, including joint nuclear submarine acquisition with Australia (2021).⁵⁵

Key to resource planning in the MOD is the interaction between top-level budget (TLB) holders (broadly similar to U.S. military departments) and the higher-level requirements set centrally by Head Office (the strategic headquarters of the MOD). The UK's Joint Requirements Oversight Committee, which is chaired by the Vice Chief of Defence Staff, reconciles the top-level budget priorities with the overall portfolio requirements, while the Investment Approvals Committee (IAC) acts on behalf of the Defence Board as the senior body in the MOD responsible for decisions on major investment proposals. The IAC sets and enforces the policy and guidance for all investment and disinvestment decisions, including where decisions are delegated.⁵⁶ This work is then supported by various central teams, most notably the Financial and Military Capability team, as well as TLB-level entities.

Australia

The planning processes within Australia's Department of Defence (hereafter referred to as *Defence*) revolve around its One Defence Capability System, which provides a structure for aligning strategic priorities with capability requirements and resource allocations. Overseeing this integrated force design process is an Investment Committee chaired by the Australian Vice Chief of the Defence Force. This committee "exercises strategic control over the investment portfolio,"⁵⁷ wielding centralized decisionmaking authority over future defense investments.

Australian PPBE-like processes are undergoing a significant shift, from an era that emphasized deliberate processes and efficiency to one that demands agility, capability outcomes, and scheduled performance. The processes are also shifting in pursuit of asymmetric advantage, with a greater emphasis on dissimilar capabilities and tactics and on the cooperative development of advanced capabilities.⁵⁸ This call for asymmetric advantage, combined with an erosion of strategic warning time, demands a careful balance between the need for advantage (necessitating developmental acquisitions in the long term) and the need for achievable programs (favoring off-the-shelf procurements in the short term). Defence's leadership acknowledges that acquiring and sustaining increasingly complex weapons at the speed of evolving threats will be very challenging.⁵⁹ This situation could also produce occasional tension between allied and sovereign objectives—although these challenges would be best addressed through close engagement with allies.

Such engagement is evidenced by the bilateral Australia-United States Ministerial Consultations (AUSMIN), which have been held since 1985 for the

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two countries to share awareness of defense programs. Since 1998, a subordinate AUSMIN Defence Acquisition Committee (ADAC) has also met.⁶⁰ ADAC facilitates engagement on capability plans, especially on programs of common interest. Australia and the UK hold similar meetings under the Australia-UK Ministerial Consultations (AUKMIN).

In February 2024, Australia released a strategy that updated policies to develop the industrial base needed to support national defense. This strategy identified potential requirements for joint capability development with trusted partners and sought to set conditions to facilitate co-development, co-production, and co-sustainment opportunities, especially with AUKUS partners.⁶¹

Resource Synchronization for Integrated Deterrence

The PPBE-like processes of each AUKUS partner are used to prioritize resource allocations throughout the capability life cycle. Together, these three countries could better synchronize their resource allocation processes by coordinating activities at key points along the way, from strategy through implementation. Such an approach would be consistent with the NDS's call to incorporate U.S. allies and partners at each stage of DoD's defense planning.⁶²

Strategy, requirements, development, acquisition, and sustainment are all connected to PPBE-like processes associated with defense planning and resource management. Therefore, we discuss the prospects for enhanced AUKUS partner engagement at each of the five stages of the capability life cycle: strategy formulation, requirements determination, technology development, system acquisition, and system sustainment. We also suggest the broader coordination of national defense production bases and their associated innovation ecosystems.

Strategy Formulation

Common to all ten of RAND's case studies of international defense organizations in support of PPBE reform is the fact that resource plans are designed to advance strategic objectives consistent with a *nation's* grand and military strategies. Improving the consistency and coherence of strategy across allies would lay a foundation for improved coordination and effectiveness throughout the PPBE process and enable the United States, the UK, and Australia to maximize the strategic advantage that they each derive

from their alliances.⁶³ Equally, the three nations have mutual security interests, yet these interests build on the state-centric focus of a realist reading of international politics.⁶⁴ Ultimately, each nation will seek sovereign rights to exercise supreme, independent authority over its country.⁶⁵ Thus, strategy development will and should remain a national endeavor, and the national defense strategy of each AUKUS nation should reflect that other partners have been consulted but not involved in grand strategy formulation.

To appreciate the argument for deeper cooperation in strategy formulation and alignment, it is helpful to consider the basis for alliances. Whereas ideological solidarity—in favor of, say, democratic institutions and principles—creates strategic alignment among allies, there remains the prospect that allies will diverge on some aspects of strategy, and thwarting a common threat could be a more compelling rationale for an alliance.⁶⁶ Koster and Barzashka point to NATO prospects for collective strategic analysis, relying on net assessments to build consensus on threats, trends, and the need for allied strategic development despite political differences.⁶⁷ Similarly, despite limits of the AUKUS partners to align *grand* strategies, there is the prospect that coordinated net assessments related to *specific* common threats and interests could enhance each partner's PPBE effectiveness. Such coordination in planning would inform requirements and identify joint requirements, thus leading to resource allocation by the partners that should optimize complementarity and integrated capability.

Such underpinning net assessment activities would analyze strengths and weaknesses associated with potential conflict scenarios, thereby identifying opportunities, gaps, and priorities to inform the allies' resource plans.

This approach would be consistent with Australia's 2023 identification of the importance of net assessment,⁶⁸ as well as the UK's establishment of the Secretary of State's Office for Net Assessment and Challenge within the MOD, both of which were inspired by the principles of DoD's Office of Net Assessment. All three nations understand that deeper allied coordination of net assessments would strengthen their development of shared strategic approaches, force development priorities, and integrated deterrence force structures. There is similarly an opportunity for deepening collaboration in other activities supporting strategy formulation, such as wargaming or modeling and simulation.

Requirements Determination

The requirements determination process is a central PPBE activity and, thus, an opportunity to synchronize plans and programs across allies. DoD's Joint Requirements Oversight Council (JROC) brings together key DoD authorities to align capability decisions;⁶⁹ coordinate policy, budgeting, acquisition, and requirements; and, thus, facilitate capability integration.⁷⁰ This process engages U.S. military services and other stakeholders responsible for portfolios of resource requirements, acquisitions, and R&D. The JROC has a central role to play in PPBE process reform because its representatives are pivotal to upholding the three "legs of the stool": requirements, acquisition, and budget.⁷¹

The establishment of the I-JROC in 2023 expanded DoD requirements coordination to the AUKUS partners. Operating on a six-month cycle, the I-JROC includes the UK and Australian Vice Chiefs of Defence, who oversee their respective requirements processes. Whereas requirements harmonization has been a standing objective of

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bilateral relations between allies for many years, the I-JROC represents a substantially increased commitment to coordination and elevates it to a multilateral rather than bilateral endeavor. And while the establishment of the I-JROC coincided with the establishment of AUKUS and will help guide its Pillar II efforts, the mandate of the I-JROC is broader than AUKUS and incorporates a range of capability programs.

The U.S. participants in the I-JROC are similar to those who participate in the JROC; hence, I-JROC decisions about international cooperative programs should be reflected in DoD's PPBE System. Given these overlaps—along with the relationships between capability requirements, capability investments, and alliance effectiveness—the I-JROC should exert primacy across allied planning and programming activities. The primary benefit of the I-JROC is to focus technology development on the most required capabilities, cognizant of evolving threats.

A key aspect of spurring cooperative technology development under AUKUS Pillar II is the involvement and inclusion of private industry, unlike traditional technology cooperation programs between partners.

Even for capabilities in which the I-JROC might assume a level of commonality across allies, national requirements can still diverge, as can national resource capacities and the preferred national balances between stability and agility. Divergences in national priorities will need to be accounted for in requirements determination. Allied engagements on requirements should identify where national force designs are dissimilar and, thus, where allies might have different but complementary requirements.

As an extension of the U.S. requirements system, there is a risk that the I-JROC could be seen to be U.S.-centric given that the JROC and subordinate boards and working groups contribute to agenda setting and informing decisions about allied requirements. Although allied

input to requirements could be facilitated through the subordinate mechanisms, the extent of such influence is not clear. A key measure of success of the I-JROC will be its ability to manage the common and diverging interests of AUKUS partners.

Technology Development

One benefit of cooperative technology development is to optimize productivity across similar or complementary elements of an integrated industrial base and innovation ecosystem, thereby reducing duplicative efforts of partners. In practice, optimization means moving beyond traditional *juste retour* approaches to multinational programs—whereby industrial workshare is determined largely by how much each nation’s government contributes financially to a program (reflecting a desire to maintain jobs and other prosperity benefits)—in favor of something more akin to a “best athlete” approach of focusing on who can deliver the best value for the money in terms of capability and price. Here, political, economic, and military considerations must all be carefully weighed, and a level of mutual (if varying) dependence must be accepted by all AUKUS partners if they are to overcome barriers to more-efficient uses of shared financial, technological, and industrial resources.

A key aspect of spurring cooperative technology development under AUKUS Pillar II is the involvement and inclusion of private industry, unlike traditional technology cooperation programs between partners. This private-sector aspect is evident in the announced programs of Pillar II, such as its Innovation Challenge series, its industry forum and industrial base collaboration, and its creation of a defense investors network.⁷²

Strategic divergences can undermine collaborative technology development by causing partners to prioritize investments and design factors in various ways. For example, while the AUKUS nations are committed to deterring aggression by the same actor in the Indo-Pacific, their different strategic requirements and priorities could affect how they value specific design factors of proposed capabilities. More fundamentally, different force structures, force projection and protection capacities, and operational maneuver concepts (especially the use of carrier groups) are likely to lead to variations in priorities for cooperative programs. Without the effective integration of strategic priorities and industrial resources, the resultant development efforts could be pulled in various directions, potentially delivering compromised capabilities that would fail to meet the specific requirements of any of the partners.

Cooperative technology development can come in many forms.⁷³ A program could involve multiple nations leading different aspects of development or a single nation undertaking the entire activity. Although the aforementioned changes in ITAR should help facilitate collaborative developments under AUKUS Pillar II, each technology development will depend on its context, including where the relevant expertise is located and the value of collaboration.

There are four significant barriers to technology cooperation. First, Section 1343 of the 2024 NDAA requires that, before ITAR exemptions can be granted under AUKUS, Congress must be satisfied that Australia and the UK have implemented comparable controls to protect technology. Second, even if the President grants ITAR exemptions, information-sharing could still be impeded by risk aversion and the “restrictive conglomeration of regulations” associated with national disclosure

policies.⁷⁴ Recent RAND research on cooperation in the space domain, for example, has found that cultural factors and DoD officials’ risk-averse interpretation of guidelines are often more a barrier than the actual written rules on information-sharing with allies and partners.⁷⁵ Third, because technology cooperation depends on assessments that information-sharing is in their mutual national interest, the AUKUS partners must agree on the objectives, risks, and constraints of information-sharing as guidelines for their respective national disclosure policies. Fourth, there needs to be an equitable approach to intellectual property, including the ability for partners that contribute to development to take advantage of the associated technologies as they mature.

System Acquisition

The demand for agile acquisition is generating pressure to push capabilities into operational service more rapidly than before, seeking to achieve speed to capability by moving the boundary between technology development and system acquisition further toward the left on the acquisition timeline. Moreover, AUKUS nations have separate approval and appropriations processes that set this moving boundary.

Regardless of the processes on either side of this boundary, the AUKUS partners would benefit from engaging on capabilities of common interest. Such engagement could come in the form of formal cooperative programs in which the partners would be involved in project decisions—representing a shift in their role from that of customers to that of genuine partners. Cooperative programs would allow for deeper consideration of allied interoperability concerns but could also involve addi-

A key focus for cooperative project arrangements in the current strategic environment will be *speed to capability*.

tional costs compared with FMS or direct commercial sale acquisitions.

Whether a project should progress as a single-nation activity (with partners subsequently engaged through an FMS process) or as a cooperative partnership will depend on the nature of the capability and the value of including partner stakeholders. A separate analysis of the factors, costs, and advantages of differing levels of allied participation, including the implications for PPBE-like processes, could help in establishing a consistent approach to initiating cooperative projects. This is especially important when thinking also about how to implement agile acquisition and contracting approaches, such as spiral development or development security operations, in a multinational context without creating a tension between the desire for speed and the need to align a greater number of stakeholders and their respective PPBE-like processes.

A consistent, workable approach could build on national approaches to setting up acquisition projects for

success. For instance, the evolving Australian approach is to determine achievable programs based on strategy, relationships, and requirements.⁷⁶ Australia is prioritizing affordability and achievability of defense programs through a minimum viable capability approach, whereas the UK is similarly shifting to acquisitions that field a minimum deployable capability that is subsequently managed through spiral developments.⁷⁷

A key focus for cooperative project arrangements in the current strategic environment will be *speed to capability*. Setting up arrangements on a project-by-project basis will not achieve this speed; hence, establishing a framework for cooperative projects is critical to the success of the AUKUS partnership. This framework should enable the timely transition of projects that seek to exploit the advantages of co-development, co-production, and co-sustainment, and it must address workable solutions to manage intellectual property. Such a framework and the potential establishment of cooperative programs should be reflected in engagements with each nation's PPBE-like processes.

System Sustainment

Although much of the focus of resource planning is on acquisition, the conventional wisdom is that defense capabilities can involve roughly a 70:30 cost ratio of sustainment (i.e., operations and support) to acquisition.⁷⁸ Sustainment is highly relevant to allied cooperation because local support can reduce costs and increase the availability of capabilities deployed overseas. The regional sustainment framework implemented by DoD calls for the increased use of overseas maintenance, repair, and overhaul, including by allies and partners.⁷⁹ This framework

has significant implications not just for the readiness of forces but also for partner PPBE-like processes.

Regional sustainment would enable such operational concepts as Agile Combat Employment, which envisions allies providing support to U.S. forces' sustainment activities and contingency plans.⁸⁰ Sustainment would, of course, be improved by an increased commonality and interchangeability of allied systems. But clearly, the planning, budgeting, and execution of cooperative sustainment arrangements would require allied engagement.

Other operations and support activities under AUKUS have further implications for PPBE-like processes. These activities include personnel exchanges, force posture initiatives, training, and the forward storage of supplies. Such activities are managed through a variety of mechanisms, primarily FMS cases. In many cases when services are provided by DoD to U.S. allies and partners, FMS could remain the best approach. However, the potential for enabling allies and partners to provide more services through integrated mechanisms should be reflected in coordinated U.S. and allied PPBE processes to ensure that these activities are aligned with requirements and help streamline how they are appropriated, approved, and managed.

Defense Production Base Coordination

Defense cooperation between Australia, the UK, and the United States extends to their defense production bases. Concurrent with the AUKUS agreement and consistent with the imperative for a global approach to defense industrial relationships, Australia and the UK are now considered “domestic sources” of the U.S. defense industrial base in the context of the Defense Production

Act⁸¹—a special status that Canada has held since 1956, thanks to the Defense Production Sharing Agreement, which was meant “to reduce barriers and create an even playing field for U.S. and Canadian defense industry stakeholders. What has developed is an integrated supply chain in defense of North America that supports shared defense and security objectives.”⁸² Similarly, Australia’s *Defence Industry Development Strategy* highlights the importance of industry cooperation between these trusted partners.

As designated domestic sources for the purposes of the Defense Production Act, Australia and the UK should consider (1) lessons from Canada regarding how this policy can contribute to enhanced capability outcomes and (2) lessons from the 2016 inclusion of Australia and the UK in the NTIB. It is worth noting that NTIB inclusion has *not*

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resulted in any appreciable changes in industrial activity in either Australia or the UK—despite the barriers and potential mitigations being known at the time.⁸³

Adding the AUKUS partners to the U.S. defense production base not only facilitates their acquisition and sustainment activities but also, more importantly, allows the entire allied defense industrial base to scale production more rapidly to fill materiel gaps during times of conflict.⁸⁴ The incorporation of allied industries obviously expands the production base, but it is also likely that any significant military conflict would involve these allies as well, meaning that all three nations would experience heightened demand all at once. Thus, there is a fundamental need to fill the gap between production capacities and the surged requirements during conflict.

A critical area for further engagement among allies relates to how production surges can be accommodated, how any “slack” capacity can be paid for during peacetime and reduced demand, and how the costs can be shared fairly. Such engagement should also address joint contingency plans for production and the prioritization of integrated industrial arrangements.

Observations

RAND’s analyses for the Commission on PPBE Reform have particular salience for the 2021 commitments to integrated deterrence of Australia, the UK, and the United States through the AUKUS agreement. Closer defense cooperation and collaboration among the three nations will deepen their defense interdependencies, with implications for their defense PPBE processes. This closer relationship will have especially relevant implications for sharing technologies that can support advanced, integrated capabilities. We note seven specific observations below:

1. There is clear value in developing a consistent set of shared assumptions and assessments on which common strategic priorities can be based. Although there are sovereign limits to cooperation in strategy formulation, strategic planning by the AUKUS partners could be enhanced through the deliberate alignment of shared net assessments, horizon scans, wargames, and modeling activities to inform common strategic priorities.

2. The I-JROC appears to be a suitable central coordinating mechanism for guiding allied aspects of resource planning, although it remains to be seen whether the council's implementation will deliver on its initial promise. The success of the I-JROC will depend, in part, on the extent to which the broader PPBE-like processes within the three countries modernize along compatible lines, as well as the I-JROC's ability to manage common and divergent requirements of the partner nations. Success might also depend on the extent to which DoD considers the I-JROC as part of its larger effort to modernize the requirements process.
3. As a potential extension of this coordinated planning of requirements, growing technological cooperation between AUKUS partners could have implications for PPBE-like processes. Such cooperation should account for (a) the intent of technology sharing for specific programs, (b) constraints on such sharing and divergence of priorities, and (c) commitments to navigate through legal and other barriers to such sharing. An appropriate balance of the benefits of integration and information-sharing with the safeguards for protection of technological advantage will require context-oriented analysis, clear signals from senior leadership, and PPBE processes that reflect associated investment in technology development.
4. Extant bilateral and multilateral arrangements between the AUKUS partners provide transparency and some synchronization of acquisition programs of common interest.
5. Although cooperative programs can be governed, managed, and executed in many ways, there is value in developing a *consistent* approach to establish such programs in a timely manner to ensure that they can achieve advantage against the pace of threats. A consistent approach for establishing cooperative programs might account for the key factors, value, and costs of such cooperation. Depending on context, a partner nation's role could range from a key stakeholder in a cooperative program to a potential customer under FMS.
6. Emerging initiatives for regional sustainment and other cooperative activities will involve planning and allocation of defense resources to support partner nations and, thus, have implications for the potential coordination of national PPBE-like processes.
7. In each country, integrating defense production with the industrial and skills base can generate immense value but also substantial costs and risks. This integration highlights the importance of joint contingency plans and priorities to meet the surge requirements of production *demand* in times of conflict. Integration of defense production could also flag a need for mechanisms to ensure the security of *supply* for the partner nations amid the growing interdependence of their previously sovereign industrial bases.

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¹³ Roulo, “Alliances vs. Partnerships.”

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¹⁸ Corben, “AUKUS: A Year On: What to Make of AUKUS After 365 Days?” p. 13.

¹⁹ Australian Department of Defence, “The Technical Cooperation Program.”

²⁰ Public Law 118-31, National Defense Authorization Act for Fiscal Year 2024; Conroy, “US Congress Progresses AUKUS.”

²¹ From a cyber perspective, such increased sharing represents an increased attack surface for competitors such as China and Russia to target.

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²⁶ Bazin and Kunertova, “An Alliance Divided? Five Factors That Could Fracture NATO.”

²⁷ Grady, “Joint Chiefs of Staff Vice Chair on Military Modernization.”

²⁸ Grady, “Sharpening Our Competitive Edge,” p. 20.

²⁹ Grady, “Sharpening Our Competitive Edge,” p. 20.

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- ³⁴ Department of Defense Directive (DoDD) 7045.14, *The Planning, Programming, Budgeting, and Execution (PPBE) Process*, p. 2.
- ³⁵ Congressional Research Service, *A Defense Budget Primer*, p. 27.
- ³⁶ Congressional Research Service, *A Defense Budget Primer*, p. 27; McGarry, *Defense Primer: Planning, Programming, Budgeting and Execution (PPBE) Process*, p. 2.
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- ⁴⁹ Brown, “Global Air Chiefs Conference Keynote—As Delivered by the Air Force Chief of Staff.”
- ⁵⁰ Christianson, Monaghan, and Cooke, *AUKUS Pillar Two*.
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- ⁵³ MOD, *Defence and Security Industrial Strategy*.
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- ⁵⁵ Further details are available in Mills and Brooke-Holland, *UK-French Defence Cooperation*, and MOD, “£4 Billion UK Contracts Progresses AUKUS Submarine Design.”
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- ⁵⁸ Australian Department of Defence, *National Defence: Defence Strategic Review*, pp. 71–72.
- ⁵⁹ Deeble, “Acquiring and Sustaining Capability.”
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About This Paper

This paper addresses the implications of stronger allied cooperation for the reform of both the U.S. Department of Defense's Planning, Programming, Budgeting, and Execution (PPBE) processes and the comparative processes of U.S. allies and partners, particularly the members of the Australia–United Kingdom–United States (AUKUS) security partnership.

This paper should be of interest to those concerned with the improvement of defense-related PPBE processes and the AUKUS agreement. The intended audience is mostly government officials responsible for such processes and industry partners with whom they engage.

The research reported here was completed in August 2023 and underwent security review with the sponsor and the Defense Office of Pre-publication and Security Review before public release.

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