February 2025

Secretary
Joint Standing Committee on Foreign Affairs, Defence and Trade

Inquiry into the Department of Defence Annual Report 2023–24

Please consider our submission to the Joint Standing Committee on Foreign Affairs, Defence and Trade's inquiry into the Department of Defence Annual Report 2023–24 (hereafter 'the Committee' and 'the DAR 2023–24', respectively).

In line with the Australian Strategic Policy Institute's (ASPI) Charter, this submission represents the personal views of the individual authors and not ASPI's institutional position.

Our submission addresses the following topics of interest to the Committee:

- Sovereign Defence Industrial Priorities
- Defence estate, security and resilience
- AUKUS
- Uncrewed/autonomous systems, Artificial Intelligence and their integration into the Joint Force
- Progress on the transformation to an integrated focused force
- Australian international defence cooperation and competition.

Sovereign Defence Industrial Priorities

Industry plays a vital role in delivering capability at the speed needed to meet the strategic level threats to Australia's interests and national defence. In a review in the DAR 2023–24, Secretary of the Department of Defence Greg Moriarty highlighted that a 'stronger partnership with industry is necessary for Defence to develop the higher levels of military preparedness'.[1]

Defence has analysed the need for Sovereign Defence Industrial Priorities (SDIPs) to ensure successful industrial prioritisation and has identified seven (7) SDIPs. The SDIPs are:

i. Maintenance, repair, overhaul and upgrade (MRO&U) of Australian Defence Force aircraft.
ii. Continuous naval shipbuilding and sustainment.
iii. Sustainment and enhancement of the combined-arms land system.
iv. Domestic manufacture of guided weapons, explosive ordnance and munitions.

[1] Department of Defence, *Defence annual report 2023–24*, Australian government, 2023, 3, 4, https://www.defence.gov.au/about/accessing-information/annual-reports.

v. Development and integration of autonomous systems.
vi. Integration and enhancement of battlespace awareness and management systems.
vii. Test and evaluation, certification and systems assurance.

This submission cannot address all the SDIPs due to restrictions of time and space. Instead, it is focused on reporting of government contributions to strengthening Australia's growing sovereign defence industry via Guided Weapons and Explosive Ordnance (GWEO) and Advanced Strategic Capabilities Accelerator (ASCA) initiatives.

Government funding for local companies to develop critical Defence capabilities

The 2024 Defence Industry Development Strategy (DIDS) provides the foundation of this partnership, establishing a principled framework for a 'capable, resilient, competitive and innovative' Australian defence industrial base structured around the continual refinement of Defence capability priorities through consultation with defence industry players.[2] This more proactive approach should create opportunities for 'Tier 3' businesses—those that provide the parts, consumables and services needed to enable the initial assembly, upgrade or ongoing operation of systems—to develop into 'Tier 2' businesses that deliver major equipment, systems, assemblies and services realising specific functions. Success in this, however, depends first and foremost on the ability of 'Tier 1' primes to demonstrate industrial competence.[3]

The release of the 2024 GWEO plan is a milestone in terms of SDIP advancement. The GWEO plan promises to integrate more Australian defence industry players into global supply chains by 2029 and commits $60 million in research and development investments to the growing domestic industrial base over the next five years.[4] This investment is intended to enable Australian companies to manufacture 5 out of 10 GWEO components by the end of the decade; the current industrial base is only capable of manufacturing structures and actuators independently and warheads and rocket motors with support.[5]

On key activity 7 to advance Australia's prosperity, Defence has made positive progress in integrating more Australian businesses in national and international supply chains for capability and services. The DAR 2023–24 records substantial increases in government capability-related expenditure on local businesses contracted to GWEO Group (14%), Capability Acquisition and

[2] Department of Defence, *Defence industry development strategy*, Australian government, 2024, 4, https://www.defence.gov.au/about/strategic-planning/defence-industry-development-strategy.
[3] Malcolm Davis and Marcus Schultz, 'Australia's guided weapons program needs to get moving', *The Strategist*, 12 November 2024, https://www.aspistrategist.org.au/is-gweo-on-target/.
[4] Department of Defence, *The Australian guided weapons and explosive ordnance plan*, Australian government, 2024, 57, https://www.defence.gov.au/about/strategic-planning/australian-guided-weapons-explosive-ordnance-plan.
[5] Department of Defence, *The Australian guided weapons and explosive ordnance plan*, 57.

Sustainment Group (10.3%) and Naval Shipbuilding and Sustainment Group (13.2%).[6] There is an opportunity for Table 7.1b in future DARs to break down the aggregate figures according to each 'tier' of a defence industrial base. This minor amendment would better reflect Australia's current and future ecosystem of businesses, each with different industrial capabilities.

There is also the opportunity for future DARs to track government capability-related expenditure on local businesses which have contracts with ASCA as a separate Target 7.1b line item. This change makes sense given ASCA is moving to a new phase of capability delivery and will transition into the Vice Chief of the Defence Force Group.[7] Doing so will ensure tracking of government investment in local innovators at the forefront of Australia's growing sovereign industrial base. This can include businesses like the two Canberra companies Advanced Design Technology and Penten which have entered into contracts with ASCA worth more than $8 million to develop electronic warfare technology for all three AUKUS militaries, following successful participation in the first AUKUS Innovation Challenge.[8] This expenditure, if it is to be included in 'Rest of Defence' expenditure under the current reporting function, could be made discrete to capture how the government is partnering with Australian industry to deliver advanced capabilities to the ADF.

We make the following **recommendations for Australia's approach to the SDIPs**:

1. *Align the reporting of Defence's 'contributions to strengthening sovereign defence industry' with the 'tiered' ecosystem of businesses set out in the DIDS. This will allow Defence to better track and identify expenditure gaps in future DARs.*
2. *Include a separate Target 7.1b line item in future DARs to capture government capability-related expenditure on local companies awarded contracts with ASCA. This will ensure tracking of investment growth in local innovators at the forefront of Australia's growing sovereign industrial base.*

Defence estate, security and resilience

The Defence estate must be secure and resilient during times of competition and conflict and protected against asymmetric threats. This is essential to ensure Australia's critical capabilities and infrastructure remain effective when they are most needed. As the DSR makes clear, the Australian government 'cannot afford to lose sight of the importance of foundational estate and infrastructure for Defence'.[9]

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[6] Department of Defence, *Defence annual report 2023–24*, Target 7.1b: contribution to strengthening sovereign defence industry.
[7] Richard Marles and Pat Conroy, 'New head of ASCA appointed', *Department of Defence*, 11 February 2025, https://www.minister.defence.gov.au/media-releases/2025-02-11/new-head-asca-appointed.
[8] Pat Conroy, 'Albanese Government backs future made in Australia with funding for local companies to develop critical Defence capabilities', *Department of Defence*, 6 February 2025, https://www.minister.defence.gov.au/media-releases/2025-02-06/albanese-government-backs-future-made-australia-funding-local-companies-develop-critical-defence-capabilities.
[9] Department of Defence, *2023 National defence: defence strategic review*, Australian government, April 2023, 83, https://www.defence.gov.au/about/reviews-inquiries/defence-strategic-review.

The Defence estate and building portfolio contains approximately 3.87 million hectares of land across Australia with a net value of approximately $38.2 billion. It is a complex portfolio with a diverse range of assets that has evolved incrementally reflecting Australia's changing strategic circumstances and sunk costs rather than being the result of a comprehensive, integrated plan.

The Defence estate is essential for raising, training and sustaining ADF capability. A resilient Defence estate can withstand, adapt to and recover from disruptions, enabling Defence to support operations, respond to crises, project force and maintain strategic advantage and operational readiness. It is a core component of Australia's strategic posture and the ADF's capacity to defend Australia, deter adversaries, safeguard economic connections, contribute to Indo-Pacific security and uphold the global rules-based order.[10]

In addition to specific investment initiatives underpinning new sea, land and air capability projects, the Defence estate's priority areas in the 2023–24 reporting period focused on improving the ADF's ability to operate from Australia's northern network of defence bases, ports and barracks.[11] These priority areas reflect Australia's worsening strategic circumstances and diminished strategic warning time.[12] However, this urgency and the need for the Defence estate to respond were not reflected in the DAR 2023–24.

Progress on the Security and Estate Portfolio Budget Program to protect and advance Australia's strategic interests is measured against the provision of strategic policy, the development, delivery and sustainment of military, intelligence and enabling capabilities and the promotion of regional and global security and stability. On key activity 6 to deliver future capability, Defence is delivering the right capability at the right time within the Integrated Investment Program (IIP) to ensure it is equipped to respond to future security challenges.[13] It was grouped with 13 other Portfolio Budget Programs, with success measured by 'achieving 80% of approved IIP projects by domain within the government-approved schedule'.[14] Yet, despite the critical role of the estate in ADF capability and the distinct nature of infrastructure-related projects (sustainment and new builds) compared to the other 13 categories, it is unclear how this aligns with the objective of improving the ADF's ability to operate from Australia's north.

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[10] Richard Marles, 'Launch of the national defence strategy and integrated investment program', *Department of Defence*, 17 April 2024, https://www.minister.defence.gov.au/speeches/2024-04-17/launch-national-defence-strategy-and-integrated-investment-program.
[11] Department of Defence, *Defence annual report 2023–24*, 91.
[12] Department of Defence, *2023 National defence: defence strategic review*, 5.
[13] Department of Defence, *Defence annual report 2023–24*, 44.
[14] These programs include: 2.2 Defence executive support, 2.3 Defence finance, 2.4 Joint capabilities, 2.5 Navy capabilities, 2.6 Army capabilities, 2.7 Air Force capabilities, 2.8 ADF Headquarters, 2.9 Capability acquisition and sustainment, 2.11 Defence digital, 2.13 Defence science and technology, 2.14 Defence intelligence, 2.15 Naval shipbuilding and sustainment, and 2.16 Nuclear-powered submarines. See Department of Defence, *Defence annual report 2023–24, 44*.

Estate investments

The 2023–24 Portfolio Budget Statement (PBS) allocated $4.166m for approved and unapproved estate works under the capability acquisition program,[15] and $2.956m for sustainment of the defence estate (i.e., estate maintenance, garrison support and associated costs).[16]

The DAR 2023–24 falls short in qualitatively and quantitatively measuring performance against budgetary or DSR/NDS priorities. While there are high-level references to major projects achieving parliamentary approval or exemption, this does not equate to tangible progress or delivery. The DAR 2023–24 lacks measurable progress indicators, with many projects described simply as 'commenced' with no record of completion, commissioning or handover. This absence of concrete milestones undermines transparency and accountability in tracking the delivery of critical infrastructure projects and the construction industry's ability to proactively support Defence.

Moreover, the DAR 2023–24 provides no detailed analysis of the infrastructure works to support AUKUS initiatives such as the Collins-class submarine Life of Type Extensions (LOTE) at Osborne Shipyard, upgrade works at HMAS Stirling to support Submarine Rotational Forces–West, establishment of a proposed east coast nuclear submarine base, new nuclear training, storage and waste-disposal facilities, and associated weapons infrastructure. The omission of such critical details risks Defence's readiness to meet strategic challenges.

Estate divestments

The progress of planned estate divestments is not documented in the DAR 2023–24, marking a shift from previous years. In past reports, divestments were clearly detailed in the cash flow statement under investing activities, specifying proceeds from sales of land, buildings and infrastructure as well as purchases of land, buildings and infrastructure. In the DAR 2023–24, these transactions were grouped under a broader category, 'proceeds/purchase from sales of non-financial assets', providing little transparency into the specifics of the divestment process.

The figures reported in the DAR 2022–23 show a significant underachievement in divestments, with sale proceeds falling short of budget projections by around $88 million.[17] Similarly, in the DAR 2021–22, sales proceeds were approximately $49 million below the budget projections.[18] These

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[15] Department of Defence, *Portfolio Budget Statement 2023–24*, Australian government, 2023, Table 5: capability acquisition program, line item 2 'enterprise estate and infrastructure program', https://www.defence.gov.au/about/accessing-information/budgets/budget-2023-24.

[16] Department of Defence, *Portfolio Budget Statement 2023–24*, Table 6: capability sustainment program, line item 8 'security and estate sustainment'.

[17] Department of Defence, *Defence annual report 2022–23*, Australian government, 2022, Table 44: budgeted departmental statement of cash flow, line item 'proceeds from sales of land and buildings' ($106m) compared against Department of Defence, *Budget 2022–23: March portfolio budget statement*, Australian government, 2022, Table 7: retained capital receipts, line item 'total proceeds from the sale of property' ($18m).

[18] Department of Defence, *Defence annual report 2021–22*, Australian government, 2021, 187, cash flow statement, line item 'proceeds from sales of land and buildings' ($6m) compared against Department of

discrepancies highlight a substantial gap between planned divestment activities and actual outcomes.

It is recognised that defence divestments are often fraught with contention and delays, with the current defence divestment process taking up to 10 years to complete.[19] However, without clear reporting there is no insight into whether Defence estate divestment targets are being met or if there were inefficiencies or missed opportunities in 2023–24. This oversight brings the projection methodology into question. The change in report formatting obfuscates details of divestment performance and could be perceived as an attempt to downplay underperformance.

Estate rationalisation

On 28 August 2023, the Australian government announced an independent audit of the Defence estate as part of its response to the DSR.[20] Among other things, the audit assessed whether the Defence estate aligned with contemporary requirements to increase investment in Australia's northern network of bases, ports and barracks. Its findings were submitted to the Australian government on 28 December 2023.[21] However, neither the audit nor its findings were referenced in the 2023–24 DAR. More than 13 months later, the audit results have yet to be released to the public.

The omission of the Defence estate audit findings from the DAR 2023–24 raises concerns about transparency. Releasing the audit is essential for maintaining public trust and accountability, as it evaluates whether the Defence estate can meet evolving operational needs and impacts future operational readiness, planning and investment. Transparency, in this instance, goes beyond good governance. It is essential that the Defence estate is fit for purpose and capable of supporting Australia's security needs.

A positive step would be for future DARs to incorporate leading (e.g., the percentage of planned maintenance completed on schedule, infrastructure utilisation rates, environmental impact assessments, etc.) and lagging (e.g., total maintenance costs, asset downtime, project delivery delays, etc.) key performance indicators to ensure Defence can better anticipate future needs, optimise estate management and prioritise long-term sustainability and readiness.

Defence, *Budget 2021–22: March portfolio budget statement*, Australian government, 2021, Table 7: retained capital receipts, line item 'total proceeds from the sale of property' ($55m).

[19] Raelene Lockhorst, Nicholas Meatheringham and Matt Priest, 'Defence estate divestments: the state of play', *The Strategist*, 26 March 2024, https://www.aspistrategist.org.au/defence-estate-divestments-the-state-of-play/.

[20] Richard Marles, 'Independent audit of defence estate', *Department of Defence*, 28 August 2023, https://www.minister.defence.gov.au/media-releases/2023-08-28/independent-audit-defence-estate.

[21] Richard Marles, 'Defence estate audit received by government', *Department of Defence*, 28 December 2023, https://www.minister.defence.gov.au/media-releases/2023-12-28/defence-estate-audit-received-government.

Supply chain vulnerabilities

Over the past few years, global supply chains have undergone significant transformations, influenced by various disruptions that have impacted national security. The COVID-19 pandemic exposed vulnerabilities in global trade, leading to shortages of essential goods and highlighting the fragility of interconnected supply networks. Geopolitical tensions, such as the ongoing conflict between Russia and Ukraine and attacks on merchant ships from Yemen, have further strained supply chains, particularly affecting the availability of critical minerals and energy resources. Additionally, natural disasters and climate change have disrupted production and transportation, exacerbating existing vulnerabilities. These disruptions have underscored the necessity for resilient and diversified supply chains to ensure the uninterrupted provision of essential goods and services, thereby safeguarding Australia's vital interests.

While the DAR 2023–24 highlights efforts to strengthen fuel supply resilience, it fails to address the broader implications of these global disruptions in terms of Australia's essential materials, critical infrastructure and manufacturing dependencies. The absence of a comprehensive analysis on how these disruptions impact Defence's capability projects, infrastructure and the timely supply of fuel, food and equipment is a critical oversight. The DAR 2023–24 does not identify how Defence is mitigating global supply chain risks, including production delays, transportation blockages or critical materials shortages. This omission reduces confidence that these areas are being given due consideration and obscures analysis of Defence's readiness in times of heightened conflict or regional instability. There is also a missed opportunity here for Defence to discuss how Australia's reliance on global suppliers and limited domestic supply capacity can leave Defence vulnerable to external shocks.

We make the following **recommendations for Australia's approach to Defence estate, security and resilience**:

3. *Separate the Security and Estate Portfolio Budget Program in future DARs to align with strategic priorities for northern Australia and the IIP schedule to ensure more accurate and meaningful assessment.*
4. *Include measurable leading and lagging performance indicators for Defence estate projects to identify areas for improvement, improve tracking and promote accountability.*
5. *Detail infrastructure works supporting AUKUS initiatives, ensuring readiness for strategic commitments.*
6. *Restore clear reporting of Defence estate divestments to improve transparency and accountability, better inform stakeholders and support corrective actions to address future shortfalls.*
7. *Publicly release the independent findings of the Defence estate audit to ensure transparency and public scrutiny.*
8. *Provide a comprehensive analysis of domestic and global supply chain vulnerabilities and offer concrete strategies for strengthening resilience, including diversifying supply sources and enhancing local production to mitigate external shocks.*

AUKUS

The AUKUS trilateral security pact, signed on 15 September 2021 between the governments of Australia, the United States and the United Kingdom, is now in its fourth year and approaching its fourth anniversary later in 2025.

The DAR 2023–24 highlights seven (7) steps being taken towards the implementation of AUKUS Pillar 1 and Pillar 2, comprised of Australia's acquisition of nuclear-powered submarines (SSNs) and the joint development and transfer of advanced capabilities, respectively.[22] These include:

i. The establishment of the Australian Submarine Agency (ASA) on 1 July 2023.
ii. The selection of ASC Pty Ltd and BAE Systems to build SSN-AUKUS, and ASC Pty Ltd to sustain both the Virginia-class SSNs and SSN AUKUS.
iii. The development of infrastructure at HMAS Stirling to support the SSNs, increased training in the UK and US for Royal Australian Navy (RAN) officers, sailors, civilian and industry personnel.
iv. Increased port visits by US Navy Virginia-class SSNs to HMAS Stirling supported by Australian maintenance.
v. AUKUS Pillar 2 principles for additional partner engagement on specific projects.
vi. The DAR 2023–24 argues that 'significant progress has been made to deliver capability, and discusses the AUKUS maritime autonomy exercise series, trilateral anti-submarine warfare, and resilient and autonomous AI technologies'.
vii. The role of ASCA in 'rapidly translating disruptive new technologies into defence capabilities'.

Risks associated with AUKUS Pillar 1

There are some undeniable risks associated with AUKUS Pillar 1. Concerns of growing challenges in US submarine production capacity have raised uncertainty with respect to the efficacy of the Optimal Pathway and the availability of between three and five Virginia-class SSNs.[23]

However, the passage of the 2024 National Defense Authorisation Act (NDAA) by the US Congress on 15 December 2023 reinforces the opportunities for success of the Optimal Pathway as it relates to Australia's acquisition of Virginia-class SSNs. The NDAA also establishes a national exemption for Australia and the UK from US defence export control licensing, adding both to the US Defense Production Act. This will be important in terms of easing problems in relation to sharing nuclear-propulsion and power related technologies for AUKUS Pillar 1.[24]

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[22] Department of Defence, *Defence annual report 2023–24*, 3-4, 8.
[23] Ronald O'Rourke, *Navy Virginia-class submarine program and AUKUS submarine (Pillar 1) project: background and issues for Congress*, Congressional Research Service, October 2024, 63, https://crsreports.congress.gov/product/pdf/RL/RL32418.
[24] Richard Marles, 'Passage of priority AUKUS submarine and export control exemption legislation by the United States Congress', *Department of Defence*, 15 December 2023, https://www.minister.defence.gov.au/media-releases/2023-12-15/passage-priority-aukus-submarine-and-export-control-exemption-legislation-united-states-congress.

Some commentators have expressed concern over the very long timeline to SSN AUKUS entering Australian service in the 2040s and the state of UK shipbuilding has also been raised by some commentators as an issue of concern. In a recent CSBA analysis on China's military challenge and Australia's response, there was concern expressed about the viability of SSN AUKUS under the Optimal Pathway. The CSBA analysis suggested alternatives included continued acquisition of US Virginia-class SSNs (beyond the 3-5 boats currently planned for), and mitigating risk through acquisition of alternative capability options (e.g., the B-21 Raider bomber) to SSN AUKUS that could be acquired more rapidly.[25]

Given the long lead times associated with SSN AUKUS, there is some concern that technological advancements in undersea and anti-submarine warfare (ASW) will make detection and tracking of SSNs easier as new types of sensor capabilities, including LIDAR, quantum sensing and AI-enabled systems begin to be applied to ASW operations.[26] But this is a risk that all major acquisitions and builds have had to contend with. Ways to mitigate risk should be built into regular reviews as new technologies develop.

Adding to the complexity of this more challenging operating environment will be the emergence of advanced undersea uncrewed vehicles (UUVs), epitomised by the US Orca extra-large uncrewed undersea vehicle (XLUUV) and Australia's Ghost Shark XLUUV. Australia's future crewed submarines, whether SSNs or conventional diesel-electric submarines (SSKs), will need to work alongside fleets of lower-cost UUVs, some of which may be armed and operating autonomously. It is vital, then, that both AUKUS Pillar 1 and Pillar 2 policy settings remain appropriate to ensure the relative safety of allied and Royal Australian Navy submarines operating in the straits and narrows within archipelagic waters to Australia's north over the coming decades.

China is developing large numbers of advanced, and likely armed XLUUVs, with its UUV 300CD platform able to launch torpedoes and sea mines. These UUVs could operate alongside crewed submarines and exploit sophisticated undersea warfare surveillance capabilities. The oceans will get more crowded and dangerous for the RAN's submarines and allied submarines in coming decades, and it is vital that AUKUS Pillar 1 and Pillar 2 address this risk.

Achieving the Optimal Pathway for AUKUS Pillar 1 as it relates to Australia's acquisition of three to five Virginia-class SSNs in the 2030s is a critical goal for the Royal Australian Navy. Absent these Virginia-class boats, Australia's undersea warfare capability would quickly atrophy.

Australia's Collins-class SSK LOTE is high risk. A failure of this program to uplift SSK operational readiness and effectiveness would mean a serious submarine capability gap could appear in the next decade. This capability gap would likely widen given the rapid growth and modernisation of

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[25] Toshi Yoshihara, Jack Bianchi and Casey Nicastro, 'Focused force: China's military challenge and Australia's response', Center for Strategic and Budgetary Assessments, 13 January 2025, i-ii, 25-27, https://csbaonline.org/research/publications/focused-force-chinas-military-challenge-and-australias-response.

[26] See, for example, Roger Bradbury et al., *Transparent oceans? The coming SSBN counter-detection task may be insuperable*, Australian National University National Security College, May 2020, https://openresearch-repository.anu.edu.au/server/api/core/bitstreams/bffc315d-b59c-4ec7-8de3-5e5c9021efba/content.

adversary submarine forces—including nuclear-armed SSNs as well as advanced SSKs, advanced armed UUVs—and undersea warfare capabilities such as increasingly sophisticated anti-submarine warfare sensor networks.

The longer-term goal of transitioning to SSN AUKUS in the 2040s unavoidably increases uncertainty and risk, given it is impossible to know what political, economic and strategic dynamics will exist in fifteen years' time. Whilst every effort should be made to assure a smooth transition from Collins-class SSKs to Virginia-class SSNs in the 2030s and then to SSN AUKUS in the 2040s, it is prudent to ensure that Australia's defence policy is flexible enough to adapt to unexpected developments.

Mitigating risk over the long term may demand consideration of new capability options, including in other operational domains, which can complement capabilities such as the Virginia-class SSNs in the 2030s. These could include examining options to increase the number of Virginia-class boats to be acquired by Australia if necessary or purchase capabilities in other domains to mitigate risk emerging in the sea domain.

Risks associated with AUKUS Pillar 2

Regarding Pillar 2, there has been consideration towards extending participation towards 'Tier 2' or 'Strand B' arrangements, with states such as Japan, South Korea, New Zealand and Canada being seen as prospective partners on a project-by-project basis. Taiwan has also expressed interest. Expanding cooperation on AUKUS Pillar 2 capability areas between close partners with genuine capabilities should be done where appropriate amid AUKUS members' consideration of Japan's *potential* AUKUS Pillar 2 participation.

China is moving rapidly to deploy advanced military capabilities in all the AUKUS Pillar 2 technology priority areas (as well as others). A failure by the US, UK and Australia to cooperate in these critical and emerging technology areas would see China's People's Liberation Army (PLA) gain both a quantitative and qualitative advantage in the Indo-Pacific in coming years. Such a development would be highly destabilising and erode the efficacy of Australia's deterrence through denial strategy.

AUKUS Pillar 2 technology priority areas, including AI and autonomous systems, have potential to generate tactical and operational surprises and defeat and decisive military advantage. In addition, US efforts to develop hypersonic weapons—such as the Long-Range Hypersonic Weapon—would enable the Virginia-class SSN to carry such weapons and opens the opportunity for Australia to join a program under AUKUS Pillar 2 that would enable its future Virginia-class SSNs and SSN AUKUS to do likewise.

It is crucial that technical constraints on defence export controls are reduced further to maximise opportunities for technological collaboration and technology sharing. Some progress has already been made in establishing a licence-free environment between Australia, the UK and the US to facilitate the trilateral transfer of military and dual-use goods and technology to the ADF.[27] What is

[27] Department of Defence, 'Generational export reforms to boost AUKUS trade and collaboration', *Australian government*, 16 August 2024, https://www.minister.defence.gov.au/media-releases/2024-08-16/generational-export-reforms-boost-aukus-trade-and-collaboration.

needed is a proactive approach to transitioning from scientific research to operational deployment of military capabilities in traditional domains and the new domains of cyber and space.

We make the following **recommendations for Australia's approach to AUKUS:**

9. *Push for the acquisition of five Virginia-class SSNs and explore the option of additional Virginia-class boats to counteract the increasing risks posed by adversary undersea and anti-submarine warfare capabilities and uncertainty associated with the long lead times associated with SSN AUKUS.*
10. *Acknowledge that the current era of conflict and aggression requires increased defence spending and capability development beyond AUKUS Pillar 1 to reduce Australia's vulnerabilities, even if there is an eventual smooth transition from Virginia-class SSNs to SSN AUKUS as planned.*
11. *The Australian government should seek to expand cooperation on AUKUS Pillar 2 capability areas between close partners with genuine capabilities where appropriate.*
12. *Further ease the defence export controls currently in place and explore new partnerships on a project-by-project basis within the technology priority areas as well as in directed energy weapons and space-related technology development.*

Uncrewed/autonomous systems, Artificial Intelligence and their integration into the Joint Force

A key technological area in 21st century warfare is the emergence of autonomous and uncrewed systems and their potential combination with military AI. Armed autonomous systems are already a reality in the land, air and sea (both on the surface and underwater) domains of warfare and are likely to extend into the space domain in the form of space logistics and counterspace capabilities. The integration of AI with such systems opens dynamic new approaches and opportunities to realise military advantage in warfare. It also generates some new policy challenges for Australian policymakers and defence planners.

Swarming and the return of mass

The return of 'mass' to warfare through the production and employment of large numbers of low-cost autonomous systems in large swarms will open new opportunities to generate decisive and unique military effects on future battlefields. Relying on attritable autonomous systems as a key part of the ADF's future military force structure mitigates risks generated by Australia's traditional approach of reliance on small numbers of expensive and exquisite crewed platforms. Realising this advantage will require 'high volume and low cost' investment and rapid production of autonomous and uncrewed systems to sustain combat mass in protracted high-intensity conflict. As traditional legacy military forces can be quickly overwhelmed in quantitative terms, superior numbers can be applied to degrade or oversaturate defensive systems at little expense. Investment in counter-drone technologies is just as vital, with these capabilities needing to be equally low-cost and able to generate military effect if adversary swarms incorporate AI.

AI, trusted autonomy and laws of armed conflict

The issue of AI and how it may be employed alongside autonomous systems is of great importance for the ADF and Defence decision-makers. AI can be a powerful tool for managing complex operations through undertaking the rapid assessment of tactical information to understand the future battlespace and advising human decision-makers who will struggle to understand, interpret and respond to military operations that are occurring rapidly.

One way to conceptualise the role of AI is as a notional 'silicon commander' in a Joint HQ or as a useful addition to human decision makers managing the complex employment of military capabilities. This application of AI will be important to support in the future.

Moreover, AI can be incorporated into weapon systems themselves, including in autonomous systems, to reduce the workload on humans managing military operations. This could see AI's controlling all aspects of autonomous systems operations but leaving the employment of lethal effects to human oversight and control.

For Australia and other western liberal democracies, the employment of autonomous systems and military AI must observe International humanitarian law (IHL), or *jus in bello*. IHL regulates the way in which warfare is conducted through established principles of discrimination, proportionality and necessity.[28] Accordingly, Australia should establish its own dedicated defence policy for autonomous systems and AI-enabled capabilities. This, in tandem with continued discussions between AUKUS partners to remove ambiguity surrounding AI principles, greater participation in multilateral discussions and facilitation of expert groups can ensure Australia's military AI capabilities remain responsible and act in accordance with international obligations.[29] These discussions will need to be balanced against considerations around how authoritarian states—which are less willing to consider the constraints of laws of armed conflict and IHL in warfare if it leads to a military edge in a fast-paced future battlefield—might employ military and civilian AI and autonomous systems in times of crisis or conflict.

It is clear that the development of autonomous and AI-enabled technologies is moving too slowly and cautiously. Investment is focused on Australia's aim to field high-end autonomous systems in the 2030s.

Systems like the Anduril Ghost Shark UUV of which only one has been acquired, Ghost Bat and Ghost Shark will be important capabilities for the Royal Australian Air Force and Royal Australian Navy respectively. While such systems should be funded by the Australian government, they are not a complete solution to how the ADF should approach autonomous systems and AI in future force development.

A failure to embrace a 'fourth industrial revolution' approach to autonomy and AI means that the ADF runs the risk of duplicating work. Australia's deteriorating strategic circumstances demand

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[28] 'Fundamental principles of IHL', International Committee of the Red Cross, n.d., https://casebook.icrc.org/a_to_z/glossary/fundamental-principles-ihl.

[29] Samara Paradine and Marcus Schultz, 'I, Killer Robot: the ethics of autonomous weapons systems governance', *The Strategist*, 15 February 2024, https://www.aspistrategist.org.au/i-killer-robot-the-ethics-of-autonomous-weapons-systems-governance/.

that preference be given to 'here and now' versus 'next generation' uncrewed/autonomous systems and AI-enabled military capabilities.

The war in Ukraine offers important lessons for Australian policymakers in terms of the integration of low-cost commercial drones with long-range fires. The employment of large numbers of low-cost drones that can exploit satellite provided (i.e., Starlink) tactical data links and connect to long-range strike systems on land or ship-based naval strike capabilities should be prioritised for rapid introduction into service so that the all-domain ADF can be effective in future warfare.

We make the following **recommendations for Australia's approach to uncrewed/autonomous systems and their integration into the Joint Force:**

13. *Combine investment into high-end autonomous systems, exemplified by Boeing's MQ-28 Ghost Bat and Anduril's Ghost Shark with similar investment into high volume, low-cost acquisition of autonomous systems that are ideal for swarming on the battlefield.*
14. *Continue to invest in autonomous systems and AI in a manner that is consistent with IHL and moral aspects of thinking on war while finding opportunities to accelerate their introduction into service.*
15. *Adopt and detail in a 'fourth industrial revolution' approach to military-technological innovation, development and production as a key component of the 2026 National Defence Strategy (NDS).*

Progress on the transformation to an integrated focused force

In line with DSR recommendations, the 2024 NDS and accompanying IIP stated that 'the ADF will shift from a balanced force capable of responding to a range of contingencies, to an integrated, focused force designed to address Australia's most significant strategic risks'.[30] This process is a continuation of a military evolution that has been underway since the ADF transitioned to joint operations in the 1990s, placing greater emphasis on Australian power projection (i.e., 'impactful projection') through investment in air and sea-launched strike and more recently land-based long-range strike capabilities. Maritime and naval strike capabilities are now central to the ADF's ability to protect the supply chains and sea lines of communication that are vital to Australia's national defence.

The ADF is now acquiring a range of strike capabilities to meet the requirement of 'impactful projection' under the IIP. The Royal Australian Navy will acquire ship-based Tomahawk Land Attack Missiles (TLAM) with a 1,600km range for its three Hobart-*class* Air Warfare Destroyers and six Hunter-class frigates. The Australian Army will develop the Precision Strike Missile (PrSM) for use with M142 High Mobility Artillery Rocket System (HIMARS). PrSM currently has a 500km range, but Increment 4 will have a 1,000km range and be anti-ship capable. The Royal Australian Air Force will acquire and be able to employ AGM-158B Joint Air-to-Surface Standoff Missiles Extended Range (JASSM-ER) and AGM-158C Long-Range Anti-Ship Missile (LRASM) from its fleets of F/A-18F Super Hornets, F-35A Lightning II combat aircraft and EA-18G Growler electronic attack aircraft.

These acquisitions are a positive step to fill a serious 'strike gap' that emerged in the ADF with the retirement of the F-111 multirole combat aircraft in 2010. However, even these capabilities will be

[30] Department of Defence, *2023 National defence: defence strategic review*, 7.

seen as comparatively short-ranged against DF-26 intermediate-range ballistic missiles fielded by the PLA Rocket Force that can strike northern Australian bases from the South China Sea.

Investment in long-range strike capabilities to support deterrence through denial and 'impactful projection' demands corresponding investment in advanced intelligence, surveillance and reconnaissance (ISR) capabilities. This is because the ADF cannot 'strike deep' if it cannot 'see deep'.[31] There needs to be renewed commitment toward investment in space-based ISR capabilities on sovereign satellite constellations. Investment into these types of capabilities, originally promoted as a requirement under Project DEF-799 Phase 2, must be fully supported via a plan for acquisition or development of the satellites and their deployment and operation to support joint operations. Long-range high-altitude UAVs can complement satellite-based ISR, but platforms like RAAF's MQ-4C Triton UAV will be limited in number and are highly vulnerable to adversary air defence capabilities.

With the new Trump administration set to expand the role of the US Space Force to more actively respond to Chinese and Russian counterspace threats, Australia needs to put substance into the next iteration of the NDS and IIP and identify 'space control' as a key task. This will be key if the ADF is to be able to defend its space capabilities and assure support for the integrated focused force.[32] The capacity of ADF facilities in Exmouth, WA to host both an optical space surveillance telescope and the Deep Space Advanced Radar Capability (DARC) will support Australia's capacity for space domain awareness.[33] However, these facilities are much more useful for supporting operations in Australia's air and maritime approaches. Greater investment in space-based ISR is needed now to ensure space resilience and access against adversary counterspace threats.

We make the following **recommendations for Australia's approach to progress on the transformation to an integrated focused force:**

16. *Consider options to strike at greater ranges beyond what is currently planned for under the 2024 NDS and IIP.*
17. *Fast track the acquisition of long-range hypersonic weapons via AUKUS Pillar 2 and explore options for the ADF to deploy sea-launched and land-based hypersonic weapons as the technology becomes available.*
18. *Prioritise a space-based ISR satellite capability that can provide constant and timely ISR and targeting for ADF forces and be supported and defended by space domain awareness and space control capabilities developed in partnership with the United States as part of AUKUS Pillar 2.*

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[31] Malcolm Davis, 'The ADF needs to see at long range to strike at long range', *The Strategist*, 24 January 2023, https://www.aspistrategist.org.au/the-adf-needs-to-see-at-long-range-to-strike-at-long-range/.
[32] Malcolm Davis, 'Space and Australia: opportunities in the second Trump administration', *The Strategist*, 21 January 2025, https://www.aspistrategist.org.au/space-and-australia-opportunities-in-the-second-trump-administration/.
[33] Malcolm Davis, 'Seeing through the DARC, deep into space', *The Strategist*, 19 December 2023, https://www.aspistrategist.org.au/seeing-through-the-darc-deep-into-space/.

Australian international defence cooperation and competition

The DAR 2023–24 provides a comprehensive summary of Australia's defence cooperation activities, including a map of the ADF's main exercises around the world.[34] The forewords by Secretary Greg Moriarty and Chief of the Defence Force (CDF) David Johnston situate these activities in the wider context of the NDS and deepening defence partnerships with our US ally, as well as the UK and Indo-Pacific partners. Defence cooperation seems to be growing in scale and tempo, with significant achievements in the 2023–24 reporting period including the entry into force of the Reciprocal Access Agreement with Japan.

The above notwithstanding, the DAR 2023–24 says little about who Australia is competing against, and it is silent about China. Rather than explain the threats Australia's face in plain language to the public, ministers have relied on abstractions and euphemisms, such as 'a worsening strategic environment' and 'great power competition'. This hampers public understanding of Defence's work, including cooperation with allies and partners, and diminishes the social licence for increased defence spending.[35]

The NDS included an important, but easy to overlook, shift in Defence's approach to defence cooperation by insisting that shaping operations support deterrence.[36] The CDF affirmed this in his foreword to the DAR 2023–24, stating that the priority of international defence engagement is 'to build resilience, deter aggression and coercion, and contribute to stability in the region'.[37]

Australia has linked deterrence to military preparedness when speaking alongside some of its key defence partners. The acknowledgement by Australia-US-Japan-India foreign ministers in January 2025 that the Quad deals with 'security in all domains' was overdue and should unlock further defence cooperation between the four countries.[38] And the Australia-US-Japan trilateral defence consultations announced in November 2024 cover operations from 'peacetime to contingency'.[39] These are welcome steps in the right direction. The assumption that speaking honestly about China alienates some Southeast Asian or Pacific partners needs testing. On balance, the priority should

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[34] Department of Defence, *Defence annual report 2023–24*, Figure 1.1., 11.
[35] Alex Bristow, 'Australia can't talk defence by not mentioning China', *Financial Review*, 13 February 2024, https://www.afr.com/policy/foreign-affairs/australia-can-t-talk-defence-by-not-mentioning-china-20240212-p5f44v.
[36] Department of Defence, *2024 National defence strategy*, Australian government, April 2024, 22, https://www.defence.gov.au/about/strategic-planning/2024-national-defence-strategy-2024-integrated-investment-program.
[37] Department of Defence, *Defence annual report 2023–24*, 9.
[38] Euan Graham, 'The Quad foreign ministers joint statement: short and sweet', *The Strategist*, 22 January 2025, https://www.aspistrategist.org.au/the-quad-foreign-ministers-joint-statement-short-and-sweet/;
[39] Australian Department of Defence, 'Australia-Japan-United States Trilateral Defence Ministers' Meeting November 2024 Joint Statement', 17 November 2024, https://www.minister.defence.gov.au/statements/2024-11-17/australia-japan-united-states-trilateral-defence-ministers-meeting-november-2024-joint-statement.

be concentrating finite defence cooperation resources on those partners that can contribute the most to collective deterrence.[40]

One of the key goals of Australian defence cooperation must be denying China strategic access in the Pacific. In this regard, it is encouraging that Defence established a new Pacific Division in July 2023 focused on 'security priorities, including defence cooperation, infrastructure, and maritime security'.[41] The linking of security aims with climate and migration policy in the Australia-Tuvalu Falepili Union Treaty demonstrates the capacity for joined-up statecraft in the Pacific.[42] But it is not clear from the DAR 2023–24 how Pacific defence cooperation integrates with other branches of government, including the interdepartmental Office of the Pacific housed in DFAT. Seamless statecraft will remain hamstrung until the DSR's call for a whole-of-government approach to national defence is realised, rather than putting the onus almost entirely on Defence.[43] This could be achieved by making the 2026 NDS a cross-government strategy. An alternative approach could be an overarching national security strategy.

Australia's defence cooperation need not be confined to the Indo-Pacific. Australia should work with partners in Europe to counter the growing cooperation between autocratic powers with revisionist agendas, notably China, Russia, North Korea and Iran. The appointment of former CDF, General (Rtd) Angus Campbell, as Australia's ambassador to Belgium, the EU and NATO, is a welcome sign that the Australian government understands this. But the government needs to back this up by committing to prime ministerial attendance of NATO summits alongside their Japanese, South Korean and New Zealand counterparts in the Indo-Pacific 4 (IP4).

Australia's relationships with NATO and IP4 allow for close coordination with European allies about common security challenges that transcend physical distance.[44] Attention is merited not only to traditional partners in Western Europe, but also the Eastern European and Nordic countries that are making the greatest investments in defence as a percentage of GDP and include some of the clearest voices in Europe calling for robust handling of China. One promising development is the potential for a Poland-Australia defence agreement, as was trailed when Deputy Prime Minister

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[40] Alex Bristow, 'Australia and Japan should consider a security division-of-labour in the Pacific', *The Strategist*, 16 July 2024, https://www.aspistrategist.org.au/australia-and-japan-should-consider-a-security-division-of-labour-in-the-pacific/; Euan Graham, 'Advice to Australia: ASEAN and Southeast Asia, same-same but different', *The Strategist*, 13 March 2024, https://www.aspistrategist.org.au/advice-to-australia-asean-and-southeast-asia-same-same-but-different/.

[41] Department of Defence, *2023-27 Defence Corporate Plan*, Australian government, 2023, 11, https://www.defence.gov.au/about/strategic-planning/defence-corporate-plan.

[42] Euan Graham and Bec Shrimpton, 'The defence and security implications of the Australia-Tuvalu treaty', *The Strategist*, 23 November 2023, https://www.aspistrategist.org.au/the-defence-and-security-implications-of-the-australia-tuvalu-treaty/.

[43] Department of Defence, *2023 National defence: defence strategic review*, 33.

[44] Alex Bristow, 'Marles should discuss beauty contests at the NATO summit in Washington', *The Strategist*, 9 July 2024, https://www.aspistrategist.org.au/marles-should-discuss-beauty-contests-at-the-nato-summit-in-washington/.

Richard Marles visited Poland in April 2024.[45] Defence should also consider bolstering its thinly spread attaché network in Europe to capitalise on opportunities for cooperation, including in defence industry and innovation.

Lastly, Defence should revise its model for maritime security cooperation to focus more on the sea lines of communication (SLOCs) that are most important to Australia and our closest allies and partners. As Marles has stressed, SLOCs are vital for Australia's national defence.[46] Accordingly, defence cooperation on SLOCs should extend beyond operations to reinforce the international law of the sea or countering non-traditional security threats like illegal, unreported and unregulated fishing. Given the vulnerabilities highlighted by ASPI research,[47] Defence should also use joint exercises and shaping operations to develop contingencies for keeping key SLOCs open in the event of a major regional war.

We make the following **recommendations for Australia's approach to international defence cooperation and competition:**

19. *Ensure DFAT, Home Affairs and other relevant departments and agencies help to write and implement the 2026 NDS to better integrate defence cooperation into wider statecraft.*
20. *Direct more resources to expand the defence attaché network, especially in Europe. Some of these costs might be offset by commercial benefits to Australian defence companies.*
21. *Ensure shaping operations to keep key SLOCs open in wartime are made part of Defence cooperation in maritime security. These operations should include Pacific Island territories, whose surrounding waters could become more important during wartime.*

The authors are open to discussing this submission with the Committee, including at any forthcoming hearing.

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[45] Australian Department of Defence, 'Joint statement, remarks with Deputy Prime Minister of Poland', 26 April 2024, https://www.minister.defence.gov.au/transcripts/2024-04-26/joint-statement-remarks-deputy-prime-minister-poland.
[46] Richard Marles, 'Address to the Indo-Pacific Sea Power Conference', *Department of Defence*, 7 November 2023, https://www.minister.defence.gov.au/speeches/2023-11-07/address-indo-pacific-sea-power-conference.
[47] David Uren, *The trade routes vital to Australia's national security*, Australian Strategic Policy Institute, March 2024, https://aspi.org.au/report/trade-routes-vital-australias-economic-security.