Building a Strong and Sustainable Fleet

A Vision for the successful implementation of the Australian Naval Shipbuilding and Sustainment Plan



November 2026

Peter Jones & Dr David Shackleton

Naval Studies Group

UNSW CANBERRA

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About the Naval Studies Group

The Naval Studies Group (NSG) at the University of New South Wales (Canberra) was formed in 2016. It is part of the School of Humanities & Social Sciences and contributes to the work of the Maritime Security Research Group. NSG members combine many years of cumulative naval experience with an extensive academic output in the form of books, monographs and articles. The NSG's focus is maritime and naval policy, strategy and history.

Its members are Dr Mark Bailey, Dr Allan du Toit, Captain Andrew Hough, Peter Jones, Dr Peter Leavy, Captain Darin MacDonald, Dr Jack McCaffrie, Commander Jen Parker, Dr David Shackleton, Dr David Stevens, Lieutenant Commander Lachlan Turner and Dr Neil Westphalen.

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Dr David Shackleton AO is a retired vice admiral whose 36-year naval career culminated in commanding the RAN. He then spent almost 25 years working variously with the South Australian state government, defence industry, the Department of Defence, and academia and re-establishing Gibbs and Cox's Australian operations, while also mentoring future leaders and completing a PhD at UNSW (ADFA). He is an adjunct professor at the NSG.

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Front Cover: An AI impression of the future HMAS *Hunter* in the late 2030s.

Rear Cover: AI impression of HMAS *Brisbane* firing a Tomahawk missile.

Preface

This study by the Naval Studies Group at the University of New South Wales (Canberra) seeks to contribute constructive, historically grounded analysis to one of the most significant national endeavours in modern Australian naval history: the successful execution of the *2024 Naval Shipbuilding and Sustainment Plan* (2024 NSSP).

The genesis of modern warship construction in Australia has long been defined by a cyclical pattern of ambitious procurement followed by industrial and fiscal contraction. As retired senior officers who have collectively spent decades both at sea and ashore, we undertook this study out of a shared concern that the current path contains the familiar ingredients of yet another ‘boom and bust’ cycle.

Our objective is not to critique the strategic necessity of an expanded, lethal surface and submarine fleet. Indeed, Australia's challenging strategic environment demands nothing less than a potent navy. Rather, our focus is entirely on implementation. By reviewing seven decades of local corporate shipbuilding history, this study extracts the principles that separated past industrial successes from costly failures. We have sought to bridge those historical lessons with a practical analysis of the current authorised program, mapping out looming workforce strains, supply chain vulnerabilities, and the stark operational realities of managing an increasingly heterogeneous fleet.

Ultimately, this study argues that a continuous shipbuilding program is entirely achievable in Australia, provided the nation approaches it as a unified, tightly governed public-private enterprise rather than a fragmented series of isolated procurement projects. We offer our consolidated recommendations spanning commercial principles, enterprise oversight, and alternative force structures as a roadmap to ensure that this multi-billion-dollar investment translates into lasting, sovereign maritime power.

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Executive Summary

- Australia requires a strong and effective maritime force backed by a domestic industrial ability to generate and regenerate it over extended periods, recognising that Australia's national interests demand operations at range.
- The RAN has the most heterogeneous fleet of any advanced navy in the world. This complicates ship production, sustainment, workforce issues (ashore and afloat) and operational proficiency. The current fleet, save the Collins and Anzac classes are heavily dependent on distant, dispersed and vulnerable supply chains beyond the political and commercial influence of Australia.
- The success or otherwise of warship building programs has had a fundamental impact on the ability of Australia to deliver seapower in support of its national objectives. This is even more important going forward due to the growing fiscal demands of AUKUS Pillar I on the overall Defence spend.
- This paper examines the 2024 Naval Shipbuilding and Sustainment Plan (2024 NSSP) and highlights the challenges and recommends measures to assist in its successful implementation. The paper aims to identify and substantiate that which is required for successful implementation based on sound historical principles.
- To contextualise the 2024 NSSP, the paper provides an overview of Australian warship building since the 1950s and draws lessons from over seven decades of experience.
- A successful warship building project was one that:
  - Had a high calibre leadership in the project office and the prime contractor, supported by a cadre of experienced workers at all levels of the enterprise including the supply chain.
  - The design was well understood and with adequate production drawings.
  - Followed on from an earlier project and so could leverage off its associated workforce expertise and supply chain which had a high proportion of local content.
  - The number of ships in the class were sufficient to incorporate learnings in production and so increase cost and schedule efficiencies, as well as improvements in overall quality.
  - Where appropriate ship modules could be built at secondary facilities in other parts of Australia in a 'distributed shipbuilding' model. This assisted in timely construction and maximised manufacturing skills centres around the country; and
  - Policy settings and scale allowed for local supply chains to be established which assisted in schedule, cost and sustainment.

- Less successful projects were the result of:
  - Gaps between successive projects resulting in workforce dissipation, particularly of high and mid-level engineers, to other parts of the economy.
  - Poor and inexperienced leadership lacking adequate appreciation of the challenges of naval shipbuilding.
  - Selection of ships from different countries complicating the design to the production phase, supply chain development and Fleet sustainment costs, such as most recently the Spanish originated Hobart, then the UK originated Hunter classes and most recently the Japanese originated Mogami class.
  - Selection of ship designs and the approval of successive projects appearing to lack an overarching strategy in acquisition and sustainment, particularly if selection had not been preceded by a detailed engineering process examination conducted by the client.

Analysis of 2024 NSSP

- Unless the RAN is willing to operate 40 year old Collins class boats, the submarine force will shrink in the 2030s to three submarines. US Navy submarines operating out of Fleet Base West (FBW) will outnumber those of the RAN until sometime in the 2040s. This would suggest a distributed shipbuilding model should be examined for the SSN AUKUS to speed up boat delivery.
- There will be no new surface combatants this decade. However in the 2030s it can be expected there will be at least one new surface combatant every year. Without further orders, another hiatus in major surface ship construction looms from 2041.
- Out to the 2040s the 2024 NSSP will make the RAN fleet even more heterogeneous, with all the challenges and disadvantages that entails. Ideally much sooner, but towards the end of the NSSP, there are opportunities to start the long journey to redress that situation. This heterogeneity can be ameliorated by mandating high levels of Australian content in all ship-fitted equipment, ensuring a domestic source for the majority of spares and support, as well as potential sources of updates and upgrades.

Recommendations

- Apply the advantages inherent in a monopsonistic industry. This includes, among other things, open book contracting to ensure transparency and value for money.
- Institute an Enterprise Board for shipbuilding, ship equipment and sustainment to, among other things, drive improved decision making and productivity improvement. Give this board its own engineering and project planning resources and executive powers.

- Adopt the Following Guiding Principles:
  - **Accept highly capable but not necessarily superior capabilities in design.** Incorporate advanced technologies that take into account the fiscal, workforce and basis of provisioning constraints of the ADF.
  - **Adopt Spiral and Batch Development.** Gain capabilities which build on in-service capabilities to retire risk, build expertise and maximise operational capabilities.
  - **Strive for System Commonality.** Where practicable, mandate a high level of system commonality across and between classes. This will serve to reduce cost of ownership, increase availability, reduce training demands and encourage local supply chains.
- **Institute mandatory local content requirements.** As previously demonstrated in Australia, local content targets send market signals to bidding consortia to identify local companies to meet this demand. The benefit for defence is reduced cost of ownership over time and a shorter, more dependable supply chain. It is suggested having a policy that a minimum of 70% of the selling price to the Commonwealth be demonstrably derived from Australian manufactured goods and services would bring important benefits. The remainder of acquisition costs should be expended in Australia through approved offsets associated with Defence industry.[1]
- **Integrate Data Management.** There is an increasing trend to integrate design and production data from platforms and their mission systems to better inform logistics as well as operations and lifecycle management. Standardisation of datasets and how they are managed and kept secure must be rigidly implemented wherever possible across the enterprise.
- In terms of ship projects in the 2024 NSSP the paper recommends considering:
  - Develop an east coast Tier 1[2] and Tier 2 navy vessel as well as submarine module construction capability, that could be expanded to build complete surface vessels, to assist in the delivery of projects carried out at Osborne and Henderson shipyards.
  - Construct Tier 3 ships on the east coast of Australia where possible.
  - Decide by about 2030 on how the capabilities of the Hobart class will be replaced. Assuming this will be in the form of a major surface combatant, this should follow from completion of the Hunter program as has been forecast by government.
  - Explore our emerging relationship with Japan to examine options for a collaborative program following from the Hunter class.

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1 Note that 'offsets' refer to counter trade where goods are bought to defray the balance of payments or other motivations. Offsets in anything but the defence industry sector do not add real value.

2 'Tiers' as used to define capability levels of different classes of naval vessel are incorporated in the 2024 report: *Enhanced lethality surface combatant fleet: independent analysis of Navy's surface combatant fleet* (https://www.defence.gov.au/about/reviews-inquiries/independent-analysis-navy-surface-combatant-fleet)

- Re-examine the practicality of constructing navy's large ships in Australia and make plans made accordingly.
- Accelerate conceptual development associated with unmanned or optionally manned warships having significant combat capabilities, with Austal potentially being tasked with proposing a solution.
- Mandate that all future contracts incorporate a high percentage of Australian content.



Figure 1: An AI image of a RAN Task Group in the later 2030s

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Part 1
Introduction

The success or otherwise of warship building programs have always had a fundamental impact on the ability of Australia to deliver seapower in support of its national objectives. Capable modern navies are not cheap to own and operate, and it can already be seen that the fiscal requirements of the planned warship and nuclear submarine programs will take up a considerable proportion of known estimates of future defence funding. It behoves those having such responsibilities to ensure as much economic and other benefits as are possible accrue to the nation from this significant investment.

This paper examines the announced program in the 2024 Naval Shipbuilding and Sustainment Plan (2024 NSSP)[3] and other announcements. It will highlight the challenges and recommend measures that would help in the successful implementation of the shipbuilding enterprise.

To emphasise the challenge facing Australia in this national program, it is worth noting that we are at an uncontested starting point. There is consensus on both sides of politics of the need for a continuous shipbuilding program.

The authors assume, while uncrewed systems will continue to be developed and fielded in increased numbers and sophistication, that crewed ships as detailed in the NSSP will remain as the backbone of the RAN Fleet to at least the 2060s.

There is also a recognition in the Federal Parliament, the bureaucracy and industry that the shipbuilding program is the most ambitious ever undertaken. In particular, the building of a completely new class of nuclear attack submarines and two different frigate programs, all with largely disparate supply chains, as well as other lesser programs, all at the same time is unprecedented in Australia.

This activity is in the context of a not fully costed AUKUS Pillar I program, as well as other fiscal and workforce constraints. Indeed, the sustainment piece is going to be a challenge in itself. Among the advanced navies of the world, the RAN has, the most heterogeneous fleet. Far from trying to redress this situation, it will, with the Virginia, SSN-AUKUS and Mogami classes, make it even more so. Australia's fleet will have warships and support

[3] Department of Defence (Australia), *2024 Naval Shipbuilding and Sustainment Plan: Evolving The Enterprise* (Defence, 2024), https://www.defence.gov.au/about/strategic-planning/2024-naval-shipbuilding-sustainment-plan.

ships that were either designed and/or built from ten countries, which themselves have national and international supply chains, further diluting Australia's industrial involvement.[4]

Besides complicating supply chains, it stresses spares availability, complicates training and in some technical categories it stovepipes the workforce. All of which place a cost premium over the enterprise. Before laying out a roadmap for success it is essential to:

- Review the Navy's corporate shipbuilding history that charts the course to where we are today; and
- Analyse in more detail the promulgated shipbuilding program.

Relevant Corporate Shipbuilding History

First to relevant corporate shipbuilding history. During the early years of the Cold War, the RAN continued on from its World War II success of programs such as, the Tribal class destroyers, River class frigates and Bathurst class corvettes, to building warships in-country either based on British designs or, depending on their complexity, on local design. There was also a preparedness to modify designs where appropriate. Indeed, Australia had a long and largely successful history of doing so with the RAN's precursor, the Commonwealth Naval Force, started this with their very first ships, the River class torpedo boat destroyers. These ships were successfully modified in design to be fuelled by furnace fuel oil rather than coal as in the Royal Navy's vessels.

During his tenure as Chief of Naval Staff, Vice Admiral Sir John Collins[5] successfully advocated for a local continuous warship build program of a dozen destroyers. This along with a similar merchant ship program was supported by Prime Minister Robert Menzies and went to cabinet in 1950. Menzies recognised the importance of a rolling program and took note of the efficiencies at the Evans Deakin shipyard as a case study:

> Despite considerable increases in wages and material costs over the past three years, the Company has advised it anticipates there will be a saving to the Commonwealth of £16,000. This result was due mainly to the increase of efficiency, methods of construction and improved shipyard facilities, but the greatest single factor contributing to the improvement so far achieved is that the vessels for the first time since the Company was established have been produced quickly because it was able, with orders on hand, to avoid intermittent employment of various shipyard trades.[6]

Despite this success, money was tight and the Navy's long term aspirations for a dozen locally built destroyers would remain unrealised. This was because of competing demands for Government outlays and rising costs associated with increasingly more complex ships. During the 1950s and 1960s the key programs were the Q class destroyer to frigate

[4] The origin countries are Australia, Germany, Italy, Norway, Romania, Spain, Sweden, the UK, the USA & Vietnam.

[5] Sir John Collins was CNS from 1948-1955.

[6] Minutes from Naval Board Meeting 3 May 1950 contained in Naval Board Minutes, 1950-1953, 4269885 & Cabinet Submission Australian Shipbuilding, March 1950, A4639, 5104159, (NAA).

conversions, the new-build Battle and Daring classes of destroyers and then the modified River class Type 12 frigates. There were issues in executing these programs which led to one less Q class being modified (*Quality*) and one less Daring being built (*Waterhen*). The reasons for this are instructive. They were:

- Difficulty in obtaining ship and sub-systems production drawings from the UK in a timely fashion;
- Building/converting a small number of ships in each program which did not encourage production efficiencies. This was exacerbated by splitting the work between Cockatoo Island and Williamstown Naval Dockyard;
- Productivity issues related to the multitude of over 20 unions involved in the workforce, and associated demarcation issues; and
- The inherent productivity penalty in the case of Vickers Cockatoo Island Dockyard of building ships on an island.

The other key issue was the lack of continuity between the different programs, which meant having to release much of a trained workforce, only to then try and rehire them or grow a new one.

To address some of these issues, in particular the difficulty of the British shipbuilding industry to design and build ships due to workforce and budgetary constraints, Vice Admiral Collins considered moving to US designs. He felt however the multiple supply chain issues out-weighed the advantages.

The 1960s and 1970s saw a diffuse approach to building the future fleet. The advent of the missile age saw missiles first going to sea in the Type 12 frigates and even Australia developing its own anti-submarine missile Ikara, with a thought of developing an anti-ship version – the Womba. What was clear though, for medium range anti-air defence, that only the US had the resources as evidenced by their multi-missile 'T' programs[7] to really address the challenges in this realm. This resulted in the decision to acquire the three US-built Charles F Adams class destroyers.[8] These were successfully modified in build to carry the Ikara missile system.

In the area of anti-submarine warfare besides Ikara, the Commonwealth funded the development of the Mulloka hull mounted sonar, Barra sonobuoys, and the advanced Karriwara and Narama towed arrays. But like the warship programs, there was no over-arching strategy and long-term roadmap and commitment to developing successive systems.

[7] Terrier, Talos and Tartar missiles.

[8] David Shackleton, 'The Impact of the Charles F. Adams Class Guided Missile Destroyers on the Royal Australian Navy' (PhD Thesis, University of New South Wales Humanities & Social Sciences, 2017), https://doi.org/https://doi.org/10.26190/unsworks/3333.

At the same time Australia had gained confidence, through their successful modification of the Type 12 frigates, to design from scratch less complex ships and modify others. These projects included:

- Design, but not executed, of the Tartar fit to HMAS *Voyager* (which was lost before it could be done),
- Design and build of the destroyer tender HMAS *Stalwart*,
- Design the destroyer escorts *Swan* and *Torrens* based on the UK Leander class frigate,
- Design and build of the hydrographic/oceanographic ships *Moresby, Cook* and *Flinders*,
- Design and laying down of the fleet replenishment ship *Protector* (Figure 2),
- Design but then cancellation of the light destroyer or DDL program (Figure 3),
- Modernise the Oberon class submarines with the extensive Submarine Weapons Update Program (SWUP), and
- Design and build the Rushcutter class inshore minehunters.

This was a period (between 1965 and 1985) where there was much promise, but in the latter period hopes were dashed for having a sustainable local warship construction program.



Figure 2: AI image of the planned HMAS Protector at sea

The key events leading to its demise were:

- The decision to build on Australia's growing expertise to design and build a class of ten small destroyers in a rolling program never came to fruition. In 1966 the light destroyer or DDL project was stood up. The project was rescoped in 1969 to increase their capabilities so they could replace over time both the Daring and River class. Their size

grew to 4,200 tonnes. This caused sufficient concern over the ships' cost and technological risk for the Whitlam government to cancel the DDL project in 1973. The government instead ordered US Oliver Hazard Perry Class FFG-7 frigates. The first four ships were built in the US. Two more were built at Williamstown after a 14 year hiatus for local surface combatant construction.[9] It was worth noting that although size was a key issue, in the end the American frigates were only 100 tonnes lighter than the DDL.

- In 1971 there was an initial plan to build a 20,000 ton combat support ship, HMAS *Protector.* This was abandoned in 1974 due to rising costs. Instead, the RAN turned to, at face value, a cost-effective alternative - a local build of a modified French *Durance*-class design. In 1977, a contract was signed, and by late 1979, Cockatoo Dockyard secured the $68.4 million construction contract (1978 prices). In the end *Success* cost $187m and led to a ANAO Audit.[10] The projected second vessel was never built because of the cost over-run. The idea of build to print has rarely been as simple to implement as it sounds, with the Hobart class being a more recent example.



Figure 3: An AI image of the proposed DDL class at sea.

[9] HMAS *Torrens* was completed in 1971, and HMAS *Melbourne* was laid down in 1985.
[10] ANAO audit Fleet Underway Replenishment Ship - HMAS Success, 1983.

Of more success were the local builds of the last two FFGs - *Melbourne* and *Newcastle* followed by the ten Anzac class frigates for the RAN and RNZN. The key takeaways for these programs relevant to us today were:

- Early in the build of *Melbourne*, Williamstown dockyard was privatised and the number of unions on site reduced dramatically from 27 to three, operating without demarcations under a unified enterprise agreement. These two FFGs benefited from the adoption of computer aided design (CAD) technology and the use of modular construction. This allowed the FFGs and Anzac class to be constructed in multiple sites and consolidated at Williamstown. This was an important innovation in a country with a capable but often dispersed skill base and implemented by a significantly improved management team.



Figure 4: The 1994 launch of HMAS Anzac (source Tenix)

- The Anzac program demonstrated that Australia could build, by world standards both high quality warships and cost-effective ones, provided it was given a reasonable number of ships in a class to allow the yards to develop production efficiencies.[11]

[11] Ironfield, D, Impact of Major Defence Projects: A Case Study of the Anzac Ship Project, Tasman Asia Pacific, Lyneham, February 2000.

- The more complex Collins class submarines build at the greenfield ASC site in Adelaide shared some of these characteristics.
- Both Anzac and Collins benefited from the Hawke Government's Defence industry policy which mandated local content quotas (Collins was about 50% and Anzac was nearly 80%). Australian SMEs rose to the challenge, and the end result was economies in sustainment.[12] A subsequent study estimated that there was a saving of around $520m through the service life of the Anzac class because of the high local content.[13]

Similar success came with the more numerous but smaller sized Fremantle class patrol boats built after the lead UK ship in NQEA in Cairns, the hydrographic vessels and the minehunters.

At this point, however, the downside of successive governments adopting the policy of selecting 'existing proven designs' rather than those locally developed was manifesting itself. By 1999 there were ship designs and supply chains from six countries with the attendant logistic and training complexities. The designs themselves were also having to be modified to accommodate largely US origin weapon systems, often to the point that there was little commonality with the parent navy version. As such there were calls for a common design philosophy to be adopted going forward across the fleet.[14]

Meanwhile Tenix, following their experiences with the Anzacs, in the early 1990s designed the 75 metre, 1200 tonne Offshore Patrol Combatant for the projected joint Australian-Malaysian project (Figure 5).[15] The ships would have been fitted with an operations room and sensor suite, a medium calibre gun, a close range gun and an intermediate sized helicopter. They would be fitted for, but not with, anti-ship and surface-to-air missiles. They would be in essence a locally designed light frigate. The project's demise, in part due to a falling out between the two Prime Ministers and then Malaysia's withdrawal from the program, represented a lost opportunity for greater self-reliance in this field.

In 2000 another attempt was made to instigate a continuous shipbuilding program. The then Chief of Navy, Vice Admiral David Shackleton had developed a draft Navy long range plan - *Plan Blue* and it included a proposed continuous build program for the next 30 years. The time was propitious as it would scope a complete fleet refresh. This program was submitted as part of the Navy's submission to the 2000 Defence White Paper (DWP) writing team. It was not adopted, and far from the steady drumbeat of delivery, the resultant DWP had three major fleet units all being delivered in 2015.[16]

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12 John, G, The Challenge To Industry, Address to the ANI 1987 Seapower Conference, https://navalinstitute.com.au/the-ani-at-50-seapower-87-2/

13 Ironfield, op.cit, p.iv.

14 Peter Jones, *The Need for a Ship Design Philosophy for the RAN*, Journal of the ANI, April 1999, https://navalinstitute.com.au/ani-at-50-illumination-rounds/

15 Argos, 'ANI at 50: The OPC Project', *ANI*, 12 September 2025, https://navalinstitute.com.au/ani-at-50-the-opc-project/.

16 The ships were *Manoora, Kanimbla* and *Success*. DWP 2000, AGPS, Canberra, pp 84 & 89.



Figure 5: AI image of the proposed Offshore Patrol Combatant at sea.

On a more positive note, in the early 2000s Tenix successfully bid for New Zealand's Project Protector comprising a sealift ship and two offshore patrol vessels. By this stage with the last of the Anzacs – *Perth* due to complete in 2006, Tenix sought from the Government a plan to co-ordinate a plan to schedule future construction to keep the centres of shipbuilding in work. Indeed, they even offered to co-ordinate this effort. This was not forthcoming and partly as a result of there being no long term plan Tenix was sold to BAE in 2008. Defence itself had been aware of Australia's changing naval industrial dynamics and in 2002 had prepared a Naval Shipbuilding and Repair Sector Strategic Plan directed at its ongoing management, but it was eventually not endorsed by Government.[17]

Once again there was a more than six year hiatus between *Perth* and the lead air warfare destroyer *Hobart*.[18] There would be in turn another six year hiatus between the last air warfare destroyer *Sydney* and the first Type 26 *Hunter* class being laid down. At the time it was referred to as the 'valley of death' in recognition of the deleterious effect it would have

[17] Department of Defence, *The Australian Naval Shipbuilding and Repair Sector Strategic Plan*, with David Learmonth (Defence Materiel Organisation, 2002), https://webarchive.nla.gov.au/awa/20031105223521/http://www.defence.gov.au/dmo/msd/NSR_Sector_Plan_WebsiteVersion_26Sep02.pdf.

[18] *Perth* was completed in 2006 and *Hobart* laid down in 2012.

on the local shipbuilding industry.[19] The only mitigation was building early Arafura class offshore patrol vessels (OPV) in Adelaide to help retain some of the skilled workforce.

In the patrol boat realm, Austal emerged as the sole provider, this time with an in-house design capability based on their world leading aluminium commercial ferry business. While there were issues in the early Cape class, the required fleet numbers, as well as export orders, allowed the design to evolve. Allied to this was sustainment improvements largely based on operating experience with these aluminium ships.

So what are the lessons from this period for today?

Australia's naval shipbuilding experience since the 1960s has been one of multiple separate projects of uneven success. To exacerbate the situation were delays in project approvals resulting in a boom and bust cycle. Among other things this eroded confidence in local industry for Government to deliver on its plans.

Arguably, the attraction of foreign designs to retire project and cost risk was on the whole illusionary. It also led to long and expensive competitions for every project rather than, as in most advanced navies, evolving designs or settling on one or two design houses. The end result today is, as previously mentioned, the most heterogeneous fleet of any advanced navy.

The successes that did come, such as the Collins class submarines, Anzac class frigates, Huon class mine-hunters and the Fremantle class patrol boats, came with series production, top quality leadership at client and contractor level, detailed funded pre-contract engineering phases as well as adoption of computer aided design (CAD) enabled modular construction and local content contractual obligations. This allowed small skill centres of excellence around the country to contribute to the enterprise and assist with schedule execution.

Modernisation of classes is worthy of mention. They were generally indigenous in nature. The challenge was in getting approval to undertake mid-life refits at the optimum time in the life cycle. Delays often resulted in more funds going into structural and system sustainment rather than capability upgrade. The FFG Upgrade provided the most capable upgrade, but the delays in commencement through contracting and managerial issues limited the years the fleet benefitted from these improved ships.[20]

Importantly, there was no overriding guiding principles to the national warship building enterprise, that would provide strategic guidance for each ship procurement project, dealing with issues such as standardisation and batch development.

[19] Leah MacLennan, 'Shipbuilders Reject Pyne's Claim "Valley of Death Is Over"', ABC News, ABC News, 12 October 2017, https://www.abc.net.au/news/2017-10-12/shipbuilders-reject-government-claim-about-valley-of-death/9043318.

[20] Lee Cordner, 'From the ANI Archive: The FFG Upgrade', *Australian Naval Institute*, 8 August 2026, https://navalinstitute.com.au/from-the-ani-archive-the-ffg-upgrade/.

Part 2
An Analysis of the Shipbuilding Program

Turning now to the authorised Australian naval construction program. Figure 6 shows our best understanding, based on publicly available information of the major ship and submarine construction programs.

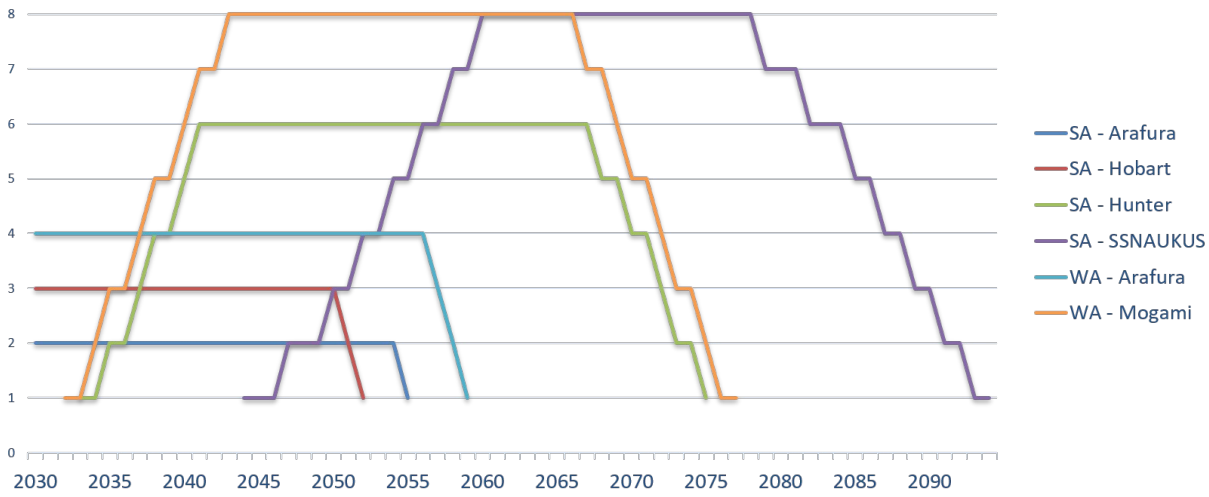


Figure 6: Australian Shipbuilding Program (source 2024 NSSP)

Submarines

First turning to submarines:

- All things going well the first of the RAN Virginia class SSNs will be based at HMAS *Stirling* (Fleet Base West - FBW) in 2032. By that stage at least three of the US Navy's Virginia class SSNs, constituting the US Submarine Squadron 3, will already be based there. It is our judgement that, due to their age and crewing demands, two Collins will be de-commissioned for every arriving RAN SSN. So the last boat should go in 2037 (Figure 7).
- It is expected that the steady state would be only one RAN Virginia SSN deployed at a time. The US SSNs should have a greater availability out of FBW because when their boats are due for full cycle docking they will be rotated out.

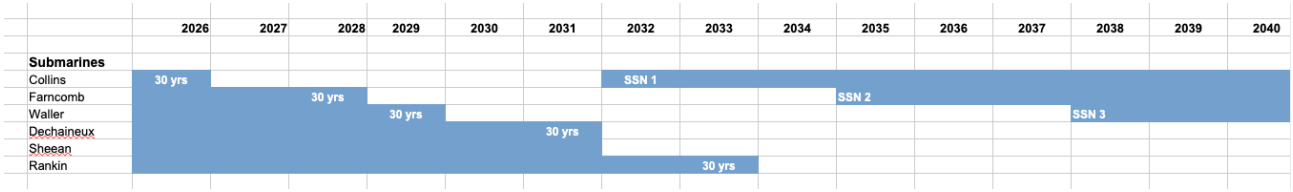


Figure 7: RAN Submarine Transition 2026-2040

- The RAN's underwater capability will be an increasingly hybrid one with growing numbers of the Ghost Shark Extra Large Autonomous Underwater Vehicles (XL-AUVs) entering service. These XL-AUVs will be built by Anduril in Sydney and will be able to both complement and undertake some of Collins' missions. As their numbers grow consideration should be given to a dedicated support ship to maximise their capabilities. (Figure 8).



Figure 8: An AI image of a possible UUV support ship

- RAN submarine numbers and availability should start to improve in the mid to late 2040s when the SSN AUKUS start to appear out of Adelaide (Figure 9). The duration of each build is uncertain, but it is recommended that a second module construction facility on the east coast be considered to expedite and de-risk the program. This innovation has been successfully adopted in the US SSN program.[21]
- One issue to look out for is the age difference between the three second-hand Virginias the RAN acquires. It will be ideal for them to have the same age difference as the build interval of the SSN AUKUS. This will enable them to be replaced with new builds in a seamless way about 20 years down track.
- In managing the complexity of two different SSN classes and likely wharf congestion at FBW, it is proposed that the one class be relocated to the east coast where it could be supported by a submarine tender ship (Figure 10). This arrangement has been well proven by with US Navy SSNs in Guam and elsewhere.

[21] https://www.austal.com/ships/submarines



Figure 9: An AI impression of a SSN AUKUS at sea in the late 2040s



Figure 10: An AI Image of a possible RAN submarine tender ship supporting a RAN SSN.

Surface Combatants

- One of the challenges that is clear is the long build cycle of a Type 26 Hunter class. At about six years it is double that of Mogami. This means that the last Type 26 will not likely commission until 2041. Arguably it is just as well the program was cut to six units. Like the SSN-AUKUS an east coast module fabrication facility would bolster the program.
- A challenge for the Navy will be that after it only received three new combatants in the 2020s it will have to introduce into service between 12-13 surface combatants in the 2030s (Figure 11). As navy has found with expanding the workforce of its submarine arm, the increased overall crewing for the greater number of ships and all the other demands of its workforce must be addressed. Having an inadequately sized workforce has been a consistent hallmark of the RAN since its formation.
- It is the authors' expectation that at about 2040 both the Mogami and Hunter programs will have completed. Another 'valley of death' looms unless other programs are inserted for both shipyards. One option would be to build the proposed submarine tender(s) at Osborne as well as investigating how future large tonnage amphibious and support ships might be constructed. It is projected that Osborne will have a future capability to build ships of up to 20,000 tonnes which would be of sufficient size for such a tender.[22]

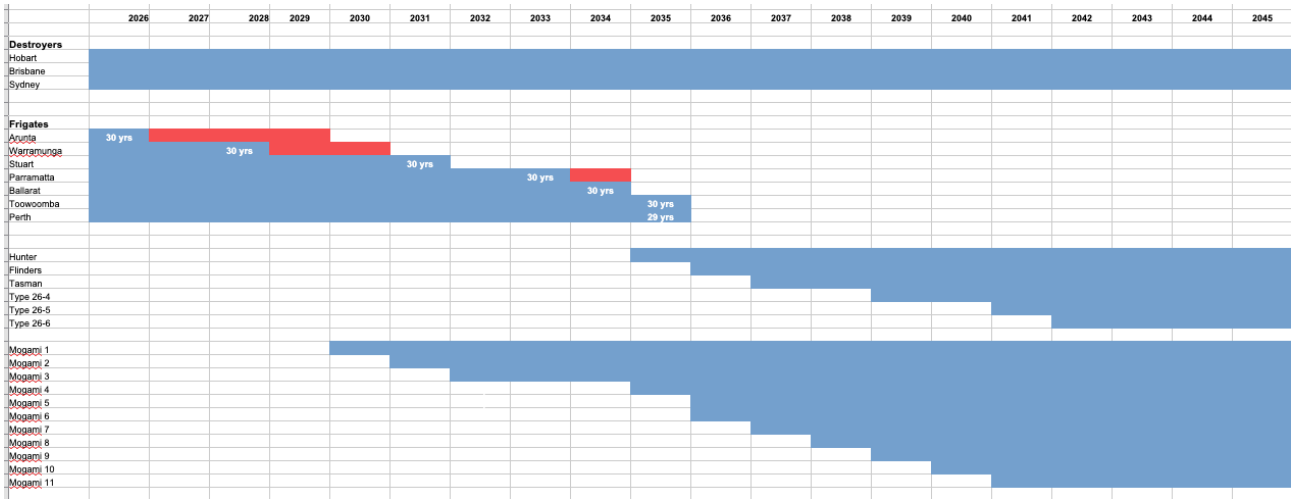


Figure 11: RAN surface combatant Transition Plan

- The NSSP calls for a new destroyer class from the late 2040s as replacements for the Hobart class if they are allowed to reach a service life of 30 years. It is suggested that with the British cancelling their Type 82 program and removing that option for the RAN, and assuming that the Mogami program proceeds satisfactorily, Australia should engage with the Japanese to explore collaboration with their future program. Similarly, there could be collaboration on replacements of the Canberra class LHDs and the

[22] Techport Australia's Common User Facility (CUF) Adelaide, https://www.ship-technology.com/projects/techport-australia-common-user-facility-adelaide/ . Accessed 23 September 2026.

Japanese Hyūga class and Izumo class helicopter carriers, all of which need replacements in the same decade.



Figure 12: An AI image of Mogami class construction at Henderson shipyard in the 2030s

- The remaining Arafura class OPVs – *Pilbara, Gippsland, Illawarra* and *Carpentaria* will be built at Henderson and complete by 2030. It remains to be seen how these much larger ships fit into the constabulary role and whether the reduced number will require a restarting of a smaller patrol boat production line. This would presumably be by Austal either at Henderson or another less congested facility.
- The projected Large Optionally-Crewed Surface Vessels (LOSV) program has yet to be detailed. Conceptually these ships should have a place in the fleet, particularly noting the very modest missile capacity of both the Hunter and Mogami frigates, and the small number of Hobart class destroyers. With the cancellation of the US program, it may be prudent to at least fund Austal to offer a proposal based on their capacious ferry designs (Figure 13). This could begin during the Mogami program and continue on afterwards.

Army Amphibious Ships

The other major ship construction projects are the two Army amphibious ship projects - the eight Landing Ship heavy (LCH) and the 18 Landing Craft Medium (LCM) (Figure 14). Based on overseas experience the larger LCH will take about three years each to constructed with the program completing around 2038. The LCM program will run concurrently but should complete in 2032. This will potentially free up some workforce able to move on to the Mogami class.



Figure 13: An AI Image of a Large Optionally-Crewed Surface Vessel



Figure 14: AI Image of the future LCH and LCM undertaking operations.

Part 3
Governance of Australia's Naval Shipbuilding Enterprise

This section of the study addresses the important overarching governance arrangements that should increase prospects for its success. By that is meant how the entire shipbuilding enterprise is managed, and not via single projects or individual initiatives. British, European, Japanese and US collaborative programs have been examined to identify the factors that lead to their success or failure. Treating it as an enterprise and recognising features of its ecosystem that must be nurtured is essential. Creating a 'map' of the ecosystem will be required to understand its capacity, strengths and weaknesses.

It is appreciated that this paper can only be a distillation of those features and concentrate on the upper level, and Australia may already be utilising some of the factors we highlight. In that sense, they provide a basis to compare what exists against these propositions and make judgements accordingly. Included are programs for Army vessels within the enterprise as well as commercial programs providing ships and vessels to Defence which will have to comply with required standards. Australia's evolving submarine enterprise is not addressed in any detail, but it is suggested that the proposed principles are relevant to the submarine program.

Strategic Intent

The cost to Australians of assuring their national security, in both fiscal and human terms, demands that it be applied in meeting measurable strategic objectives that will gain their support. *Our National Defence Strategy*[23] provides a broad overview of current and expected circumstances and associated defence priorities. In relation to its shipbuilding intentions, its complementary Defence Investment Plan notes that more detail is to be provided later in 2026.[24] In the meantime, the earlier direction provided in 2024 remains extant.[25]

Australia is not alone in recognising that shipbuilding is an element of the much bigger picture of national security. The US has produced a Presidential Action Plan[26] to drive investment and recapitalisation of its neglected shipbuilding capabilities, to which Australia is also contributing over $4bn for future submarines, as it is also to the UK.

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23 Department of Defence (Australia), *2026 National Defence Strategy* (Defence, 2026), https://www.defence.gov.au/about/strategic-planning/2026-national-defence-strategy-2026-integrated-investment-program.

24 Department of Defence (Australia), *2026 National Defence Integrated Investment Plan* (Defence, 2026), 44, https://www.defence.gov.au/about/strategic-planning/2026-national-defence-strategy-2026-integrated-investment-program.

25 Department of Defence (Australia), *2024 Naval Shipbuilding and Sustainment Plan: Evolving The Enterprise* (Defence, 2024), https://www.defence.gov.au/about/strategic-planning/2024-naval-shipbuilding-sustainment-plan.

26 Marco A. Rubio and Russell Vought, *America's Maritime Action Plan* (Executive Office of the President of the United States, 2026), https://www.whitehouse.gov/wp-content/uploads/2026/02/Restoring-Americas-Maritime-Dominance.pdf.

The importance of jobs can be seen for promoting the benefits of shipbuilding and in 2022 the UK recognised that export of the Type 26 design to Canada and Australia of an anticipated 32 ships (at that time) would create about 5,000 export related jobs.[27] Australia's own announcement of continuous naval shipbuilding in 2016 similarly extolled that embarking on that same journey would create 2,500 jobs.[28] Important as they are, focussing so much on the jobs misses the real point. It is about what lasting operational capability we get from all that investment and effort, which should be entirely geared to improving our ability to be free of any constraints applied by others that really matters. Without having a strong economy, having a strong defence becomes only an aspiration, so their symbiotic relationship is always present.

While the progress to date in Australia is encouraging, it does not reach the explicitness of purpose expressed by Canada. In plain English, its industrial policy states: "Canada needs a strong defence industrial base to produce the equipment required by our military."[29] This is backed up by measurable plans for the shipbuilding industry leading to the required outcomes.[30] Our view is that the importance to Australia of its continuous naval shipbuilding and sustainment program lacks such clarity, and that its overall strategic purpose needs to be far more clearly enunciated and then driven harder to achieve its purpose. There is no surety about the duration of any future conflict and if Australia did not want to use the same phrase as Canada, it could say for instance: *The purpose of Australia's defence industry is to continuously provide what we need and sustain our combat power on extended periods of operations.*

Principles to be Applied

Australia is a maritime nation and acknowledged as a middle power. From this, its naval industrial policy should be that Australia will provide its naval forces with persistence and capabilities that meet its overarching defence policy of deterrence by denial.

To do this, Australia should design, build and support all naval ships and submarines in country, other than those few for which other friendly nations might be more suitable. Our national industrial capabilities must be developed and sustained to meet this significant and enduring requirement. Execution will require formation of a whole of government national shipbuilding enterprise, and naval industries incorporate mandated rules of participation for offshore OEMs, carrying the Prime Ministers imprimatur, and most likely to

[27] National Shipbuilding Office (UK), *Refresh to the National Shipbuilding Strategy* (Her Majesty's Government, 2022), 12, https://www.gov.uk/government/publications/refresh-to-the-national-shipbuilding-strategy.

[28] Department of Defence et al., 'Prime Minister and Minister for Defence - Continuous Naval Shipbuilding', Joint Media Release Prime Minister Turnbull and Minister for Defence Payne, Department of Defence Ministers, 18 April 2016, https://www.minister.defence.gov.au/media-releases/2016-04-18/prime-minister-minister-defence-continuous-naval-shipbuilding.

[29] Government of Canada, *Canada's Defence Industrial Strategy* (2026), 4, https://www.canada.ca/en/department-national-defence/corporate/reports-publications/industrial-strategy/security-sovereignty-prosperity.html.

[30] Government of Canada, 'About the National Shipbuilding Strategy', Public Services and Procurement Canada, 8 May 2025, https://www.canada.ca/en/public-services-procurement/services/acquisitions/defence-marine/national-shipbuilding-strategy/about.html.

be led by the Minister for Defence Industry, which will have the responsibility for developing and implementing a measurable strategic roadmap which continuously meets our policies.

These policy principles will lead us to providing the ships, equipment and capabilities needed by our naval forces which embody the following characteristics:

- **Highly capable but not necessarily superior capabilities.** Incorporate advanced technologies that take into account the fiscal, workforce and basis of provisioning constraints of the ADF, with a clear bias toward Australian supply.
- **Spiral and Batch Development.** Develop and acquire capabilities which build on in-service capabilities to retire risk, build expertise and maximise operational capabilities.
- **System Commonality.** Wherever practicable, mandate a high level of system commonality across and between classes. This will serve to reduce cost of ownership, increase availability, reduce training demands and encourage local supply chains.
- **Local content requirements.** As previously demonstrated in Australia, mandating local content targets sends strong market signals to bidding consortia to encourage local companies to meet this demand. The benefit for defence is reduced cost of ownership over time and a shorter, more dependable supply chain. We suggest having a policy that a minimum of 70% of the selling price to the Commonwealth be demonstrably derived from Australian manufactured goods and services would bring important benefits. The remainder of acquisition costs should be expended in Australia through approved offsets only associated with Defence industry.
- **Data Management.** There is an increasing trend to integrate digital design and production data from platforms and their mission systems to better inform logistics as well as operations and lifecycle management. Standardisation of datasets and how they are managed and kept secure must be rigidly implemented by prime contractors for their projects, ideally leading to a common arrangement across the enterprise.

Governance of the Shipbuilding Enterprise

Australia's circumstances are such that its government is the only buyer and customer in the naval shipbuilding business and its attendant OEMs, which inevitably shapes the domestic market. Some of what can be done in our domestic market is also shaped or limited by the nature of international agreements for access to sensitive technologies and logistic support, some of which might require special measures for how they are used.

As with many other nations, Australia’s shipbuilding primes will not determine the choice or control all critical systems to be incorporated in the platforms. Defence can be expected to select major combat and some other systems and appoint prime systems integrators. Common practice also leads to batch building for each class and applying standardisation of equipments and systems across multiple classes wherever it makes sense. An ever present fundamental limitation is that the supply chain must support each class throughout its life. Without a supply chain there is effectively no industrial capability, and it is a mistake

to think that it has infinite capacity. Expectations have to be realistic, but improving the capacity and quality of the Australian supply chain (especially) and its constituents is an essential task for those leading the enterprise.

Hence, acquisition, upgrade, repair, obsolescence management and ensuring resilience of the entire naval shipbuilding enterprise must all be governed together. The central challenge is therefore not merely choosing a shipbuilder but creating a durable public-private enterprise in which government can preserve sovereign control, maintain competition where possible, and prevent either the prime contractor or critical suppliers from extracting monopoly rents or failing under unmanageable risk. This includes ensuring no foreign supplier can control our destiny through withholding its provision, and we don't want any electronic or other back doors into our enterprise or what it produces either.

In this paper, we use the term governance to mean the overarching framework that shapes and manages the entire naval ship building enterprise. It has authority to act and direct, is focussed on the national good, and will avoid expediencies that might arise with individual projects as they progressively transform good ideas into reality.

Underpinning all of this is the essential element of trust between all those involved. Trust will only come from honest collaboration. Having a leadership comprising people with the right experience will bring the maturity needed to remove the urge to win as individual participants, not playing the blame game, and consciously fostering a capacity for learning and not repeating avoidable mistakes. These conditions are not born of a naïve lack of understanding of the very real challenges to be overcome and the clash of cultures we know are alive and well in this enterprise. It is a truism that failure will reflect on everyone involved, and it is Australia that will be the biggest loser. A mix of carrot encouragement and threat of stick by the Government will inevitably be needed to create and sustain this environment, and how wisely they are used will shape success.

International Arrangements

Australia has international agreements which impinge on multiple capabilities it seeks to incorporate in its warships or their operation. In turn, they bring with them a requirement for proactive management to ensure they remain useful for each party. The most significant of these agreements are at government to government level, involving ministers who seek to further their own respective national interests. It's the quality of advice they get from Defence and its own advisors that matters most in the formative stages of their development. In turn, Defence needs to be an expert in its own business, capable of assessing its own strengths and weaknesses, and where appropriate, with the assistance of those it can trust.

Such agreements can also create constraints for sharing information between the international partners to be involved in Australia's shipbuilding enterprise. Acknowledgement of any such constraint is essential before making source selections which may sensibly serve to limit the wide aperture of sources so far applied, which has created one of the world's most internationally diverse, expensive and difficult to sustain

navies. We have a modified Spanish destroyer, a heavily modified British origin frigate, both equipped with the same primary combat system and weapons sourced from the US, a Japanese frigate is coming with a different combat system and built to different standards and methods than the Spanish and British. And they all have different supply chains.

In other words, there is an industrial and operational cost and benefit equation to be balanced in assessing the importance of consistency and predictability of change, instead of seeing each new building program as starting from a clean sheet of paper. Future agreements must be viewed through that lens. It is extremely difficult to manage an enterprise as an enterprise when it is so fragmented.

Monopsonistic Industry

A monopsonistic[31] industry is one in which the buyer, rather than sellers, hold market power. For Australian warships, it is obviously the Government. It likewise brings high switching costs for suppliers who have limited alternative outlets, including for their supply chains. Those few big suppliers in the warship industry typically not only have sophisticated technologies and capabilities but also have business techniques tailored to the complexities of government contracting. This being the inevitable consequence of having to avoid serious losses or bankruptcy when they adapt to changes governments are prone to make as they adjust policies and budgets.

A critical factor in what is in effect a government owned monopsonistic industry, but not always appreciated by the layman, is the need for long term planning so the several hundreds if not thousands of participants concerned can adjust to any changes. Long term in this instance means in the order of 20 to 30 years for decisions on investment or divestment to be made without the consequences we have seen previously which arose from boom and bust programs. It's the sheer human and financial cost of re-establishing and re-learning how to manage an entire industry that causes the mayhem and extreme political angst we have all seen. We do not want to return to that state of affairs, but the future program with the spread of ships and submarines as we comprehend it already holds the ingredients of history repeating itself.

Those participating in this arrangement are not in a fight to the death contest of winners and losers. They are both there to win. It is how winning is defined, or what success looks like, established at the outset and used as a compass throughout the future multiple decades of marriage, that will make the journey positive for all involved.

We need to consciously and formally set the conditions for success, and the following paragraphs provide some indication of what Defence and industry could do to build a long lasting governance framework that leads to its long term achievement. It is, after all, money raised from Australian taxpayers, and their elected government has no shortage of other uses for it.

[31] A monopsonistic arrangement is where there is only one buyer.

Enterprise Board for Shipbuilding and Sustainment

It is proposed that overarching leadership of the enterprise be exercised through a Board appointed for that specific purpose. It would be made up of senior individuals who have the power to make binding decisions within politically approved delegations that lead to accomplishment of their responsibilities. Its purpose is to oversight implementation of the NSSP in relation to all naval and military vessels, and others that might be so designated, other than nuclear submarines.

The Board deals with enterprise level strategies and risks that it is inappropriate for resolution within a single contract, project or initiative which will impact on how the enterprise evolves. An important early step will be to map the enterprise and its ecosystem and comprehend what it needs to flourish. While its focus is thus on the big picture, its responsibilities do require it to delve into the deeper levels of detail to ensure compliance with its directives. This should include obtaining advice and making decisions on:

- design maturity
- facilities
- combat-system interfaces
- export controls
- obsolescence
- independent assurance
- workforce
- supply-chain resilience
- sovereign data
- security of all kinds including cyber
- mobilisation & sustainment readiness
- the enduring industrial capability of the of enterprise to meet its purpose

Board membership must comprise those who are responsible for both shaping and delivering the future, and living with the present. They must be the most senior members of each organisation intimately affected by how the enterprise performs and evolves. This Board is where Defence should be ensuring it does not repeat the serious mistakes made or relearning the and lessons of learned through transitioning the Canberra Class into service with their long running sustainment problems.[32]

For example, its membership could be:

- National Armaments Director (Chair)
- Chief of Navy
- Department of Finance
- combat systems integrator (s)
- selected advisors as necessary
- Vice Chief of the Defence Force
- Australian Naval Infrastructure
- prime contractor (s)
- independent assurance authorities

[32] Australian National Audit Office, *Department of Defence's Sustainment of Canberra Class Amphibious Assault Ships (Landing Helicopter Dock)*, Performance Audit 50: 2024-25 (ANAO, 2025), https://www.anao.gov.au/work/performance-audit/department-of-defence-sustainment-of-canberra-class-amphibious-assault-ships-landing-helicopter-dock.

The Board should be supported by an Independent Assurance Function. Unbiased advice and information is needed by all its members which may complement other information sources and is essential to ensure there are no false expectations or misunderstanding of risks the enterprise is facing. Timely and effective decision making is critical to keep the enterprise focussed on what it has been created to deliver, in the most suitable and timely manner. As an example, independent advice should be provided on the following for each element of the enterprise, which also includes their impact on all other elements of the enterprise.

- cost
- technical maturity
- industrial readiness
- export-control dependencies
- schedule
- earned value
- security of all kinds including cyber
- supplier fragility & sustainment readiness

Integrated Design Authority

The Enterprise Board will need to be supported by specialist authorities that provide timely authoritative advice on actions necessary to meet their own objectives, which in turn are a subset of the overall objective of the enterprise. An example is the integrated design authority, which will need to be established to control technical baselines for each class of ships being constructed and supported through life. For example, this authority will comprise government and military officials and industry participants who have clear terms of reference for dealing with such matters as:

- ship design authority
- Navy technical authority
- cyber authority
- sustainment authority
- combat-system design authority
- safety authority
- classification/certification authority
- others as required

This is primarily an engineering focussed body which will shape how the enterprise evolves to manage risk and grow engineering capabilities. There will be more, but as a guide of the control to be exercised:

- Interface control documents should be contractually binding.
- No party should be able to change space, weight, power, cooling, electromagnetic compatibility, signatures, shock, survivability, safety, cyber or information-assurance requirements without approval through this authority.

- The authority should maintain a single configuration baseline and should publish (say) a monthly “design maturity and integration risk” report to the Enterprise Board.

Commercial and Industrial Base Committee

An obvious focus of the enterprise is ensuring its industrial aspects are fit for purpose and that value for money is always a central consideration, recognising that the cheapest product is not necessarily the best value for money. Membership of the committee should be overseen by the National Armaments Director, but in overall terms this committee should manage matters associated with:

- open-book cost data
- Australian industry capability and content commitments
- workforce growth
- value-for-money evidence
- supplier financial health
- capital investment
- sovereign data rights

This committee should have access to underlying cost records, subcontract tender records and related-party transactions. Its purpose is not to micro-manage industry, but to ensure the Commonwealth understands whether it is paying for genuine capability uplift, efficient production, or avoidable cost growth. It should also maintain a strategic supplier register identifying suppliers that are irreplaceable, financially fragile, exposed to foreign-control risk, or subject to long lead times.

Open Book Accounting

There is much scope for public opprobrium when any suggestion arises of paying for gold plated solutions or special arrangements for some and not for others. The vengeance of the Government can be fatal to an industry that fails to respect the importance the industry commands to the nation. Methods must be in place, and be seen to be in place, that permit a defence against any suggestion of not gaining full value for money. Governments always have choices as to where they can acquire warships, and not taking extant policy settings for granted will be essential for longevity of the enterprise as it is currently intended and will inevitably evolve. Juxtaposed, the Government should proactively seek advice on policy changes to enhance performance to meet anticipated needs.

Open-book accounting should be mandatory for the shipbuilding prime, combat systems integrator and critical first-tier suppliers. Government should have audit rights over labour rates, overheads, related-party transactions, management fees, foreign exchange assumptions, escalation, contingency, risk allowances and profit. For example, the UK Cabinet Office guidance describes open-book contract management and scrutiny of supplier costs and margins through access to accounting data, particularly for large, high-value, high-risk and complex contracts, and notes that it can support value for money,

performance review, change control, efficiency improvements and trust.[33] There is no reason such a methodology could not be adapted and applied in Australia.

Profit should typically be agreed through a transparent target-cost incentive-fee model although it is recognised that different requirements can require tailored contracting. The base margin should reward efficient delivery and real risk assumption, not mere occupancy of a monopoly position. The UK similarly provides guidance on acceptable profit margins,[34] which is focussed on improving performance and introduces the prospect of greater margins if risk is better managed. Some options would include:

- Gain-share should apply only to verified cost reductions that do not reduce capability, safety, maintainability, cyber resilience, sovereign control or future upgradeability.
- Pain-share should apply to avoidable overruns, rework, late drawings, production inefficiency and supplier management failures.
- Profit on government-funded capital assets should be limited, and related-party margins should be visible and capped.

Prevention of Enterprise Failure

- Failure of the enterprise would represent a catastrophe for the nation and its navy. Defence should therefore retain step-in rights triggered by insolvency risk, failure to meet national-security obligations, persistent schedule failure, loss of key licences, cyber compromise or major security breaches, foreign-control concerns, inability to support the fleet, or failure to preserve essential sovereign capability.
- Step-in should include rights to access facilities, all technical data, software environments, tooling, jigs, fixtures, supplier contracts, work-in-progress, quality records and configuration data.

These rights are only credible if prepared in advance through data escrow, government purpose rights, source-code escrow where relevant, supplier novation clauses, facility access rights, security clearances and continuity playbooks. Periodic business continuity rehearsals should be conducted as live exercises and not only at the desk top level with learning being reported upwards and fed back into how such measures might be used in the future.

33 UK Government, ‘Procurement Policy Note 004: Open Book Contract Management’, GOV.UK, GOV.UK, February 2025, https://www.gov.uk/government/publications/ppn-004-open-book-contract-management/ppn-004-open-book-contract-management-html.

34 UK Government, ‘Contract Profit Rate Assessment (2026)’, Single Source Regulations Office, Single Source Regulations Office, 20 March 2026, https://www.ssro.gov.uk/2026-contract-profit-rate-assessment/.



Figure 15: AI Image of a RAN Mogami and a SSN Aukus entering port.

Part 4
Conclusion

Australia's geo-strategic security circumstances are already undergoing what is likely to be many decades of complex and unpredictable change. Confidence in the ANZUS alliance such as existed previously is now more questionable other than in complete extremis, and AUKUS is no more than an agreement to collaborate. There's a clear message from America that more is expected of individual nations to further their own security. Australia acknowledges that the more we do for ourselves the better, as the simple but fundamental truth is that nobody cares more about Australia than we do. We ignore the implications of over-reliance on any overseas source for any of our defence needs at our peril because it means we could be stranded just when we need it the most.

It is a falsehood to think that whatever ships and submarines are designed and built for another nation will meet our requirements without some form of modification. The geographic size of our region and characteristics of our oceans, along with the variations in our climate and associated requirements for ship and submarine endurance, all combine to form one of the most demanding operating environments on the planet. To our credit, we have shown on multiple occasions that Australia can build advanced modern warships and submarines to comparable, if not higher standards than achieved by other nations, and to competitive prices. There's no reason to think it is too hard.

Where we have consistently erred is that those programs, such as the Anzac frigate and Collins submarines, were not followed up by a strategic intent linking our industry to the operational capability required of the RAN and its associated support. We didn't keep in

mind the big picture and ask – why are we doing this? Hence, we also couldn't answer the next obvious question of: 'what comes next'. The colloquial term for the inevitable was 'boom and bust.'

Australia's government has firmly committed itself to continuous naval shipbuilding and sustainment. Of itself however, the current shipbuilding program needs to be redesigned, not the least because we can already see the makings of what we do not want to repeat; yet another boom and bust. We haven't yet set implementation in the context of the big picture.

The nation needs that overarching statement of strategic intent by government of what we want to achieve and why, which signifies full political commitment and in turn will drive effort and bring resources over the long term. We must plan the lifecycles of our ships and submarines to be economical in terms of construction and sustainment cost, operational availability and modernity in complete lock step with our industrial partners to ensure neither have to again face failure. When the many billions of dollars it takes to own a navy are added up, the nation has a strong expectation we will get much better value for money than we have so far demonstrated, for which shortcomings were identified by the ANAO.[35]

Providing that essential strategic direction bestows legitimacy on creating a national approach to the enterprise and constructively shaping outcomes. It will require whole of government leadership at the Federal level, with a partnering commitment by State governments to create and nurture the essential industrial ecosystem. There will inevitably be variations in demand, and the ability for industry to absorb such fluctuations must not lead to economic devastation for those involved. It sounds obvious but this is not how we currently do things.

Work should needs to be done where the workers and facilities are, with an example being the US recent adoption of forming a Federation of Shipyards[36] to overcome its known long delays in production of both ships and submarines. Making Western Australia and South Australia so central and exclusive to the future of shipbuilding runs the risk of workforce shortages and program slippage for the same reasons the US has changed its methods; time is not on our side. Such a centralised approach also runs the risk of it losing its essential knowledge should it once more atrophy due a lack of demand. Modern tools and manufacturing techniques make the creation of digital twins and distributed manufacturing far more practicable than in the past. There is no shortage in Australia of innovative companies capable of participating in the ecosystem and they do not necessarily yet see Defence as core to their business.

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[35] Australian National Audit Office, *Maximising Australian Industry Participation through Defence Contracting*, Performance Audit 31: 2024-25 (Australian National Audit Office, 2025), 90, https://www.anao.gov.au/work/performance-audit/maximising-australian-industry-participation-through-defence-contracting.

[36] Sam LaGrone, 'The New Federation of American Shipyards', *USNI News*, 5 October 2026, https://news.usni.org/2026/10/05/the-new-federation-of-american-shipyards.

Underpinning how we make better use of our industry and meet operational demands is to implement strict discipline over data and its management and especially its security. This includes keeping nations out of our supply chain that cannot verify their sources to our satisfaction.

Defence must play the preeminent leadership role in all of this, and the Chief of Navy must be the leading source of advice to all and sundry over what the Navy needs and why, and when, and perhaps at what cost. The defence capability planning system managed by the Vice Chief Defence Force and implemented primarily by the National Armaments Director must adopt a nuanced but firm hands-on attitude to the industrial implications of their decisions. Some matters may well not pass a strict narrowly focussed economic test because it is developing and sustaining the enterprise that is the primary goal, not individual projects. Industrial leaders have a key role to play in this too. Collaboration with all the tools for effectiveness and efficiency at their disposal being utilised must become a real way of doing business. There's no room for creating any impression that cash is being syphoned off at the taxpayers' expense.

Unless Defence identifies its future requirements by about 2030, it can already be forecast that the end of the Hunter program will arrive without morphing into the obvious need to replace the capability represented by the Hobarts. The same will happen when the Mogami program nears its conclusion. Those current and future programs must incorporate plans to significantly reduce our industrial reliance on others. There's a lot to do in a few short years, even without the complexities of the submarine program.

'Deterrence by Denial' will be only a slogan unless maritime operational concepts and their associated future force structure components translate from being good ideas into real programs. We don't want to find ourselves once again on the wrong side of the curve through admiring the problem until it becomes a crisis. We need a continuous national shipbuilding and sustainment enterprise to make this come about and a funded program that can demonstrate how it will be delivered and sustained. The operative word is 'continuous'.

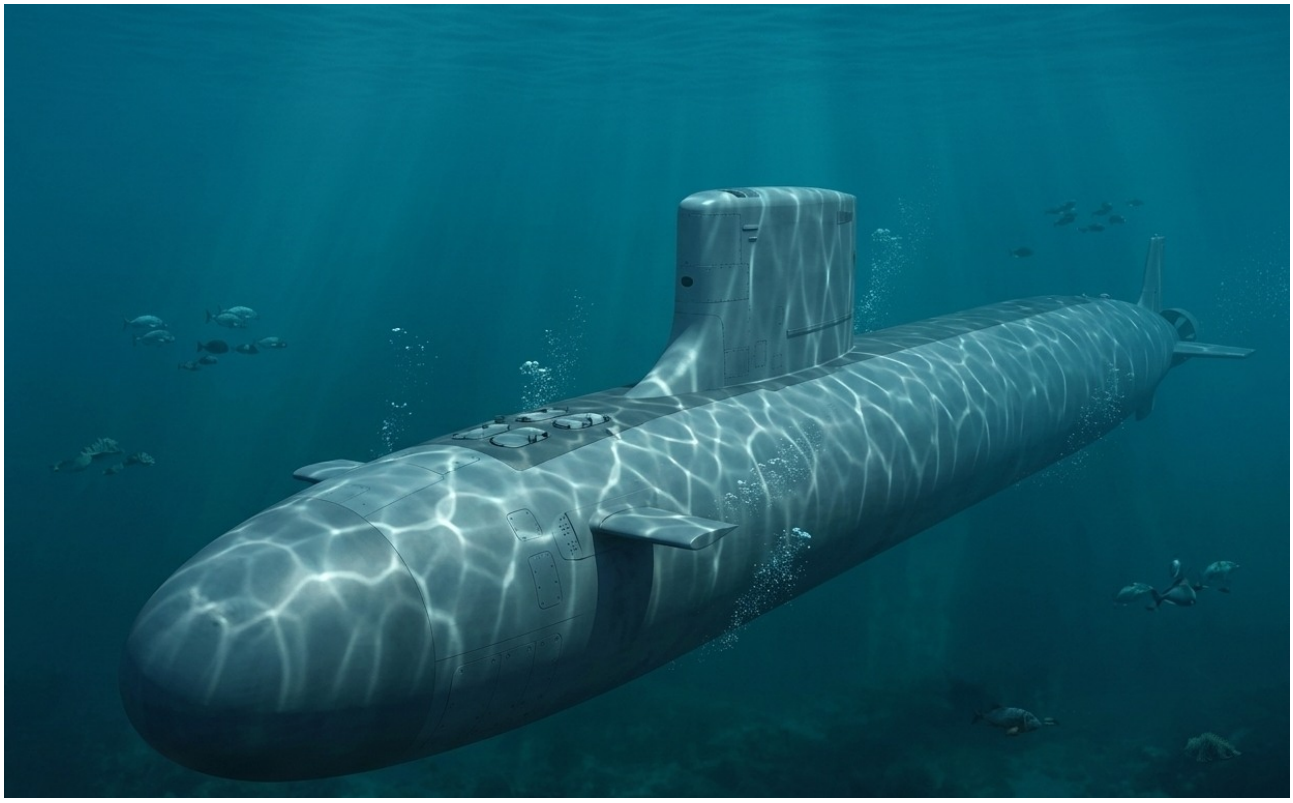


Figure 16: An AI image of a RAN Virginia Class SSN in her element.

Part 5
Consolidated Recommendations

Enterprise Governance & Leadership

- **Institute an Enterprise Board:** Establish an Enterprise Board for shipbuilding, ship equipment, and sustainment with dedicated engineering, project planning resources, and executive powers to drive productivity and decision-making.
- **Integrated Design Authority:** Create an Integrated Design Authority to strictly control technical baselines, interface control documents, and single configuration baselines across all ship classes.
- **Commercial and Industrial Base Committee:** Form a committee to oversee open-book cost data, supplier financial health, capital investments, workforce growth, and sovereign data rights.
- **Prevention of Enterprise Failure:** Retain strong step-in rights backed by data/source-code escrow, supplier novation clauses, and live business continuity rehearsals.

Acquisition and Commercial Principles

- **Leverage Monopsony Dynamics:** Apply open-book contracting, transparent target-cost incentive-fee models, and audit rights over labour and overheads to ensure value for money.
- **Mandatory Local Content Quotas:** Institute policy requiring a minimum of 70% of the selling price to the Commonwealth to be derived from Australian manufactured goods and services.
- **Accept Excellent Capabilities:** Focus on capabilities that fit fiscal, workforce, and provisioning constraints rather than pursuing unnecessary technical superiority.
- **Spiral & Batch Development:** Acquire capabilities incrementally building on in-service systems to reduce risk and maximise operational readiness.
- **System Commonality:** Mandate common systems across classes to reduce ownership costs, training burdens, and supply chain fragmentation.
- **Integrated Data Management:** Enforce standard datasets and secure handling of digital design and production data across the entire enterprise.

Program & Fleet Structure

- **East Coast Construction & Support Capability:** Develop an east coast module construction capability and relocate one SSN class to the east coast, supported by a dedicated submarine tender ship.
- **Follow-on Programs at Osborne:** Construct a submarine tender ship (RAN-AS) and replacement large amphibious/sea control ships at Osborne following the Hunter class to avoid construction hiatuses.
- **Japanese Collaboration:** Explore collaboration with Japan for a Hobart class destroyer replacement (enabling earlier retirement or reserve status for the Hobarts) as well as future amphibious/helicopter carrier replacements. Undertaking this in parallel with the suggested submarine tender does not seem impractical.
- **LOSV Design Tasking:** Task Austal with developing Large Optionally-Crewed Surface Vessel (LOSV) designs based on commercial ferry hulls.

Part 6
References

ACIL Tasman, and Denise Ironfield. *Impact of Major Defence Projects: A Case Study of the ANZAC Ship Project - Final Report - Prepared for Australian Industry Group*. ACIL Tasman Pty Ltd, 2000.

Argos. ‘ANI at 50: The OPC Project’. *Australian Naval Institute*, 12 September 2025. https://navalinstitute.com.au/ani-at-50-the-opc-project/.

Australian National Audit Office. *Department of Defence’s Sustainment of Canberra Class Amphibious Assault Ships (Landing Helicopter Dock)*. Performance Audit 50: 2024-25.

ANAO, 2025. https://www.anao.gov.au/work/performance-audit/department-of-defence-sustainment-of-canberra-class-amphibious-assault-ships-landing-helicopter-dock.

Australian National Audit Office. *Maximising Australian Industry Participation through Defence Contracting*. Performance Audit 31: 2024-25. ANAO, 2025. https://www.anao.gov.au/work/performance-audit/maximising-australian-industry-participation-through-defence-contracting.

Commonwealth of Australia. 'Fourth Menzies Ministry - Folders of Cabinet Submissions and Associated Decisions: Australian Shipbuilding'. Cabinet Submission. Commonwealth Parliament, March 1950. NAA: A4649, 42B. National Archives of Australia. https://www.naa.gov.au/.

Cordner, Lee. 'From the ANI Archive: The FFG Upgrade'. *Australian Naval Institute*, 8 August 2026. https://navalinstitute.com.au/from-the-ani-archive-the-ffg-upgrade/.

Department of Defence. *2024 Integrated Investment Program*. Commonwealth of Australia, 2024. https://www.defence.gov.au/about/strategic-planning/2024-national-defence-strategy-2024-integrated-investment-program.

Department of Defence. *2024 National Defence Strategy*. Commonwealth of Australia, 2024. https://www.defence.gov.au/about/strategic-planning/2024-national-defence-strategy-2024-integrated-investment-program.

Department of Defence. *Defence Industry Development Strategy*. Commonwealth of Australia, 2024. https://www.defence.gov.au/about/strategic-planning/defence-industry-development-strategy.

Department of Defence. *Enhanced Lethality Surface Combatant Fleet: Independent Analysis of Navy's Surface Combatant Fleet*. Australian Government, 2024. https://www.defence.gov.au/about/reviews-inquiries/independent-analysis-navy-surface-combatant-fleet.

Department of Defence. *SDIP 2 - Continuous Naval Shipbuilding and Sustainment*. 2024. https://www.defence.gov.au/about/strategic-planning/2024-defence-industry-development-strategy.

Department of Defence (Australia). *2024 Naval Shipbuilding and Sustainment Plan: Evolving The Enterprise*. Defence, 2024. https://www.defence.gov.au/about/strategic-planning/2024-naval-shipbuilding-sustainment-plan.

Department of Defence (Australia). *2026 Defence Industry Development Strategy*. Department of Defence, 2026. https://www.defence.gov.au/about/strategic-planning/2026-defence-industry-development-strategy.

Department of Defence (Australia). *2026 National Defence Strategy*. Defence, 2026. https://www.defence.gov.au/about/strategic-planning/2026-national-defence-strategy-2026-integrated-investment-program.

Department of Defence (Australia). *Annex A to DIDS26: Detailed Sovereign Defence Industrial Priorities*. Defence, 2026. https://www.defence.gov.au/about/strategic-planning/2026-defence-industry-development-strategy.

Gupta, Akanksha. 'Techport Australia's Common User Facility (CUF), Adelaide'. Ship Technology, 13 May 2013. https://www.ship-technology.com/projects/techport-australia-common-user-facility-adelaide/.

John, Greg. 'The ANI at 50: Seapower 87: The Challenge to Industry'. *Australian Naval Institute*, October 1987. https://navalinstitute.com.au/the-ani-at-50-seapower-87-2/.

Jones, Peter. 'ANI at 50: Illumination Rounds - The Need for a Ship Design Philosophy for the RAN'. *Australian Naval Institute*, April 1999. https://navalinstitute.com.au/ani-at-50-illumination-rounds/.

Jones, Peter, and Jennifer Parker, eds. *Australian Maritime Strategy 2035*. Naval Studies Group: University of New South Wales (Canberra), 2025. https://www.unsw.edu.au/content/dam/pdfs/unsw-canberra/hass/A%20Maritime%20Strategy%20for%20Australia%202035.pdf.

LaGrone, Sam. 'The New Federation of American Shipyards'. *USNI News*, 5 October 2026. https://news.usni.org/2026/10/05/the-new-federation-of-american-shipyards.

Luck, Alex. 'Australian Naval Shipbuilding At The Henderson Defence Precinct'. *Naval News*, 10 July 2026. https://www.navalnews.com/naval-news/2026/07/australian-naval-shipbuilding-at-the-henderson-defence-precinct/.

MacLennan, Leah. 'Shipbuilders Reject Pyne's Claim "Valley of Death Is Over"'. ABC News, ABC News, 12 October 2017. https://www.abc.net.au/news/2017-10-12/shipbuilders-reject-government-claim-about-valley-of-death/9043318.

Marles (Minister for Defence Australia), Richard. 'Speech to the National Press Club - Defence Strategy'. Defence Policy. Defence Ministers, 16 April 2026. https://www.minister.defence.gov.au/speeches/2026-04-16/speech-national-press-club.

Marles (Minister for Defence Australia), Richard, and Pat Conroy. *Rebuilding Defence Capability*. Defence, 2026. https://www.defence.gov.au/about/strategic-planning/rebuilding-defence-capability.

Marles (Minister for Defence Australia), Richard, and Pat Conroy. 'Rebuilding Defence Capability to Keep Australians Safe'. Media Release. Defence Ministers, 2 July 2026. https://www.minister.defence.gov.au/media-releases/2026-07-02/rebuilding-defence-capability-keep-australians-safe.

Marles (Minister for Defence Australia), Richard, and Pat Conroy. 'Reforming Defence Capability Development and Delivery'. Media Release Minister for Defence. Defence

Ministers, 1 December 2025. https://www.minister.defence.gov.au/media-releases/2025-12-01/reforming-defence-capability-development-delivery.

Minister for Defence. 'Navy's Enhanced Lethality Surface Combatant Fleet'. Media Release. Defence Ministers, 20 February 2024. https://www.minister.defence.gov.au/media-releases/2024-02-20/navys-enhanced-lethality-surface-combatant-fleet.

Royal Australian Navy. 'Naval Board Minutes 1950-1953'. Naval Board Minutes. 3 May 1950. NAA: A2585:4269885. National Archives of Australia. https://www.naa.gov.au/.

Shackleton, David. 'The Impact of the Charles F. Adams Class Guided Missile Destroyers on the Royal Australian Navy'. PhD Thesis, University of New South Wales Humanities & Social Sciences, 2017. https://doi.org/10.26190/unsworks/3333.

UK Government. 'Contract Profit Rate Assessment (2026)'. Single Source Regulations Office, Single Source Regulations Office, 20 March 2026. https://www.ssro.gov.uk/2026-contract-profit-rate-assessment/.

UK Government. 'Procurement Policy Note 004: Open Book Contract Management'. GOV.UK, GOV.UK, February 2025. https://www.gov.uk/government/publications/ppn-004-open-book-contract-management/ppn-004-open-book-contract-management-html.



Figure 17: An AI image of the RAN's destroyer and frigates classes in the 2030s.

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