Maritime Sustainment: 2025
Plan Galileo
“In 2025, we will operate in a nationally integrated sustainment environment that consistently provides affordable, reliable and fit-for-purpose systems and ships to Navy to fight and win at sea.”

Rear Admiral Wendy Malcolm, CSM
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In a new era of Continuous Naval Shipbuilding, we must transform the way we think and deliver seaworthy materiel if we are to continue to support Navy’s mission. As detailed in the Naval Shipbuilding Plan, continuous build programs will require the very best of Australia’s industrial, scientific and research communities over the coming decades.

Continuous Naval Shipbuilding will also require a modern, innovative and highly skilled sustainment organisation that consistently delivers complex naval capability that is available, reliable and fit-for-purpose.

As an organisation that operates in a disruptive and evolving strategic environment, we must also adapt and broaden our way of thinking. We must be bold: we need to test the traditional ways we deliver sustainment. Plan Galileo provides direction to support the development of an integrated continuous sustainment model underpinned by an enterprise that is adaptive and quick to respond to Navy’s maintenance and modernisation requirements.

This is our challenge. As the fleet and naval infrastructure grows and develops in complexity, so must we. We must broaden our reach, grow our workforce and deepen our relationships with industry and the research sectors if we are to support a dynamic and lethal Navy. To meet this challenge, I ask you to support and work with me to deliver against three key objectives towards 2025:

+ Build a new approach to integrated Capability Life Cycle management.
+ Leverage new technologies and learning to improve productivity and promote increased levels of innovation, collaboration and knowledge-sharing in the maritime domain.
+ Generate the skilled workforce we need to meet this challenge.

Why “Plan Galileo”? Because Galileo’s work fundamentally changed the way we view the universe by helping upend conventional wisdom and prove the Sun is at the centre of our Solar System, not the Earth. I’d like to think this new way of thinking fundamentally changes how we carry out sustainment. Sustainment is not an end in itself, as it exists only to provide the basis of a Navy that contributes to the security and prosperity of our nation. Neither sustainment nor shipbuilding are at the centre of this universe – they are foundations for the future of Navy.

Plan Galileo will ensure a sustainment capability that best enables a fighting and thinking Australian Navy. I am excited and enthusiastic about working together to meet our present and future challenges. I look forward to the transformation ahead and invite you to contribute to this journey.

W.A. Malcolm, CSM
Rear Admiral, Royal Australian Navy
Head Maritime Systems
Change is coming

The Federal Government's $90 billion Continuous Naval Shipbuilding program will fundamentally alter the way we go about acquisition, providing the country with its greatest naval capability regeneration since the Second World War and creating a long-term national naval shipbuilding capability.
Australia’s significant investment in Continuous Naval Shipbuilding means there is a growing urgency to look towards what is required for the sustainment phase of the Capability Life Cycle. We need to ensure this substantial investment works as well as it can, not just to deliver value to the Government, but to enable our forces to do the job they have been tasked to do.

Key enablers of the Continuous Naval Shipbuilding plan are a modern and innovative shipbuilding infrastructure; investments in our workforce to make sure we have the necessary skills; a sustainable Australian industrial base; and a collaborative national approach.

With this imminent sustainment challenge, Maritime Systems Division is exploring options for a future sustainment model that meets all those key enablers and prepares Navy for the coming step-change in capability and complexity. This involves research, consultation and the design of options based on a long-term view of shipbuilding and sustainment within Australia.

While Continuous Naval Shipbuilding is fundamentally changing the way we acquire our vessels, global forces are influencing how, and how often, they will be deployed.

In a global environment where the economic centre of gravity is shifting towards the Indo-Pacific, Australia’s future maritime focus lies within this region. Our allies will continue to call on us to support them in their efforts to maintain the international rules-based order. From the South China Sea to the Persian Gulf, we are already seeing attempts to challenge that order.

At times we will need to take the lead and perhaps even operate without the direct support of our traditional allies. We will likely need to sustain our fleet away from home – possibly in a hostile environment. That will mean a workforce with the skills and experience to keep our ships fully functioning. If we want to do that, we need to start now.

Our Pacific neighbours will also increasingly need our assistance to deal with competition for their own resources and the consequences of natural disasters. They share a vast expanse of the Pacific Ocean in their Exclusive Economic Zones and in many cases lack a defence force to protect it. They face challenges from illegal fishing and transnational crime that may well require our assistance.

Our remit also extends to the Indian Ocean. A vast expanse of largely uninhabited water that is nevertheless crucial to our wellbeing, as it is a vital trade route for our exports. Keeping those sea lanes open will be a priority.

Likewise, the ocean’s emptiness makes it an attractive location for those who would prefer to remain undetected. Our role in patrolling this region will be increasingly important.

With the environment we operate in and support changing so rapidly, it is imperative that we are well-positioned to sustain our “thinking, fighting, Australian Navy”.

In the face of these changes we need to adapt. But how we adapt will be crucial.
03
Plan Galileo

The regeneration of Australia's key Naval capabilities is a complex, long-term national endeavour with sustainment shipyards around the country requiring investment to support our expanded fleet. Further planning and redevelopment will be needed and now is the ideal time to transform maritime sustainment.
Ultimately, we should be aiming for a nationally consistent approach to sustainment that means we can repair ships with the same personnel and the same suppliers around the country. This means moving away from the platform approach of sustainment, which risks leaving vessels awaiting personnel or parts.

In light of Continuous Naval Shipbuilding, the opportunity to transform to continuous sustainment hinges on streamlining all stages of the Capability Life Cycle to build trust, drive consistency and achieve optimal outcomes across the enterprise.

We must also work to establish a more integrated understanding of enterprise-wide sustainment demands across each phase of the Capability Life Cycle and establish a single, end-to-end capability development function that maximises the efficient, effective and professional delivery of naval capability.

Another key focus of our future sustainment strategy will be to support Navy with a consistent view of seaworthy capability across the entire maritime domain. Ultimately, a long-term solution needs to ensure a clear standard for sustainment requirements is established and observed during the design phase of any new capability.

Configuration management also needs to be considered from the outset. There are huge inefficiencies in having vessels of the same class configured differently, and if a nationally consistent sustainment model is to be delivered, it would help if vessels themselves were consistent.

Fortunately, the “batch build process” that continuous shipbuilding provides will offer significant scope to take advantage of commonality in vessels. Not only will this reduce the overall cost of ownership across the entire lifecycle, it also offers the potential to leverage global supply networks that can provide Navy with access to major systems, parts and support services.

This overall goal of an integrated, consistent approach can be achieved by building sustainment into the design phase, ensuring a vessel’s sustainment is considered before pen is put to paper. This also means those responsible for sustaining the vessel will know what is required long before it reaches them. This will produce far-reaching benefits in terms of training, supply and planning.

This new approach to sustainment comprises the following fundamental building blocks:

- Regional maintenance.
- Infrastructure.
- Workforce development.
- Supply chains.
- New technologies.
- Industry participation.

Regional Maintenance Centres

Where we sustain our fleet is as important as how we go about it. Possibly more so. The step-change in capability will also require an equal change in sustainment infrastructure, because we are currently vulnerable to critical disruption and risk our ships not being able to get in or out.

Regional Maintenance Centres are an integral aspect of Plan Galileo. They would establish sustainment bases in strategic locations around the country – and possibly beyond – that would co-locate a wide range of shipbuilding and sustainment activities through shared facilities and services. They would be hubs comprising Defence, Primes, small businesses and service providers, such as educators, that would provide us with an integrated and consistent approach to naval sustainment.
In order to meet the increasing sustainment demands on the fleet, whilst providing the resilience, flexibility and responsiveness required, Regional Maintenance Centres will enable the sustainment function to:

+ Consolidate.
+ Enhance.
+ Evolve.

Under this approach, each maintenance centre would have the trained personnel and the suppliers to sustain any ship. A vessel would not necessarily need a specific port for maintenance or to await the right crews and parts. This model would also provide stability to our personnel and their families, giving them a higher degree of certainty and a chance to achieve a better work-life balance. This is a core achievement of the plan, not a side benefit. With the flexibility to sustain a portfolio of platforms at each regional precinct, the concept builds efficiency and economies of scale that would deliver enhanced availability to Navy. It also provides Navy with maintenance in strategic locations, which will be particularly important in the increasingly complex geo-political environment that is the Indo-Pacific.

In addition, Regional Maintenance Centres would foster the development of an expeditionary logistics capability that would enable a deployable intermediate maintenance capability – or “Fly Away Teams” – to be deployed for the execution of maintenance or defect rectification to win the away game from a sustainment perspective.

**Infrastructure**

Where appropriate, current infrastructure will require updates and refurbishment to support modern classes of ships. Likewise, ship lift and dry dock capacity and contingency must be reviewed, both nationally and regionally, to address the growing fleet size. The opportunity under Plan Galileo is to develop a long-term approach to infrastructure delivery and building local capability.

**Skilled workforce**

A skilled workforce is a critical element for developing sovereign capability and will be a key enabler for transformation. The workforce of the future must be suitably equipped with the requisite skills and expertise to deliver future sustainment requirements. As such, we must optimise workforce development and leadership programs to increase technical, leadership and supervisory proficiency, facilitate career progression and enable the personal and professional growth of our workforce.

Plan Galileo builds on the investments already being made into workforce and skilling initiatives as part of the Naval Shipbuilding Plan, including investments in science, technology, engineering and mathematics programs. The growth and skilling of the workforce will require a combined and coordinated effort between the Government, CASG, Navy, defence industry, as well as education providers. Defence will play a proactive role in facilitating collaboration in order to identify, recruit and build a pipeline of experienced workers.

The regional approach of Plan Galileo, with its long-term commitment to centres in strategic locations, also moves Navy away from the often fly-in fly-out nature of its work. Not only does this bring stability to Navy personnel and their families, but it provides certainty to local communities and businesses. It will also foster the establishment of a highly skilled local workforce through a clustered breeding ground for local supply chain development, incubation and acceleration of next-generation local technology and talent.
Supply chains

A successful sustainment infrastructure relies on a robust and highly efficient inventory and supply chain. As the fleet grows in size, complexity and age over the longer term, the supply chain (including the vendor base) must deliver the support necessary to achieve the required level of readiness and provide seaworthy capabilities whilst forecasting future logistics requirements.

We must also leverage opportunities for international cooperation by establishing a strong global supply chain for Continuous Naval Shipbuilding and future sustainment. Plan Galileo provides an opportunity to ensure Australian industry content is more effectively integrated into these chains. These supply chains would be supported by a highly skilled workforce with sufficient technical, managerial, and heavy engineering capabilities.

In developing national supply chains under Plan Galileo, we are also able to focus on their security, including an understanding of where parts come from and a focus on cyber security.

New technologies

We need to build an environment that promotes increased levels of innovation, collaboration and knowledge-sharing across the shipbuilding and sustainment community. Leveraging mature technologies as we incorporate emerging technologies that will deliver even greater returns on investment by acknowledging advanced digital and analytical capabilities are critical to fulfilling our commitment to be a data-driven organisation, leveraging the power of data analytics for informed and rapid decision-making.

The productivity gains from technologies such as collaboration platforms, digital twin modelling, augmented reality, master data management, artificial intelligence and machine learning provide significant opportunities to improve the way sustainment is carried out. Data and technology need to be transformed based on a single source of truth with a nationally based IT enterprise in mind.

This will be supported by a transformation of the systems underpinning the capture and sharing of information.

Industry participation

Industry plays a crucial role in delivering seaworthy capability and its involvement is at the heart of Continuous Naval Shipbuilding and sustainment. A productive Australian industrial base able to deliver affordable and achievable naval capability is a strategic national asset and one that we need to help foster.

Transforming the sustainment ecosystem will also require infrastructure modernisation and workforce growth and skilling. Industry partnerships will need to be built in order to develop a collaborative environment where innovative sustainment models can be nurtured and developed.

Wherever possible, industry should be engaged from the outset since they will supply many of the parts and personnel necessary to keep the expanded fleet seaworthy. As such, involving them in the design of our sustainment systems will let them align their own systems to best meet Navy’s needs.

Plan Galileo’s philosophy of regionally based, consistent sustainment will offer enhanced stability to industry, providing them with greater confidence to invest. It should also improve the government-industry relationship as we move away from the feast-or-famine scenario that many in industry currently endure.

Enhancing communication channels, such as forums and online portals, so that industry and Defence can work closely together to align with Naval strategic intent, will also allow industry to collectively build the sovereign capability required to support future shipbuilding and sustainment. Meanwhile, new methods of contracting will streamline engagement with suppliers and concentrate effort on delivery of capability, rather than coming to agreement.
Plan Galileo: Horizons

1 January 2019 to 30 June 2020
Development

1 July 2020 to 31 December 2021
Implementation

1 January 2022 to 31 December 2025
Success
The First Horizon consists of further development of concepts and testing initiatives through a proof of concept. The following outcomes would represent success in 2019:

- Sustainment considerations are clearly defined within each phase of the Capability Life Cycle and a strategy for an integrated Capability Life Cycle operating model is developed and approved for implementation.
- A seaworthiness mapping methodology is developed and endorsed for consistent application across acquisition and sustainment functions, processes and culture; informing the abovementioned solution.
- In-depth research, analysis and objective evidence is gathered to support a future sustainment operating model that is aligned with the requirements of commonality and regional presence.
- Commencement of a review of industry engagement enablers including procurement processes, contract management procedures, skill requirements and communication methods to determine alignment with functions, policies and frameworks in the future model.

The Second Horizon will focus on implementing and solidifying the benefits of key initiatives, drawing feedback and measuring outcomes against success factors. Potential measures of success flowing from the First to the Second Horizon include:

- A pilot project has commenced with an implemented Capability Life Cycle strategy. Key learnings are generated from measurements against benchmark objectives and feedback from key stakeholders. Sustainment considerations within the Capability Life Cycle are refined, based on key learnings and a repeatable solution is approved for wider implementation.
- Maritime Systems Division will start to deliver the objective evidence that would support Chief of Navy in effectively operating a risk-based assurance program for seaworthy materiel.
- A clear future operational model has been designed and developed based on in-depth research, analysis and objective evidence.
- Optimisation of the commercial model for engaging with industry. Industry becomes an active member of the enterprise and is a key driver of continuous improvement.
- Implementation of a professionalisation strategy to upskill the current workforce and build a pipeline of expertise for the future. This will include an active role in developing sustainment-related learning initiatives and training programs.
The Third Horizon will see the benefits of the strategy come to fruition and success would be the realisation of our vision. The successful outcomes of this long-term Horizon include:

- The success of the proof of concept sustainment operating model will provide a fully integrated Capability Life Cycle operating model, with significant savings objectively quantified.
- Seaworthiness compliance is aligned with Navy’s assurance framework and becomes business as usual across the Authorised Materiel Seaworthiness Delivery Organisation for all maritime materiel.
- An implementation strategy and plan will be developed and followed to progressively roll out the new operating model. Successful roll out will see the benefits of the commonality and regional presence scale and come to fruition.
- Beyond the continued advancement of methods and tools for working with industry, we must leverage opportunities for international cooperation through establishing a strong global supply chain for Continuous Naval Shipbuilding and future sustainment.
- Effective technological integration with industry will present new opportunities to embrace contemporary technology for the sustainment environment of the future. The potential to cluster industry expertise at key sustainment locations, combined with a robust digital shipyard environment, allows Defence to consider data and application hosting options together with industry in a way that would maximise collaboration, efficiency, knowledge transfer, and overall sovereign capability.
- Continuous training of workforce to retain and build upon sovereign capability. A mature pipeline of skilled workers is established to ensure a resilient and fit-for-purpose sustainment system.

Plan Galileo

Delivering the capability to sustain our growing fleet to ensure it can fight and win at sea.

<table>
<thead>
<tr>
<th>Continuous Naval sustainment that is flexible and adaptable</th>
<th>A single, end-to-end capability development function</th>
<th>Configuration management considered from the outset</th>
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</thead>
<tbody>
<tr>
<td>Regional Maintenance Centres are designed as hubs comprising Defence, Primes, small businesses and service providers that deliver an integrated and consistent approach to naval sustainment.</td>
<td>Supply chains will deliver the support necessary to achieve the required level of readiness and provide seaworthy capabilities, whilst forecasting future logistics requirements.</td>
<td>Developing a skilled workforce that has the capability to sustain ships, both in port and away, not only builds Navy’s sustainment capability, but enhances sovereign capability and wider workforce development.</td>
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<tr>
<td>Infrastructure will need to support the flexible approach of Plan Galileo, with redundancy and a long-term approach that works to build local capacity.</td>
<td>Leveraging new technologies that allow for information-sharing and a collaborative approach, with a single point of truth for sustainment, is a fundamental element of Plan Galileo.</td>
<td>Industry participation will be crucial to the success of continuous sustainment, whether in the delivery of infrastructure, supplies, logistics, workers or training. A better approach to engaging with industry is an essential element of Plan Galileo.</td>
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