



Australian Government  
Department of Defence

# SOVEREIGN INDUSTRIAL CAPABILITY PRIORITY IMPLEMENTATION PLAN

Aerospace platform deeper maintenance and  
structural integrity

November 2020





## Aerospace platform deeper maintenance and structural integrity

### Minister's foreword

The *2020 Defence Strategic Update* and *2020 Force Structure Plan* detailed the Morrison Government's \$270 billion investment in new and upgraded military capabilities over the next decade. This extraordinary commitment represents the most significant build-up of our capability in decades and brings with it unprecedented opportunities for Australia's defence industry.

These documents highlighted the integral role of the Australian Defence Force's (ADF) aerospace platforms in defending Australia and its national interests. They emphasised that the ADF's aerospace capability relies on its partnership with Australian industry.

Australia needs involvement from all aspects of the industry value chain to deliver this critical ADF capability. This involvement includes developing Australian industrial capability, innovation, and partnerships to make the most of new and emerging technologies.

#### Industrial capability to ensure reliable, safe, and fit-for-purpose aerospace platforms

This Implementation Plan details the critical industrial capabilities that underpin the Aerospace platform deeper maintenance and structural integrity Priority. It is supported by the companion Department of Defence Industry Plan, which provides more detail on the industrial base and government actions listed in this Implementation Plan.

The Industry Plan can be found at <https://www1.defence.gov.au/business-industry/programs/implementation-industry-plans>

For the purposes of this Implementation Plan, aerospace platform deeper maintenance and structural integrity includes:

- maintenance, repair and overhaul that is not carried out by ADF units or that requires the removal of aircraft from service;
- installation of modifications to improve reliability or maintainability, or to increase capability through new or upgraded systems or components;
- effective and cost-efficient management of platform structural integrity and life-of-type analysis and decision making; and,
- airworthiness certification following modification or customised component inclusion.

It is only by successfully leveraging Australian industry's know-how will the ADF be able to fight and win in all domains.



The Hon Melissa Price MP  
Minister for Defence Industry





## Three industrial capabilities are critical

Within this environment, Defence seeks to have access to, or control over, certain elements of each. Defence also seeks to support or influence related Australian defence industry investment in these capabilities. Development of these critical industrial capabilities will ensure the availability and operational effectiveness of aerospace platforms. The development of specific capabilities will be based on consideration of the underlying sovereign requirements; the return on investment; and the capability benefits to be realised.



### EXECUTION OF MAINTENANCE, REPAIR, OVERHAUL, AND UPGRADE ACTIVITIES

The application of fleet management techniques and supply chain optimisation to maximise operational aircraft availability and the ability to perform entire platform deeper maintenance cycles. This includes platform maintenance, repair, overhaul and upgrade in a timely and cost-effective manner. It also includes deeper maintenance of elements below the platform level, such as engine and propulsion systems, major mechanical and hydraulic components, avionics, and mission system components. Advanced surface coating and finishes at the platform and component level are also included.



### AEROSPACE PLATFORM STRUCTURAL INTEGRITY

The ability to perform engineering analysis and testing of structures to inform the effective management of aerospace platforms ensuring they are operational, safe and fit for purpose throughout their service life. Specific areas of focus include: airframe and propulsion system life certification; fatigue testing and analysis; non-destructive testing for composite and advanced material repairs; the development of non-standard repairs for metallic and advanced composite structures; and the design, development and repair of parts through additive manufacturing processes.



### THE EXPLOITATION OF DATA AND EMERGING TECHNOLOGIES TO OPTIMISE AEROSPACE PLATFORM DEEPER MAINTENANCE

The ability to deliver enhanced maintenance, repair, overhaul, and supply chain outcomes through the use of big data analytics, artificial intelligence, machine learning, and other evolving technologies.

To ensure that Australia retains the identified critical industrial capabilities, Defence seeks to build the following enabling capabilities over the next decade, starting with the actions listed in this Plan:

- Access to design, engineering, and maintenance-related intellectual property technical data and operational performance condition data supporting aerospace platform and component deeper maintenance.
- National multi-purpose and cross-platform infrastructure development for the conduct of aerospace platform deeper maintenance and structural integrity management.
- Innovative, flexible contracting that promotes and enables contracts across multiple platforms and encourages the realisation of economies of scale for management facilities established within Australia.
- Sustainment focus through the Smart Buyer approach in the early stages of the capability life cycle to ensure critical elements are established under commercial, cooperative and Foreign Military Sales programs.
- Working cooperatively with partner nations to establish shared management capability to leverage and enhance Australian skills, experience and capability.
- Enhanced collaboration between educational institutions and industry to enhance skills transfer that develops areas of critical need.
- Enhanced collaboration between Defence Science and Technology Group and academia to support relevant research and development.

Defence met with entities of all types in the development of this Plan, including academia and small-to-medium enterprises. The location on the map represents the head office of organisations consulted. Actual operations of these entities is conducted across Australia.



**29**

**ORGANISATIONS  
ENGAGED**

**ORGANISATION FOCUS**

**7**

PLATFORM/SYSTEM  
PRIMES

**11**

MAJOR SERVICE  
PROVIDERS

**7**

SMES

**4**

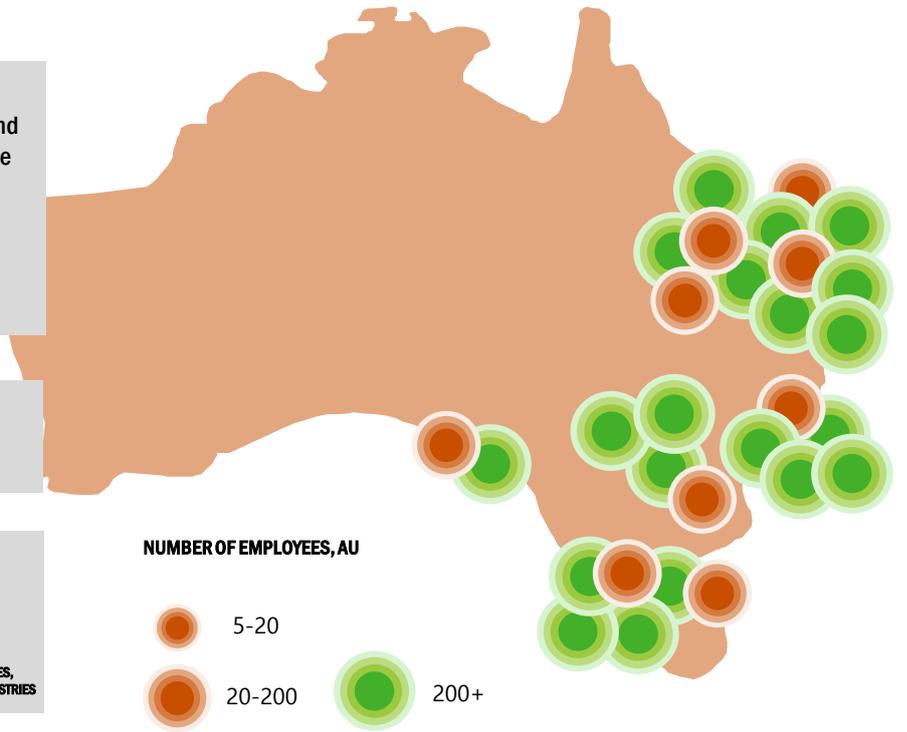
PROFESSIONAL SERVICES,  
ACADEMIA, ADJACENT INDUSTRIES

**NUMBER OF EMPLOYEES, AU**

5-20

20-200

200+



## The segment at a glance

The Australian aerospace platform deeper maintenance industry operates within a mature, highly-complex and evolving global sector. Sustainment of ADF aerospace platforms will continue to be outsourced to industry, predominantly through commercial arrangements with prime contractors. Industry partners presently perform almost all deeper maintenance functions of Defence aerospace platforms. Deeper maintenance relies on global supply chains to provide the repairable items, consumables, support equipment and tools needed to conduct maintenance. Original equipment manufacturers and their in-country representatives (subsidiaries) are integral to the delivery of effective aerospace platform deeper maintenance, due to their detailed design and manufacturing knowledge, and are needed for access to certain technical data.

## Government actions

This Implementation Plan includes the following actions to be taken by Defence to support this Priority. Although responsibility has been attributed to a particular branch, group or agency, it is expected that a broader group of government stakeholders will participate in, or contribute to, an action. Funding of the government actions will be taken from existing departmental funding.

Topic	Action	Responsible	Timeframe	Key Performance Indicators
Intellectual property protection	Defence will review guidelines for acquisition of ongoing access to intellectual property underpinning deeper maintenance management requirements across the capability life cycle. This includes Defence transfer to third parties, to enhance Australian industry opportunities in deeper maintenance execution, structural integrity management, and innovation associated with deeper maintenance process and practices.	Capability Acquisition and Sustainment Group	Mid-2021	Guidelines are reviewed and opportunities in deeper maintenance management are underpinned by appropriate access to intellectual property.
Big data exploitation	Defence will explore opportunities to work with Australian industry to improve deeper maintenance efficiency and effectiveness through exploitation of data with emerging technologies such as artificial intelligence, digital twins and machine learning.	Capability Acquisition and Sustainment Group	Late-2021	Big data analysis is factored into deeper maintenance activities, where appropriate, driving greater cost efficiency and availability/performance of ADF aerospace platforms.
Commercial derivative deeper maintenance	Defence will undertake a review of deeper maintenance requirements for Boeing 737 derivative aerospace platforms (E-7 Wedgetail and P-8A Poseidon). This review will decide whether there are advantages to co-locate deeper maintenance of these platforms, including whether there are related advantages for Australian industry in this approach to deeper maintenance.	Air Force	Late-2021	Review completed and opportunities for colocation factored into Defence procurement decision making (where applicable).
Propulsion system expertise	Defence will explore potential synergies between aerospace propulsion and other industrial sector propulsion systems (e.g. energy and mining) to promote further growth in this area.	Capability Acquisition and Sustainment Group	Late-2021	Synergies explored and factored into Defence procurement decision making (where applicable).

<p>Enhance horizontal contracting opportunities</p>	<p>Defence will review how it develops acquisition strategies, conducts approaches to market, and uses Defence contracting templates in the aerospace domain to incentivise the exploration of cross-platform support opportunities developed by industry, including:</p> <ul style="list-style-type: none"> <li>• early engagement with industry to enable and develop horizontal capability initiatives;</li> <li>• providing opportunities across the acquisition process for cross-platform aerospace platform deeper maintenance and structural integrity management initiatives to be considered and explored with industry to inform development of support solution options; and</li> <li>• working with industry to develop contracting mechanisms that provide suitable investment timelines and drives capability performance.</li> </ul>	<p>Capability Acquisition and Sustainment Group</p>	<p>Late-2021</p>	<p>Review completed and horizontal capability initiatives are explored with industry.</p>
<p>Facilitation role in acquisition</p>	<p>Defence will review aerospace acquisition processes with a specific focus on:</p> <ul style="list-style-type: none"> <li>• acting as a facilitator in driving the inclusion of local industry consideration through the early stages of the life cycle. This will enable the identification of sovereign industry options for inclusion in acquisition and sustainment solutions; and</li> <li>• the level of Australian industry participation in cross-platform and aerospace platform deeper maintenance and structural integrity opportunities.</li> </ul>	<p>Capability Acquisition and Sustainment Group</p>	<p>Late-2021</p>	<p>Improved Australian industry capability outcomes and supply chain resilience (alternative/ second source supply generated in Australia).</p>





Please direct any questions on the Sovereign Industrial Capability Priority policy or the information contained in this Industry Plan to:

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