



Australian Government

SDIP 7 - Test and evaluation, certification and systems assurance

Annex B7

Defence acknowledges the Traditional Custodians of Country throughout Australia. Defence recognises their continuing connection to traditional lands and waters and would like to pay respect to their Elders both past and present.

Defence would also like to pay respect to the Aboriginal and Torres Strait Islander peoples who have contributed to the defence of Australia in times of peace and war.

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Overview of Annex B

This Annex contains the Detailed Sovereign Defence Industrial Priorities (Detailed SDIPs) for SDIP 7, in accordance with Chapter 3.

The SDIPs are:

SDIP 1. Maintenance, repair, overhaul and upgrade (MRO&U) of Australian Defence Force aircraft

SDIP 2. Continuous naval shipbuilding and sustainment

SDIP 3. Sustainment and enhancement of the combined-arms land system

SDIP 4. Domestic manufacture of guided weapons, explosive ordnance and munitions

SDIP 5. Development and integration of autonomous systems

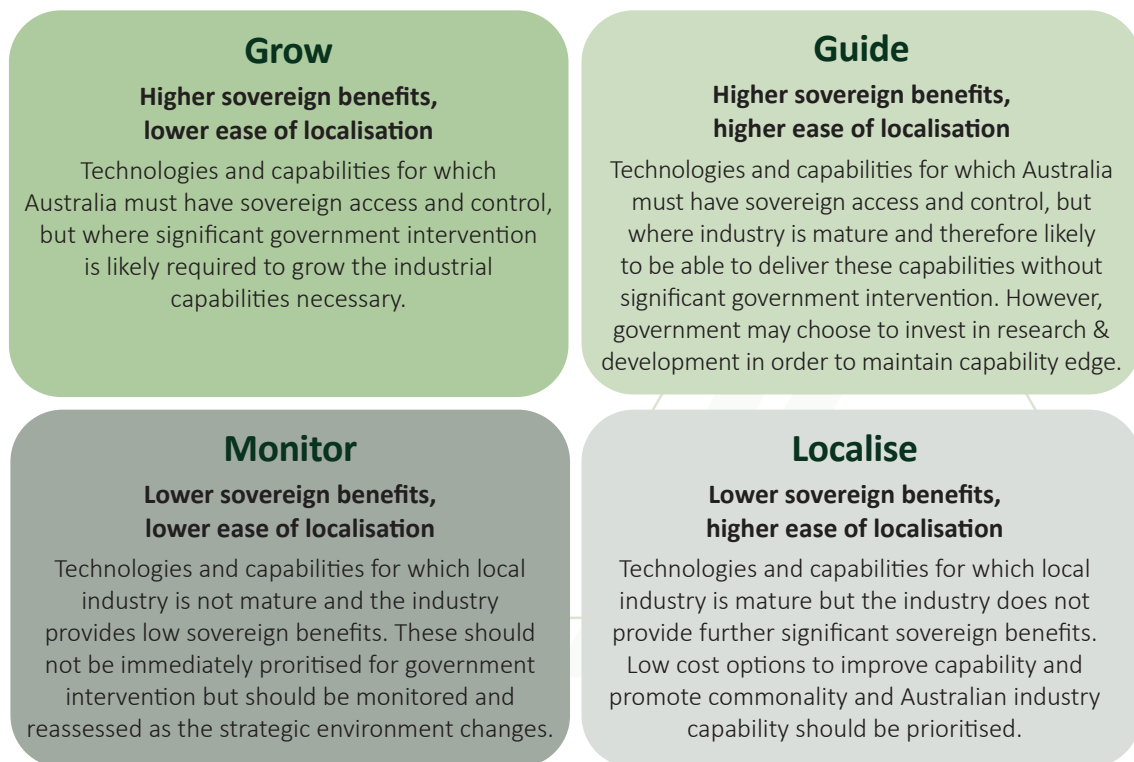
SDIP 6. Integration and enhancement of battlespace awareness and management systems

SDIP 7. Test and evaluation, certification and systems assurance

There are many areas where defence industry is already providing a service or capability to Defence; for example, the provision of enabling information and communication technology support including data centres, cyber and health services. Defence will continue to work with industry to ensure we have the level of industrial capability required in Australia to deliver defence outcomes.

Defence will refine the information in these Annexes through consultation with industry, and in line with the biennially-updated National Defence Strategy. Defence will work with industry to identify shortfalls, critical paths and areas for growth, using the approach described in Chapter 3 (Figure 4). The aim is to consistently and continuously guide and grow the defence industrial base, aligned to Defence's needs.

Figure 1 - Approach to industrial prioritisation



Capability and Delivery Managers

The Vice Chief of the Defence Force is responsible for defining and communicating the capabilities Defence requires of Capability Managers. Capability Managers and Delivery Managers are responsible for the growth and health of the industrial capabilities required to deliver and sustain the directed defence capabilities.

Industrial capability lifecycle

The information provided for each Detailed SDIP contains Defence's requirements against the industrial capability lifecycle.

The industrial capability lifecycle consists of:



- ▶ **Innovation, Science & Technology** – innovative technology solutions that have been identified as meeting a defence capability need and providing an asymmetric advantage for Defence to develop, explore and mature to pull through to capability. These would be candidates for consideration under the Advanced Strategic Capabilities Accelerator (ASCA).
- ▶ **Design & Development** – areas that require further maturation and development beyond the prototype phase to meet a defence capability need.
- ▶ **Integration & Adaptation** – mature industry solutions or systems that need to be integrated with other defence systems and/or adapted to meet a defence capability need.
- ▶ **Manufacture & Assembly** – industry solutions, systems or components that Defence has determined must be manufactured and/or assembled in Australia, to ensure sovereignty and/or supply chain security and resilience.
- ▶ **Sustainment & Support** – industrial capabilities and services that Defence has determined must be delivered by industry in Australia to sustain and support defence capability.

SDIP 7 - Test and evaluation, certification and systems assurance

Capability and Delivery Manager

The Officer accountable for providing direction to Capability Managers for the test and evaluation, certification and systems assurance SDIP is the Vice Chief of the Defence Force. The Delivery Manager is the Deputy Secretary Capability Acquisition and Sustainment.

Background

The Defence Strategic Review highlighted the need to rapidly deliver integrated joint force capabilities.

Test and evaluation (T&E) plays a critical role across all elements of the capability life cycle. Its role is to assure that capabilities are safe and operationally viable through the provision of objective evidence to quantify the risk of new technologies, concepts or capabilities on warfighting operations.

Australian industry needs to actively invest in T&E and understand the vital role it plays in the wider Defence T&E Enterprise.¹ Achieving minimum viable capability on time requires sufficient T&E, particularly a focus on testing early during the development process to rectify any deficiencies before they manifest themselves in production.

As Australian industry ramps up domestic manufacturing capabilities around activities such as naval shipbuilding and guided weapons and explosive ordnance, T&E will be important to assure domestically produced products are safe, operationally suitable and effective. Once delivered, T&E will be equally important to optimise sustainment outcomes through reliability, availability and maintainability techniques and modelling.

Industry also plays a vital role in ensuring the Australian Defence T&E Enterprise workforce and infrastructure are sufficient and relevant to the technologies and products they deliver. A key requirement to support the continuum from innovation to defence capability will be to ensure the use of shared resources for experimentation, T&E and Australian Defence Force (ADF) mission rehearsal training.

Prioritisation approach

The Defence T&E Enterprise must evolve rapidly to focus on verifying and validating integrated joint force capabilities. T&E of individual capability platform types will remain necessary to assure they are effective, suitable, safe and able to integrate into the joint force on delivery.

Defence's immediate priority is to mature an enhanced force-in-being focused on potential, defined threats emerging between now and the end of Epoch 1, and utilising the T&E infrastructure currently available to the greatest extent possible.

Only through investment in our T&E Enterprise workforce during Epoch 1, will Australia have the T&E capability and capacity it will need during Epoch 2. T&E labour market analysis across Defence and industry estimates a shortfall of over 400 T&E practitioners in 2024, growing to over 1,000 by 2030. We will mitigate this by supporting additional training capacity to allow industry to train and mentor their own workforce to increase the overall number of skilled T&E practitioners.

Epoch 1 outcomes

Defence will integrate mature capabilities and rapidly implement readily available sub-system enhancements relevant

¹ Defence T&E Enterprise is inclusive of the Australian Defence Organisation, defence industry and academia.

to known and emerging threats.

Industry inputs to the Defence T&E Enterprise must be able to assure, and if necessary, certify, that enhanced force-in-being systems and platforms are safe and effective in their own right, and able to integrate with other platforms and enabling systems to the degree required to deliver collective minimum viable capability, supported by objective T&E evidence.

Specific outcomes for Epoch 1 are as follows:

T&E infrastructure

Innovative use of currently available T&E infrastructure, to the greatest extent possible, to test, assure, and where necessary certify, enhanced capabilities. Specific areas in T&E infrastructure that require innovative solutions to achieve speed of relevance include providing longer weapon ranges, greater use of autonomous systems and multi-domain and highly secure Command and Control systems-of-systems required to operate in near real-time.

T&E skill level and capacity across all 5 Domains

Expansion of an integrated T&E training capacity and skilled workforce across all 5 warfighting Domains, with a greater emphasis on 3 priority areas:

- ▶ Cyber-worthiness.
- ▶ Robotics, Autonomous Systems and Artificial Intelligence (RASAI).
- ▶ Force level integration testing.

Industry investment opportunities

Opportunities include:

- ▶ Transportable T&E instrumentation suited to enable testing of long-range weapons and autonomous systems.
- ▶ High speed, secure, data transfer networks enabling the viable mix of Live, Virtual and Constructive (LVC) modelling and simulation at remote sites.

Epoch 2 outcomes

Specific outcomes for Epoch 2 are as follows:

Integrated Force

- ▶ Realisation of the Integrated Force as outlined in the DSR, between 2026 and 2030.
- ▶ The Defence T&E Enterprise must be capable of integrating foreign sourced and locally produced defence materiel, including support systems; and conducting Force Level testing of the complex systems-of-systems required to achieve the joint missions.
- ▶ Close cooperation between Defence and industry will be essential to share T&E effort and data in a manner that respects security and intellectual property limitations that industry partners may not be able to navigate independently.

T&E workforce

- ▶ Development of a workforce capable of testing, certifying and validating capability systems across all 5 warfighting domains and a mature Force-Level assurance capability.
- ▶ Industry investment in domain-focussed T&E centres of excellence, particularly in AUKUS-related technologies and Force-Level testing, to create enduring, strategically relevant sovereign T&E capabilities.

T&E infrastructure

Improve synthetic T&E infrastructure and remediate ageing physical infrastructure, including:

- ▶ Synthetic environments enabling the execution of T&E across multiple platforms in a multi-level security environment.
- ▶ An increase in capacity of the infrastructure developed to fill gaps identified above for Epoch 1.

Detailed Sovereign Defence Industrial Priorities

The Detailed SDIPs identified for test and evaluation, certification and systems assurance are:

- ▶ Investment in T&E training capacity and skilled T&E workforce within industry, academia and Defence across all domains but with the greater emphasis on cyber-worthiness, RASAI and Force-Level integration testing.
- ▶ Development of transportable and/or mobile T&E instrumentation suited to testing enhanced, long-range capabilities.
- ▶ Development of high-speed, secure, data transfer networks enabling LVC modelling and simulation at, and between, remote sites.
- ▶ Investment in domain-focused T&E centres of excellence, particularly in AUKUS-related technologies and Force-Level integrated systems-of-systems testing.
- ▶ Investment in synthetic environments, digital twins and mission engineering enabling the execution of T&E across multiple platforms in a multi-level security environment.

Table 1 - Detailed SDIPs for SDIP 7, Epoch 1 (2023-25)

Description	Innovation, Science & Technology	Design & Development	Integration & Adaptation	Manufacture & Assembly	Sustainment & Support
T&E training		✓	✓		
Instrumentation & systems		✓	✓	✓	✓
Synthetic environments		✓	✓	✓	✓

Table 2 - Detailed SDIPs for SDIP 7, Epoch 2 (2026-30)

Description	Innovation, Science & Technology	Design & Development	Integration & Adaptation	Manufacture & Assembly	Sustainment & Support
T&E training		✓	✓		
Instrumentation & systems		✓	✓	✓	✓
T&E centres of excellence		✓	✓	✓	✓
Enhanced synthetic T&E environments		✓	✓	✓	✓
Physical T&E infrastructure remediation		✓	✓	✓	✓

✓ - Continuation from Epoch 1
 ✓ - New in Epoch 2