

## CHALLENGE STATEMENT

**Title:** Land-Air Autonomous Tactical Teaming in the Littoral at Scale (LAATT-LS).

**Challenge Owner:** Head Land Capability (HLC)

### Call for Submissions

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**Release Date:** 29 November 2024

**Activity Reference No:** LCD-22-0002-AID25

### Aim

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The [National Defence Strategy](#) (NDS) is transformational for the Australian Army (Army). [The Australian Army Contribution to the National Defence Strategy 2024](#) describes the ways Army is adapting to reinforce the land force's role in a strategy of denial. Army must be ready to fight wars in the 'cluttered' littoral environments of the Indo-Pacific region.

Army must produce a highly survivable, dispersed, integrated, amphibious-capable combined-arms fighting system (CAFS) to identify, deter and defeat adversaries in our northern approaches. This requires a deliberate focus on Distributed Littoral Operational (DLO) capabilities sufficient to change adversary cost calculus, constitute credible deterrence options and de-risk integrated joint force enablers.

Emerging technologies are accelerating the pace of change in warfare, driving new concepts to realise military effects and enhance existing capabilities. Army Innovation Day 2025 (AID 25) emphasises *Land-Air Autonomous Tactical Teaming in the Littoral at Scale (LAATT-LS)* in order to generate and scale emerging and disruptive technologies with application to Army's mission and primary operating environment.

Army seeks submissions demonstrating innovative capabilities to enhance the range and lethality, sustainment, and survivability of Robotic and Autonomous Systems (RAS)-enabled forces for operations in distributed littoral environments. Capabilities should support platoon or troop size RAS-enabled forces, enabling soldiers and systems to continually adapt and seize advantages with emerging and disruptive technologies.

Within AID 25, Army places elevated emphasis on 'speed to capability' innovations and the rapid development and adaptation of field-ready prototype software and hardware systems. AID 25 aims to continuously adapt use-cases in the field, refining technology, concepts of employment and accelerating systems into soldiers' hands.

This Challenge Statement focuses on systems that meet a [Technology Readiness Level \(TRL\)](#) span of TRL 5 to TRL 8. Submissions must provide Army with a Minimum Prototype Quantity (MPQ) of technologies and/or systems with characteristics and capacity to facilitate Test and Evaluation (T&E) and iteration within dedicated Army units. Submissions must be viable (subject to development in collaboration with Army) for Army use on Talisman Sabre 2027.

## Overview

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AID 25 comprises a two-stage procurement process. This Call for Submissions (CFS) is Stage 1 and consists of this Challenge Statement, the CFS Terms and the Evaluation Criteria and Process. Any enquiries or questions about this CFS should be submitted to the email address: [army.innovation.day@defence.gov.au](mailto:army.innovation.day@defence.gov.au). Questions and answers will be uploaded as an addendum. Army has scheduled two addendum releases for this CFS.

### Stage 1 - Call for Submission

Stage 1 CFS is open to Tenderers registered in Australia. Army objectives for the Stage 1 CFS is the assessment and down-select of a number of Tenderers who will be offered the opportunity to submit a Request for Proposal (RFP) for Stage 2 consideration. Stage 1 requires industry to complete and submit a CFS Submission Form (mandatory). Tenderers must submit a response to this CFS using the 'Army Innovation Day 2025 Submission Form' by 11:00am (local time in the Australian Capital Territory) on Monday, 3 February 2025 (Closing Time).

Army intends to provide an Industry Briefing on the AID 25 Challenge Statement. The Industry Brief will be conducted at Badcoe Hall – Bruche Rd, Royal Military College - Duntroon, commencing at 1:00pm AEDT on Thursday, 12 December 2024. The Industry Briefing will provide the opportunity for Army to discuss the Challenge Statement vision directly with industry.

The Briefing will be video streamed via GovTEAMS. Registration is required for both in-person and online attendance. Registrations can be accessed at the following link: <https://australianarmy.eventsair.com/aid-industry-briefing/aid2025>. Registrations to attend the briefing in-person should be made by 1:00pm AEDT on Tuesday, 10 December 2024. A recording will also be made available as an addendum. Attendance at the AID 25 Industry Briefing is not required to submit a response to this CFS.

### Stage 2 - Request for Proposal

The Stage 2 evaluation process involves the submission and evaluation of the RFP. This includes industry presentation of their Proposal to the Evaluation Panel during the detailed evaluation process, in order to facilitate understanding and engagement. Any presentation to the Evaluation Panel will form part of the RFP evaluation process through industry engagement and clarification.

Through the RFP, Army will conduct detailed evaluation of proposals to select a number of Tenderers to enter into Innovation Contract negotiations. Proposals must clearly articulate the development activities to be completed, and costs involved. Proposals must also clearly articulate how the Tenderer will deliver the Minimum Prototype Quantity of the proposed technology, inclusive of training, for the Army's subsequent in-use employment during Talisman Sabre in July 2027. This will require development and delivery of innovations and training to Army units within 18 months of contract commencement (targeting Q1 CY 2027).

## Challenge Context

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**The Challenge:** Army must enhance the range and lethality, sustainment and survivability of the land force to be ready to fight wars and continually adapt to complexity in ‘cluttered’ littoral environments. This requires Army to build capability and collaboration to rapidly iterate innovative software and retrain on hardware at the tactical edge. Doing so will enable Army to seize opportunities for advantage and disperse capability in our region with mass and scalable effects.

Army seeks innovative systems to enhance RAS-enabled platoon and troop size forces, focused on the application of artificial intelligence (AI), autonomy, quantum technologies and Power and Energy technologies aligned with the following themes:

- **Theme 1 – Range and Lethality.** Army seeks innovations supporting extended range and lethality outcomes through the employment of autonomous systems. Range may be extended through the operating envelope and one-to-many control. Lethality may be extended using autonomy to enable precision loitering munitions and swarm operations. Annex B depicts the range and lethality operational view concept.
  - Networks and software-based approaches supporting Command, Control, Communications and Computers (C4) using autonomy to shorten and close sense-to-shoot cycles, extending the effective operating range of integrated systems.
  - Swarming or ‘one-to-many’ operations to create scale, disperse forces and retain or increase soldiers’ situational awareness when operating multiple systems in ‘cluttered’ littoral environments.
  - Robotic first contact with the adversary and increasing the distance of crewed platforms and personnel from possible threats.
  - Deep sensing to enable soldiers to detect and understand what is happening in the battlespace at machine speed in order to make effective decisions.
  - Expanding the effects available to small teams at the tactical edge with advanced manufacturing, modular systems and payloads, and Autonomous Organic Precision Fires (A-OPF).
  - Decision support systems for commanders to rapidly develop and adapt courses of action in contact with an adversary, as well as identify potential threats, named areas of interest (NAI), command nodes, and resources.
  - Test, evaluation, verification and validation (TEVV) methodologies for AI-enabled and autonomous systems to support the responsible use of AI in the land domain.

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- **Theme 2 – Sustainment.** Army seeks innovations to double the land combat service support (CSS) system, using RAS to increase capacity at the tactical edge. Systems may include alternative power and energy capabilities, autonomous systems, and reducing supply chain demand through electrification and associated technologies. Annex C depicts the sustainment operational view concept.
  - Automations to streamline the identification and fulfilment of sustainment and resupply needs, balance multiple priorities and address challenges of scale.
  - Capabilities that enable soldiers to identify and adapt to tactical challenges and opportunities in the littoral at speed.
  - Combat Service Support (CSS) and Distribution Points (DP) to resupply RAS organisations at speed and scale, including ‘last mile’ resupply opportunities, such as semi-submersible vessels (SSVs).
  - Advanced power and energy solutions to meet the future needs at the tactical edge for compute, networks, and systems, as well as consumable or modular platforms.
  - The use of advanced manufacturing for maintenance and modularity at the tactical edge, reducing the logistical challenges of dispersed operations in littoral environments.
  - Exceptionally low-cost, highly transportable and expendable modular uncrewed systems (UxS) to enable rapid building and deployment at the edge, such as flat-pack low-complexity uncrewed ground vehicles (UGVs).
  
- **Theme 3 – Survivability.** Army seeks innovations supporting land force survivability through autonomous system enhancements. Annex D depicts the survivability operational view concept.
  - Counter Uncrewed Aerial Systems (C-UAS) and Counter RAS (C-RAS) technologies that contribute to the execution of Find, Fix, Track, Target, Engage and Assess (F2T2EA) actions for high-volumes of fast-moving threats at machine speed. Technologies may be active and focus on direct actions against threats or passive and focus on deception, decoy and countermeasure systems.
  - Human command and machine control of autonomous systems to enable scale, and provide redundancy in Denied, Disrupted, Intermittent and Limited (DDIL) sensor or communications environments.

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## Exemplar Concepts

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Army is investigating emerging technologies within LAATT-LS as an operational System of Autonomous Systems (SoAS) concept to scale, command and control RAS in the land domain. Army is employing the 1st Armoured Regiment as a dedicated experimental unit in this endeavour to undertake experimentation activities and facilitate co-development with industry to iterate and refine technologies and concepts of employment.

Army is presently exploring three exemplar concepts that promote integration and continual adaptation of innovative technologies, enhancing combined operational effects. These are offered as exemplar missions and are not definitive.

- **Autonomous Teaming Effects (ATE).** ATE provides Army with a combined ground-based and near-ground aerial capability for Intelligence Surveillance and Reconnaissance (ISR) and strike (find and strike). ATE is both a network to connect and integrate different autonomous agents and interface for humans to apply command and control to understand and effect the battlespace at speed and scale. ATE maximises the operational utility of individual systems by closing the gap between sensors, effectors and human decision-makers.
- **Technology Scaled Combined Arms Team (TSCAT).** TSCAT provides a framework for Army's combined arms teams to enhance and augment existing capability through the integration of innovative technologies. TSCAT focuses on technologies that maximise the operational utility, longevity and survivability of current land capabilities, such as autonomy, power and energy, and counter-RAS.
- **Advanced Command, Control, Communications and Computers (C4).** Army is exploring innovative C4 software solutions that provide the architectures to understand and coordinate the future land force within 'cluttered' littoral environments. This includes the evolution of existing C4 architectures, as well as RAS command and control to reduce operational uncertainty and enable command accountability. Distributed and edge compute applications operating on low size, weight and power devices are sought to support AI-enabled command and control across software defined networks.

## Challenge Guidance

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Proposed technologies should drive new concepts that achieve military effects and/or enhance and complement existing Army capabilities.

### **Project Delivery Timeframe**

Army seeks Submissions that articulate a development pathway to meet the minimum TRL specified to deliver a Minimum Prototype Quantity that is viable for Army T&E evolutions by the conclusion (targeting Q4 CY 2026) with training provided to Army units (targeting Q1 CY 2027) for Army's safe employment on Talisman Sabre in July 2027.

### **Technology Readiness Level**

Army has a preference for technologies towards a higher [Technology Readiness Level \(TRL\)](#) for this Challenge. If the proposed technology cannot be developed to TRL 8, and compatible with and complementary to Army T&E initiatives within the specified timeframe, Tenderers are encouraged not to respond to this CFS.

Similarly, Army is not seeking submissions that are currently at TRL 9 or are Commercial-Off-The-Shelf or Military Off-The-Shelf solutions without consideration of a development pathway to meet Army articulated context, as specified in the Challenge Statement.

### **Minimum Prototype Quantity**

Army seeks Submissions that will deliver a Minimum Prototype Quantity (MPQ) of the proposed technologies as part of any awarded innovation contract from this Challenge. An MPQ allocation should constitute the number of systems necessary to support full mission profile compatible T&E evolutions, across one and / or multiple Army units, at minimum platoon levels, with sufficient quantity and effect(s) to produce an interim in-use capability.

### **Training**

As part of the project, Army seeks training to be provided to Army units to enable them to safely use the innovations in the field.

### **Exercise Talisman Sabre 2027**

Army seeks to employ the MPQ of innovations delivered through AID 25 into soldiers' hands in the field on Exercise Talisman Sabre 2027. Systems must be safe for use and meet Army and Defence standards where applicable. Army's employment of systems on Talisman Sabre 2027 must be usable within exercise constraints and maintained by Army, where practicable, in the field environment.

### **Submissions**

Tenderers to this CFS must lodge one Submission per solution. A solution may address one or multiple themes. Tenderers may submit multiple Submissions for different solutions.

## Key Challenge Requirements to all Themes

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### Essential Requirements

- **TRL Standards.** Submissions must meet a minimum entry TRL 5 standard and must meet an exit TRL 8 standard upon project completion within the Challenge Statements specified delivery timeframe. Similarly, submissions must not be at TRL 9 or are Commercial-Off-The-Shelf or Military Off-The-Shelf solutions, without consideration of a development pathway to meet Army articulated context, as specified in the Challenge Statement.
- **Delivery Timeframe.** Submissions must meet the *Project Delivery* timeframes specified in the *AID25 Timeline* section of this Challenge Statement
- **TS 27 Exercise.** Systems must be viable, achieved in collaboration with Army, for Army use on Talisman Sabre 2027.
- **Open Architecture.** Systems must promote an open architecture framework, with key interfaces between functional components defined according to open standards.
- **Safety.** Safety must be a key consideration for all systems. Innovations must be safe-to-use and safe-for-use, meeting Defence Landworthiness standards.
- **Training.** Training must be provided to Army units to enable them to safely use and employ the innovations on Exercise Talisman Sabre 2027.

### Important Requirements

- **Trustworthiness.** Systems should consider how commanders and operators will understand capabilities and limitations and build confidence in operational use. This should focus on transparency and traceability through design, development, and training.
- **Decision Custodianship.** Autonomous capabilities should be integrated in and enhance existing human-centric decision-making processes, ensuring human mission command, accountability and oversight (algorithm-in-the-loop).
- **Identification and Classification.** The system should consider how to minimise identification and classification in all relevant domains and spectrums. Detection should be considered, where possible.
- **Interfaces.** The system should interoperate within Army's advanced C4 architecture trial. Defined message formats, standards, APIs, and interfaces for human-machine and machine-machine teaming will be provided by Army.

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- **Scalability.** The system should consider scalability for design, development, and deployment, including in relation to other systems for integration within the C4 architecture. This should be at the individual system level, as well enabling scale across the entire SoAS.
- **Continual Adaptation.** Systems should be capable of undergoing rapid change pre- and post-action in response to contact with an adversary, emerging technology and operational requirements, with the aim of seizing transient opportunities for advantage.
- **Resilience.** Systems should be capable of operating in Denied, Disrupted, Intermittent and/or Limited (DDIL) communications environments.
- **All Weather Capable.** Operating environments will include littoral, tropical and riverine. The system should be capable of operating at various temperatures and humidity.
- **Day & Night Capable.** The system should be capable of operating in day, night or low light conditions.
- **Security and Supply Chain.** Systems should minimise sourcing components, particularly components that compute, send or receive data, from a country or manufacturer of concern.

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## AID 25 Timeline

Phase	Title	Milestone	Estimated Date
<b>Stage 1</b>	Call for Submission (CFS)	CFS Opens	29 Nov 24
		Tenderer Clarification Questions	29 Nov 24 - 22 Jan 25
		Release Addendum 1	17 Dec 24
		Release Addendum 2	23 Jan 25
		CFS Closes	03 Feb 25
		Tenderers Notified of Outcomes	Mar 25
<b>Stage 2</b>	Request for Proposal (RFP)	RFP Packs Released	Mar 25
		RFP Closes	28 Apr 25
		Pitch fest Activity	May 25
		Tenderers Notified of Outcomes	Jul 25
<b>Negotiations</b>	Contract Clarifications and Negotiations	Agreed Position Reached	Jul – Aug 25
<b>Project Delivery</b>	Development	Contracts Executed, Innovation Development	Sep 25 – Dec 26
	Delivery	Delivery of safe-to-use MPQ to Army units	Q4 2026
	Training	Training delivered to Army units for the safe-use of innovations	Q1 2027
	Use (Talisman Sabre 2027)	Army use of innovations on Talisman Sabre 2027.	Jul 2027
	Closure	Project closure and final report delivery.	Q4 2027

## **Total Procurement Value**

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Army has allocated up to \$20,000,000 (GST exclusive) for this procurement process. Army is under no obligation to fully expend this amount under this procurement process. Any investment decision under this procurement process will be made in accordance with the best procurement practices and guidelines to achieve best Value for Money for the Commonwealth.

**ANNEX A**

**Technology Readiness Level Explanations**

<b>Technology Readiness Level Definitions<sup>1</sup></b>	
<b>TRL 1</b>	<b>Basic Research:</b> Initial scientific research has been conducted. Principles are qualitatively postulated and observed. Focus is on new discovery rather than applications.
<b>TRL 2</b>	<b>Applied Research:</b> Initial practical applications are identified. Potential of material or process to solve a problem, satisfy a need, or find application is confirmed.
<b>TRL 3</b>	<b>Critical Function or Proof of Concept Established:</b> Applied research advances and early stage development begins. Studies and laboratory measurements validate analytical predictions of separate elements of the technology.
<b>TRL 4</b>	<b>Lab Testing/Validation of Alpha Prototype Component/Process:</b> Design, development and lab testing of components/processes. Results provide evidence that performance targets may be attainable based on projected or modelled systems.
<b>TRL 5</b>	<b>Laboratory Testing of Integrated/Semi-Integrated System:</b> System Component and/or process validation is achieved in a relevant environment.
<b>TRL 6</b>	<b>Prototype System Verified:</b> System/process prototype demonstration in an operational environment (beta prototype system level).
<b>TRL 7</b>	<b>Integrated Pilot System Demonstrated:</b> System/process prototype demonstration in an operational environment (integrated pilot system level).
<b>TRL 8</b>	<b>System Incorporated in Commercial Design:</b> Actual system/process completed and qualified through test and demonstration (pre-commercial demonstration).
<b>TRL 9</b>	<b>System Proven and Ready for Full Commercial Deployment:</b> Actual system proven through successful operations in operating environment, and ready for full commercial deployment.

<sup>1</sup> [Defence Science and Technology Groups definition and descriptions of Technology Readiness Level](#) is used.

ANNEX B

Challenge Statement Theme 1 - Operational View – Range and Lethality



**OPERATIONAL VIEW STATEMENT**

Army will apply emerging technologies to enable small teams of soldiers to plan and execute missions to sense, decide and effect adversaries at enhanced speed and scale. AI-enabled planning tools will support future commanders' to rapidly develop courses of action and adapt them in contact with an adversary. Federated networks will fuse data across dispersed and autonomous sense assets, providing commanders greater situational awareness and decision superiority. Advanced control interfaces will support soldiers at all levels to identify and make use of available effectors across the integrated force. Trusted autonomy will enable Army to sense and effect the adversary in the deep battlespace and contested environments.

## ANNEX C

## Challenge Statement Theme 2 - Operational View – Sustainment

**OPERATIONAL VIEW STATEMENT**

Army will apply emerging technologies to sustain, resupply and power RAS platoons. Predictive analytics will enable force elements to anticipate and prioritise maintenance and resupply needs as friction arises during operations and in contact with an adversary. Greater autonomy reduces the risk to soldiers and enhances the scale of CSS and provides new options for 'last mile' resupply in kinetic or denied environments. Alternative power and energy sources will reduce the sustainment burden and enhance the persistence of a highly dispersed and scalable land force.

ANNEX D

Challenge Statement Theme 3 - Operational View – Survivability



**OPERATIONAL VIEW STATEMENT**

Army will apply emerging technologies to enhance force protection and survivability in contested environments. An integrated and networked system to sense and counter high-volumes of fast-moving threats will protect our soldiers from the threat of drones and other uncrewed systems (UxS) operating at machine speeds and scales. Greater autonomy will remove soldiers from dangerous tasks and potentially extend the service life of vulnerable legacy platforms.