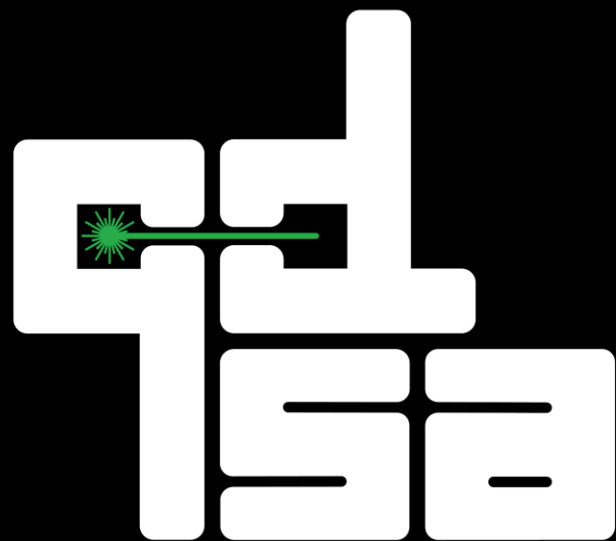




QUEENSLAND DEFENCE
SCIENCE ALLIANCE

QDSA 2026 Collaborative Research
Grants Briefing & Networking

23 July 2026



Stuart Blackwell
Director

Roger Stuckey
Associate Director

Robin Baker
DSTG D/PL LISREW & CUAS

QDSA Collaborative Research Grant – Information & Networking evening

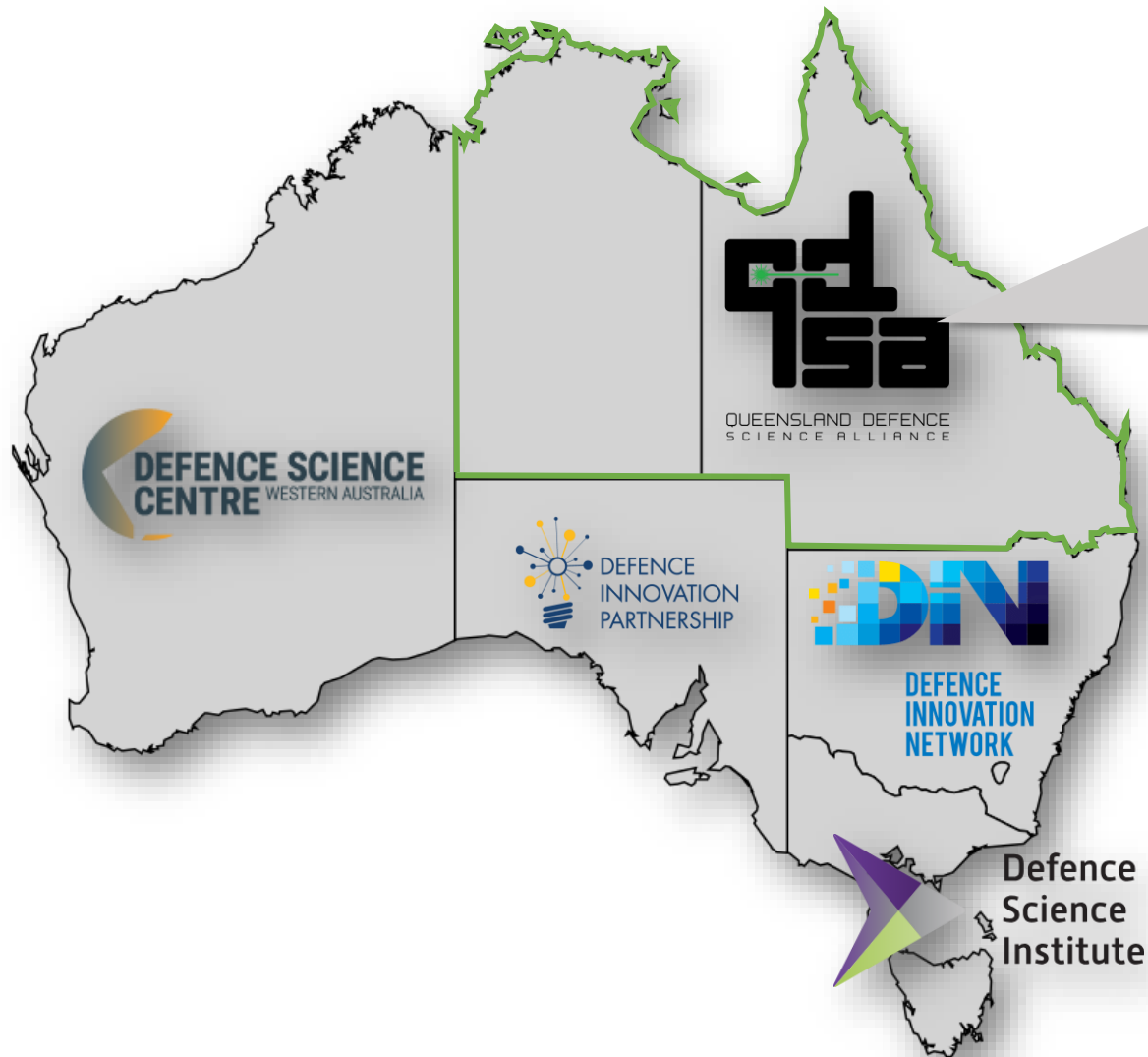
- The purpose of the evening is to:
 - Provide an overview of the 2026 Collaborative Research Grants, process and intent
 - Provide an opportunity for networking and connection between Researchers and Industry

Proceedings

- Introduction and background
- Research Topics
- Examples
- Evaluation process
- Key dates
- FAQs
- Points of contact
- Introductions & networking



Who is Queensland Defence Science Alliance?



Defence Research Network (DRN) – Formerly Australian Defence Science University Network (ADSUN)

Role of the nodes is to:

- promote **engagement between universities, industry and Defence**
- Foster **collaboration** and skills exchange
- Identify **opportunities** for technology and research and development
- Provide **advice** on Defence priorities, capabilities, needs and gaps
- Assist small business to understand the Defence supply chain
- **Promote and showcase** Defence research and innovation



2025 QDSA – AIDN MoU: Connecting research and industry

What is the opportunity?



Collaborative opportunity between research and industry:

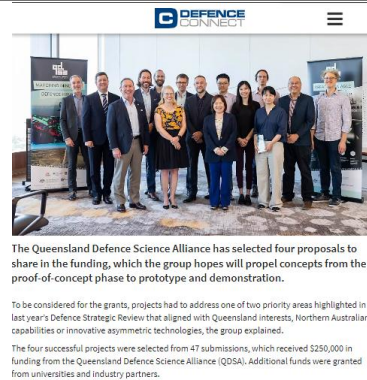
- Up to \$250,000 per grant
- Multiple grants to be awarded
- Project must be completed over a 12-18 month period
- Must include a QDSA Member university
- Must include a benefit to Queensland*
- Generate collaborations between research and industry
- Focus on “Pull-through of technology” from research to industry
- Relevant to recent NDS & IIP, DIDS, DSTG IS&T Strategy
- Relevance to Defence & proposed theme
- May lead to other opportunities such as ASCA, DIU or UKDI
- Co-funding strengthens your proposal

Collaborative Research Grant - Winners



Since 2022 we have funded 14 projects across three rounds of grants :

- 1. Precision sensors to provide asymmetric sovereign capacity in a GPS-denied environment**
 - **Collaboration:** two universities and one industry
 - **Co-funding:** Yes
- 2. Enhancing UGVs' multi-agent collaboration capabilities using federated reinforcement learning**
 - **Collaboration:** Four universities
 - **Co-funding:** Yes
- 3. Diamond like coatings for harsh environment applications**
 - **Collaboration:** one university and one industry
 - **Co-funding:** Yes
- 4. Powering the ADFs ability to operate from remote Northern Bases with compact high energy power and control**
 - **Collaboration:** two universities and industry
 - **Co-funding:** Yes
- 5. Transition to Quantum Safe: Security testing of post Quantum Cryptography in Security-Critical Applications**
 - **Collaboration:** three universities and one industry
 - **Co-funding:** Yes



- 6. Integrated Long Range Cargo UAVs into the Battlespace Operating Systems**
 - **Collaboration:** two universities and two industry partners
 - **Co-funding:** Yes
- 7. Autonomous Littoral Magnetometer Surveillance**
 - **Collaboration:** two universities and one industry partner
 - **Co-funding:** Yes
- 8. 3D printed ceramics for temperature resistant and load bearing aerostructures**
 - **Collaboration:** two universities and one industry partner
 - **Co-funding:** Yes
- 9. Rapid medical supply delivery**
 - **Collaboration:** one university and two industry partners
 - **Co-funding:** Yes
- 10. AI-Enhanced hyperspectral ISR system for subsurface and surface threat detection in contested coastal zones**
 - **Collaboration:** two universities and three industry partners
 - **Co-funding:** Yes
- 11. Corrosion Behaviour of Additively Manufactured Nickel Aluminium Bronze (NAB) for Reliable Propulsion Systems**
 - **Collaboration:** one university and two industry partners
 - **Co-funding:** Yes
- 12. Spaceframe-Based Floating Bridge**
 - **Collaboration:** two universities and one industry partner
 - **Co-funding:** Yes

QDSA 2026 CRG Program

Theme: Ground/Surface-based Air Defence



Topics and Context/Environment set the Operational Demand

1. Counter High-Speed Threat

- a. Detection, tracking, targeting
- b. Non-kinetic effectors

2. Counter UAS

- a. Sensing, seeking
- b. Kinetic and non-kinetic effectors
- c. Other systems

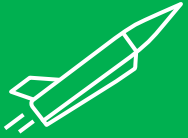
3. Decision Support

- a. Information fusion
- b. Human-machine teaming
- c. Other systems



Source: Defence images

Research Topic: Counter High-Speed Threat



Counter High-Speed Threat

- Detection, tracking, targeting
- Non-kinetic effectors

Project Requirements

Signature characterisation across RF, EO, and IR domains.

Detection, Tracking, Targeting: Ground-based phased-arrays, OTH radar enhancements, or stratospheric EO/IR sensing platforms for persistent mid-course tracking.

Integrated, multi-layered defence architecture linking early warning, mid-course tracking, and terminal engagement.

Non-Kinetic Effectors: EW jamming, spoofing, and deception, high-power microwave (HPM) payload disruption, cyber-enabled EW for targeting guidance, datalinks, and command networks.

Desirable Features

Multi-phenomenology sensing (RF, EO, IR, SIGINT).

AI-accelerated data fusion & trajectory prediction.



Research Topic: Counter UAS



Counter Unmanned Aircraft Systems (UAS)

- Sensing, seeking
- Kinetic and non-kinetic effectors
- Other systems

Project Requirements

The project should consider prototype development, system integration, testing and evaluation of layered C-UAS sensors and effectors.

Sensor technologies: RF, EO, Radar, seismic, acoustic.

Effector technologies: kinetic, directed energy, RF.

AI/ML fusion, threat evaluation, C2/BMS integration.

Desirable Features

Minimal SWaP-C

Detect & track low-RCS UAS

Operation in complex urban, littoral and defence environments.

Solutions must aim to integrate with LAND 156 ICARUS LOE1 C2/BMS environment.



Research Topic: Decision Support



Decision Support

- Information fusion
- Human-machine teaming
- Integration

Project Requirements

Multi-source data fusion across RF, EO, IR, SIGINT, and environmental models, automated threat evaluation using AI/ML, cognitive load reduction.

Human-Machine Teaming: Hybrid autonomous decision systems that combine AI-driven analytics with human oversight, rapid decision-making tools that accelerate the OODA loop, autonomous sensor cueing and engagement option generation

Shared situational awareness and coordinated engagements.

AI-accelerated information fusion for real-time threat understanding.

Desirable features

Automated threat evaluation.

Hybrid human-machine decision loops.

Autonomous sensor cueing.



Source: Defence images

Common Requirements



Common Requirements

Common Requirements

- JABMS-aligned interoperability.
- Modular, Open-Systems Architecture (MOSA).
- Resilience to Cyber and EW interference.



Evaluation process



What are the evaluation criteria?

(See Section 5 – EOI, Section 6 – Detailed Proposals)

1. Alignment.

- Alignment with Defence priorities specified

2. Collaboration.

- Level of collaboration across universities and industry

3. Project Feasibility

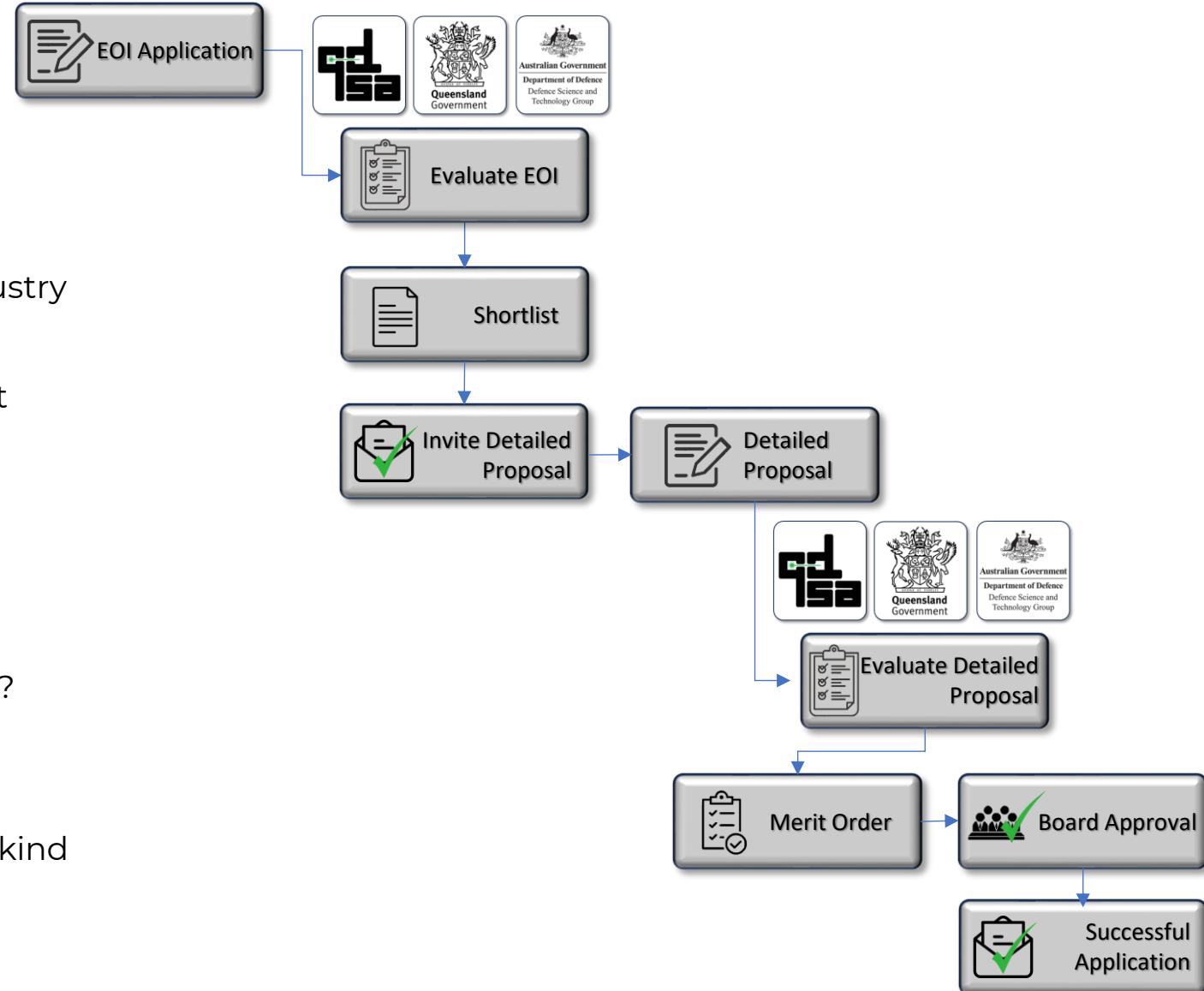
- Is the project likely to yield results against budget and schedule proposed?
- Have the risks been adequately defined and considered?
- Degree of stakeholder commitment?

4. Impact for Defence.

- Likelihood of innovation/ asymmetry for Defence?
- Level of interest from key Defence stakeholders?

5. Co-investment

- What level of co-investment is provided, cash, in-kind or both?
- What is the ratio of QDSA investment to co-investment?



Applying for CRG - Example



Industry and Research can work together for CRG

Step 1: Prior to submission of Online EOI:

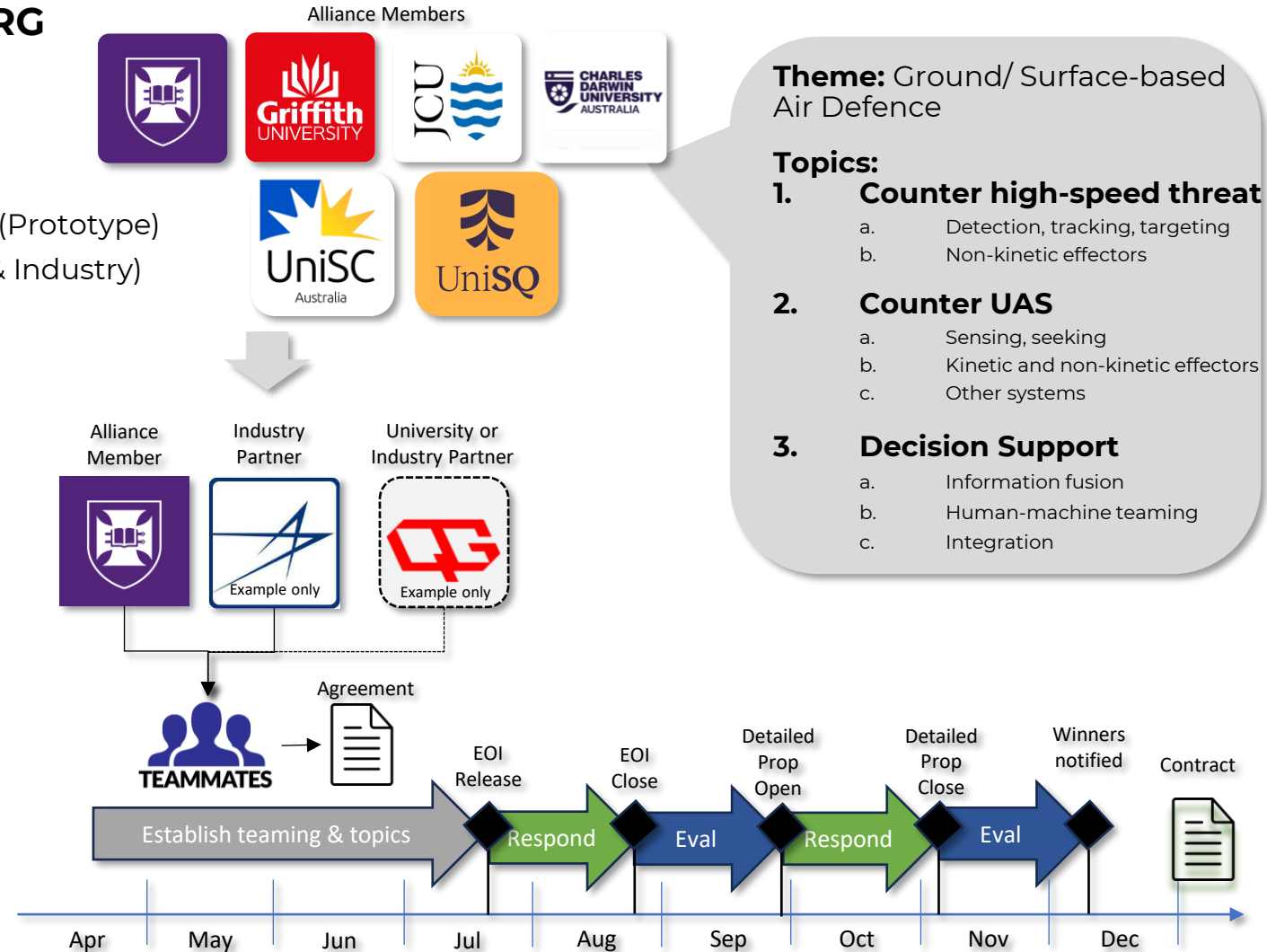
- Determine the Team
 - Focus on Defence challenges and bringing innovation
 - Define the Project scope TRL3 (Proof of Concept) -> TRL7 (Prototype)
 - Identify teammates (Collaboration between Universities & Industry)
- Agree on investment
 - In-kind
 - Cash
- Agree on IP generated

Step 2: Apply for grant

- Respond
 - EOI
 - Detailed Proposal (*By invitation*)
- Contract Signature

Step 3: Conduct of Project

- Set to work
- Quarterly Updates
- Annual report
- Demonstration
- Final report



Key Dates



Date	Activity	Comment
14 July 2026	EOI applications open	
23 July 2026	QDSA CRG Briefing and Networking Event	<i>You are here</i>
 18 August 2026 5pm AEST	EOI applications close	Online form https://qdsa.au/qdsa-funding/
1 September 2026	EOI's shortlisted and ranked	<i>*Target week of</i>
7 September 2026	Notification of success and request for detailed applications open	
13 October 2026 5pm AEST	Detailed applications close	
27 October 2026	Selection panel meets for final determination of merit order*	<i>*Target week of</i>
17 November 2026	Selection panel outcomes presented to QDSA Board for endorsement	
4 December 2026	Notification of successful proposals *	<i>*Target week of</i>

Serial	Question	Response
1	Do I need to collaborate with more than one university?	<i>No, but the nature of the grants is to collaborate so those that do will score better in the evaluation.</i>
2	Do I need to collaborate with an industry partner?	<i>No, but the nature of the grants is to collaborate so those that do will score better in the evaluation.</i>
3	Does QDSA take a stake in the IP?	<i>No, the IP arrangements are established between the parties only.</i>
4	How many projects will be funded?	<i>QDSA will fund as many projects as possible at the time of detailed proposals.</i>
5	Do I need to ask for the full \$250,000?	<i>No, we look at funding as many projects as possible.</i>
6	Do I need to make a co-contribution?	<i>No, however those that come with co-contributions will score better in evaluation.</i>
7	Can non-member universities participate?	<i>No, only member universities can participate in the 2026 CRG.</i>
8	What does direct benefit to Queensland mean?	<i>The proposed team must have a link to Queensland to receive up to \$250,000. This may be an industry partner, or a member university based in Queensland.</i>
9	I'm interested in participating but I'm not part of a team	<i>Let QDSA know your field of expertise and we can endeavour to make an introduction for you with a researcher who would like to collaborate on a project.</i>
10	What if I am interested in a topic that is not listed?	<i>The 2026 CRGs must be aligned to the Theme and Topics provided in the Guidelines document available on the QDSA website to be eligible.</i>
11	Does my project have to start at TRL 3?	<i>No, QDSA will look at all collaborative projects proposed. However, TRL 3 – 7 is a guide to illustrate where most benefit is gained to Defence.</i>

University POCs



Member university points of contact available to discuss CRG collaboration opportunities



Hunter Walkenhorst

hunter.walkenhorst@unisq.edu.au



University of the
Sunshine Coast
Australia



Adrian McCallum

amccallu@usc.edu.au



Queensland, Australia



Tori Brown

tori.brown@griffith.edu.au



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA



Michael Brennan

michael.brennan@uq.edu.au



Ksenia Sawczak

ksenia.sawczak@cdu.edu.au



John Matthews

john.matthews@jcu.edu.au

DEFENCE AT UNISC

Delivering innovative solutions
to national challenges

Defence Capabilities

Autonomous Systems and Trusted Autonomy

- Mechatronic engineering systems development and control
- AI-enabled autonomous vehicle research and development
- Trusted autonomy applications for defence systems
- Human Factors and Ergonomics theories, models, methods, and principles to support the design of autonomous systems

Artificial Intelligence and Machine Learning

- Smart Computing research cluster focusing on AI, IoT, and Big Data
- Machine learning algorithms for sensor data analysis and decision support
- Intelligent sensors and circuits development for defence applications
- AI applications in cybersecurity and digital forensics

Information Warfare and Cyber Security

- Cyber security research and education programs
- Digital forensics and cyber criminology capabilities
- Information systems security and risk management
- Gamified cyber security training platforms
- Human Factors and Ergonomics methods in cyber security

Defence Capabilities (cont.)

Advanced Materials and Manufacturing

- Advanced Materials and Manufacturing research cluster
- 3D printing and additive manufacturing (including metal printing capabilities)
- CNC manufacturing and rapid prototyping facilities
- Materials characterisation and testing under harsh conditions

Agile Command and Control

- Command and control systems design and evaluation
- Effective command and control, such as situation awareness, teamwork, decision making, and distributed cognition

Facilities & Infrastructure

Advanced Engineering and Technology

- Engineering Learning Hub with 3D visualisation facilities
- CAVE2™ immersive 3D visualisation space
- Manufacturing laboratory with CNC machines and rapid prototyping
- Robotics and automation laboratory with industrial robotics

Advanced Computing and Simulation

- High-performance computing facilities
- Interactive visualisation and collaboration studios
- Digital simulation laboratories for engineering and science
- Secure computing environments for defence research

Health and Medical Research

- Thompson Institute with advanced neuroimaging capabilities
- Clinical Trials Centre for defence-related health research
- Sunshine Coast Health Institute with clinical simulation facilities
- Digital Health Productivity Laboratory
- National PTSD Research Centre
- Centre for Human Factors and Systems Science



UniSC

Questions?

usc.edu.au

Contribution: integrated sensing + AI-enabled decision support for resilient air defence in complex northern environments

Position JCU as a test, evaluation and innovation partner for Defence systems requiring multi-domain sensing, C2, simulation, autonomy, materials and tropical operating resilience.



Detection, tracking & targeting

- Remote sensing: acoustic monitoring + radar
 - Wireless communication technologies
 - Remote undersea sensing and processing
- Fit: sensing, tracking and data inputs*



Command, control & fusion

- Agile C2 and decision sciences
 - Simulation systems and environments
 - Simulation-enabled HUM-T test and evaluation
- Fit: C2, multi-vehicle tracking, sensor fusion*



AI-enabled decision support

- Human-centred AI and large language modelling
 - AI for autonomous systems
 - Decision and team performance research
- Fit: threat evaluation, cognitive load, HMT*

Common requirements addressed by JCU capability

In-service integration

Agile C2 + wireless communications + Defence links

Modular components

Sensors, autonomy, C2, simulation and materials building blocks

Cluttered environments

Tropical, adverse-weather and environmental test settings

Cyber / EW resilience

Opportunity to partner or extend capability for EW-hardening

Power range endurance

Sensors & battery materials; microgrids and renewables

Grant focus areas matched

Counter high-speed threat | Counter UAS | Decision support

Evidence base from capability statement:

Defence capabilities include undersea surveillance, AI, agile C2, materials science, simulation, and tropical/regional facilities.



Your partner for Defence autonomy in the North

Australia's only university headquartered in the NT : combining dedicated autonomy, secure AI and deployable R&D in a key ADF operating environment.

■ CDU CAPABILITIES



Autonomous Systems & Trusted Autonomy

- North Australian Centre for Autonomous Systems (NACAS)
- Remote-area drone operations and northern flight testing
- AI-enabled autonomous systems and decision support

■ CRG FIT · COUNTER UAS / DECISION SUPPORT

Trusted autonomy, human-machine teaming and potential sensor-fusion research



Artificial Intelligence & Cyber

- Explainable and generative AI
- Data analysis, threat evaluation and decision support
- Human-centric cyber security and digital forensics
- Malware detection, attribution and cyber resilience

■ CRG FIT · DECISION SUPPORT / COMMON REQUIREMENTS

Trusted decision systems resilient to cyber / EW interference



Advanced & Remote Manufacturing

- Cold-spray metal 3D printing (SPEE3D)
- Deployable parts for remote/austere conditions
- Navy pressure-vessel components
- Ultra-large printing: 2400 mm / 4000 kg

■ CRG FIT

Modular components, integration and remote sustainment

GROUND/SURFACE-BASED AIR DEFENCE

■ EVIDENCE & COMPLEMENTARY STRENGTHS



QDSA TRACK RECORD
Prior QDSA funding experience



COUNTER HIGH-SPEED THREAT
Electronic warfare & photonics

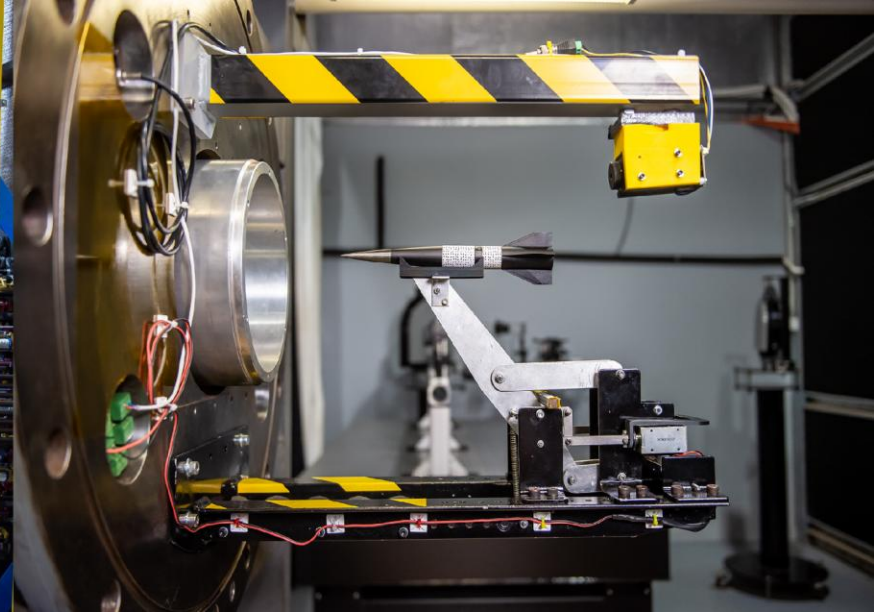


COMMON REQUIREMENTS
Advanced materials & nanofibre



NORTHERN OPERATIONS
Deployed & tropical health





Institute for Space, Defence and Advanced Technologies

Executive Director: Prof Peter Schubel

Research Centres



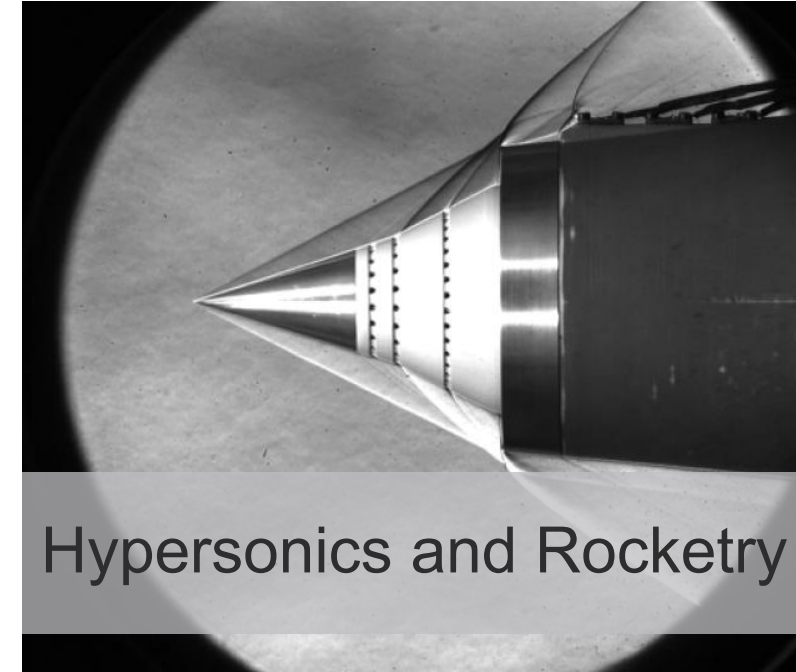
Director: **Prof Duncan Wright**

- Mt Kent Observatory
- Exoplanet discovery
- Space debris monitoring
- Asteroid characterisation
- Computational astrophysics



Director: **Prof Allan Manalo**

- Advanced composite manufacturing
- Resilient infrastructure
- Civil engineering
- Smart materials
- Sustainable industry design
- Clean energy



Leader: **Prof David Buttsworth**

- Hypersonic wind tunnel
- Solid fuel rocket manufacture
- Hypersonic design and optimisation
- Rocketry and flight experimentation
- Airborne & Ground observation
- High-flow fluid dynamics

ISDAT Key Research and Outcomes



94 active research projects, with a total of **83** active industry, research and government partners



~**\$13 million** research income in 2025



80 affiliated researchers and **115** PhD students



320 journal publications in 2025



Ranked as the **Leading** Research Institution for Composite Materials by The Australian



Testing services that have served more than **1000** clients



Innovative Launch, Automation, Novel Materials, Communications, and Hypersonics Program
The iLAUNCH Trailblazer is a \$180 million program building Australia's enduring space capability

Introductions (*Guide only, 3 mins max*):

- **Who are you?**
- **What capabilities or areas of research do you bring?**
- **Where are you from?**
- **What topic(s) are you interested in collaborating on?**

List of open mic speakers - Researchers:

- Dr Susan Ahdi Rezaeieh – UQ
- Dr Elizabeth Chang – UniSC
- Dr Thanh Thi Nguyen – UniSC
- Prof. Gemma Read – UniSC
- Dr Bradley Pascoe – UniSQ
- Dr Alexander Scheuermann – UQ
- Dr Reem Sherif – CDU (*Online*)

List of open mic speakers - Industry:

- Dr Andy Boud – Second Wave Holdings
- Dr Nigel Greenwood – Evolving Machine Intelligence
- Mr Maciej Babiak – UPlatforms Pty Ltd
- Dr Terrence Martin – Revolution Aerospace
- Dr Joni Sytsma – Rocket Fast Drones
- Mr Jake Bostock – Beaten Zone Venture Partners
- Ms Wei Li – Inditech Consulting Services
- Mr Tony Ockleshaw – BB84 Dynamics Pty Ltd
- Mr Buzz Sarlin – Buzzworks
- Mr Brendan Lee – Elas Digital Pty Ltd

Get in touch



Stuart Blackwell

DIRECTOR

stuart.blackwell@qdsa.au



Dr Roger Stuckey

ASSOCIATE DIRECTOR

roger.stuckey@qdsa.au



Rob Carrick

STRATEGIC ADVISOR

robert.carrick@qdsa.au



Joanne Lubke

OPERATIONS MANAGER

joanne.lubke@qdsa.au



info@qdsa.au



<https://qdsa.au/>

LinkedIn QDSA



@QDSAlliance

Thank you



Your feedback is appreciated

