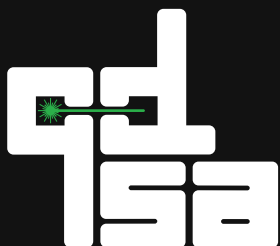


CAPABILITY STATEMENT



QUEENSLAND DEFENCE
SCIENCE ALLIANCE





MINISTER'S STATEMENT

The Queensland Government is continuing to play a key role in the Queensland Defence Science Alliance (QDSA), working alongside the Australian Government's Defence Science and Technology Group and current member universities, The University of Queensland, Griffith University, James Cook University, Charles Darwin University, University of the Sunshine Coast, and University of Southern Queensland.

QDSA underscores Queensland's prime position to fulfil the future needs of Australian defence by fostering knowledge exchange and building productive partnerships across local research and business.

With an eye to the future, the Government will support QDSA to identify and activate defence industry investment opportunities that leverage Queensland's leading research domains such as quantum technologies, trusted autonomous systems, communications, and hypersonic flight.

I strongly recommend seizing the opportunities presented by QDSA to help meet our collective defence needs and objectives, including those relevant to Northern Australia.

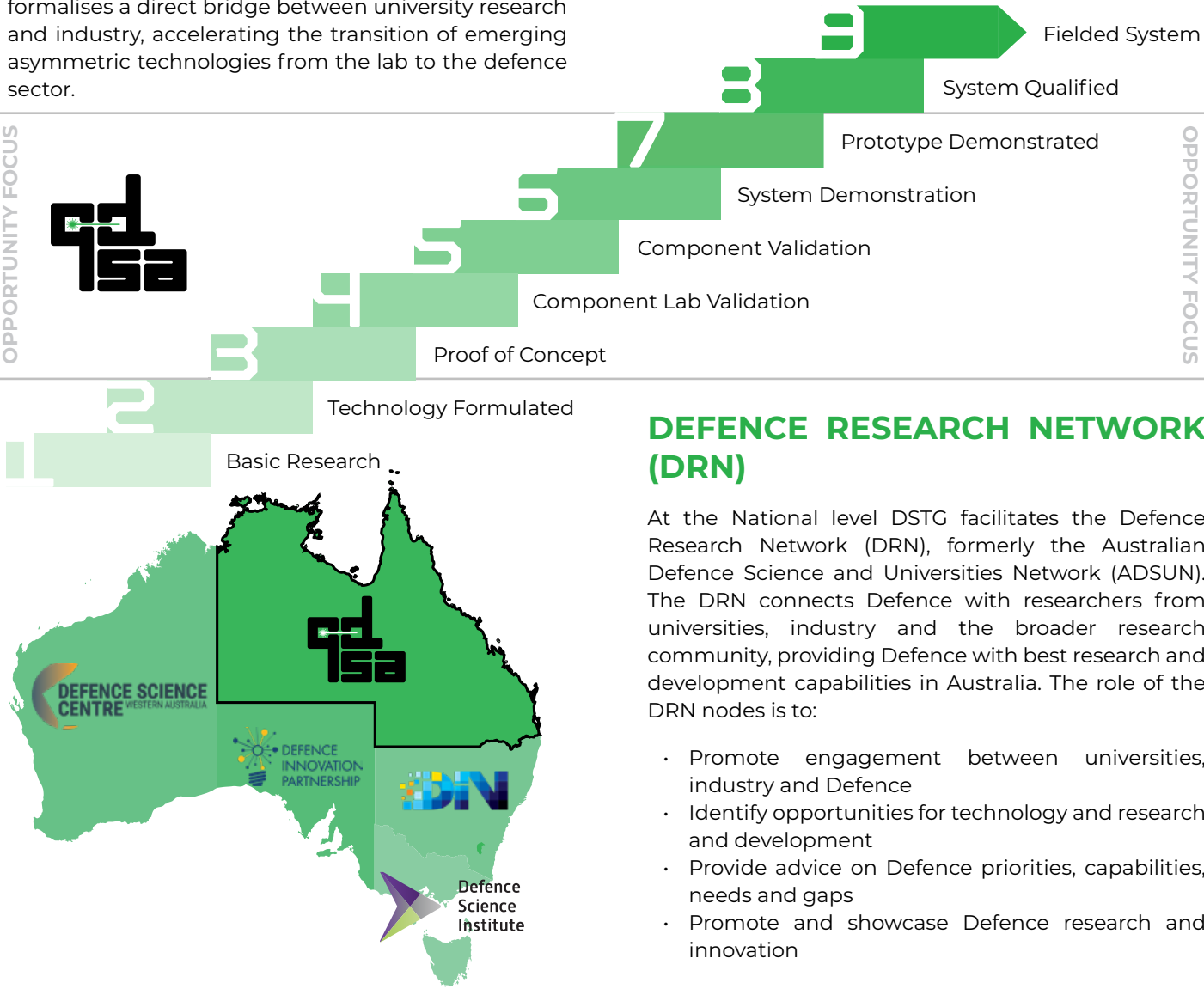
The Honourable Andrew Powell MP
Minister for the Environment and Tourism
and Minister for Science and Innovation

OUR MISSION

Our mission is to foster the growth and connection of an agile Defence innovation ecosystem by leveraging Queensland and the Northern Territory's (NT) unique strengths. We help accelerate the local innovation pipeline to deliver sovereign capability to the Australian Defence Force (ADF). Connection, collaboration, and communication is the foundation of our Alliance members below.



QDSA's Memorandum of Understanding with the Australian Industry & Defence Network (AIDN) formalises a direct bridge between university research and industry, accelerating the transition of emerging asymmetric technologies from the lab to the defence sector.



DEFENCE RESEARCH NETWORK (DRN)

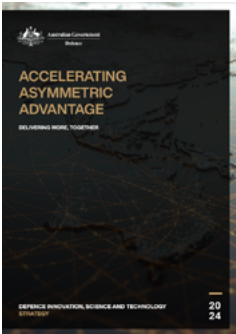
At the National level DSTG facilitates the Defence Research Network (DRN), formerly the Australian Defence Science and Universities Network (ADSUN). The DRN connects Defence with researchers from universities, industry and the broader research community, providing Defence with best research and development capabilities in Australia. The role of the DRN nodes is to:

- Promote engagement between universities, industry and Defence
- Identify opportunities for technology and research and development
- Provide advice on Defence priorities, capabilities, needs and gaps
- Promote and showcase Defence research and innovation

ALIGNMENT TO DEFENCE STRATEGY

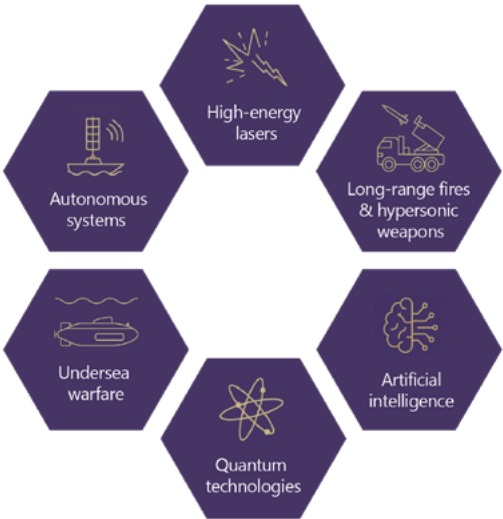
Central to Defence policy, four key documents define Defence Strategy and Priorities, those being the 2026 National Defence Strategy (NDS), Integrated Investment Program (IIP), Defence Industry Development Strategy (DIDS), and the Defence Innovation, Science & Technology (IS&T) Strategy. These critical documents set the strategy to be implemented by Defence and identify the key programs to be funded over the following decade. The NDS provides a clear signal from Government to Defence on the priorities for the defence of Australia and our interests, while the IIP outlines the Defence capability investment priorities.

The DIDS reaffirms the importance of collaboration between Defence, Industry, and Academia. Innovation pathways are critical to accelerating the development of new asymmetric capabilities and the Advanced Strategic Capabilities Accelerator (ASCA) is a \$4.3B pathway established to rapidly translate disruptive new technologies into Defence capability in close partnership with Australian industry and research organisations. The DIDS also identifies the DRN as a key enabler to supporting this pull-through of technology from research to industry. QDSA is uniquely placed to support academia and industry engagement with Defence and ASCA around opportunities for Queensland and the Northern Territory in IS&T. The Defence IS&T Strategy focuses on supporting the NDS strategy of denial through accelerated innovative solutions and growing the IS&T ecosystem through strategic partnerships.



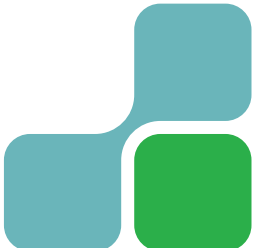
Understanding these strategic level documents has allowed QDSA to focus on two key themes: **Innovative asymmetric technologies** and **Northern Australian capabilities**.

The first theme is drawn directly from the priorities identified in the NDS, as shown below. QDSA is well placed to support these priorities as they relate to leading capabilities within our member network.



The second theme relates to the increased focus on Defence in the north of Australia. A significant number of Army amphibious and land capabilities are located in Queensland and the Northern Territory, providing an opportunity to innovate and accelerate the pull-through of new technologies for Defence in the north of Australia. The increased opportunities around trusted autonomy as a force multiplier in the maritime and land domains provide an excellent example of doing more with limited resources.

Our Alliance membership is ready to solve the challenging research needs of Defence and industry priorities. This capability statement aims to map the key capabilities our network can offer to prospective industry partners looking to accelerate innovation under these two themes.



CAPABILITY MAPPING

This diagram shows areas of university world-leading capability against key defence priorities suited for R&D support. Detailed information on QDSA members' specific capabilities against each priority is contained in their respective overview statements on pages 8-15.

QDSA Priority Areas	Queensland & NT (QDSA)						Defence Strategic Policies					
	University of Queensland	Griffith University	James Cook University	Charles Darwin University	University of the Sunshine Coast	University of Southern Queensland	AUKUS Pillar II Advanced Capabilities	ASCA Key Priority Areas	DSTG STaR Shots	Defence Health & Logistics Research Priorities	National Defence Strategy 2026	Integrated Investment Program 2026
Undersea Capabilities, including Surveillance												
Quantum Technologies, including Sensing and Communication												
Autonomous Systems, including Trusted Autonomy												
Artificial Intelligence, including Generative AI												
Information Warfare and Cyber												
Agile Command and Control												
Hypersonics and Counter-Hypersonics												
Electronic Warfare and Directed Energy												
Long-Range Fires, GWEO and IAMD												
Space Capabilities, including Launch												
Workforce and Sustainment, including Data Intelligence												
Logistics Networks and Supply Chain Resilience												
Fuel Supply, Storage and Disposal and Renewable Energy												
Advanced and Remote Manufacturing												
Multidisciplinary Material Sciences												
Personnel Protective Measures, including CBRN-D												
Biotechnology and Human Enhancement												
Deployed Health, including Evacuation												

WHAT WE DO

Understand and **COMMUNICATE** defence needs from strategic guidance



CONNECT industry with university research



Industry



Alliance Members

Support **COLLABORATION** projects to boost needed defence innovation



Collaborative Research Grants (CRG)



Industry Collaboration



STaR Shots



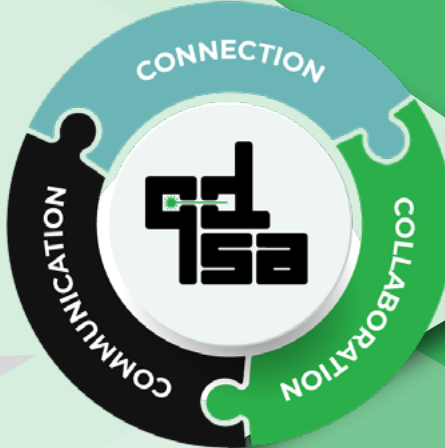
Missions
Innovation Incubations
Emerging and Disruptive Technologies

MATURITY (TECHNOLOGY READINESS LEVEL)

QDSA has a unique geographic advantage for supporting research and development that relates to Northern Australia. We leverage our strength through our Collaborative Research Grants to bring sovereign capability to the ADF.

NORTHERN AUSTRALIA CAPABILITIES

- Deployable energy systems
- Resilient supply chains
- Human performance
- Alternative fuels
- Tropical health



KEY

- Army
- Navy
- Air Force
- DTSG

AUKUS PILLAR II ADVANCED CAPABILITIES

- Undersea Capabilities
- Quantum Technologies
- Artificial Intelligence & Autonomy
- Advanced Cyber
- Hypersonic & Counter-hypersonic capabilities
- Electronic Warfare
- Innovation & information sharing

DEFENCE FACILITIES IN NORTHERN AUSTRALIA

- HMAS Coonawarra (Darwin)
- Headquarters NORCOM (Larrakeyah)
- RAAF Amberley (Brisbane)
- RAAF Garbutt (Townsville)
- RAAF Darwin
- Mt Bunday Training Area (NT)
- Ross Island Water Transport (Townsville)
- Townsville Field Training Area
- 1st Brigade (Darwin)
- 3rd Armoured Brigade (Townsville)
- 7th Brigade (Enoggera)
- Deployed Joint Force Headquarters (Enoggera)
- Headquarters 1st Division (Enoggera)
- Aviation Training Centre (Oakey)
- Borneo Barracks (Cabarlah)
- HMAS Cairns (Cairns)
- Shoal Water Bay Training Area (Rockhampton)
- Bradshaw Range (NT)
- Delamere Range (NT)
- Shoal Bay Receive Station (Darwin)
- US Marine Expeditionary Force Rotation (Darwin)
- DSTG Eagle Farm
- DSTG Innisfail



Campus Locations

South Bank
226 Grey St,
South Brisbane QLD 4101

Nathan
170 Kessels Rd,
Nathan QLD 4111

Logan
68 University Dr,
Meadowbrook QLD 4131

Gold Coast
1 Parklands Dr,
Southport QLD 4215

Brisbane City
333 Ann Street
Brisbane QLD 4000

DEFENCE CAPABILITIES

Human Performance, Health & Biomedical Sciences

- Human performance
- Biomedicine & glycomics
- Precision medicine
- Veteran health & wellbeing
- Operational resilience

Artificial Intelligence & Autonomous Systems

- Artificial Intelligence
- Human-machine teaming
- Autonomous systems
- Robotics & control
- Data analytics

Quantum, Sensing & Communications

- Quantum technologies
- Advanced sensing
- Photonics
- Secure communications
- Signal processing

Semiconductor & Microfluidic Technologies

- Silicon carbide
- Microfluidics
- Micro-Electro-Mechanical Systems (MEMS) & Biological MEMS (BioMEMS)
- High-power electronics

Advanced Manufacturing & Materials

- Advanced materials
- Digital manufacturing
- Additive manufacturing
- Infrastructure technologies
- Sovereign capability

Energy, Logistics & Supply Chains

- Energy resilience
- Microgrids
- Logistics systems
- Supply chain resilience
- Enterprise architecture

Cyber & Digital Systems

- Cyber security
- Digital engineering
- Internet of Things (IoT)
- Decision support
- Intelligent systems

National Security & Defence Strategy

- Indo-Pacific security
- Defence policy
- Emergency management
- Veteran transition
- Defence workforce

Griffith University delivers multidisciplinary research that strengthens Australia's Defence capability—from advanced technologies and sovereign manufacturing to human performance, Veteran wellbeing and national security—through close collaboration with Defence, industry and government. Complementing this capability, Griffith Veterans College creates a unique pathway linking Defence, education, research and industry, supporting the lifelong development of current and former Australian Defence Force members and their families.

FACILITIES & INFRASTRUCTURE

Advanced Technologies

- Queensland Quantum and Advanced Technologies Research Institute (QUATRI)
- Brisbane–Gold Coast quantum fibre network
- Australian Attosecond Science Facility
- Semiconductor, microfluidics and cleanroom fabrication facilities

Advanced Manufacturing & Engineering

- Advanced Design and Prototyping Technologies Institute (ADaPT)
- Advanced manufacturing and digital engineering laboratories
- National Hydrogen Materials Reference Facility

Health, Biomedicine & Human Performance

- Institute for Biomedicine and Glycomics (IBG)
- Menzies Health Institute Queensland (MHIQ)
- Physical Containment Level 3 (PC3) bioanalysis facility
- NatureBank natural products library
- Australian Institute for Suicide Research and Prevention (AISRAP)
- National Centre for Neuroimmunology and Emerging Diseases (NCNED)

Defence, Security & Regional Engagement

- Griffith Veterans College
- Griffith Asia Institute



Campus Locations

Townsville

1 James Cook Dr,
Douglas QLD 4811
1800 246 446

Cairns

88 McGregor Rd,
Smithfield QLD 4878
1800 246 446

DEFENCE CAPABILITIES

Undersea Capabilities, including Surveillance

- Remote sensing through acoustic monitoring and radar
- Littoral systems autonomy
- Remote undersea sensing and processing
- Sensors and battery materials
- Anti-biofouling materials
- AI driven underwater drones

Artificial Intelligence, including Generative AI

- Human-centred AI and large language modelling
- AI for autonomous systems

Agile Command and Control

- C2 and decision sciences
- Wireless communication technologies
- Simulation systems and environments

Multidisciplinary Material Sciences

- Microgrids and renewables
- Advanced additive high-temperature materials – high-speed systems/ space
- Green hydrogen generation and waste-to-energy
- Material testing under tropical conditions

Biotechnology and Human Enhancement

- Human performance in the tropics
- Medical countermeasures
- Socioeconomic impacts of Defence policy

FACILITIES & INFRASTRUCTURE

Undersea Capabilities, including Surveillance

- Centre for Tropical Biosecurity
- Centre for Tropical Water and Aquatic Ecosystem Research

Artificial Intelligence, including Generative AI

- AI@JCU
- Centre for AI and Data Science Innovation (CADSI)

Advanced and Remote Manufacturing

- Advanced Materials & Manufacturing Hub
- Waste-to-Resource Facility

Multidisciplinary Material Sciences

- Marine Geophysics Laboratory
- Cyclone Testing Centre
- Centre for Climate Adaptation and Disaster Resilience

Deployed Health, including Evacuation

- Australian Institute of Tropical Health and Medicine (AITHM)
- Centre for Tropical Bioinformatics and Molecular Biology
- Indigenous Education and Research Centre

Other Defence Science Facilities

- Links to the NQ SPARK Advanced Environmental Simulation Facility



ACHIEVEMENTS & ACTIVITIES

JCU has developed links with Defence and is located in close proximity to Australia's largest military bases and training areas and with strong regional links across a wide range of capability inputs. JCU recent Defence related achievements and activities include:

- Medical training and research simulation
- Agile C2 STaR Shot – decision and team performance research
- Human Performance Optimisation with ADF personnel
- Remote Undersea Surveillance STaR Shot
- Simulation-enabled incident HUM-T test and evaluation
- Adverse weather and facilities test and evaluation

JCU is a research-intensive regional institution in tropical Northern Australia with strong Pacific links and campuses in Townsville, Cairns and Singapore. World-leading researchers collaborate within state-of-the-art facilities to drive innovation and impactful solutions that advance regional and national security interests for Defence industries and communities.

THE UNIVERSITY OF QUEENSLAND



Campus Locations

St Lucia
280-284 Sir Fred Schonell
Dr, St Lucia QLD 4067
07 3365 1111

Gatton
5391 Warrego Hwy,
Gatton QLD 4343
07 5460 1276

Herston
11 Wyndham St,
Herston QLD 4006
07 3365 1111

Dutton Park
20 Cornwall St,
Woolloongabba QLD 4102
07 3346 1900

DEFENCE CAPABILITIES

Undersea Capabilities, including Surveillance

- Remote sensing through acoustic monitoring and radar
- Littoral systems autonomy
- Remote undersea sensing and processing
- Sensors and battery materials
- Anti-biofouling materials

Artificial Intelligence, including Generative AI

- Human-centred AI and large language modelling
- AI for autonomous systems

Agile Command and Control

- C2 and decision sciences
- Wireless communication technologies
- Simulation systems and environment

Multidisciplinary Material Sciences

- Microgrids and renewables
- Advanced additive high-temperature materials for applications in high-speed systems and space
- Antennas, electromagnetics and advanced electromagnetic surfaces
- Green hydrogen generation and waste-to-energy
- Material testing under tropical conditions

Biotechnology and Human Enhancement

- Human performance in the tropics
- Sensory neuroscience
- AR/VR Environmental interpretation
- Medical countermeasures
- Socioeconomic impacts of Defence policy

FACILITIES & INFRASTRUCTURE

Autonomous Systems, including Trusted Autonomy

- UQ Robotics Design Lab (RDL) - drone control and flight systems
- Centre for Future Autonomous Systems and Technologies (FAST)
- Drone Collaboration Research Platform

Information Warfare and Cyber

- Agile Security Operations Centre (ASOC)
- Device TestLab
- Cyber War Rooms

Hypersonics and Counter-Hypersonics

- Australian Program Office for Advanced Hypersonics (APOAH)
- Centre for Hypersonics
- T4, X2, X3 and X3R shock tunnels
- Custom made furnace – heating materials to 3000°C

Multidisciplinary Material Sciences

- Australian National Fabrication Facility Queensland (ANFF-Q)
- Centre for Advanced Materials Processing and Manufacturing (AMPAM)

Biotechnology and Human Enhancement

- Australian Institute of Bioengineering and Nanotechnology (AIBN)
- Queensland Brain Institute
- Quantum Centre of Excellence in Biotechnology (QUBIC)



ACHIEVEMENTS & ACTIVITIES

As Queensland's largest and most comprehensive university, The University of Queensland (UQ) is well-placed to contribute its science and technological innovation, advanced testing infrastructure and knowledge leadership to achieve the priorities outlined in the National Defence Strategy. UQ's research excellence and talent pipeline translates into capability and commercial outcomes in a broad range of areas.

Some of these include:

- Autonomous systems software development
- Hypersonic science and high-temperature materials for defence and space
- Design and fabrication of advanced superconducting devices for quantum computing
- Handheld Chemical, Biological, Radiological and Nuclear (CBRN) detection
- Magnetic & acoustic quantum sensors for GPS-denied navigation on autonomous vehicles
- State of the art material and antenna characterisation facilities
- Quantum Key Distribution (QKD) countermeasures
- Nano-phonic computing
- Quantum Error Correction

UQ Strategic Partnerships supports researchers in the development of major initiatives informed by national industry and defence policy priorities, and broader commitments to strategic frameworks with allies and partners.

The University of Queensland has ranked among the world's top 40 universities in the 2027 QS World University Rankings – remaining in the top 3% globally. UQ was also named Australia's best university and 38th globally in TIME Magazine's inaugural edition of the World's Top Universities of 2026.



Campus Locations

Casuarina
Ellengowan Dr,
Brinkin NT 0810
1800 061 963

Palmerston
80 University Ave,
Palmerston NT 0830
1800 061 963

Darwin
54 Cavenagh St,
Darwin City NT 0800
1800 061 963

Katherine (Rural)
Lot 5626 Stuart Hwy,
Katherine NT 0850

Alice Springs
10 Grevillea Dr,
Alice Springs NT 0871
1800 654 865

Sydney
Levels 8 – 11 815 George St,
Haymarket NSW 2000
02 8047 4100

DEFENCE CAPABILITIES

Autonomous Systems, including Trusted Autonomy

- Remote-area drone operations including medical deliveries

Artificial Intelligence, including Generative AI

- Data analysis and decision support
- Explainable AI (trusted autonomy)

Information Warfare and Cyber

- Human-centric cyber security
- Digital forensics and cyber criminology
- Explainable AI-enabled cybersecurity
- Malware detection and attribution

Electronic Warfare and Directed Energy

- Gigahertz/terahertz photonics in communication and radar systems
- Photonic signal processing
- Optically controlled phased arrays

Advanced and Remote Manufacturing

- Cold spray metal 3D printing
- Combat-proven deployable parts fabrication in remote/austere conditions

Multidisciplinary Material Sciences

- Advanced alloy development and certification
- Nanofibre materials development
- Tropical equipment development and testing

Deployed Health, including Evacuation

- AI-enabled automated in-theatre health monitoring and diagnostics
- Tropical health

FACILITIES & INFRASTRUCTURE

Autonomous Systems, including Trusted Autonomy

- North Australian Centre for Autonomous Systems
- Katherine Flight Test Range

Artificial Intelligence, including Generative AI

Information Warfare and Cyber

- NT Academic Centre for Cyber Security and Innovation

Electronic Warfare and Directed Energy

- Fibre-optics and Photonics Laboratory

Advanced and Remote Manufacturing

Multidisciplinary Material Sciences

- Industry 4.0 Testlab
- Nanofibre Fabrication Laboratory
- SPEE3D Warp Speed 3D Printer
- Pavement Laboratory
- Centre for Asphalt and Road Technology

Deployed Health, including Evacuation

- Biomedical Engineering and Health Informatics Research Laboratory
- Menzies School of Health Research



Your partner for Defence
in the North and beyond.

As Australia's only
university headquartered
in the NT, CDU is a
unique contributor
to Australia's defence
ecosystem. With a history
of support to Defence,
world leading research
capabilities, and vast
experience working
in northern Australia,
CDU supports rapid
and effective R&D in
a key ADF operational
environment.

ACHIEVEMENTS & ACTIVITIES

CDU's recent achievements and activities include:

- Austere infrastructure CASA-compliant drone operations
- Computational algorithm development and AI model hardware performance optimisation
- Human centric cyber security (countering social engineering), forensic linguistics, privacy and security in edge computing
- Microwave photonic signal processing
- United States Navy pressure vessel components and ultra-large printed metal items (2400mm diameter, 4000kg)
- Corrosion and marine growth resistant alloys, flame and impact-resistant nanofibre materials development
- Health monitoring and disease diagnosis via AI-enabled analysis of biosignals (ECG, EEG, APG) and imagery using edge computing.



Campus Locations

Sunshine Coast

90 Sippy Downs Dr,
Sippy Downs QLD 4556
07 5430 1234

Moreton Bay

1 Moreton Pde,
Petrie QLD 4502

Fraser Coast

16 University Dr,
Hervey Bay QLD 4655

Caboolture

Cnr Manley and Tallon St,
Caboolture QLD 4510

Gympie

40 Cartwright Road,
Gympie QLD 4570

Adelaide

Reserve Bank Building
182 Victoria Square,
Adelaide SA 5000

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

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 supports defence related research that strengthens connections within local and across national defence ecosystems. Our research community is characterised by experienced and emerging talent in key defence priority areas, with a focus on human behaviour. UniSC partners with industry, government, and other research institutions to deliver innovative solutions that address challenges of national importance.

Air Chief Marshal Sir Angus Houston
AK, AFC (Ret'd) (Chancellor, UniSC)

ACHIEVEMENTS & ACTIVITIES

UniSC is a leading regional university with significant research impact and industry engagement relevant to defence applications. Collider supports technology commercialisation and industry-focused R&D. Examples research of research translation into practical solutions. include:

- Advanced robotics and autonomous systems development
- Artificial intelligence applications for decision support and threat detection
- Quantum sensing and materials characterisation research
- Cybersecurity and digital forensics capabilities development
- Environmental monitoring and climate adaptation technologies
- Human Factors and human performance research
- Expertise in systems science and complex systems modelling
- The design and evaluation of new digitised battle management systems
- The analysis of command and control activities
- Safe Introduction of Autonomous Vehicles (SAVI) project with ARC
- Understanding and preventing dysfunctional behavior (Office of Naval Research, US Navy)



Campus Locations

Toowoomba
West St,
Toowoomba QLD 4350
07 4631 2100

Springfield
37 Sinnathamby Blvd,
Springfield QLD 4300
1800 269 500

Ipswich
11 Salisbury Rd,
Ipswich QLD 4305

DEFENCE CAPABILITIES

Hypersonics and Counter-Hypersonics

- Australia's longest duration hypersonic test facility
- Design and testing of propulsion systems, including scramjets and hybrid rocket engines

Multidisciplinary Material Sciences

- Centre for Future Materials provides advanced design, manufacture, and testing capabilities for aerospace and defence
- Automated filament winding and composite repair systems for high-performance applications
- Expertise in ultra-high-temperature ceramics and fire testing up to 3500°C

Space Capabilities, including Launch

- Centre for Astrophysics operates Queensland's only professional teaching and research observatory
- Key support for NASA's TESS mission through MINERVA-Australis telescope array
- Space debris tracking and space situational awareness research with DLR SMARTNet

Artificial Intelligence and Autonomous Systems

- AI-based perception, autonomy, and guidance systems for unstructured environments
- Applications in robotics, machine learning, and data fusion for defence and aerospace operations

Cyber Modelling and Decision Intelligence

- Trusted autonomy and simulation for mission planning and secure communication systems
- Digital twins and predictive modelling for defence system integration

Biotechnology and Human Enhancement

- Human performance research in resilience, cognition, and health technology

FACILITIES & INFRASTRUCTURE

Engineering and Space Research

- Hypersonic Wind Tunnel – national capability for high-velocity testing
- Mount Kent Observatory – planetary research, discovery and object tracking

Quantum and Superconducting Sciences

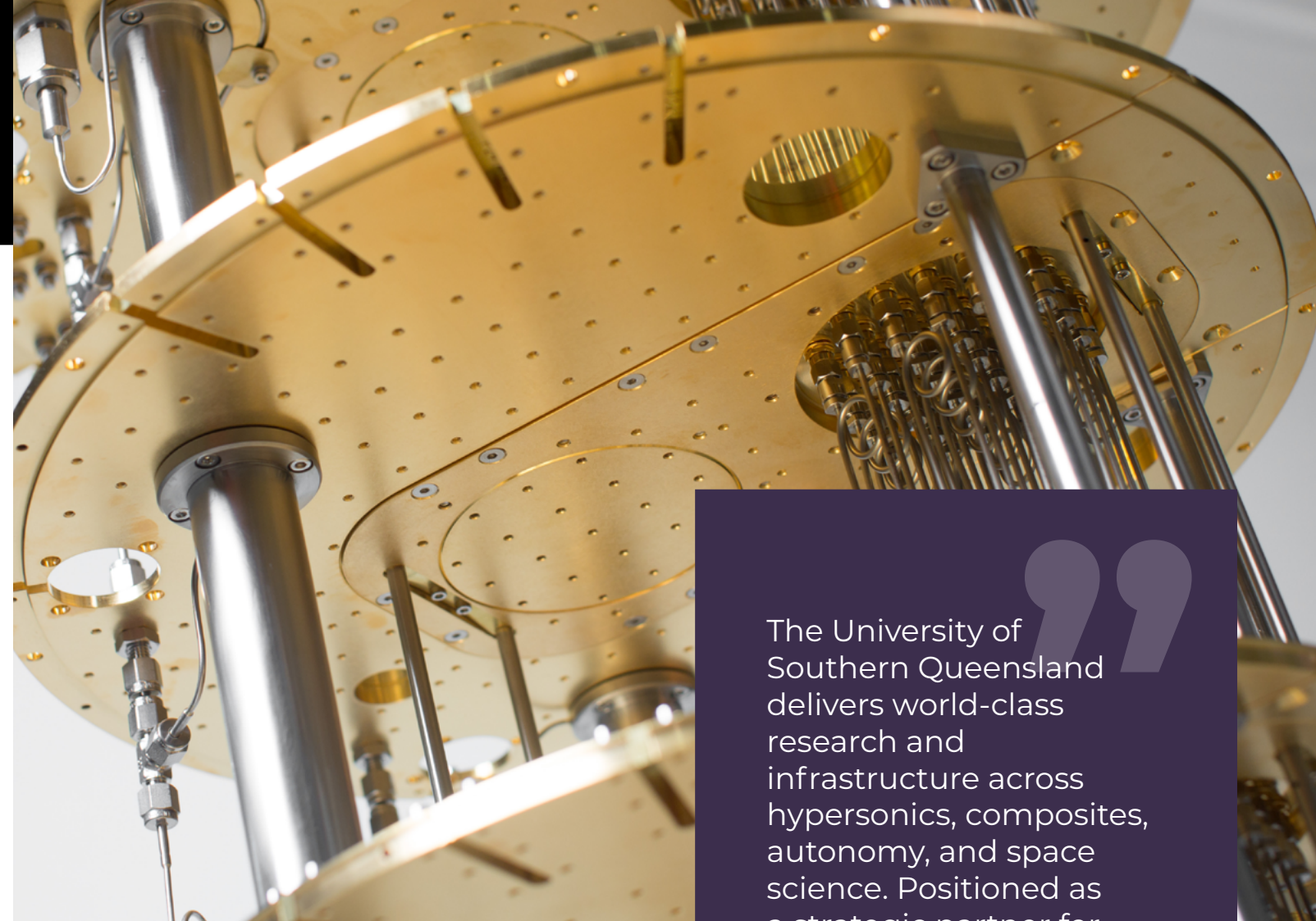
- Cryogenic quantum hardware test lab – provision of quantum hardware and superconducting test services to industry

Multidisciplinary Material Sciences

- Centre for Future Materials – composites, robotics, additive manufacturing, and thermal labs
- AI and Robotics Laboratories – applied autonomy and data science research centres

Health and Human Science

- Biomedical laboratories and psychology facilities for resilience and performance research



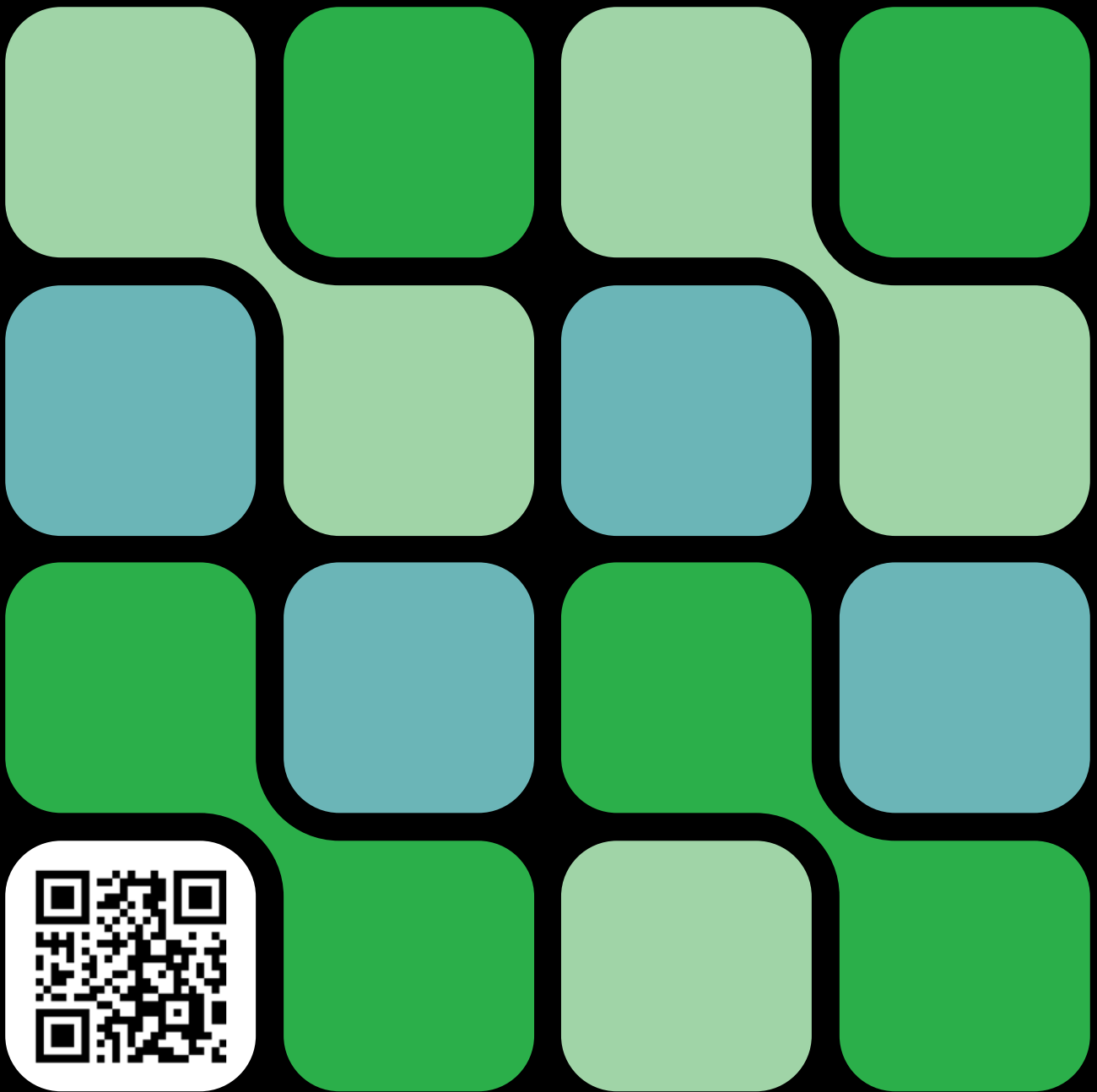
The University of Southern Queensland delivers world-class research and infrastructure across hypersonics, composites, autonomy, and space science. Positioned as a strategic partner for Defence and industry, UniSQ enables sovereign capability aligned with the priorities of the Defence Science and Technology Group.

ACHIEVEMENTS & ACTIVITIES

The University of Southern Queensland contributes leading expertise, world class facilities and sovereign capability across hypersonics, space systems, advanced materials, autonomy and human performance, aligning directly with Defence Science and Technology Group priorities in emerging and integrated defence technologies.

UniSQ's recent achievements and activities include:

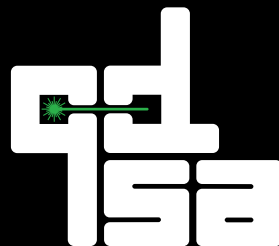
- Establishment of the Australian Cryogenic and Quantum Hardware Test Facility to provide specialised services to industry
- Leads the Innovative Launch, Automation, Novel Materials, Communications, and Hypersonics (iLAUNCH) Trailblazer for advanced space manufacturing
- Defence Science and Technology Group collaborations in hypersonics, AI and materials design
- Recognised leader in composite innovation and repair for aerospace applications
- Global projects with NASA, ESA and JAXA in space and hypersonic science



EDITION: JULY 2026

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