

# ADM **DEFENCE WEEK**

AUSTRALIAN DEFENCE MAGAZINE

## PREMIUM EDITION

SERVING THE BUSINESS OF DEFENCE



The ANAO took a bleak view on how Defence is managing Land 200.

DEFENCE

## ANAO releases Land 200 report: late and over budget

Katherine Ziesing | Canberra

**Once again the ANAO has not sugar-coated its view on how Defence is handling Land 200, a multi billion-dollar program to modernise Army into a [4th generation force](#).**

"This topic was selected for audit due to the importance of the Land 200 program to Army, the two-year delay in delivering Tranche 1 of the program and the expected cost of nearly \$2 billion to deliver Tranches 1 and 2. Tranche 3 is expected to cost a further \$1 billion–\$2 billion," the report states.

First, some background on Land 200 – a combination of Land 75 and Land 125. The multi-phased program is intended to transition Army's command and control from a paper-based system to a modern digital system. Land 200 replaced a previous system, first known as AUSTACCS, that was delivered between 1982 to 1998. This system was significantly limited in its networking and data distribution capability (its electronic battle map was not in real time). In contrast, the Land 200

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capability provides real-time situational awareness, combat planning tools and complex combat messaging.

Land 200 is comprised of three tranches of activity: Tranche 1 (Land 75 Phase 3.4 Battle Management System [BMS] vehicles, Land 125 Phase 3A BMS for soldiers and JP 2072 Phase 1 vehicle comms) achieved Final Operational Capability in the first quarter of 2015, two years behind schedule; Tranche 2 (Land 2072 Phase 3 radios, Land 125 Phase 4 BMS upgrades and further vehicle installation) achieved contract signature in 2017 and is expected to achieve Final Operational Capability in 2022; and Tranche 3 has commenced, with [industry briefings](#) held in September 2018.

**“In essence, Defence spent five years not aligning the separate program offices”**

At a cost to date of some \$1.3 billion, there is still over \$600 million of expenditure remaining for Tranche 1 and Tranche 2. The main deliverables are the Elbit Systems BMS and a tactical communications network by Harris Defence Australia and Boeing Defence Australia.

Given the multiple phases involved and the massive interdependencies inherent in the program, the complexity is daunting. Yet this did not stop the ANAO from concluding that “inadequate requirements definition and poor coordination between the two responsible project offices contributed to an ineffective 2015 procurement for the Army’s Tactical Communications Network, which required a lengthy post-tender refinement process to bring the acquisition within the approved budget.

“The 2015 sole-source procurement process for the Army’s BMS was ultimately effective, but the procurement was delayed pending resolution of affordability issues affecting Land 200 Tranche 2 as a whole. Defence addressed affordability issues by adopting a ‘design to price’ strategy, significantly reducing project scope and assuming additional risk and cost by taking on the role of Prime Systems Integrator. Defence has assessed that it can achieve value-for-money outcomes following these adjustments,” the report said.

“The difficulties encountered in Land 200 Tranche 2 stem in large measure from one project office’s release of a Request for Tender with a scope that exceeded the approved cost and did not fully assess the budget consequences or governance and coordination arrangements at a program level. The desired outcome shifted from the procurement of radios to the procurement of a complex digital communications solution, as Army developed its understanding of how it would operate in a digital environment.”

In essence, Defence spent five years not aligning the separate program offices, the ANAO concluded. The tender process was not appropriate given the scope of requirements as related to its budget. The report goes into excruciating detail about the timeline, Defence performance, industry responses and decision points during this period.

In 2017 Defence took a number of effective actions — including project rationalisation and adoption of a ‘design to price’ negotiation strategy — to address the unaffordability issues as well as effectively becoming the Prime Systems Integrator (PSI) as they could not afford to have industry act in the role.

There are still concerns, even after a September 2018 Independent Assurance Review, that Army will have trouble acting as an effective PSI to deliver on time (let alone on budget) and “should be considered as a candidate Project of Interest.”

**“Once again, if one is looking for sugar coating, I can suggest aisle 5 of your local supermarket rather than an ANAO report”**

A response from Harris notes that the report is heavily redacted and does not allow for proper consideration, along with other technical points about timelines.

**ADM Comment:** Once again, if you’re looking for sugar coating, I can suggest Aisle 5 of your local supermarket rather than an ANAO report. But this is literally what the independent auditor is for; to provide a ‘warts and all’ view of what happened, why and what is being done to address that by providing recommendations on a path forward.

The digitisation path the Army is on has been bumpy to say the least and there are still bumps ahead to be negotiated. This was never just about putting computers and better radios on vehicles and people. It was about radically changing the way Army operates and fights using new technologies. Army was learning to sprint with training wheels on. The training wheels are now beginning to come off, by design. One can only hope the next ANAO report into this program makes for more comforting reading.

## Hanwha announces Land 400 Phase 3 team

**Nigel Pittaway | Melbourne**

**Hanwha Defence Australia announced teaming arrangements for its [Land 400 Phase 3](#) bid in Melbourne on May 23.**

The company is teaming with EOS Group and Elbit Systems, with a vehicle based on the South Korean Army’s K21 Infantry Fighting Vehicle (IFV) and designated AS21 Redback.

The Australian version will have an EOS T2000 turret (fitted with an ATK 30mm cannon) and R400 Remote Weapons Station (RWS) and Elbit will furnish the Battlefield Management System (BMS) as well as its Iron Fist Active Protection System (APS) and Iron Vision see-through armour system.



Hanwha is proposing a vehicle based in part on the AS21 Redback.

HANWHA

Hanwha has previously announced that if it is successful in the competition, it will build a new facility in the Greater Geelong area to produce vehicles for the ADF and also, possibly, for export.

"We're very proud that Hanwha has chosen Victoria as the place where it will seek to base its operations in Australia," the Victorian Government's Minister for Jobs Martin Pakula said at the teaming announcement.

"To have global companies based here in Victoria delivering cutting edge technology for the Australian and global defence markets is something that is very important to us."

**"We come from a nation that understands what self-reliance means"**

Under a two-stage program, Hanwha is proposing to build the chassis of the first 50 AS21 in South Korea, while simultaneously transferring technology to the local industry base in Geelong. Local industry will perform systems integration with the EOS Australian-made turrets and Government Furnished Equipment (GFE). Stage two will see the local manufacture of 350 vehicles, beginning in the middle of 2025.

"The interesting element to our approach to Australia is that we come from a nation that understands what self-reliance means, we are faced with a 24/7 threat from our northern neighbour, so therefore self-reliance is of paramount importance to South Korea," explained Hanwha Defence Australia managing director Richard Cho.

"We believe Australia is no different. For the ADF to be able to operate and sustain its systems, it needs to be self-reliant. Based on that thought, our objective is to create self-reliance within Australia – that means our ability to transfer technologies, our ability to transfer intellectual property to the Australian industry base, to ensure that industry base is able to support and sustain the systems Defence will acquire."

Cho added that Hanwha intended to utilise the expertise it intends to grow in Australia to potentially export to the Five Eyes (Australia, Canada, NZ, the US and UK) market.

During the recent federal election campaign, Prime Minister Scott Morrison [announced](#) that if re-elected, the Coalition government would [acquire 30](#)



Hanwha Defence CEO Sungsoo Lee.

NIGEL PITTAWAY



[self-propelled howitzers](#) and their support vehicles and systems, which would also be built in Geelong.

Hanwha is proposing a local version of its K9 Thunder 155mm SPH, previously dubbed Aussie Thunder and it says it will build the vehicle in Geelong if it is successful, irrespective of the Land 400 Phase 3 outcome.

“Hanwha is very much committed to establish true self-reliance capability in Australia, working with the industrial base here in Victoria and the Greater Geelong area for Land 400,” Hanwha Defence CEO Sungsoo Lee said.

“The recent announcement by the government to revisit (a) self-propelled howitzer capability also provides additional opportunity for us to work closely with the industry base in Geelong to deliver capabilities for the ADF.”

“The interesting element to our approach to Australia is that we come from a nation that understands what self-reliance means”

## Army seeks new UAS

Ewen Levick | Sydney

**Defence has released a [tender](#) for a new small unmanned aerial system ‘plus’ (SUAS+) for use by Army battlegroups, Special Forces, and Regional Force Surveillance Units.**

The tender sets out requirements for SUAS+ that can fill a capability niche between the existing Wasp and Shadow 200 systems, covertly viewing targets at least 20 kilometres away for at least an hour.

“Army allocates tactical UAS to a level appropriate to the sphere of influence of that call-sign,” Army UAS Program Manager Lieutenant Colonel Keirin Joyce explained to *ADM*. “An infantry platoon has the ability to influence one or two kilometres, so they get a two-kilometre Black Hornet. A brigade has an AO of 150 by 150 kilometres, which is why they get a Shadow.



The SUAS+ will give battlegroup commanders an organic ISR capability.

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"The spot where we have a gap in developing this layered approach to organic ISR is at the battlegroup level (500-800 soldiers)."

Whilst the tender sets out a 20-kilometre range requirement, LTCOL Joyce explained that the SUAS+ is intended to influence a radius equal to the range of Army's largest guns.

"It's an interesting one because each battlegroup has a unit called a Joint Fires Effect Coordination Cell, which has a direct line to an artillery battery," LTCOL Joyce said. "Australian artillery reaches 30 kilometres."

"So this capability is about enabling a battlegroup commander to have organic ISR – a system they can task themselves – out to 30 kilometres."

According to LTCOL Joyce, this 30 km niche is currently filled by a combination of brigade commanders occasionally down-tasking Shadow 200s and battlegroup commanders pushing the limits of the Wasps.

"For the last couple of years Shadows do occasionally get tasked down to the battlegroup that has priority of effort, but it isn't a lasting assignment. It's not a guarantee," LTCOL Joyce said.

"Some of our battlegroup commanders have been particularly innovative with their entitlement to Wasp and have been pushing that platform right to the forward edge of their area of influence, but it's more of an experiment than a permanent capability development."

Interestingly, the tender sets out a requirement for a system that is available to both mounted and dismounted troops.

"We expect to be looking at largely mounted systems, but we do want to have the ability for a vehicle to pull up in a covert and protected position and then for the aircraft to be carried forward to a launch and recovery zone," LTCOL Joyce explained. "We need it to be man-portable, but we are expecting that predominantly it will be moved around the battlefield in a vehicle."

Defence intends to procure 17 SUAS+ for delivery in 2020 and expects the platform to have a life-of-type similar to a Wasp at between 5-10 years, with a 'line in the sand' drawn at the six-year mark.

"We've had a detailed look at what is out there in the market and we are tracking numerous different configurations of systems that could all do most of what we're asking for," LTCOL Joyce said. "What we really want to know from industry is what the best configuration is. The problem is they're not all the same, so it's not an easy decision. The next stage is to get more details on what those differences are."

**"What we really want to know from industry is what the best configuration is"**

#### MOST READ ONLINE AT [WWW.AUSTRALIANDEFENCE.COM.AU](http://WWW.AUSTRALIANDEFENCE.COM.AU)



1. [Land Environment Working Group updates industry on Army programs](#)
2. [Self-propelled howitzers: Land 17 Phase 2 lives again?](#)
3. [Prime Minister Scott Morrison announces new ministry](#)
4. [Self-propelled howitzers back on the cards](#)
5. [BAE marks F-35 milestone in SA](#)

# First C-130J receives transponder upgrade

**The first in a fleet-wide upgrade of identification transponders on [C-130J Hercules transport aircraft](#) has been completed by the RAAF to allow the aircraft to continue flying safely in civilian and military-controlled airspace.**

The Air Lift Systems Program Office (ALSPO) and Airbus Australia Pacific, with assistance from Lockheed Martin Aeronautics, installed the Automatic Dependent Surveillance Broadcast (ADS-B) and Mode 5 IFF systems on the first airframe.

ADS-B is the new transponder format being used by civilian and military air traffic control services. Similarly, Mode 5 IFF is the latest version of NATO's friend-or-foe identification system.

Both systems are more accurate and advanced than those they replace. Similar modifications will be necessary on all RAAF aircraft to enable their continuing operation in military and civilian international airspace.

Commander Air Mobility Group, Air Commodore Bill Kourelakos said recent relief missions in the NT and Indonesia demonstrated the variety of airspace environments RAAF operated in.

"This upgrade not only better informs air traffic control and other airspace users, it helps our crews to maintain airspace awareness and complete their missions safely," AIRCDRE Kourelakos said.

Officer Commanding ALSPO, Group Captain Jacqueline Churchill said the project exemplified collaborative relationships between Defence and contractors.

**"Similar modifications will be necessary on all RAAF aircraft"**



A No. 37 Squadron C-130J Hercules is marshalled into a parking position at RAAF Base Darwin.

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"The C-130J Mode 5 IFF and ADS-B upgrade is a great example of how Defence and industry partners work together to achieve best practice outcomes," GPCPT Churchill said.

Australia joined lead customers the UK and Denmark in sharing the cost of developing the upgrades with aircraft manufacturer Lockheed Martin.

Six of the RAAF's C-130J aircraft are scheduled to receive the ADS-B and Mode-5 IFF upgrade by December 2019, with the remainder of the fleet to be completed by mid-2020.

## PEOPLE ON THE MOVE

Vice Admiral Paul Maddison has been appointed inaugural Director of UNSW's Defence Research Institute. "One of my immediate priorities will be to promote a greater awareness of the Institute and establish it as the premier defence-focused research entity in Australia," VADM Maddison said.

AIDN NSW have announced their new Executive and committee: President Anna Murray; Vice President Peter Jenkins; Secretary Alan Rankins; Treasurer Bruno Favretti; Past President Medhat Wassef; and committee members Malcolm Cazier, Peter Freed, Chris Jenkins, Victoria Lewis, John Macaulay, Leon Notelovitz, Aaron Parnell, Christine Purvis, and Jamie Young.

# Indo-Pacific Endeavour task force returns to Australia

**The Indo-Pacific Endeavour 2019 (IPE 19) Joint Task Force (JTF) has returned to Australia following a three-month regional engagement mission to South and South East Asia.**

**"This was a landmark activity for our modern joint force"**

HMAS *Canberra* has anchored off Darwin, having visited seven nations since March 2019 during the third IPE iteration since its inception in 2017.

IPE 2019 was notable for including the [second-ever overseas deployment](#) of Army's Tiger Reconnaissance Helicopters. The Tigers used the embarked period to work up an ARH amphibious capability under Plan Kestrel – Army's roadmap for the development of an amphibious Air Combat Element (ACE), comprising Tiger ARH, MRH90 Taipan and CH-47F Chinook helicopters.

IPE 2019 was also an opportunity for Australian defence industry to showcase products and services.

Chief of Joint Operations, Air Marshal Mel Hupfeld, said this third iteration of IPE was one of the most ambitious regional engagement activities undertaken by the ADF.

"With four ships and various aircraft; more than 1,200 personnel from across the ADF, partner nations and Defence industry; this was a landmark activity for our modern joint force," AIRMSHL Hupfeld said.





Members of HMAS *Canberra*'s ships company and embarked forces line the flight deck during entry to Jakarta.

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"The command team performed superbly coordinating this complex series of international engagements, and the embarked forces represented Australia with characteristic warmth and professionalism.

"IPE 19 was a sophisticated demonstration of joint force integration, combined interoperability with partner forces, and military diplomacy."

During IPE 19, HMAS *Canberra* was joined by HMA Ships *Success*, *Newcastle* and *Parramatta*. A P8-A Poseidon maritime patrol aircraft also participated in several regional visits, as did Army's 2nd and 3rd Battalions RAR, RAAF personnel and public servants.

IPE 19 visited Sri Lanka, India, Malaysia, Thailand, Vietnam, Singapore and Indonesia.

It has also been [reported](#) that every ship on the exercise was shadowed by the Chinese Navy and some helicopters were grounded due to pilots being targeted with lasers by fishing vessels. *ADM* understands that the exercise went incredibly well and has no plans on changing its format in future years.

## Exercise Diamond Storm wraps up

**Over 2,000 personnel and 100 aircraft are returning to their home bases after being tested to the limit during Exercise Diamond Storm in the NT.**

The exercise is the final stage of an intensive three-phase Air Warfare Instructor Course that assesses candidates in academic and practical activities spanning six months.

Exercise Director, Group Captain Matt McCormack, said a strong cadre of personnel capable of integrating warfighting functions across a range of specialisations will graduate.

"It has been a very busy month at RAAF Darwin and RAAF Tindal as we reach the conclusion of this specialist course that has tested the candidates in a range of high-end warfighting scenarios," Group Captain McCormack said.

**"Diamond Storm has seen course members plan and execute offensive counter-air scenarios"**



No. 76 Squadron Hawk 127s prepare to take off for a sortie during Exercise Diamond Storm.

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"Diamond Storm has seen course members plan and execute offensive counter-air scenarios using just about every aircraft in our Air Force, as well as some from the US Air Force and US Marine Corps, and a range of specialist ground-based enablers and RAF capabilities.

The Air Warfare Instructor Course began at RAAF Base Pearce in January 2019 with Diamond Seas, a maritime-focused scenario with Navy and Army elements; before moving into Diamond Shield, a defensive counter-air exercise conducted from RAAF Bases Amberley and Williamtown.

"As instructors, the course graduates will be required to operate in a range of environments, cooperating with other Defence units and international forces to accomplish their objectives," GPCPT McCormack said.

"They represent the next generation of tactical and integrated warfare leaders across the Air Combat spectrum."

Exercise Diamond Storm formally concludes with the return of all personnel and aircraft to RAAF Base Williamtown on 31 May for a "Dawn Strike" off the coast of Newcastle.

Dawn Strike will see fast jet aircraft and 'big wing' aircraft land at Williamtown before graduates receive their patches during an official ceremony.

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# Forthcoming Events

## ADM EVENTS

More detail on **ADM** Events can be found on our dedicated website:

- [Women in Defence Awards](#) – 11 July 2019
- [ADM STEM and Defence Summit](#) – 14 August 2019
- [ADM Defence Estate and Base Services Summit](#) – 12 September 2019
- [ADM North Australian Defence Summit](#) – 23-24 October 2019

## 2019 Vernon Parker Oration and Dinner

**Date** 05 June 2019

**Location** Hotel Realm

**Website** [admin@navalinstitute.com.au](mailto:admin@navalinstitute.com.au)

The Australian Naval Institute is pleased to announce that Air Chief Marshal Sir Angus Houston (Ret'd) will deliver the 2019 Vernon Parker Oration. Sir Angus was the Chief of the Defence Force from 2005 to 2011. The Oration will be given at the ANI Annual Dinner to be held at Hotel Realm, Canberra on Wednesday, 5 June 2019.

## ASPI International Conference: War in 2025

**Date** 12-14 June, 2019

**Location** QT Hotel, Canberra

**Website** <https://www.aspi.org.au/event/aspi-international-conference-war-2025>

Join distinguished international and Australian speakers for two days of debate on the future of warfare. ASPI's War in 2025 conference will consider the key drivers that could lead to conflict in the next decade, how the relative power dynamics between the great powers are changing, multi-domain warfare now and in 2025, what technologies will shape future warfare, information operations, and the next Defence White Paper.

## Paris Air Show

**Date** 17-23 June 2019

**Location** Le Bourget

**Website** [www.siae.fr/en](http://www.siae.fr/en)

The 53rd Paris Air Show will once again bring together all the players in this global industry around the latest technological innovations. The first four days of the Show will be reserved for trade visitors, followed by three days open to the general public.



## ITAR, EAR and Australian Export Controls Training

**Date** 04 July 2019

**Location** SMC Conference Centre, Sydney

**Website** [www.internationaltradeadvisors.com.au](http://www.internationaltradeadvisors.com.au)

International Trade Advisors is proud to offer our third annual training on US and Australian Export Controls. The one-day workshop is focused on how these regulations affect Australian industry. It will be held on 4 July 2019 at the SMC in the Sydney CBD.

## The Future of Australia-Indonesia Relations in a Contested Indo-Pacific Order

**Date** 05 July 2019

**Location** Tattersalls Club, Brisbane

**Website** [www.rusi.org.au/event-3331760](http://www.rusi.org.au/event-3331760)

This seminar is RUSI Queensland's blue-ribbon event for 2019. Constant examination of the Australia-Indonesia bilateral relationship is required to understand the dynamic shifts in political, diplomatic and social foundations of these two close neighbours. This year provides a special opportunity to recalibrate the strengths and weaknesses in this key regional relationship.

## Defence Maritime Environment Working Group

**Date** 24 July 2019

**Location** National Gallery of Australia, Parkes, Canberra

**Website** [www.business.gov.au](http://www.business.gov.au)

The Maritime Environment Working Group (MEWG) is a forum for engagement between Defence and the Maritime Industry to consider opportunities for innovation and collaboration early in the capability life cycle. It provides an opportunity to test the strength of capability requirements and proposals, to inform industry regarding future capability programs and challenges and to foster the development of Navy's capability modernisation program.

## ADM Essington Lewis Awards

**Date** 31 July 2019

**Location** National Convention Centre, Canberra

**Website** [www.defence.gov.au/casg/dplusi](http://www.defence.gov.au/casg/dplusi)

ADM's Essington Lewis Awards will return to the National Convention Centre on Wednesday 31 July 2019 to recognise excellence in Defence projects. The event is limited to the first 1000 attendees wishing to network and interact with Defence and defence industry leaders, celebrate the achievements of their peers and be entertained by our celebrity MCs. This black tie gala event is not to be missed!

## Defence + Industry Conference

**Date** 01 August 2019

**Location** National Convention Centre, Canberra

**Website** [www.defence.gov.au/casg/dplusi](http://www.defence.gov.au/casg/dplusi)

The Defence + Industry Conference is the premier Defence and industry conference held in the national capital. Consistently attracting in excess of 1100 delegates to hear from Defence and industry leaders discussing collaboration in the acquisition and sustainment space. Thursday 1 August will see the National Convention Centre come alive with informative, thought-provoking presentations from Defence decision makers and industry leaders, along with interactive Q&A sessions and networking opportunities.

## PGCS 2019

**Date** 20 – 22 August 2019

**Location** The Canberra Rex Hotel, Canberra

**Website** [www.pgcsymposium.org.au](http://www.pgcsymposium.org.au)

Now in its 7th year, PGCS 2019 will focus on ways to build the foundations needed to create project and program success. Creating the organisational capability needed to underpin the consistent delivery of successful projects in the 2020's starts at the top. Leadership and a sustained focus are required to build a culture of excellence that can balance innovation with surveillance and accountability, encourage learning, and manage knowledge effectively.

## Hunter Defence Conference

**Date** 22-23 August 2019

**Location** Crowne Plaza Hunter Valley

**Website** <https://www.trybooking.com/book/event?eid=503298>

The 2019 10th anniversary Hunter Defence Conference will focus on driving collaboration between Defence Primes, NSW regional SMEs, academia and the Department of Defence. Key presentations at this year's conference will include capability development staff from Army, Navy and Air Force Headquarters, Defence Primes articulating the support requirements they will have over the coming decade from regional SMEs, as well as a policy outline from the office of the new Minister of Defence.

## Australasian Simulation Congress

**Date** 02 – 05 September 2019

**Location** Gold Coast Convention and Exhibition Centre, Gold Coast

**Website** [www.simulationcongress.com](http://www.simulationcongress.com)

The Australasian Simulation Congress provides a focused opportunity for industry development, business growth, training, discussion and distribution of information related to Simulation, Modelling, Training and Decision Support. Simulation Australasia can help you directly engage with industry, policy makers, Government and relevant stakeholders to facilitate you and your organisation achieving the success only a truly international Congress can provide.

## Australian Cyber Conference 2019

**Date** 07-09 October 2019

**Location** Melbourne Convention and Exhibition Centre

**Website** [cyberconference.com.au](http://cyberconference.com.au)

The Australian Cyber Conference 2019 will provide business leaders with insights and best practices taught by the industry's top experts through keynotes, panel sessions and live demonstrations. Attending the conference will enable you to network with these practitioners to help you better understand and manage current threats, as well as identify and prepare to meet emerging challenges.

## Pacific 2019

**Date** 08-10 October 2019

**Location** Sydney Convention Centre

**Website** [www.pacificexpo.com.au](http://www.pacificexpo.com.au)

As the only comprehensive international exhibition of its kind in the Indo-Asia-Pacific region, PACIFIC 2019 will again provide the essential showcase for commercial maritime and naval defence industries to promote their capabilities to decision-makers from around the world.

## 2019 Parari Australian Explosive Ordnance Safety Symposium

**Date** 05-07 November

**Location** ADFA

**Website** [parari@defence.gov.au](mailto:parari@defence.gov.au)

This year's symposium brings together delegates from around the world to discuss the latest innovations and advances in explosives, munitions and weapons safety. International and local experts from industry, academia, military and government will share their research to explore Explosive Ordnance Safety opportunities and challenges as a community.

## MilCIS 2019

**Date** 12-14 November 2019

**Location** Canberra Convention Centre

**Website** [www.milcis.com.au](http://www.milcis.com.au)

In November each year, the Defence Chief Information Officer Group (CIOG) partners with the UNSW Canberra and the Institute of Electronic and Electrical Engineers (IEEE) to present MilCIS. The annual Military Communications and Information Systems (MilCIS) Conference welcomes military and government organisations, academia, and defence industries to contribute to the future direction of military communications and information systems.



## SubSTEC 5 Conference

**Date** 18-21 November

**Location** Esplanade Hotel, Fremantle

**Website** [www.submarineinstitute.com](http://www.submarineinstitute.com)

The 5th Submarine Science, Technology and Engineering Conference (SubSTEC 5) will be held at the Esplanade Hotel, Fremantle, WA 18th-21st November 2019. The theme of the Conference will be: 'Innovation and Investment in the Sub-Sea Environment'. SubSTEC5 will be held with the support of the Institute of Marine Engineering, Science and Technology (IMarEST).

## Corrosion and Prevention 2019

**Date** 24-27 November

**Location** Crown Promenade, Melbourne

**Website** [conference.corrosion.com.au](http://conference.corrosion.com.au)

Corrosion and Prevention 2019 will bring together leading researchers and industry practitioners who combat corrosion daily. Diverse technical streams will showcase the latest developments in corrosion, ranging from fundamental corrosion science to hands-on application.

## Land Forces 2020

**Date** 01-03 September 2020

**Location** Brisbane Convention Centre

**Website** [www.landforces.com.au](http://www.landforces.com.au)

The biennial LAND FORCES exposition is an international industry event to showcase equipment, technology and services for the armies of Australia and the Indo-Asia-Pacific. The Land Forces 2020 team is now setting about ensuring the event will achieve its goals of providing an effective platform for the exchange of ideas on key land forces issues and of taking Australian industry to the world.