

DEFENCE WEEK PREMIUM EDITION



Soldiers from 2 Commando on board a 6th Aviation Regiment Black Hawk helicopter.

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Special Forces helicopter: Industry brief for Land 2097 Phase 4

Katherine Ziesing | Canberra

Under Land 2097 Phase 4, the Commonwealth is looking to acquire up to 16 helicopters in the four-tonne weight range for use by Special Forces based out of Holsworthy. The capability will be an off the shelf purchase with a range of requirements for various mission roles.

Kell O'Brien speaking on behalf of Special Operations Command outlined that the craft would have to be able to perform domestic and maritime counter terrorism, special operational recovery and combat SAR missions with a strong focus on recovery, interdiction and assault.

"The capability needs to be able to insert and/or extract six operators at precision landing points,"

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O'Brien said. "This helicopter is replacing Black Hawk but this is not a Black Hawk replacement program, as that program is transitioning to the MRH-90 Taipan."

He also explained the need to be able to perform in a range of environments and deploy four platforms from the back of a C-17.

Colonel James Brown, director of the battlefield aviation program, was clear in his need for a platform that is 'ready to go from day one with no special tools or cradles in place' when it comes to C-17 transport.

"A corporal needs to be able to do this without looking a manual every other moment or needing special tools," COL Brown told the 100+ room of industry people, confirming that the program is 'an adjunct to Taipan' rather than a replacement.

Colonel Brown was also blunt in his assessment of the sustainment environment.

"Reliability, availability and maintainability are key," he said. "We're after a mature supply chain. We do not have the people to throw at this program. Fleet size and concurrency of operations across training, ready to go at short notice and deployment under a joint task group scenario are my priorities here. 6th Aviation's response time is measured in minutes."

"A corporal needs to be able to do this without looking a manual every other moment" Lieutenant Colonel Travis Hunt from the CASG program office went into further detail about his team's expectations; a certified aircraft already operating in this role with the engineering work done for fast roping, a sniping position, FLIR fit-out and arming possibilities (a forward-facing machine gun was mentioned). Colonel Brown said the Land 2097 Phase 4 helicopter was not a light attack helicopter (no missiles please) and arming is to be presented as an option rather than a requirement.

The office is looking at running an RFT in Q1 2020 with 4-6 months consideration and an announcement in Q4 2021 to cover both acquisition and support. LTCOL Hunt confirmed that radios and GPS will be supplied as Government Furnished Equipment (GFE) with other GFE options still being explored.

The schedule was outlined as: phase-in 2022-2023 (flying, learning time); capability realisation 2024-2025 (full delivery and support system in place at Holsworthy complete with new facilities supplied by the Commonwealth); and a possible capability extension in 2026-2028 (additional aircraft, arming/weapons).

The program office is also keeping an eye on the US Future Vertical Lift program capability as a possible successor.

Amanda Hall, assistant director for AIC, confirmed that the AIC approach is more focused on 'maximising opportunity by creating viable and sustainable industry', noting that there are contractual commitments in terms of work packages and assurance activities to ensure that the outlined AIC plan is complied with.

"We don't not prescribe percentages of AIC or weighting in decision making processes," Hall said. "It's more about development and enhancement of Australian industry by creating global and national opportunities."

All three presenters noted that leveraging existing industrial bases would be key. **ADM Comment:** There are already a mix of contenders who are positioning

themselves for the program, with all but Leonardo confirming they will be bidding the program.

- Airbus H145M: A medium-sized military multi-role helicopter capable of performing a wide spectrum of missions with a common platform, from transport, SAR, and medevac to armed scout. Airbus have a strong in country presence thanks to their work on Tiger and Taipan and a large civil fleet with support facilities already in the greater Sydney area. The platform is on the larger end of the four-tonne requirement but can easily answer the six-person requirement.
- Bell 407GT: A light attack helicopter manufactured by Bell Helicopter Textron.

"Fleet size and concurrency of operations across training, ready to go at short notice and deployment under a joint task group scenario are my priorities"

It is a multi-role, multi-mission helicopter, which can be reconfigured to suit troop transport, medical evacuation, search and rescue or command and control missions. Bell also has a strong civilian support presence in the greater Sydney area thanks to a substantial fleet nationally. The company has teamed with Hawker Pacific to answer the sustainment/supply chain requirements.

• <u>Boeing AH-6i Little Bird</u>: A highly capable light attack/armed reconnaissance helicopter specifically designed with superior performance characteristics and flexible, easily configurable mission equipment

ideal for light attack, precision attack, anti-armour, close combat attacks, reconnaissance, security and escort, troop insertion/extraction, combat search and rescue. Little is in the name and it might have trouble comfortably answering the six-person requirement. Boeing is able to also leverage a strong support network with a strong presence already in country.

<u>Leonardo AW109 Trekker</u>: A light-weight, twin-engine, multi-purpose helicopter providing search and rescue organisations with a high speed, high performance, twin-engine helicopter with leading-edge mission equipment.

All four platforms can do the job. They will each do it slightly differently and each has its own pros and cons when it comes to how it fulfils the mission set. What is clear from the program office though is that C-17 deployability and availability/reliability will be key factors in their decision making process.

MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU



- 1. Airbus offers to take Tiger beyond 2040
- 2. Boeing offers Apache for Land 4503
- 3. First upgraded KC-30 returns to Australia
- 4. How Iran could win
- 5. First Boxers arrive in Brisbane

Airbus offers 'cost effective' Tiger replacement

Nigel Pittaway | Melbourne

Airbus Australia Pacific has thrown its hat into the ring for Defence's Tiger Armed Reconnaissance Helicopter (ARH) replacement program, to be delivered under Land 4503, with a bid to incrementally upgrade the current capability, which it says will save the taxpayer \$3 billion out to 2040.

Land 4503 will require up to 29 proven, mature, off-the-shelf armed helicopters, with Initial Operational Capability (IOC) slated for the 2026 timeframe. A Request For Information (RFI) was released to industry on July 11.

Managing director Andrew Mathewson says Airbus Australia Pacific's proposal will leverage features of the European Tiger Mk.3 upgrade program, currently under development by France, Germany and Spain under OCCAR. Mathewson said the Commonwealth can choose which features it wishes to include in the Australian Tiger upgrade program if the proposal is selected.

He says the \$3 billion savings are based on the publicly available Land 4503 acquisition program figures and suggests that whichever platform is acquired, it will need to be continually upgraded if it is to remain viable until the 2040s, when Defence may be looking to the US Future Vertical Lift (FVL) solution.

"Defence has been very plain that they're focussing on FVL, so you can imagine if they replace Tiger in the timeframe outlined (and) acquire a new capability in the early 2030s, to have it replaced in the early 2040s, I think would be a waste of taxpayer's money," Mathewson said.

He says the upgrade work would be performed at Airbus Australia Pacific's



A Tiger ARH departs the flight deck of HMAS Canberra

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facility in Brisbane, which previously assembled 18 of the 22 Tigers in service with Army Aviation and which today includes a state-of-the-art software development facility.

"We have 260 people working directly on Tiger on a whole range of things, from software development, modifications, training and maintenance and a good number of them are performing the Systems Program Office (SPO) functions that would normally be done by Defence," Mathewson said. "So, we have an intimate knowledge of the platform and a great partnership with Defence in support of Tiger (and) we feel very confident in the ability to perform those upgrades here in Australia."

One of the upgrades is likely to be the integration of Link 16 into the helicopter to replace the current Interim Tactical Data Link (iTDL) capability.

"We see Link 16 as a low-risk modification; the capability has been proven in a range of other aircraft types and it's a low technical risk, low schedule risk modification that we can make to Tiger," Mathewson added.

Tiger has suffered from poor availability and a high cost of ownership in the past

"Airbus Australia Pacific's proposal will leverage features of the European Tiger Mk.3 upgrade program" – factors which have almost certainly been the catalyst for Land 4503, but Mathewson says that the helicopter is now performing well after a great deal of remediation efforts by Defence, CASG and industry and now enjoys a mission success rate above 95 per cent, together with a reduction in cost per flying hour of 30 per cent.

"Tiger today is not the same platform reflected in the 2016 White Paper (where it was singled out for criticism, above all other Projects of Concern), it is performing very well, our customer loves it and we think it matches the RFI

very closely. The Commonwealth is seeking a mature, proven armed reconnaissance helicopter and that's exactly what they have with Tiger," Mathewson said.

"To replace an armed reconnaissance capability right now and to spend \$3 billion to buy something that will offer the same capability as Tiger I think would be a terrible waste of taxpayer's money."

The Airbus Australia Pacific proposal was released on August 30 and on the same day Boeing announced it will offer the <u>AH-64E Apache</u> against the Land 4503 requirement. Bell has previously partnered with BAE Systems Australia to bid the AV-1Z Viper and is also expected to respond to the RFI but has yet to make a public announcement.

Next week's issue of Defence Week will take an in-depth look at the Apache helicopter and Boeing's proposal for the Land 4503 requirement.

ADM Comment: Recent debate in the public forum has centred around which of the three helicopters is the most capable, with each having its (sometimes very vocal) supporters and detractors and, in our opinion, this completely misses the point.

We have written before that Defence would appear to actively suppress 'good news' stories about Tiger's current capabilities and this has not only allowed the replacement argument a free run, but must also have a negative and regrettable impact on all those who operate the helicopter today - personnel who have pride

in what they do and what they achieve on a daily basis.

The simple question asked of government, Defence and Army Aviation should be: does Tiger meet the ADF's current requirements for an armed reconnaissance helicopter and, if so, can it be upgraded to meet future requirements out until 2040?

If the answer is yes, and the claimed savings can be verified, then we'll leave it to the reader to decide how \$3 billion of taxpayer's money could be better spent.

Democratic states threatened by hostile actors disrupting politics

Max Blenkin | Canberra

When it comes to big powers like the US fighting groups such as Islamic State (ISIS), it should be no contest – but it hasn't turned out that way because of the mini-actors' mastery of information operations.

Professor Mervyn Frost from the Department of War Studies at King's College, London, said the information war element of asymmetrical conflict provided the only plausible explanation for the power wielded by such mini-powers in contest with great powers.

He said this would appear to be completely one-sided but that had proved not to be the case.

"We have seen how a mini-power like Al Qaeda has managed to exert sufficient power to get the US and its allies to modify their policies," he told the UNSW Canberra Defence Leaders' Breakfast.

"In Israel, the mini-power Hamas (and also Hezbollah in Lebanon) continues to engage with a vastly superior military power in Israel - yet it has sufficient power



Brigadier John Shanahan speaks with Afghan people in Ghorak, Afghanistan.

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to stay in the struggle. How is this possible?"

It's possible because the rise of modern communication technology and social media allows anyone to communicate with like-minded others globally, quickly and cheaply. This involves a couple of techniques.

One is ethical trapping, where the group commits an act so outrageous that the target state responds with a large scale counter-attack, violating the fundamental ethical norms it espouses.

"This then enables the small actor to point to the hypocrisy of the giant which purported to be the defender of fundamental ethical standards," he said.

"Al Qaeda has managed to exert sufficient power to get the US and its allies to modify their policies"

"This results in a decrease in legitimacy of the great power(s). If the reaction included action in states not party to the dispute, then this opens the way for claims to be made that the powerful state is acting in an imperial manner.

"Ethical trapping has been done by Al Qaeda, the Taliban, ISIS, and Hamas."

Another technique used by the weaker party is disrupting the normal democratic politics of the target state. Examples include the hackers who disrupted and sought to steer the 2016 American presidential election. That's been blamed on

Russia.

Professor Frost said the goal was not to provoke a drastic response but to undermine its stability, erode the democratic processes, pit extremist factions within the society against the establishment, and generally provoke discord.

"This kind of disruption can be undertaken on an ongoing basis. It can be used towards privileging certain actors in the target state in ways that would benefit the attacker," he said.

"At the limit, these kinds of communications, through websites and blogs, might lead disgruntled groups to take up arms against their own government."

Professor Frost said democratic states were fundamentally threatened by this kind of cognitive warfare.

"I am not saying that they 'feel' threatened, but that they are threatened," Professor Frost said.

"If the task of the military apparatus in democratic states is to protect the public against dangers that might escalate to war, it stands to reason that military planners ought to consider how to respond to this kind of clandestine attack before any escalation takes place."



Colonel John Molnar (left) learns about drones from Australian Army cadets Cadet Under Officer Taylor Newton (centre) and National Cadet Under Officer Daniel Irwin.

UAVAIR enables positive feedback cycle for Army

Ewen Levick | Sydney

Drone training SME UAVAIR has continued to train Army soldiers in drone operations, qualifying well over 1,000 soldiers with hundreds more on the way.

As Army's drone roll-out continues, soldiers are finding new and novel ways of using UAVs on operations ranging from convoy protection to urban warfare and amphibious assaults. According to General Manager David Mann, the company has adapted their training program to match these new and novel methods in what has become a positive feedback cycle of drone literacy.

"We're focusing more on the beyond visual line of sight aspects of the training," Mann said to ADM. "Initially the program was about basic handling skills of the Phantom drone but now we're talking about how it can be utilised beyond visual line of sight.

"Although [civilian] regulations don't enable this, Defence regulations enable the use of beyond visual line of sight flight. That means soldiers can really take hold of how the drone can operate and how it can really function and be useful to Army as a whole."

Soldiers are initially trained on DJI Phantom drones, which have 'impressive' capabilities for an off-the-shelf product.

"[Phantom] gets good visuals out to eight kilometres, and Army is really starting to use that functionality," Mann said. "We're seeing the soldiers use the drones

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to hover over the top of a suspected target. They're also using them to scout ahead of their own convoy, scout the air or what's around the corner, what's across the river. So they've been very useful."

Interestingly, the positive feedback loop between UAVAIR as the training organisation and end-users in Army is fuelled by social media.

"Some of the units have their own social media platform, Army has its own social media platform, and we're able to see some of the types of things they're doing with the Phantom drone," Mann said. "We've got some great footage coming out of Talisman Sabre. [The Phantom] was being utilised beyond visual

line of sight."

"Soldiers can really take hold of how the drone can operate and how it can really function"

The company has now incorporated these innovations into its training program.

"Now we ask the student to turn away from the drone while being monitored by our instructor and to be an observer and fly completely off the screen," Mann said.

According to Mann, UAVAIR wants to continue the positive relationship with Army by collaborating on sustainment once the initial training program is complete.

"We need to start thinking about how sustainment would work because not everybody who initially is trained is going to get the opportunity to keep recent on the drone," Mann said. "We're always keen to work with the Army to talk about recency."

The company also wants to secure further civilian work by leveraging its Defence experience.

"Being an SME, being able to be known in industry as a trusted partner of the Australian Army or Defence, it's really helped in opening the doors and having that discussion," Mann said. "It really gives you credibility."

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Defence sells Bulimba Barracks

Defence has entered into a contract with Shayher Group for the sale of the Bulimba Barracks site in Brisbane.

ADM's Managing Editor Katherine Ziesing put a number of questions to Defence in regards to whether the sale required site mediations, the overall sale value and the status of heritage sites at the base.

"Defence has undertaken a detailed environmental site investigation at Bulimba Barracks," a spokesperson replied. "This investigation identified that the contamination that is present, poses no immediate risk to the general public or neighbouring residential areas. The results do not prevent the land from being remediated and developed.

"The terms and conditions of the contract of sale are commercial-in-confidence and settlement has not yet occurred. Through the contract of sale, Defence has ensured that Shayher will remediate and develop the site in a timely manner, including implementing a remediation action plan.

"This plan is approved by an environmental site auditor and accredited by the Queensland Department of Environment and Science. Defence undertook targeted remediation activities at Bulimba Barracks following the completion of a Stage 1 Environmental Investigation in 2015. The cost of this remediation was \$75,000."

Minister for Defence Linda Reynolds said the sale of the 20-hectare site marks a 'significant step' in the Government's commitment to unlocking surplus Commonwealth land for alternative uses, including housing.

"Shayher Group is an Australian developer with a record of delivering redevelopments in Brisbane and Melbourne," Minister Reynolds said.



Defence has retained a 2.5 hectare portion of the former Bulimba Barracks site as HMAS Moreton.

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"They have demonstrated capacity to develop, remediate and protect the heritage values of the property, recognising the development must adhere to state and local planning, environmental and heritage requirements."

The contract decision follows a competitive open market sale process in accordance with the Commonwealth Property Disposal Policy.

"The sale of Bulimba Barracks will increase housing supply in Brisbane, with

"Bulimba Barracks
has local heritage
significance based on
its important role in
the history of the war
effort in Queensland"

the Brisbane City Council's Bulimba Barracks Master Plan estimating a potential development outcome of about 855 residences, including a range of housing types," Minister for Housing Michael Sukkar said.

"Bulimba Barracks has local heritage significance based on its important role in the history of the war effort in Queensland, especially in relation to the industries that supported the war activities," the spokesperson said to *ADM*. "A key element is the WWII period, timber-framed large-scale barge assembly workshops and warehouses.

"The site is also important to the local Indigenous community, the Turrbal Association and Jagera Daran Pty Ltd, due to the traditional connection with the lands in this area prior to colonial settlement.

"Further areas of heritage significance include the presence of a former Chinese workers encampment and the former location of the Apollo candleworks."

In a statement, Defence said these Indigenous and historic heritage values will continue to be protected in accordance with the local and state heritage protection legislation.

Defence anticipates settlement of the property in early 2020.

For more on management of the Defence estate be sure to attend *ADM*'s **Defence Estate and Base Services Summit** in Canberra next week.

PEOPLE ON THE MOVE

Effective 1 September, Joe North has been appointed Chief Executive, Lockheed Martin Australia and NZ, with Scott Thompson assuming the newly created position of Deputy Country Executive. Over a career that has spanned 30 years with Lockheed Martin, North most recently served as Vice President of Lockheed Martin's Rotary and Mission Systems (RMS) Operations for Australia and NZ.

Newcastle Airport has welcomed international institutional real estate executive, Morgan Parker as a Director to its Board. "It is an absolute honour to join the Board of Newcastle Airport – the gateway to Australia's largest regional economy," Parker said. "I look forward to working with my Board colleagues and management to help deliver the airport our region deserves."

Al Jawhari has been appointed as the new CEO of the RLD Group. "I'm proud and excited to join the RLD Group, an innovative business with amazing capabilities," Jawhari said. "We will continue to rejuvenate manufacturing across different industry sectors."

Thomas Global Systems has announced the appointment of Merv Davis to the company's advisory board. Davis has extensive experience in the Australian and international defence industry, including in chief executive, operational, strategic and technical roles. Most recently he was CEO of CEA Technologies.



Aerodrome Reporting Officer course participants walk the cross strip of RAAF Base Townsville.

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Lendlease secures next stage of works at RAAF Townsville

Lendlease has recently secured a contract with the Department of Defence to deliver the Land 4502 Project at RAAF Base Townsville.

The project includes the construction of new facilities and infrastructure, and upgrading of some of the existing facilities, to support three additional Chinook Helicopters (CH-47F) for 5th Aviation Regiment.

Dale Connor, Chief Executive Officer Building Australia said the appointment reinforced Lendlease's local Defence capability and commitment to the Townsville region.

"Lendlease has been delivering work at RAAF Base Townsville for more than 10 years. Securing the Land 4502 Project allows our North Queensland team to transition from the recently completed Replacement Chinook Facilities Project and continue our work promoting increased Indigenous and local industry participation," he said.

"With the support of Defence, we have developed a Local Industry Capability Plan for the Land 4502 Project that not only identifies subcontract, employment and training opportunities, but also ensures that wherever possible, the project spend is directed into the local economy.

"Our recent work on the Replacement Chinook Facilities Project at RAAF Base Townsville injected around \$39 million into the local economy, with 72 per cent of subcontract packages being awarded to local businesses."

The Land 4502 Project will provide opportunity for approximately 85 full time jobs onsite at peak times.

Work has commenced and is due for completion in late 2020.

Forthcoming Events

ADM EVENTS

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

- ADM Defence Estate and Base Services Summit 12 September 2019
- ADM North Australian Defence Summit 23-24 October 2019
- ADM Outspoken Women Masterclass 23 September 2019

Synthetic Environment Working Group (SEWG)

Date 06 September 2019

Location Gold Coast Convention and Exhibition Centre

Website www.defence.gov.au

The Synthetic Environment Working Group (SEWG) 2019 is a one-day Conference/Working Group sponsored by the Department of Defence, ADSTC and managed by the Simulation Governance Directorate.

Defence Industry Security Program (DISP)

Date 11 September 2019

Location Darwin

Website www.business.gov.au/Events/Defence-Industry-Security-Program

The Defence Security and Vetting Service will hold a business information session on the new Defence Industry Security Program (DISP) in Darwin on 11 September 2019. It's part of an NT Government Defence and Cyber Ready Briefing. The briefing also features a Centre for Defence Industry Capability and Prime Contractors Panel on local defence supply chain requirements for cyber security.

IFRS Annual Dinner 2019

Date: 12 September 2019

Location: National Gallery of Australia

Website: https://regionalsecurity.org.au/event-3473293

The Institute for Regional Security's Annual Dinner is widely recognised as the premier national security networking event in Australia each year, attracting the most senior national security leaders from Australia, Japan and the US, with government, industry and academia. This year's speakers include Minister for Defence Linda Reynolds, US Ambassador for Australia Arthur Culvahouse, and Japanese Ambassador to Australia Reiichiro Takahashi.

Defence Industry Trade Show Preparation Workshop

18 September 2019

Location: Cairns Civic Reception Rooms Website: https://www.eventbrite.com.au

AIDN QLD in partnership with DEFNQ would like to invite you to attend the ASC Shipbuilding & CASG Industry Briefing Opportunities for Australian Industry in Cairns. Wayne Cooper, Director of Industry for the Hunter Class Frigate Program will provide an overview of the Government's broader continuous naval shipbuilding strategy, and provide an update on the Hunter Class Frigate Program and the Government's commitment to maximising Australian Industry Capability in the program. ASC Shipbuilding will also provide a supply chain update detailing the plan and opportunities for Australian industry.

Australian Naval Institute's Goldrick Seminar

18 September 2019

Location ADFA

Website www.trybooking.com/BDYHF

The 2019 ANI Goldrick Seminar will discuss defence issues associated with the maintenance of Australia's maritime trade. Speakers will be drawn from senior levels of Defence, academia and industry. As in previous years, the theme -Maritime Trade and its Implications for Australia's Defence – was selected by the Chief of Navy; an outcomes report will be provided to the Chief of Navy and it is anticipated that the proceedings will be subsequently published by ACSACS.

Understanding Chinese Strategy for the 21st Century

Date 18 September 2019

Location Victoria Barracks, Brisbane

Website www.rusi.org.au/event-3491733

Join us to hear deeply researched insights into China's strategic calculus in the region and how this will affect Australia's security. Professor Evans is a leading expert in strategy and leadership whose expertise is highly sought-after by international institutions, especially the US military. His command of military history and the extrapolated implications for our strategic considerations are peerless in Australia.

NZDIA Member's Meeting

18 September 2019 Date: Location: Wellington, NZ

Website: Michelle.denholm@nzdia.co.nz

The theme for the next Member Meeting in Wellington on Wednesday 18 September is:

"Defence and Industry-Delivering on the DCP together: Technology, Security and Procurement Challenges". Speakers/topics will include: NZDIA Members' Technology RoadMap; Update on security challenges and solutions; DCP Project updates from MOD; Update on the CJDS Portfolio; and an MBIE presentation on early engagement and market briefings.

The Future Australian Army: An Evening with Lieutenant General Rick Burr

Date 19 September 2019

Location 215 Queen Street, Brisbane tattersallsclub.com.au

Don't miss this opportunity to hear how the future Australian Army is being shaped now by its Chief, Lieutenant General Rick Burr. Listen to General Burr outline the type of Army Australia will need to meet the threats and challenges of a dynamic Indo-Pacific strategic landscape, and how he intends to position the Army satisfy government-directed policy objectives and protect Australia's national interests.

ASDEFCON TD/IP Courses

23-24 September 2019 Date

Location: WA. Vic. NSW

Website defence@majortraining.com.au

Defence have begun delivery of its short course on the new Technical Data / Intellectual Property (TD/IP) clauses in its ASDEFCON suite of templates. The new clauses provide far more flexibility and scope to deal with TD/IP issues but require a better understanding from both Defence and Industry. Defence is delivering this course around Australia and offering a number of spaces to Defence Industry: 6-7 August 2019 in WA: 28-29 August 2019 in Victoria: 23-24 September 2019 at RAAF Richmond: 29-30 October 2019 and 24-25 February 2020 in the ACT.

Capability Life Cycle (CLC) Management

23-25 September 2019 **Date**

Location Canberra, Brisbane, Sydney, Melbourne, Adelaide, Perth

Website unsw.adfa.edu.au

This course provides attendees with an overview of how Australian Defence conducts business with regard to development and management of capability. Attendees from within the Australian Defence Organisation, other government agencies and defence industry are provided with an opportunity to develop an understanding of the principles, processes, practices and artefacts associated with the Australian Defence Capability Life Cycle.

Army Innovation Day 2019

Date 25 September, 2019 Location Adams Auditorium, ADFA Website www.army.gov.au

AID19 will be held on 25 September and the purpose is for selected respondents to pitch their proposed innovations to assessors, Capability Managers and Defence Innovation Hub personnel. Respondents may also be able to verify, validate and clarify their Request for Proposal response. Request for Proposal submissions closes on 3 September and on 12 October respondents will be notified of outcomes.

2019 SIA Nuclear Seminar

Date 02 October 2019

Location Australian Strategic Policy Institute

Website www.submarineinstitute.com/events/Nuclear-Seminar

The Submarine Institute of Australia (SIA) is Australia's premier organisation for the promotion of submarine matters. The SIA is hosting a single day seminar, aiming to stimulate national discussion on a holistic approach to a nuclear industry.

Australian Cyber Conference 2019

Date 07-09 October 2019

Location Melbourne Convention and Exhibition Centre

Website 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

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.

ITAR/EAR/AU Export Control Awareness — Brisbane

Date 15 October, 2019

Location Brisbane

Website www.stickytickets.com.au

Join us for a one-day face-to-face awareness course covering the unique aspects, agreements and regulations for US and Australian Export Controls. Whether you are handling ITAR or EAR controlled technology as a current or prospective contractor, or looking to export your Australian controlled defence article, you must ensure you comply with regulations at all times.

Women in A/AA Melbourne Summit 2019

Date 16 October 2019
Location Level 17, 501 Bourke St.

Website www.aviationaerospace.org.au/events

This year, the summit will focus on how we, both men and women can engage the future through STEM and how we can encourage a more inclusive and diverse workforce. Discussing the barriers and opportunities for women in the industry, we will ask the tough questions and address how we can close the gender gap. What will it take for us to encourage more women to study STEM and what will take for us to encourage more women to pursue a career in STEM?

Williams Foundation Seminar — The Requirements of Fifth Generation Manoeuvre

Date 24 October 2019

Location National Gallery of Australia

Website www.williamsfoundation.org.au/event-3161281

Since 2013, the Sir Richard Williams Foundation seminars have focused on building an integrated fifth generation force. The seminar in October 2019 is titled 'The Requirements of Fifth Generation Manoeuvre' and will examine the differences and potential gaps in how the ADF must equip and organise for multi-domain operations.

AIDN QLD Young Achiever Award

Date: 31 October 2019

Location: TBC

Website: INFO@AIDNQLD.COM.AU

Driven and talented young people are the key to the future of the defence industry. In order to recognise individuals who may be future industry leaders, AIDN has created the AIDN Young Achiever Award. Nominations for the 2019 AIDN QLD YAA (YAA) are now open. The award is held at the AIDN QLD level and the winner will compete for the national award.

2019 Parari Australian Explosive Ordnance Safety Symposium

Date 05-07 November

Location ADFA

Website 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.

EW Australia 2019 Canberra Symposium

06 November 2019 Location: QT Hotel, Canberra

Website: https://aomevents.eventsair.com/aoc-convention-2019/aoc-symposium/

Held at the QT Canberra on Wednesday 6 November 2019, this thought leadership symposium will focus on "Electronic Warfare Battle Management and Manoeuvre in the Cyber and Electromagnetic Battlespace'. Attendees will have access to dedicated sessions on EW and Cyber Security, while being able to maintain connections and expand networks within the Australian EW and Cyber Defence Community.

MilCIS 2019

12-14 November 2019 Date **Location** Canberra Convention Centre

Website 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

18-21 November

Location Esplanade Hotel, Fremantle 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

24-27 November Date

Location Crown Promenade, Melbourne Website 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.

2020

CIVSEC 2020

Date 24-26 April 2020

Location Melbourne Convention and Exhibition Centre

Website www.civsec.com.au

CIVSEC 2020 International Civil Security Congress and Exposition is your gateway event to the growing Indo-Asia-Pacific civil national security environment. CIVSEC 2020 is a premium international event with exceptional opportunities to reach key driver organisations in an evolving, tech-savvy regional marketplace.

Rotortech 2020

Date 16-18 June 2020

Location Royal International Convention Centre, Brisbane

Website www.rotortech.com.au

RotorTech 2020 is the region's premier helicopter and unmanned flight systems showcase and forum, bringing together operators, manufacturers, suppliers, regulators and government across the Indo-Asia-Pacific. With a comprehensive three-day free industry conference program, RotorTech 2020 will also feature manufacturers technical workshops and an industry exhibition showcasing more than 100 helicopter and unmanned flight related companies.

Land Forces 2020

Date 01-03 September 2020
Location Brisbane Convention Centre
Website 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.