

ADM DEFENCE WEEK PREMIUM EDITION

AUSTRALIAN DEFENCE MAGAZINE
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James and Adam Gilmour with their company's OneVision rocket.

GILMOUR SPACE

Gilmour Space remains unfazed

Ewen Levick | Sydney

Two months ago, Queensland-based start-up Gilmour Space suffered a setback in rocket testing when the oxidizer tank pressurization system malfunctioned just before lift-off.

Investigations later found the cause to be a sub-optimal routing of the oxidizer tank pressure feedback signal. This anomaly prematurely ended a test flight that would have launched the company's One Vision rocket from the Queensland outback to a height of 20-30 kilometres above the Earth's surface.

Yet chief executive Adam Gilmour, who recently won the 2019 Advance Awards in Advanced Manufacturing, this week told *ADM* that the company remains unfazed by the setback and continues to [make steady progress](#) towards a commercially-viable Australian launch capability.

"We had two major technologies to test. One was

IN THIS ISSUE

Gilmour Space remains unfazed	1
Raytheon to support RAN surface combat systems	3
Naval Group and McTaggart Scott team on torpedo countermeasures	4
BMT offers Caimen 90 for Land 8710	5
L3 Harris and iXblue sign systems support agreement	6
Ryan Aerospace wins Queensland export award	7
Defence to create online platform for aviation regulations	8
NZ deploys Orion to enforce sanctions on North Korea	9
Apprentice swaps hairdressing for shipbuilding	10
Forthcoming Events	12

the launch platform, the other was the rocket. The mobile launch platform worked perfectly,” Gilmour said.

After a three day journey over rough roads into central Queensland, the road-legal autonomous launch platform took just 36 hours to set up.

“We pressed a button and it went through all the processes – the only manual part is the button to raise the tower, and you can then adjust the tower’s inclination and height with an automatic system,” Gilmour said.

Seconds before lift-off, however, the company’s safety systems went through an unexpected trial.

“We’ve been hiring pretty aggressively to build out our management team”

“After the anomaly, the automatic safety system kicked in. We had no injuries and very minimal damage to the launch structure,” Gilmour said. “You can’t get an anomaly much worse than an oxidizer tank blowing apart, and all we got was a steam cloud.

“It just proved our point about how safe hybrid fuel rockets are compared to other launch systems.”

In the time since the rocket containing the fault was developed, [the company](#) has brought more experienced people on board, meaning future iterations are unlikely to suffer similar failures. It also conducted an investigation resulting in 15 recommendations, all of which have since been implemented.

“We’ve been hiring pretty aggressively to build out our management team for all the major subsystems of the rocket,” Gilmour said. “The launch anomaly happened in the middle of that process, but we now have the full team in place, with more experienced engineers providing feedback into what we could do better.

“We’ve also been parallel designing the orbital vehicle, so a lot of the lessons we’re learning along the way with testing and building are being incorporated into the new vehicle.”

The company is now looking to future tests of the three main systems in the orbital vehicle: guidance, navigation and control (GNC); propulsion; and structures. In the next few weeks, the GNC team will start use low-powered rockets to conduct flight tests of the vehicle’s avionics, telemetry and software algorithms. In a year, the company will test the upper stage of the orbital vehicle from an undecided location, possibly in Queensland or SA.

“That should go past 100 kilometres,” Gilmour said. “It’ll be a high fidelity test of the full third-stage with all the GNC systems, thrust vector control, reaction control systems – we’re going to make two of them, and if the first one works, we’re going to bolt the second one onto the rocket.”

According to Gilmour, the majority of a rocket’s complexity is in the upper stage, meaning if that test is successful the company will be able to move quickly to a full orbital test.

If the company successfully progresses through the orbital test, it could potentially provide Australia with a sovereign mobile tactically-responsive space launch capability, providing constellations of communications and ISR satellites at a moment’s notice at orbits with a lifespan of between 2-5 years.

The company is also looking to participate in Australia’s \$150 million commitment to the US Artemis program, which is looking to place people back on the

Moon by 2024. Gilmour Space is heading to the International Astronautical Congress in Washington DC next week and is also in talks with contacts at NASA to find out where technological gaps exist – the same approach as that taken by the Australian Space Agency.

“It’s a combined effort and still early days, but we could participate in propulsion systems, lunar landers, satellite missions on a lunar orbit, resupply missions, that kind of thing,” Gilmour said. “Our propulsion system can survive in the vacuum of space for a long time.”

“It’s a combined effort and still early days, but we could participate in propulsion systems”

Raytheon to support RAN surface combat systems

Raytheon will provide combat system engineering support services to the RAN for up to six years following a new agreement with Defence.

Under the new agreement, Raytheon Australia will support Defence’s upgrades to surface ship combat systems by providing engineering and logistics services.

“This will capitalise on existing knowledge, skills, systems and processes developed by Raytheon Australia through the Hobart class Destroyer acquisition program,” Defence said in a statement.

“I commend both the Government and Department of Defence for their forward-looking decision to engage a combat system engineering partner to reduce risks for future surface ship programs,” Raytheon Australia Managing Director Michael Ward said.

“Having lived the full evolution of Australia’s first truly sovereign shipbuilding program through AWD, we understand the importance of early combat system planning, architecting, integrating and testing.



HMAS *Hobart* firing an SM-2 Standard Missile.

DEFENCE



Raytheon is now in the prime seat for work on RAN combat systems

DEFENCE

"This early engagement is particularly critical in reducing the risks for large-scale programs such as surface ships," Ward said.

HMAS *Hobart* recently tested upgrades to its combat system, firing an SM-2 Standard Missile and successfully hitting an unmanned target during trials off the coast of NSW.

"We understand the importance of early combat system planning"

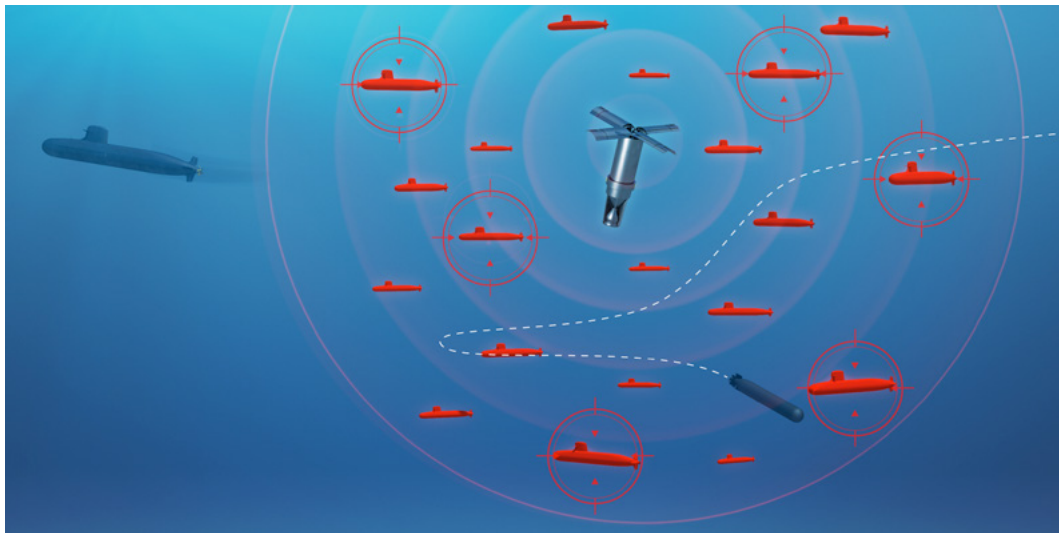
Hobart's Commanding Officer, Commander Ryan Gaskin said the successful firing was a significant step in progressing Navy's high-end warfighting capability.

"The missile firing was an opportunity to test recent upgrades to the ship's Aegis combat system and prepare the ship's company for their upcoming deployment," Commander Gaskin said. "Our advanced sensors provide a real-time picture of the tactical situation, which when combined with our weapons systems gives us a formidable defence capability."

ADM Comment: This move effectively puts Raytheon in the prime seat for all of Navy's combat system work apart from the Attack class. With their complimentary work in the land space under Land 17, and prospective work on Air 6500, the company is verging on a monopoly when it comes to combat systems in the ADF.

PEOPLE ON THE MOVE

Australian Cyber Security start-up Red Piranha has appointed former CISCO Canada CEO, Terry Walsh as new Chief Operating Officer. Terry brings to Red Piranha over 30 years' experience in the Technology and IT fields in Australia, Asia and North America. During his time with Cisco Canada Walsh more than tripled the Canadian branches revenue seeing it become one of Cisco's Top 5 performing countries worldwide.



A concept image of the CANTO countermeasures system.

NAVAL GROUP

Naval Group and McTaggart Scott team on torpedo countermeasures

Naval Group and MacTaggart Scott Australia signed a Memorandum of Understanding (MoU) during the Pacific Maritime Exposition 2019 last week.

According to Naval Group, MacTaggart Scott has been pre-selected to maximise Australian Industry Capability and to enlarge the company's Defence Technological and Industrial Base (DTIB) in Australia.

The cooperation between Naval Group Pacific and MacTaggart Scott is aimed at entrusting MacTaggart with the fabrication of equipment composing countermeasures and/or associated launching systems. It is one of nine MoUs related to countermeasures signed by Naval Group Pacific in Australia.

“Naval Group Pacific says it is proposing a ‘breakthrough in anti-torpedo countermeasures’”

Naval Group Pacific says it is proposing a ‘breakthrough in anti-torpedo countermeasures’ for Australian submarines and surface ships programs (namely the Future Submarine, Future Frigates and upgrades to the Hobart-class Air Warfare Destroyers) with CANTO, a countermeasure generation based

on dilution and confusion multi-effects. This involves generating a high-level, 360-degree acoustic signal as soon as the system enters the water to jam the full frequency range of an attacking torpedo. CANTO then creates and constantly renews hundreds of false targets, saturating the torpedo's sonar and data processing capability and ultimately dissipating all the weapon's energy or fuel supply.

The system, fitted with its associated reaction module, CONTRALTO, is in service in the French Navy and in several blue-water navies. Naval Group has [previously said](#) it wants to produce CANTO in Australia should this technology be selected by the RAN.



A concept image of the Caimen 90.

BMT

BMT offers Caimen 90 for Land 8710

BMT has announced the Caimen 90 Landing Craft as its bid vessel for the Land 8710 program.

Land 8710 Phase 1 is [the program](#) to replace the Army's Mark 8 Landing Craft. The Caimen 90 was designed by BMT and is able to operate at high speeds with heavy payloads.

"BMT is offered world leading capability in landing craft vessels to the Australian Army with the Caimen 90," BMT Defence and Security Managing Director, Peter Behrendt said. "A variant of this vessel is already being built internationally, which shows it is a proven hull form and design."

"The Caimen 90 represents a significant improvement on speed performance from previous landing craft vessels and is capable of traveling at up to 30 knots.

"Additionally, features such as a tri-bow aluminium monohull and a bow and stern ramp, will allow for roll-on, roll-off capability, a key requirement for a modern landing craft," Behrendt added.

The Mechanized Mark 8 Landing Craft (LCM8) were originally brought into service by the US Navy for river operations during the Vietnam War.

"A variant of this vessel is already being built internationally"

MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU



1. [The warship is dead](#)
2. [Boomeranger wins Navy RHIB contract](#)
3. [A quiet Hunter: Navy's Future Frigate](#)
4. [Attack class: Plan of Action](#)
5. [Whiskey Project shines at Pacific](#)



L3 Harris and iXblue representatives at Pacific 2019.

DAVID JONES

L3 Harris and iXblue sign systems support agreement

iXblue, a company specialising in the design and manufacturing of advanced navigation technologies, and [L3Harris Technologies](#) signed a Memorandum of Understanding at [Pacific 2019](#) aimed at strengthening iXblue's support system throughout the Australasian region.

iXblue supplies its inertial navigation systems and subsea technology to a number of customers in the region, including to the RAN. The company is now seeking to expand its regional support network and is investing in Australian industrial capability.

The two companies aim to deliver a scalable sovereign sustainment framework for the iXblue products used by the ADF, as well as a greater support capacity in general for iXblue customers throughout Australia, NZ and the South Pacific.

“L3Harris is pleased to partner with iXblue with a view to providing in-country support”

“We are very impressed with the capability and experience offered by L3Harris’ Brisbane-based workforce,” David Donohue, Managing Director of iXblue Australia, said. “We are sure that they will be a great addition to our regional support network and look forward to taking greater advantage of Australian skills and ingenuity in support of our products and services in the region.”

“L3Harris is pleased to partner with iXblue with a view to providing in-country support, integration and sustainment for their high-performance maritime navigation systems,” Sarah Earey, Managing Director of L3Harris’ Microe, said. “L3Harris has a very strong network across the region with the skills and facilities for assembly, integration, calibration, repair and support of complex systems, and we’re proud to be able to offer these services to organisations such as iXblue to enable Australia to benefit from advanced

technologies from across the globe.”

Separately, L3Harris received an EPIC Supplier Excellence Award from Raytheon. [L3Harris' Micreo operation](#) has been working with Raytheon's Space & Airborne Systems division based in California since 2007, providing specialized Radio Frequency (RF) processing subassemblies for integration into Raytheon's Radar Warning Receivers.

L3Harris has designed three RF subassemblies specifically to meet Raytheon specifications and manufactured over 3,000 units, which are integrated into military aircraft worldwide, including the F/A-18s, F-16s, KC-46s and C-130Hs.

Ryan Aerospace wins Queensland export award

Ryan Aerospace last week took out the coveted Queensland Premier's Export Award in the Small Business Category.

Managing Director of Ryan Aerospace, Chris Ryan said he was delighted to take out this prestigious award, giving credit to his small but growing team.

“It's recognition of many years of hard work, persistence and a yearning desire to continue innovating,” Ryan said.

Ryan Aerospace has had recent success with the US military, but markets have also increased in Europe and Asia as new products leverage the power of virtual reality technologies.

“The face of simulation and training is changing dramatically and our products are part of a disruptive move to train helicopter pilots more safely and at a much lower cost,” Ryan said.

“This project will provide our people with the ability to access the information easily”



Ryan Aerospace now automatically qualifies as a finalist in the National Awards.

RYAN AEROSPACE

This win makes Ryan Aerospace an automatic finalist in the National Awards with winners announced at a Gala event in Canberra in December. Ryan will be undertaking business travel to the US at that time, where the company is looking to secure commercial deals.

Ryan Aerospace was also a finalist in the Richard Joel Defence category, which was won by Brisbane-based partners and colleagues, Immersaview.

Defence to create online platform for aviation regulations

Defence has partnered with app developer Elegant Media to create an online platform for the storage, management, and access to regulatory aviation information.

The project, which has been named the 'Manual of Continuing Air Worthiness', will provide a streamlined approach for ADF staff who are employed in aviation related duties to access regulative documentation via a single source website and smart application.

The project commenced in August and is expected to conclude in November, with sustainment works continuing until the end of 2021.

"We are really proud to have been selected by the Department of Defence to develop this much-needed content platform for its employees," co-founder and CEO of Elegant Media, Anushka Bandara, said.

"The platform is a wonderful example of how software technology can help people in the workplace, regardless of the type of industry, to undertake their work with access to important and up to date information real time."

The project, managed by Flight Lieutenant Justin Crosby and Flight Sergeant Daniel Cividin, has involved digitising the relevant regulative corporate processes,



The project will allow ADF members conducting aviation-related duties to access regulatory information online.

DEFENCE

putting in place systems for real time updates and then creating an online platform in the form of a website and app to enable staff to access the information at any time from virtually any location.

"Many industries such as aviation are information and regulation intensive and involve needing to access significant volumes of information," FLTLT Justin Crosby said. "This requires fast and immediate access to the content at any time.

"This project will provide our people with the ability to access the information easily online rather than having to continually refer to hard copy versions of the documentation."

"Our software is developed using machine learning and other intelligent solutions so our focus is ensuring the technology we install intuitively supports the complex needs of human operations," Anushka added.

"App development isn't just about helping people to access or source goods and services at the touch of their fingers, it's also about helping organisations and their staff to find better ways of doing things so as to improve productivity and enhance service delivery.

"We are really proud to be working with the Department of Defence to help them find ways to enhance workplace systems for their people."

NZ deploys Orion to enforce sanctions on North Korea

The NZ Defence Force (NZDF) will deploy a P-3K2 Orion and crew to support international efforts to monitor sanctions against North Korea.

The P-3K2 Orion will be based in Japan for the deployment and will patrol over international waters in North Asia. A P-3K2 Orion and personnel had previously been deployed in 2018 to support UNSC resolutions imposing sanctions on North Korea.

Commander Joint Forces NZ Rear Admiral Jim Gilmour said the NZDF was ready to respond to [international efforts](#) to maintain peace and security in the region.



The P-3K2 Orion will be based in Japan.

NZDF

Air Component Commander Air Commodore Tim Walshe said the RNZAF P-3K2 Orion was well suited to maritime surveillance and patrol activities, and routinely carried out surveillance and reconnaissance, including for fisheries patrols, and search and rescue operations.

During the deployment the crew would look to detect evasions of sanctions, such as through illicit ship-to-ship transfers of sanctioned goods, Air Commodore Walshe said.

Patrols by the P-3K2 Orion, which would be based in Japan for the deployment, would be over international waters in North Asia, he said.

“The crew would look to detect evasions of sanctions, such as through illicit ship-to-ship transfers of sanctioned goods”

Apprentice swaps hairdressing for shipbuilding

For one apprentice, changing career pathways from hairdressing to naval shipbuilding has been easy sailing.

While the working days of a shipyard can be a bit of stretch at 10 hours, it's only for four days a week and the payoff includes a three day weekend – every week. Working in the Perth shipyards of leading Australian naval ship-builder Austal, 27-year-old plumbing apprentice Justine Clements wouldn't have it any other way.

“As a hairdresser I worked six days a week, including every Saturday morning,” she said.

“The work was very repetitive and not very challenging and there wasn't a lot of scope for career advancement.



27-year-old plumbing apprentice Justine Clements at work.

AUSTAL/NS

"Now, working for Austal I get a three day weekend, I am always challenged with my work, I learn something new every week and I can see an exciting career in naval shipbuilding with lots of different pathways ahead of me."

Austal is currently building a host of commercial vessels as well as [21 Guardian class patrol boats](#) for the RAN as part of the government's \$90 billion continuous Naval Shipbuilding Enterprise.

When Justine decided to change career paths, she wanted to be involved in something specialised and 'outside of the norm'. Her new career path began after seeing an advertisement for a shipbuilding plumbing apprenticeship on the internet.

She applied, got a face-to-face interview with Austal, and won the job. At the Skills West Conference in Perth in August she won the gold medal in the WorldSkills Competition for plumbing.

"There's so many jobs coming online for young people and apprentices in naval shipbuilding," she said.

"I've recommended my friends to sign up with the Naval Shipbuilding College's Workforce Register because it's still something not many people know about yet."

Next year she is hopeful that she will be working on the Guardian class patrol boats.

"Austal are completely supportive of me exploring roles within naval shipbuilding, from learning a new trade to stepping up to become a supervisor," Justine said.

"It's a really rewarding career and I can see myself staying in this industry for a very long time."

Clements' decision comes as the Naval Shipbuilding College and Weld Australia announced an agreement to work together in developing a national shipbuilding welding education and training competency framework. The agreement is part of an effort to address a nationwide shortage of certified welders.

"I can see myself staying in this industry"

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Forthcoming Events

ADM EVENTS

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

- [ADM Northern Australia Defence Summit](#) – 23-24 October 2019
- ADM 2020 Congress – 19 February 2020

70th International Astronautical Congress

Date: 21 – 25 October 2019

Location: Washington D.C., USA

Website: www.iafastro.org/events/iac/iac-2019

It is with great pleasure that the International Astronautical Federation (IAF) invites you to the 70th annual International Astronautical Congress (IAC). #IAC2019, hosted by the American Institute of Aeronautics and Astronautics – AIAA will take place in Washington D.C., United States from 21 – 25 October 2019.

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.

Collaborative Technology Showcase: "Conquering the Tyranny of Distance"

Date 25 October

Location The Venue, Fannie Bay

Website tamara.cardillo@baesystems.com

Following ADM's Northern Australia Defence Summit in Darwin, BAE Systems Australia's shipbuilding unit, ASC Shipbuilding, is inviting local businesses to come and view Australian companies' latest cutting-edge innovations and hear from exhibitors how their next-generation technologies can help conquer the tyranny of distance.

ASDEFCON TD/IP Courses – ACT

Date 29 – 30 October 2019

Location ACT

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.

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 Defence Innovation Hub

Date 04 November 2019

Location National Ballroom, Hotel Realm

Website www.eventbrite.com.au

Defence and Industry stakeholders are invited to hear from senior Defence leaders as they discuss future opportunities and challenges for defence industry innovation at the 2019 Defence Innovation Hub Annual Industry Conference. The Defence Innovation Hub Annual Industry Conference provides an opportunity for representatives from industry and defence to learn more about Defence's capability needs and priorities, as well as hear broader perspectives on Defence, Industry, and Innovation.

GEO Week 2019

Date: 4 – 9 November 2019

Location: Canberra

Website: <http://geoweeek2019industrytrack.com.au/registration.php>

Technology and space companies from around the world are invited to participate in the Group on Earth Observations (GEO) 'GEO Week 2019' as part of the brand new Industry Track. GEO Week 2019 will be held in Canberra, Australia, from 4-9 November 2019.

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

Date: 06 November 2019

Location: QT Hotel, Canberra

Website: 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.

National Defence Industry & Workforce Skilling Summit

Date 6-7 November 2019

Location Perth

Website www.eventbrite.com.au

The National Defence Industry & Workforce Skilling Summit will be held in Perth from 6-7 November 2019. Join representatives from government, industry, academia and peak industry bodies, to explore the complex skills challenges facing Australia’s defence industry.

WDSN Speed Mentoring – Melbourne

Date 7 November 2019

Location Monash Conference Centre, Melbourne

Website aspi.cmail19.com/t/j-l-cbady-jtirtdtn-g

ASPI’s Women in Defence and Security Network and Monash Gender, Peace and Security Centre are delighted to invite you to attend this year’s Speed Mentoring event in Melbourne. Participants will have access to women mentors working across several different fields, including intelligence and national security, cyber security and STEM, academia, international aid and foreign policy, politics, media and journalism, international trade policy, NGO’s and civil society organisations, industry and defence.

Defence Ipswich Supply Chain Opportunities Symposium 2019

Date: 08 November 2019

Location: Ipswich

Website: live.eventtia.com/en/defenceipswichsymposium2019/Home

Following the successful Queensland Defence Summit Ipswich 2018, Ipswich City Council, proudly supported by the City of Ipswich Defence Industry Development & Attraction Committee, will host our next annual event, the Defence Ipswich 2019 Supply Chain Opportunities Symposium. The event brings together defence and industry participants from government, industry and academia to exchange information and connect with key decision makers over networking and B2B sessions.

MilCIS 2019

Date 12-14 November 2019

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

Date 18-21 November

Location Esplanade Hotel, Fremantle

Website 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).

Defence Seaworthiness Symposium

Date 21-22 November

Location ADFA, Canberra

Website www.defence.gov.au/seaworthiness/Contact_Symposium.asp

The Office of the Defence Seaworthiness Regulator is hosting the inaugural Defence Seaworthiness Symposium in Canberra 21-22 November 2019. The theme of the symposium is 'Reforming to Transform – Seaworthiness as a Defence wide priority'. Day 1 will consist of an address from VADM Michael Noonan and presentations from Capability Managers and their representatives as well as an informative panel discussion. Day 2 will consist of 2 concurrent workshops facilitated by staff from the Office of the Defence Seaworthiness Regulator. Places are strictly limited.

World Engineers Convention

Date 22 November 2019

Location Melbourne Convention and Exhibition Centre

Website www.wec2019.org.au

World Engineers Convention (WEC) 2019 is the peak international convention for engineers worldwide. Students will have the opportunity to meet and interact with engineering leaders who have helped influence and change the face of engineering.

Corrosion and Prevention 2019

Date 24-27 November

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.

The 26th Session of the Asia – Pacific Regional Space Agency Forum

Date: 26 – 29 November 2019

Location: Nagoya, Japan

Website: www.aprsaf.org/annual_meetings/aprsaf26/meeting_details.php

The 26th Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-26) will be held in Nagoya, Japan from 26-29 November 2019.

2020

AIDN National Defence Industry Gala Dinner 2020

Date 19 February 2020

Location QT Hotel Ballroom

Website consec.eventsair.com/aidn-2020/dinner/Site/Register

AIDN National invite you to attend a defence industry gala event not to be missed. The dinner will include pre dinner drinks and canapes on arrival followed by a gourmet two course dinner served with premium beverages. Guests will enjoy an evening of networking, socialising and fun which includes a VIP guest speaker, presentation of the AIDN National Young Achiever Award and Silent Auction with all proceeds donated to Legacy

Certificate IV in Responding to Organisational Complexity | Adelaide

Date 19-21 February, 2020

Location to be confirmed

Website iccpm.com/events/certificate-iv-adelaide-2020

Developed and offered exclusively by ICCPM (RTO number 41394), the Certificate IV in Responding to Organisational Complexity helps project leaders develop the skills and attributes they need to respond to complexity, as defined in the Complex Project Manager Competency Standards. This is a highly interactive course which introduces project leaders to useful tools and methodologies with a strong focus on the practical application of concepts to real-world situations.

Certificate IV in Responding to Organisational Complexity | Canberra

Date 24-26 March, 2020

Location to be confirmed

Website iccpm.com/events/certificate-iv-canberra-2020

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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.

43rd COSPAR Scientific Assembly

Date 15 – 22 August 2020

Location International Convention Centre Sydney

Website www.cospar2020.org

The Australian space research community enthusiastically extends the invitation to you, to meet with us for COSPAR 2020, and in so doing to forge the friendships and opportunities that will connect space research for global impact. The 2020 Assembly will combine the latest in space research findings with activities designed to enrich the global space research community – including helping equip our future leaders, and workshoping with space industry – and inspire the next generation of scientists and engineers.

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

2021

Avalon 2021

Date 23 – 28 February 2021

Location Avalon Airport

Website

The Australian International Airshow and Aerospace & Defence Exposition is one of Asia-Pacific's most prestigious aviation and aerospace events and the most comprehensive aviation, aerospace and defence exposition in the southern hemisphere. Avalon hosts multiple concurrent conferences and expo streams, across the spectrum of Defence, Airlines, Business and General Aviation, Sport and Recreational Aviation, Airports, MRO, Space, Unmanned Systems, Air Safety and Ground Equipment..