

# ADM DEFENCE WEEK PREMIUM EDITION

AUSTRALIAN DEFENCE MAGAZINE  
SERVING THE BUSINESS OF DEFENCE



Australia's rise in the import rankings is largely due to payments made on the F-35 program.

DEFENCE

## Australia drops in defence export rankings

Ewen Levick | Sydney

**New figures from the Stockholm International Peace Research Institute (SIPRI), the world's leading authority on global military spending, show that Australia has become the world's second largest weapons importer but has dropped to 25th in the export rankings.**

Australia previously ranked as the fourth-largest importer and 18th largest exporter. It now imports more military equipment than any other country bar Saudi Arabia and exports less than Belarus, the Czech Republic and Norway. The shift up in imports, however, is reportedly due to significant payments for the F-35 and Future Submarine programs rather than a wider general increase.

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The news of the export drop comes in spite of the government's push to make Australia one of the world's top ten largest military exporters. The [Defence Export Strategy](#), announced in early 2018, includes a \$3.8 billion Defence Export Facility administered by Australia's export credit agency and a \$20 million per annum re-allocation of funds within Defence.

In a [statement to the ABC](#), Minister for Defence Industry Melissa Price threw doubt on the SIPRI figures.

"The Stockholm International Peace and Research Institute system for measuring defence exports does not capture a large amount of Australian industry defence exports, particularly our niche capabilities in sustainment and upgrade services," Minister Price said.

*ADM* understands that former Minister for Defence Christopher Pyne also expressed doubt over how the SIPRI figures are calculated and sought to change the definition of 'arms export' to better reflect Australia's industry profile.

SIPRI's methodology documents 'actual deliveries of major conventional weapons' and production arrangements. It does not cover small arms and light weapons other than portable guided missiles, trucks, artillery under 100-mm calibre, ammunition, support equipment and components, repair and support services or technology transfers.

Yet SIPRI researchers have previously doubled down on their analysis and questioned whether Australia is capable of breaking into the top ten.

"To be honest, I don't see Australia becoming a major arms exporter in any near future," SIPRI senior researcher Siemon Wezeman once [told Nine reporter Antony Loewenstein](#). "The list of exports in the last decade gives not the greatest reasons to be optimistic about exports of major weapons from Australia, the more so since the new-produced weapons listed are not very advanced and are not niche weapons. Australia has no comparative advantage and many other countries produce or can produce them cheaper."

Wezeman also said Australia "caters for its own needs, largely now [through] subsidiaries of foreign companies."

Relatively few participants in *ADM*'s [Top 40 2018](#) disclosed export figures. Three of the top five of those that did are local subsidiaries of foreign companies: Thales, BAE Systems and Lockheed Martin, who appear alongside locals EOS and Marand. EOS exports to Saudi Arabia and the UAE whilst Marand supplies vertical tails to the F-35 program. The company [was sold](#) to a private equity firm in March.

KPMG has [previously noted](#) the absence of export-capable mid-sized Australian companies, with a dozen large primes locally supplied by small businesses with \$1-5 million in revenue. These small companies 'seldom export' and tend to do so through a prime.

The reasons given for this industry structure were a historic lack of clarity from government on the value of local content and reliance on varying international supply chains (i.e. French submarines, British frigates, German patrol vessels).

**"The SIPRI system for measuring defence exports does not capture a large amount of Australian industry defence exports"**

# The future battlefield is electric

Ewen Levick | Sydney

**A new report from QinetiQ argues that we need to look beyond batteries in preparing for the future battlefield.**

“Historically, electrical technologies have been little more than useful additions to military capability, designed to augment the primarily mechanical equipment and human fighters at the heart of warfare,” author Colin Cockcroft of QinetiQ Australia argues. “That is now changing.”

“The success or failure of electrical technologies in defence will depend on the quality of the infrastructure behind them”

The electrification of warfare, according to the report, is driven by geopolitical factors. First, fuel consumption is reaching unsustainable levels. Fuel consumption in the US Army has increased from 3.7 litres per soldier in WW2 to 75 in Iraq, a conflict that saw one American fatality per 24 fuel convoys. Put simply, transporting diesel fuel is dangerous.

Second, Russia and China are developing weapons that necessitate increasing Western investment in power-hungry long-range intelligence, surveillance and targeting capabilities. Third, the threat climate change poses to the Defence sector requires a greener approach, and fourth, the need for ‘high-fidelity intelligence’ to stay ahead of developments in the operating environment will also require electrical power.

Cockcroft highlights the fact that all the new technologies emerging today – countermeasures, situational awareness tools, smart sensors, and more – are dependent on electrical energy, but electrical technologies are being ‘shoehorned’ into pre-existing infrastructure.

“We must stop weighing down people and platforms with more and more batteries,” Cockcroft argues. “And we must stop focusing on the power demands of individual capabilities, instead taking a macro ‘system-of-systems’ view to tackle the issue at an infrastructure level.”



Cockcroft argues we need to standardise system power requirements to meet future electrical power needs.

TYRA CAMPBELL

Cockcroft puts forward a number of ideas to get our electrical infrastructure up to speed with forthcoming technologies. First, we need to match power generation to demand by forecasting electrical energy requirements on operations. We also need to get better at moving electrical power to where it needs to be using multi-stage power systems.

These ideas also address cultural issues. Cockcroft argues the need to standardise system power requirements, adopt a more flexible approach to procurement, adopt a culture of energy saving, and continuously search for areas to improve.

"The success or failure of electrical technologies in defence will depend on the quality of the infrastructure behind them," Cockcroft concludes. "While power provision may not grab headlines like laser weapons or robotic systems, governments and industry must commit adequate money, time and resources to research and development projects that support the creation of that infrastructure.

"If they do not, the battle-winning potential of their headline-grabbing technologies will never be fully realised."

## Safran outlines research priorities

Ewen Levick | Sydney

**Safran Electronics & Defence Australasia (SEDA) has outlined its research priorities to a number of academics at the University of Technology, Sydney as part of a national roadshow aimed at increasing the company's collaboration with Australian academics.**

Safran is actively investing in research and development in Australia. The Safran Group has a global R&D spend of €1.5 billion (A\$2.52 billion) annually. The French company recently [relocated its Australian subsidiary](#) to a new site in Botany, close to Sydney Airport, after it outgrew the capacity of an existing site at Bankstown.



The bulk of Safran's research priorities are into technologies that can operate in a space-denied environment.

EWEN LEVICK



The new facility houses testing and maintenance equipment in 700 square metres of workrooms, including a clean room, a laser test room, climate testing systems, as well as avionics, inertial navigation and optronic test benches. The suite of equipment is also capable of servicing all Safran optronics systems.

In Australia, the company is responsible for optronics, avionics systems and support services on the ADF's Tiger ARH and MRH-90 helicopters, inertial navigation for the Huon class minehunters and Collins class submarines, as well as Infrared Search and Track systems for the RAN and RNZN. The company is currently pursuing opportunities in Australia for its optronic and navigation systems on major programs including the Attack class submarines.

**“Safran is now seeking to cooperate with academics on technologies at the proof of concept stage or higher”**

Safran is now seeking to collaborate with academics on research of emerging technologies in a number of key areas that highlight operational challenges the ADF will face over the next decade. These include multi-function sensors and sensor fusion technologies to meet the growing demand from information-hungry Next Gen platforms, autonomous systems research relevant to both manned and unmanned platforms, 'collaborative robots' (cobots) and exoskeletons.

Safran R&D Program Manager Andrew Hunt explained during the briefing that the main challenge regarding collaborative autonomy is moving beyond autonomous mobility for a single platform to autonomous agent architectures and artificial intelligence that can support collaborative operational action. In other words, collaboration between different classes of robot and also between soldiers and robots. Problems of environmental perception in complex or hostile environments, prediction, optimisation and manoeuvre control problems are still challenges, but good headway has already been made.

A number of avenues for research centre on making use of the vision systems Safran supplies for helicopters to create a higher level of understanding of the proximate environment (free space, obstacles, etc) and with this, enable



Safran provides optronics, avionics systems and support services for the ADF's MRH-90 helicopters.

DEFENCE

enhanced manoeuvrability during degraded visual conditions (at night, during dust storms, etc) or terrain aided navigation for operation in GNSS denied environments. Finally, by extension there is potential for automation of collaborative or emergency manoeuvres.

Many of Safran's research priorities are into technologies that can operate in operational scenarios with little to no access to global navigation satellite systems (GNSS). Shorter term options could include hybrid vision and inertial based navigation systems to provide position, navigation and timing capabilities. Longer term options might include the use of quantum technology.

According to Hunt, the overarching theme for Safran's research in Australia is about enabling autonomy and intelligence in everything, from sensor to system.

## Bellinger rises again

Ewen Levick | Sydney

**Sydney-based company Bellinger Instruments closed on 30 June this year after 52 years of operations, but has swiftly risen once more as Bellinger Systems.**

The old company, founded by former scientific instrument maker at RAAF Wagga Wagga John Stewart McAlpine, specialised in maintaining equipment ranging from gyros to ECM systems such as Navy's AN/SLO32, as well as tactical data links, IFF systems, radios, barometers and fire control systems.

Over that time, Bellinger Instruments was responsible for Navy's Seahawk helicopter night vision upgrades; Link-16 design and installation for the Anzac-class frigates; design, supply and installation of Wide Area Differential GPS systems on all mine warfare and hydrographic vessels; and the design and build of portable Link-22 tactical data link systems providing beyond line-of-sight communications.

"Bellinger Instruments was owned by a single man who created and supported [the company] for over 52 years," General Manager David Hartshorne said to *ADM*. "During that time Bellinger Instruments became a vital cog in the support



Bellinger Systems will focus on Link-22 work as the technology is rolled out, including across RAAF's E-7A Wedgetail fleet. DEFENCE

of defence equipment and systems that would otherwise have been replaced due to a lack of OEM support.

"The final decision [to close] was made due to a downturn in work, making the company's business plan unviable."

**"The first year turnover is already exceeding initial projections and we expect rapid growth"**

According to Hartshorne, Bellinger Systems will retain most of the test equipment, IT systems, IP (including databases and historic data), documentation, staff and facilities from the old company, but will now focus on electronics and communications.

"Probably the largest challenge has been the re-instatement of all of the agreements and alliances," Hartshorne said. "These are all being addressed and the usual financial issues such as cash-flow and invoicing are being carefully managed."

The company currently has a number of communication projects running in relation to Link-22, and the re-brand has evidently brought financial success.

"The first year turnover is already exceeding initial projections and we expect rapid growth into the future," Hartshorne said. "Currently we have 15 permanent and enthusiastic staff that have remained with the new company and we are looking at imminent expansion."

"The new business plan is focussed toward sustained growth over the coming years and the excellent team we have in place is committed to a very bright future."

## Government looks to pick up more F-35 work

**Minister for Defence Industry Melissa Price is travelling to the US to seek more work in the global F-35 Joint Strike Fighter program following Turkey's ejection.**

The US [officially jettisoned Turkey](#) from the global F-35 program after the country received shipments of Russia's S-400 air defence system.

In a statement, White House spokeswoman Stephanie Grisham said that the fighter jet 'cannot co-exist' with the Russian technology for fears that data about the jets' radar profile will make its way back to Russia.

"Unfortunately, Turkey's decision to purchase Russian S-400 air defence systems renders its continued involvement with the F-35 impossible. The F-35 cannot coexist with a Russian intelligence collection platform that will be used to learn about its advanced capabilities," Grisham said.

Turkish companies made 937 parts for each F-35. The Australian government has spotted an opportunity and is keen to highlight Australia's suitability and capability to take on additional work being reallocated from these suppliers. Defence has identified 11 companies as having the capability to take on some of the work Turkish suppliers were undertaking.

Minister Price will meet with Under Secretary of Defence for Acquisition and Sustainment Ellen Lord to discuss current and future Australian industry involvement in F-35 production.

**"Defence has identified 11 companies as having the capability to take on some of the work"**





50 Australian businesses currently supply parts fitted to every Joint Strike Fighter.

DEFENCE

In a statement, Minister Price said she intends to 'advocate for further industrial base integration by highlighting what Australian defence industry has to offer to new and existing programs, like the F-35 and Triton.'

Fifty Australian businesses currently supply parts fitted to every JSF globally. By 2023, Australian industry production work will exceed \$2 billion.

Minister Price will also meet with Lockheed Martin and Northrop Grumman representatives to see the integration of Australian manufactured components in US supply chains, and discuss options for more sustainment of current maritime platforms to support operational readiness in the region.

## ASC provides sub design services to Saab

**ASC is delivering specialist submarine design services to the Saab Group, following the completion of a successful pilot program in Adelaide.**

The engineering design services are in support of the two A26 submarines being designed and built for the Royal Swedish Navy by Saab Kockums.

ASC previously signed separate agreements with Jeumont and Saab on submarine design and service delivery for the Collins class, the Future Submarines, and Sweden's A26 class submarines.

Jeumont Electric is the supplier of the main motors for the Collins Class fleet and the preferred supplier of new generation permanent magnet motors for the Future Submarine program.

The Saab agreement was for the now-completed pilot program and subsequent services across a range of projects.

ASC Chief Executive Stuart Whiley said the engagement leveraged ASC's expertise as the design authority, builder and sustainer for the Collins Class submarine fleet.





The engineering design services are in support of the two A26 submarines being built for Sweden by Saab Kockums.

SAAB

"The continuation of the Saab engagement allows our highly skilled designers to leverage their experience and know-how on a new platform, offering stimulating and challenging work in the years to come," Whiley said.

"The Collins Class was designed by Saab Kockums of Sweden in the 1980s – 1990s, and shares a pedigree with Sweden's respected, conventionally powered submarines, also designed by Saab Kockums.

"The Saab engagement recognises ASC's up-to-date design-to-build and sustain capability. We are delighted to offer this varied and challenging work to our people and again be engaged with Saab, this time supporting the Swedish A26 project."

"ASC's continuing work on the A26 submarine project underscores Saab's dedication to Australia and Australian industry's capacity to support our world-wide supply chain," Managing Director of Saab Australia, Andy Keough, said.

**"We are delighted to offer this varied and challenging work to our people"**

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



1. [Boeing Defence Australia chief Darren Edwards passes away](#)
2. [Electric VTOL is a game changer](#)
3. [Rheinmetall and Hanwha shortlisted for Land 400 Phase 3](#)
4. [The reasons behind the Land 400 Phase 3 decision](#)
5. [First Boxer unveiled in Brisbane](#)

# Parish Engineering marks 75 years

**When Parish Engineering was established in Moorabbin, Victoria 75 years ago, WWII was still raging across Europe and reaching down into the South Pacific.**

Parish Engineering was contracted by the Australian government to supply the allies with vital munitions components.

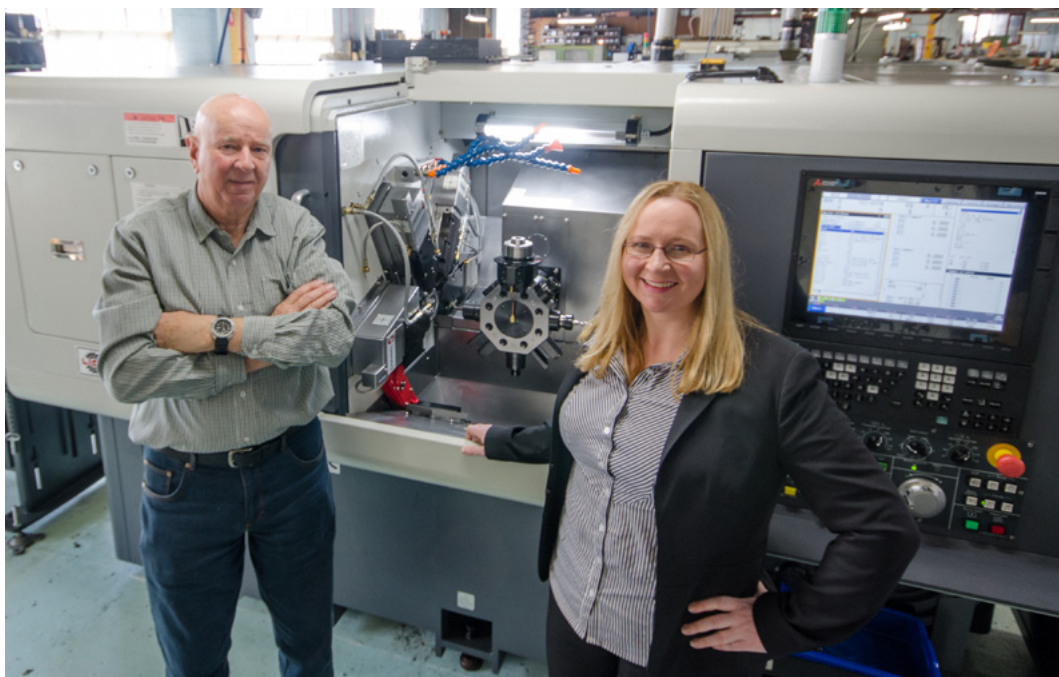
The company began in 1932 as a family-owned business, but the demands of the war saw it expand into a proprietary limited company in 1944 and grow from eight employees in 1940 to over 40 six years later. After the war, the company was an integral part of Australia's manufacturing boom, becoming a regional supplier of component parts to Holden.

In 1968 Bill Parish decided to sell the company. Graeme Sinclair was employed as an engineer at Parish and with a partner purchased the company in 1980. Graeme's daughter Nicole Sinclair joined the business as an engineer in 2006, and Graeme's business partner sold his shares to the Sinclair family in 2008, with Nicole now CEO.

With the manufacturing sector currently employing close to a million people in Australia, rumours of the death of Australian manufacturing have been greatly exaggerated, Parish CEO Nicole Sinclair suggests.

"When automotive manufacturers like Holden and Toyota closed their facilities in 2017, it seemed to many people like the last gasp of manufacturing in Australia," Sinclair said. "It looked like everything was being offshored, and that the age of good jobs and certainty was over, but that's not the case.

"The reality is that not only did Australian manufacturing survive, it has changed, as have global production chains. Today, manufacturing is returning to industrialised nations like Australia."



CEO Nicole Sinclair suggests rumours of the death of Australian manufacturing are exaggerated.

PARISH ENGINEERING

With global wages rising and the increasingly sophisticated nature of modern manufacturing, manufacturers are looking for nations to have an advanced IT infrastructure, highly educated workers to operate the machinery, and to produce goods in close access to the markets in which those goods are sold.

As part of that manufacturing resurgence, Parish Engineering is expanding too, purchasing truck air brake fittings manufacturer Longworth Engineering in 2016. The company now supplies parts to Thales' munitions sector and to Mackay Consolidated Industries.

And there are plans afoot for the company to invest heavily in staff and machines.

"We want to ensure the company looks to the future with the same innovative spirit and enthusiasm that Graeme Sinclair and Bill Parish have demonstrated over the past 75 years in the industry," Sinclair said. "And that's very much in line with the vibrant future for Australian manufacturing more broadly.

"Australian manufacturing is already world leading in many areas, such as aeronautics and advanced medical technology. What we need people to understand is how vibrant that future is, and how much better it can be with government support in education and training, investment, research and development, and trade opportunities."

**"Australian manufacturing is already world leading in many areas"**

## CONTACT DETAILS

### MANAGING EDITOR

Katherine Ziesing  
T: 0419 014 308

[katherineziesing@yaffa.com.au](mailto:katherineziesing@yaffa.com.au)

### ONLINE EDITOR

Ewen Levick  
T: 02 9213 8249

[ewenlevick@yaffa.com.au](mailto:ewenlevick@yaffa.com.au)

### ASSOCIATE PUBLISHER

Kylie Leonard  
T: 07 3087 5101

[kylieleonard@yaffa.com.au](mailto:kylieleonard@yaffa.com.au)

### ART DIRECTOR

Ana Heraud

### SUBSCRIPTIONS

Martin Phillpott  
Toll Free 1800 807 760

[martinphillpott@yaffa.com.au](mailto:martinphillpott@yaffa.com.au)

### CONTRIBUTORS

Julian Kerr  
T: 0418 635 823

[jhrhkerr@bigpond.net.au](mailto:jhrhkerr@bigpond.net.au)

Nigel Pittaway

M: 0418596131

[cnpittaway@bigpond.com](mailto:cnpittaway@bigpond.com)

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Yaffa Media Pty Ltd  
17-21 Bellevue St,  
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T: 02 9281 2333

[www.greatmagazines.com.au](http://www.greatmagazines.com.au)

### ADM CANBERRA OFFICE

PO Box 4783, Kingston ACT 2604  
T: 02 6203 9535

### ADM BRISBANE OFFICE

PO Box 9165,  
Wynnum Plaza Qld 4178  
T: 07 3348 6966

[www.australiandefence.com.au](http://www.australiandefence.com.au)

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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

### 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 C.E.W. Bean Oration and Dinner

**Date** 15 October

**Location** Australian War Memorial

**Website** [www.trybooking.com/book/sessions?eid=528447&ses=1570182](http://www.trybooking.com/book/sessions?eid=528447&ses=1570182)

Mr Rodney Cavalier Chair of the Foundation, and Members of the Board invite you and your guest to the 2019 C.E.W. Bean Oration and Dinner. This year's oration, "Why it's crucial to have media on the battlefield" will be delivered by General the Honourable Sir Peter Cosgrove.

### ITAR/EAR/AU Export Control Awareness – Brisbane

**Date** 15 October, 2019

**Location** Brisbane

**Website** [www.stickytickets.com.au](http://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](http://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?

## 70th International Astronautical Congress

**Date:** 21 – 25 October 2019

**Location:** Washington D.C., USA

**Website:** <http://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](http://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](mailto: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.

## AIDN QLD Young Achiever Award

**Date:** 31 October 2019

**Location:** TBC

**Website:** [info@aidnqld.com.au](mailto: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.

## 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](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.

## EW Australia 2019 Canberra Symposium

**Date:** 06 November 2019

**Location:** QT Hotel, Canberra

**Website:** [aomevents.eventsair.com/aoc-convention-2019/aoc-symposium](http://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](http://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.

## Defence Ipswich Supply Chain Opportunities Symposium 2019

**Date:** 08 November 2019

**Location:** Ipswich

**Website:** [live.eventtia.com/en/defenceipswichsymposium2019/Home](http://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](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).

## Defence Seaworthiness Symposium

**Date** 21-22 November

**Location** ADFA, Canberra

**Website** [www.defence.gov.au/seaworthiness/Contact\\_Symposium.asp](http://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.

## 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.

## 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](http://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](http://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](http://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](http://iccpm.com/events/certificate-iv-canberra-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.

## CIVSEC 2020

**Date** 24-26 April 2020

**Location** Melbourne Convention and Exhibition Centre

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