

ADM

AUSTRALIAN DEFENCE MAGAZINE

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DEFENCE WEEK PREMIUM EDITION



Australian and US warships in the Philippine Sea.

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US STRATEGY IN ASIA IS UNLIKELY TO CHANGE

At the time of writing, there is not yet a clear outcome in the US presidential election. So far, Biden appears to be ahead but the race is close in key battleground states.

EWEN LEVICK | SYDNEY

The pre-election polls were clearly in Joe Biden's favour. The Economist gave him a 97 per cent chance of winning the electoral college and a 99 per cent chance of winning the popular vote. The FiveThirtyEight website gave him an 89 per cent chance in the electoral college and a similar chance on the popular vote.

But no matter who the winner is, experts and pundits seem to agree that US strategy in Asia, and by extension Washington's relationship with Canberra, are unlikely to change significantly.

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Writing in the ASPI Strategist, Michael Shoebridge argues that Australia's impact on global discussions - such as 5G providers and international responses to the pandemic - does not depend on US leadership.

"Superpowers can obviously walk and chew gum, but when there's so much domestic gum to chew, ideas and policy directions will probably need to be developed by others and marketed to Washington," Shoebridge wrote. "That's good news for Australia, because it's what Australian political leaders have already been doing, with this year's AUSMIN meeting being a fine example."

**"THE RESULT OF THE UPCOMING
US PRESIDENTIAL ELECTION IS
INCONSEQUENTIAL FOR AUSTRALIA"**

Shoebridge also notes that the two largest issues of our time - climate change and the rise of China - do not depend on who occupies the White House. China has committed to being carbon neutral by 2060, but in reality is still enacting policies that are likely to accelerate climate change. In addition, Beijing will also continue to shift the world order in ways that can't be reduced to its competition with the US: "Telling

ourselves that the China challenge is a problem for the US, and that we all must simply wait to see how we play into it, is a conceptual error that's also fundamentally disempowering."

The US Studies Centre over at the University of Sydney largely agrees with this assessment.

"Across the US Studies Centre, there is consensus that no matter who wins the 2020 election, this contest between the US and China will (a) continue to be the most significant driver of US foreign policy for the foreseeable future, (b) be the single most important tension in global affairs, (c) continue to grow in scope, encompassing trade and investment, research and development and elements of civil society," Professor Simon Jackman writes.

Sam Roggeveen of the Lowy Institute, originally writing in the AFR, is blunt. "The result of the upcoming US presidential election is inconsequential for Australia," he wrote. "It does not matter who wins."

Despite the gulf between the personalities of Biden and Trump, Roggeveen argues that the US is no longer capable of summoning the effort to contain China.

"The problem is that whoever wins this US election will inherit a political system and a nation that have no appetite for a contest on the scale that would be required to contain China's rise," Roggeveen wrote. "Australia faces a future in which maintaining our security will increasingly be a job for us alone."

So to sum up: no matter who emerges as a winner in the time between me writing this article and you reading it, the strategic outlook for Defence (and therefore defence industry) will remain largely unchanged.

Yet the question of what happens if there is no winner - or worse, if the transfer of power is not peaceful - is entirely up in the air.

MOON TO MARS GRANTS NOW OPEN

The second program in the government's \$150 million Moon to Mars initiative is now open.

The Australian Moon to Mars initiative forms an important element of Australia's space strategy and supports Australian organisations to join NASA's inspirational endeavour to go forward to the Moon and on to Mars.

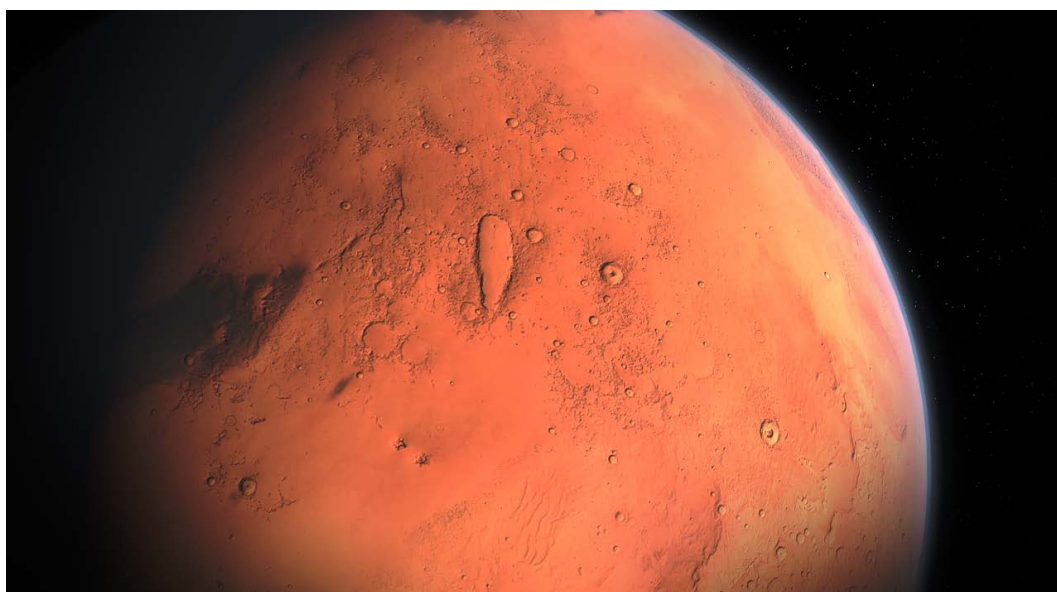
NASA's Artemis program aims to see 'the first woman and the next man' back on the Moon by 2024 with joint commercial missions in place by 2028. The program will

use a powerful new rocket and spacecraft to take astronauts on a five-day commute to the 'Gateway', a spaceship the size of a studio apartment orbiting the Moon. Astronauts will use the Gateway as a base for manned and unmanned lunar exploration, but will not live there year-round (unlike the International Space Station).

**"THE AIM IS TO DEVELOP A LOCAL
SPACE ECONOMY"**

These grants support Australian businesses and researchers by assisting industry and research institutions to conduct feasibility activities for space projects. The aim is to develop a local space economy that the government hopes will be worth \$12 billion by 2030.

The \$3.7 million Demonstrator Feasibility grants provide opportunities for businesses and researchers to scope out projects which have the potential to operate or support operations in space. This includes activities related to NASA's Moon to Mars space exploration endeavours.



The Moon to Mars initiative is Australia's contribution to the Artemis program.

PIXABAY

The aim of the Demonstrator program is to support a range of commercially focused demonstrator and pilot projects that showcase investment-ready Australian capabilities to the world.

The Demonstrator Feasibility grants are the first element of the Demonstrator program.

More information is available through the business.gov.au website.

BOEING PARTNERS WITH ICCPM

Boeing Defence Australia has partnered with ICCPM, an international peak body supporting complex project delivery.

ICCPM is also custodian of the Complex Project Leadership Competency Standards on behalf of the Department of Defence.

The partnership will help Boeing provide their workforce with opportunities to develop the specialised knowledge needed to successfully lead complex projects and programs.

"ICCPM offers the company's program managers a valuable alternate source of training that will help keep them at the forefront of complex program management

best practice," BDA's senior manager of Program Management & Business Improvement, Chris Dillon said. "Boeing is undertaking some of the most complex and challenging programs for the ADF, so they must be equipped with the skills and knowledge to execute and deliver as promised.

"WE LOOK FORWARD TO WORKING TOGETHER TO PROMOTE COMPLEX PROJECT LEADERSHIP"



Sergeant Josh Keith from No. 81 Wing Combined Workshops and Samuel Bussing from Boeing Defence Australia conduct a final inspection on an F/A-18 Classic Hornet.

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“The ICCPM training programs are aligned to the defence industry and focus on the complexity of the work we do. Our partnership will help us to continue developing and growing our Program Management capability, in partnership with our customers, so our solutions address their complex challenges and evolving operating environments.”

“We are delighted to partner with such an innovative and vital Defence Industry organisation in Australia,” ICCPM CEO Collin Smith said. “We look forward to working together to promote Complex Project Leadership (CPL) as an essential capability in the modern project environment.”

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HIGH-TECH DUMMIES A TEST FOR MINE CLEARANCE GROUP

Dummy mines fitted with sensors that react to detection attempts ensured a clearance exercise in Jervis Bay, NSW, was close to reality.

LT RYAN ZERBE | DEFENCE

Minehunters HMA Ships *Gascoyne*, *Huon* and *Yarra* were challenged with securing the bay after a simulated force had littered the area with different types of underwater mines and was operating a militia capable of surface strikes using small boats.

More than 150 personnel were involved Exercise Cuttlefish 2020 held earlier this month.

Cuttlefish was under the command of Navy's Mine Warfare and Clearance Diving Task Group (MCDTG), which is a deployable group comprising units specialising in mine warfare, clearance diving, hydrography, meteorology and a patrol force.

The MCDTG operated from a mobile headquarters ashore at HMAS Albatross.

Commander of the MCDTG Commander Richard Brickacek said the certification event tested his staff's ability to plan for, and sustain, mine-warfare operations in an evolving scenario.

"THE MCDTG IS A SIGNIFICANT PART OF OUR MARITIME WARFARE CAPABILITY"



Minehunter HMAS Yarra in Jervis Bay during Exercise Cuttlefish 2020.

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MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU

1. [EOS opens USA factory in Huntsville](#)
2. [Queensland extends emergency services contract with Babcock](#)
3. [Northern Australia Defence Summit highlights](#)
4. [Kongsberg places RF sensor order with BAE Systems Australia](#)
5. [Women in Defence Awards winners](#)

"Mine warfare poses significant potential risk to commercial shipping and safe sea lanes and this exercise has been an effective way to test Navy's readiness in this area," he said.

"The minehunters carried out mine counter-measure operations and defended themselves against fast-attack craft armed with heavy and light machine guns, all under the tactical command of the MCDTG.

"Minehunters often work together and a big part of doing this effectively depends on good communication and command and control to synchronise their individual capabilities, needs and tasks to achieve the mission."

Exercise director Captain Pete Bartlett said the exercise tested the MCDTG's readiness to command and control mine-warfare operations.

"The task group certification is an important activity because it's at a larger scale than normal and presents a greater challenge for the MCDTG staff who need to prove their ability to manage a battle space in real time," Captain Bartlett said.

"Conducting mine hunting across three ships using a combination of remotely operated vehicles and diving teams, and exercising force protection, is a robust test for the MCDTG's command and control.

"Along with the maritime and amphibious task groups, which are responsible for blue-water sea combat and littoral combat respectively, the MCDTG is a significant part of our maritime warfare capability and needs to be rigorously tested through scenarios like the one presented in Exercise Cuttlefish."

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Defence is researching ways to facilitate trust between human and machine.

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ADF LOOKS TO BUILD TRUST IN AUTONOMOUS SYSTEMS

As the role of robotic and autonomous systems becomes more important within the ADF, building trust in autonomous systems is critical to the technology's uptake .

Army released its Robotic and Autonomous systems strategy in 2018, RAAF has sought to accelerate the use of AI and autonomy through Plan Jericho and the Navy is pursuing multiple acquisition programs that rely on autonomy.

Defence scientist Robert Hunjet said the promise of autonomous systems has been discussed for decades.

"Teleoperation - the concept of a remote-controlled vehicle, drone or tank - is not representative of autonomy as the vehicle has no ability to make its own decisions or task itself," Dr Hunjet said.

In order to make these machines truly smart enough, Defence is undertaking research in areas including contextual awareness, active perception, path planning, multi-agent system control and swarming.

Improving a robot's ability to work intelligently requires more than investment in machine learning. It is also about enabling systems to work together.

"With recent advances in drone technology, the concept of swarming has attracted a lot of interest," Dr Hunjet said. "We observe swarming in nature, for example in the way birds flock and fish school. The individuals interact only with others in close

proximity and the cascading effect of these local interactions provides a global behaviour through the swarm as a whole.

“Within robotics, we can emulate the creation of global behaviours in a similar fashion through local interactions with neighbouring systems, offering a potential scalable approach to generate mass with minimal computational complexity or communications overheads.”

**“INTERACTION BETWEEN ENTITIES
NO DOUBT PLAYS A LARGE PART IN
HUMAN TRUST”**

In order to be considered robust, autonomous systems must be able to operate in difficult or contested situations. Algorithms must be stable in the face of unexpected system inputs.

Defence is also investigating approaches that would allow robotic systems to share their position and orientation information with others that would then fuse these estimates with their own

data, enabling enhanced positioning accuracy.

Dr Hunjet said building trust in autonomous systems was critical to the technology's uptake.

“Interaction between entities no doubt plays a large part in human trust. As such, the interface between a human operator and a machine should be designed to assist the human and reduce cognitive load,” he said.

Research is aiming to address how AI might be able to explain its decisions to a human operator in a manner that takes into account the operator's state. That is, the machine would seek to provide an appropriate level of detail based on its understanding of the operator's current cognitive load.

Trust is also gained through observation of repeated good performance. To ensure its technology works effectively and as expected, Defence is conducting research into verifiable autonomy.

The concept of verification from the perspective of test and evaluation is also something to consider. With many AI-based systems being specifically designed to learn and evolve, they do not necessarily behave in the same manner when presented with the identical inputs, such as sensor information. In such systems, traditional regression-based approaches to testing are not appropriate.

Future testing processes may need to be more akin to the issuance of a driver's licence, where a curriculum is designed and competency assessed, allowing for future improvement while performing a task. This concept is known as machine education.

Defence funds collaboration with Australian academic institutions and international partner organisations through its trusted autonomous systems strategic research initiative.

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TONGA RECEIVES SECOND PATROL BOAT

The Kingdom of Tonga has received their second Australian-built Guardian-class Patrol Boat at a ceremony in Henderson, WA.

This is the eighth Guardian-class vessel to be delivered under the program.

The High Commissioner to Australia Princess Angelika Lātūfipeka Tuku'aho and His Majesty's Armed Forces' Lieutenant Colonel Tevita Siu Fifita accepted the VOA *Ngahau Siliva* on behalf of Tonga.

"Australia and Tonga have long worked together in pursuit of our shared goals for sovereignty, security and prosperity in the Pacific," Minister for Defence Linda Reynolds said. "Tonga's second Guardian-class Patrol Boat is a considerable step up in Tonga's maritime capability, and I have no doubt the vessel will admirably serve

Tonga and the Pacific region in meeting their maritime security goals.

**"TONGA'S SECOND GUARDIAN-CLASS
PATROL BOAT IS A CONSIDERABLE
STEP UP IN TONGA'S MARITIME
CAPABILITY"**

"Guardian-class Patrol Boats are playing a key role in supporting the Pacific response to complex COVID-19 related economic and security challenges," Assistant Defence Minister Alex Hawke said. "The VOA *Ngahau Siliva* will



Minister for Defence Industry Melissa Price at the handover.

DEFENCE

protect Tonga's maritime resources, and reduce the costs of illegal activities on both the economy and society."

Minister for Defence Industry Melissa Price said she was pleased to attend the ceremony and see how Australia's defence industry and Austal Ships are playing a key role in the Pacific Maritime Security Program.

"Australia is proud to play a part in the next generation of Pacific maritime capability through the delivery of Australian-built vessels," Minister Price said.

The VOA *Ngahau Siliva* is the second Guardian-class Patrol Boat for Tonga and the eighth for the Pacific.

PEOPLE ON THE MOVE

BAE Systems Australia has appointed Greg Laxton as Director, Maritime Sustainment. Greg has had a varied 32-year naval career, leading organisations through customer focused transformations that had a significant impact on improving program delivery. As Director, Maritime Sustainment, he will lead a team of more than 900, responsible for sustainment on many of the Royal Australia Navy front-line complex surface ship assets.

Professor Nelson Tansu, a US-based engineering scientist and inventor, has been appointed as the new Head of the School of Electrical and Electronic Engineering (EEE) and Professor in Quantum Electronics at the University of Adelaide. Professor Tansu's research focus is on the materials, devices, computational sciences, and integrated technologies based on semiconductors. His research has impacted communications, sustainability, solid-state lighting, power electronics, biomedical sciences, and quantum materials.

Nova Group has appointed Jim McDowell as new Group CEO, effective Monday, 30 November. Jim has 30 years' experience in both the private and public sectors. Most recently, Jim was SA's top public servant in the role of Chief Executive for the Department of the Premier and Cabinet.



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FORTHCOMING EVENTS

ADM EVENTS

More detail on ADM Events can be found on our [dedicated website](#).

- [ADM Space Summit](#) – 2 December 2020, Hyatt Hotel | Canberra and online
- [ADM Congress](#) – 3 February 2021, Hyatt Hotel | Canberra and Online
- [ADM Defence Estate and Base Services Summit](#) – 23 February 2021, Hotel Realm | Canberra and Online

ASDEFCON TD /IP ONLINE COURSES

DATE Various
LOCATION Online
WEBSITE defence@majortraining.com.au

Defence have begun online delivery of its short course on the Technical Data / Intellectual Property (TD/IP) clauses in its ASDEFCON suite of templates. These clauses provide far more flexibility and scope to deal with TD/IP issues than the previous ones. Defence will offer a number of spaces to Defence Industry on each online course to ensure the new TD/IP regime is successfully adopted by industry. These positions are centrally funded by Defence.

ONLINE COMPLEX PROJECT SIMULATION

DATE 13 November 2020
LOCATION Online
WEBSITE <https://iccpm.com/events/simulation-november-2020/>

The next delivery for our Online Complex Project Simulation will be on the 13th November 2020. The Spatium Simulation provides a realistic environment for you to put your complex project management skills to the test and work with project leaders from different industries.



10TH BIENNIAL SIA CONFERENCE 2020

DATE: 17-18 November 2020
LOCATION Hotel Realm, Canberra and online
WEBSITE submarineinstitute.com/sia-conferences

The 10th Biennial SIA Conference will be held 17-18 November 2020 at the Hotel Realm, Canberra. This year's theme is 'Submarine Build and Sustainment Programs: The Strategic Nature of Reliable, Sovereign Supply Chains'. The Call for Presentations is available on the website.

2021**43RD COSPAR SCIENTIFIC ASSEMBLY**

DATE 28 Jan-4 Feb 2021
LOCATION International Convention Centre Sydney
WEBSITE 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 workshopping with space industry – and inspire the next generation of scientists and engineers.

LOCATE21

DATE 30 March – 1 April 2021 (rescheduled dates)
LOCATION Brisbane Convention and Exhibition Centre
WEBSITE locateconference.com/2021

Due to COVID-19, Locate20 has been rescheduled for Locate21 happening in Brisbane March 30 – 1 April 2021. The event will focus on how geospatial technologies are intersecting with business, Government and defence to address national challenges. It's Australia's premier spatial conference with the inclusion of over 50 inspiring thought-leaders including speakers from government, academia, the defence force, technology, mining, natural resources and more. We believe this conference is of interest to defence personnel.

LAND FORCES 2021

DATE June 1-3 2021
LOCATION Brisbane Convention Centre
WEBSITE 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.

ROTORTECH 2021

DATE 15-17 June 2021
LOCATION Royal International Convention Centre, Brisbane
WEBSITE rotortech.com.au

The new dates for Rotortech will be Tuesday 15 June to Thursday 17 June 2021. The venue, the Royal International Convention Centre in Brisbane, is unchanged. Rotortech is the region's premier helicopter and unmanned flight systems showcase and forum, featuring more than 100 participating companies and key speakers from industry and government. We believe that deferring Rotortech to its new June 2021 dates will achieve this goal by moving the event to a time where the COVID situation will have improved and the current uncertainties will have passed.

PROJECT AND PROGRAM MANAGEMENT SYMPOSIUM

DATE 10 – 12 August 2021 (rescheduled dates)
LOCATION Canberra Rex Hotel
WEBSITE pgcsymposium.org.au

Foresight is more valuable than hindsight! PGCS 2020 is designed to help project and program managers, and their sponsors and senior managers, develop the skills and understanding needed to deliver projects success in the next decade. Creating the organisational capability needed to underpin the consistent delivery of successful projects in the 2020's starts at the top. Now in its 8th year, PGCS 2020 will focus on ways to build the foundations needed to create project and program success

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AVALON 2021**DATE** 23-28 November 2021**LOCATION** Avalon Airport

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.

2022**INDO PACIFIC 2022****DATE** 12 May 2022**LOCATION** ICC Sydney**WEBSITE** pacificexpo.com.au

INDO PACIFIC, the biennial International Maritime Exposition, will combine an extensive exhibition presence, a comprehensive conference program and a schedule of networking and promotional opportunities. It will be the 12th iteration of this internationally renowned event, and will be a critical link event for Defence, government and industry as Australia defines how it will invest \$90 billion on new ships, submarines and their systems and support.

VARIOUS DATES**NSW DEFENCE INNOVATION NETWORK'S REGIONAL ROAD SHOW****DATE:** Various**LOCATION:** Various**WEBSITE:** defenceinnovationnetwork.com/din-regional-road-show-2019-20

NSW Defence Innovation Network and AIDN will be undertaking a series of small business focused regional forums across NSW. Register to attend and hear about the programs, grants, opportunities and services the NSW Defence Innovation Network (DIN) provides to the small business community across NSW. We encourage small businesses to engage with us and participate in opportunities across our networks, including DIN's seven partner universities, as well as with other state and federal agencies.

ICCPM ONLINE WORKSHOPS

DATE Various
LOCATION Online
WEBSITE iccpm.com/online-workshop-webinars

Designed to support project teams who are experiencing new challenges due to COVID-19 concerns – Learn how to mitigate new risk levels, effectively deploy virtual teams, manage messy problems and more. ICCPM Online Workshops and Webinars provide you with an easily accessible and engaging option to continue your training from anywhere in the world. These options provide you and your team with a conducive learning environment to support your complex project success.

ICCPM ROUNDTABLE WORKSHOPS

DATE Various
LOCATION Various
WEBSITE iccpm.com/2020-rs

ICCPM, with Series Partner QUTeX, is pleased to confirm the upcoming Workshops for the 2020 International Roundtable Series Harnessing Emergence in Complex Projects: Risk, Uncertainty and Opportunity. The International Roundtable Series is an exciting Thought Leadership initiative where senior practitioners and leading academics come together and discuss the Series Theme to produce new insights and practical steps to improve complex project success. Registrations for in-person workshops are strictly limited to comply with COVID-19 venue safety guidelines. Please refer to each event page for more details.

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