

ADM AUSTRALIAN DEFENCE MAGAZINE DEFENCE WEEK PREMIUM EDITION

SERVING THE BUSINESS OF DEFENCE



This year's conference attracted over 300 delegates.

DAVID JONES

Largest ever *ADM* Defence Estate and Base Services Summit held in Canberra

Nigel Pittaway | Canberra

Held once again in Canberra's historic Hyatt hotel, *ADM*'s seventh annual Defence Estate and Base Services Summit on September 19 was the largest to date, attracting in excess of 300 delegates.

The formal and overarching theme for the 2018 event was 'legislation, collaboration and innovation driving the future of the Defence Estate', with other key themes including ABCC compliance, environmental management, indigenous engagement, Defence and industry collaboration, a range of best practice case studies and a look at the future of the ADF's ranges around the country.

Delegates from across the construction, infrastructure and service industries heard from a range of speakers, with recurrent topics discussed including the amount of construction work required at Defence bases across Australia and the

IN THIS ISSUE

Largest ever <i>ADM</i> Defence Estate and Base Services Summit held in Canberra	1
Is the ADF ready to ask difficult questions?	3
What will a military vehicle look like in five years?	5
Ex Kakadu wraps up in the NT	7
L3 expands night vision repair facilities	8
Austal awarded two more US Navy contracts	9
DWS Group appointed as Defence ICT provider	10
Forthcoming Events	12

difficulties of achieving the desired outcomes for Defence during a period of time when the industry is already running hot with a series of multi-billion dollar civil transport infrastructure projects about to kick off.

The welcome address was once again delivered by Deputy Secretary, Estate and Infrastructure Group (E&IG) Steve Grzeskowiak, who noted that there was a lot going on in Defence, with programs to expand training areas, a growing investment program, and new information systems in the pipeline. However, he stressed the importance of maintaining an enduring partnership with industry.

“Defence does not do this alone,” Grzeskowiak said. “We do this with industry (and) we need to keep working together productively and looking at new ways of doing business.”

“We need to keep working together productively and looking at new ways of doing business”

The keynote address was delivered by KPMG partner Brendan Lyon, who canvassed Defence infrastructure’s contribution to the national infrastructure sector, asking where the infrastructure market in Australia was currently sitting, what Defence was contributing to that position, and what future trends will bring to the sector.

The afternoon session kicked off with a presentation from Brigadier Matt Galton, Director General Capital Facilities Infrastructure, who provided delegates with an insight into E&IG’s Local Industry Capability Plan process.

The summit concluded on a serious note with presentations on managing the per- and poly-fluoroalkyl substances (PFAS) issue during construction activities on Defence sites, delivered by Andrew Thomas, National PFAS technical manager for Enviropacific. Luke McLeod, Assistant Secretary PFAS Investigation & Management Branch (PFASIM), wrapped up proceedings with an overview of what the next steps might look like in that space.

A comprehensive view of the 2018 DEBSS will appear in the November issue of *ADM*.

TOP COMMENTS

Fighting to win: The importance of the tank to the ADF in the 21st century

Quite an article. I assume that it rates as another push by the Army for more tanks. That deployed troops require the maximum level of fire support is a no brainer, however, in an Australian context all main battle tanks have the same problem; their enormous logistics tail. For the record, the M1 burns about 2 litres per mile. If the ARA plans to operate a serious number of tanks, it had better develop a seriously better logistics system.

– **Johnno**

The Army has a requirement for three tank squadrons, one squadron per regiment. Add in the School and the number of MBTs, requirement is about 70-72. We currently have 59. We are not going to be fighting a serious armoured battle anywhere by ourselves; we simply don’t have the numbers to do so.

– **Michael Coote**



Accelerated Warfare means asking difficult questions about internal cultures and identities.

DEFENCE

Is the ADF ready to ask difficult questions?

Ewen Levick | Sydney

A recent [article](#) by Tim Harford opened with an interesting question. If the British were the first to introduce the tank onto the battlefield (helped by Australian inventor E L de Mole), why were the Germans the first to use it in blitzkrieg?

As Harford points out, the same question can be asked of many organisations that failed to capitalize on an in-house innovation. Xerox developed the first personal computer – why are they still making photocopiers? Sony made one of the first digital music players – so why did everyone buy iPods? Kodak invented the digital camera – so why did they go bust?

The answer comes from an idea known as [architectural innovation](#), first outlined in 1990 by Rebecca Henderson. Essentially, big organisations struggle to capitalise on innovations that challenge the internal structures and cultures of the organisation itself.

The British Army, for example, was quick to adopt other innovations that emerged at the same time as the tank (machine guns, artillery, and barbed wire). These were potent force multipliers, but they multiplied the existing force. New tools, but the same tasks.

However, if an innovation alters the relationship between parts of the organisation, then change often falters. Unlike the machine gun, the invention of the tank forced the British Army to ask inconvenient questions about the tactical

relationship between cavalry and infantry. Tanks also came up against hostile internal politics caused by a culture built on the traditions of a suddenly obsolete capability (in this case, horses). The technological initiative was handed to the Germans, who had the tough conversations and evolved faster. Defeat is the mother of reform.

The problem here was not tanks; it was how the British military was built, and how different corps traditionally viewed their respective roles on the battlefield. Resultant organisational inertia prevented them from realising the full potential of the technology in front of them.

“The answers that machines devise to the technologies of tomorrow will likely challenge the organisational structures, cultures, and corps identities in the ADF today”

Given today's pace of technological change, it is worth asking what innovations might force the modern ADF to ask similarly difficult questions.

Take the meteoric rise of UAS as an example. These capabilities are arguably iterating faster than almost any others today. Army is currently rolling out [Black Hornet](#) nano UAS down to all combat platoons, the Wasp capability will be in the hands of soldiers by 2020 with a replacement due just seven years later, and the DJI Phantom 4 [roll-out](#) will be completed as soon as November to improve drone literacy across the entire organisation.

But are UAS challenging how Army is built and how it sees itself? Arguably not. Just as the change from muskets to machine guns drastically improved the infantry's fighting ability, UAS are improving the infantry's situational awareness. However, just like the change from muskets to machine guns, the UAS roll-out as it stands is not challenging the core function of the infantry itself, nor its relationship with other combat corps and the wider ADF.

As *ADM* understands, platoon commanders will use Black Hornets to do what they have always done, but better; just as company commanders will use Wasps to do what they have always done, but better. Army's organisational structure is so far unchallenged by the introduction of UAS in the order of battle: New tools, but again, the same tasks.

Perhaps machine learning is a better example. As systems become increasingly autonomous (rather than just unmanned), there will come a point where machines learn and adapt to certain situations faster than humans. Just as rivals build a new innovation, machines themselves will be capable of identifying the relevant weakness of the latest tech and innovating themselves accordingly.

In short, where once new machines only asked the difficult question (as the tank did), soon they will also be able to provide the answer.

Chief of Army LTGEN Rick Burr wants Army to respond to this future - what he calls '[Accelerated Warfare](#)' - by thinking “in creative and unconstrained ways to ensure our warfighting philosophy is appropriate.”

The answers that machines devise to the difficult questions of tomorrow will likely challenge the organisational structures, cultures, and corps identities in the ADF today.

The ADF must ask whether it is creative and unconstrained enough to listen.



Designing for survivability remains top priority.

PAILTON ENGINEERING

What will a military vehicle look like in five years?

Nick Jordan | Pailton Engineering

Warfare is changing, and governments are being forced to adapt their military vehicle fleets to keep up. The next five years will see the rapid adoption and adaptation of intelligent technology and disruptive military applications.

Rise of the ultra-light military vehicle

Some military vehicle manufacturers are receiving orders worth more than [\\$195 million](#) from the US Army. Take the Joint Light Tactical Vehicle (JLTV) program as an example. These vehicles will displace one-third of the Marine Corps high mobility multi-purpose wheeled vehicles (HMMWV) by 2019.

The impressive payload, range and speed of light military vehicles explains why they're generating so much interest. Some of these large vehicle orders are set to have planned operating capability by the end of 2020.

So how is this all possible? Well, engineers are accounting for every milligram of weight during the design and development process — without compromising on performance and survivability. This weight consideration includes the vehicle's steering system, many of which have been crucially made up of light weight and durable parts to ensure the success of the overall design.

Another benefit of some of these light weight military vehicles is adjustable height. Compared with the vehicle's operational height, the fording height can be up to 60 inches higher, making them exceptionally amphibious and able to clear water obstacles. The steering system further complements these efforts, with parts designed for deep water wading and preventing water ingress.

Autonomous supply convoys

According to figures released from the Pentagon, in just 12 months, 60 per cent of US combat casualties were related to convoy resupply. Military leaders have now pledged to make vehicle autonomy a top modernisation priority in a bid to address this issue.

The US Army has recently awarded a [\\$49.7 million](#) contract to Robotic Research LLC. The investment will fund autonomous kit testing on large supply vehicles, with the objective of safely sending unmanned resupply convoys into warzones. The US Army aims to have its first Robotic Combat Vehicles (RCV) technology demonstrator ready by 2021, but how will it meet this deadline?

“New technology could improve the survival rates of personnel and this notion makes the implementation of such technology incredibly important”

According to a [release](#) from Robotic Research, the three-year contract is part of the Expedient Leader Follower program, designed to extend the scope of the Autonomous Ground Resupply program.

The Next Generation Combat Vehicle program will be designed to train soldiers to manage both manned and unmanned combat vehicles, giving commanders the option to send robotic vehicles against the enemy before committing manned combat forces.

If all goes to plan, the early RCVs will help program officials develop future designs of autonomous combat vehicles. This will prove revolutionary and demonstrate the potential of taking humans out of the equation in supply delivery. Will the US Army meet its 2021 goals? Watch this space.

Steering capabilities that change the game

The modernisation of military fleets is crucial, but even the most high-tech vehicles must be designed to withstand the tough terrains of military service — including the steering system.

Unlike off-the-shelf products, vehicle manufacturers are opting for bespoke steering systems, where parts are tested against dynamic loads and extreme environmental fluctuation. This means adverse weather conditions, such as sandstorms, black ice and dust, which challenges even the best military vehicles in the industry, are accounted for during the design process.

Steering components for military vehicles must be designed to take on extreme debris, moisture and temperature variation, without resulting in water ingress or high torque steering. These challenges can wreak havoc on steering systems that are not designed for the correct application.

As governments in the US, UK, and Australia make important decisions to leverage technology for military vehicles, what will always remain at the forefront of this process is designing for survivability.

New technology could improve the survival rates of personnel — whether it is a result of increased agility, autonomous resupply or high-performance steering, and it's this notion that makes the implementation of such technology incredibly important.

Note: Nick Jordan is technical engineering manager at military steering system supplier Pailton Engineering.



The USS *Michael Murphy* in formation with other multinational ships during Exercise Kakadu.

DEFENCE

Ex Kakadu wraps up in the NT

Exercise Kakadu 2018, Australia's largest multilateral maritime and air exercise, has drawn to a close in Darwin after a fortnight of activities aimed at enhancing regional maritime security.

Minister for Defence Christopher Pyne said Kakadu was a military highpoint for Australia as well as a significant diplomatic achievement, with this year's exercise involving 23 ships, 21 aircraft, a submarine and 3,000 personnel from 27 visiting nations.

"The size and success of Kakadu is evidence of Australia's growing reputation as a trusted and capable regional partner," Minister Pyne said.

"The exercise provided a useful opportunity to work with naval forces from across the Indo-Pacific and promote greater levels of regional military cooperation.

"We look forward to working with such a diverse group of nations again in the future."

Participants, split into three task groups, tested their ability to work together in a range of scenarios including live fire, air defence, navigation, refuelling, ship-to-ship communications, as well as humanitarian aid and

disaster relief activities.

Kakadu also saw several South Pacific nations conduct activities focused on patrol boat capabilities designed to increase seamless regional interoperability.

"The attendance of PNG, Cook Islands, Fiji and Timor-Leste was particularly pleasing, providing an opportunity to strengthen patrol boat interoperability and people-to-people links," Minister Pyne said.

"Australia will build on the lessons learned from Kakadu 18 as we continue to enhance our security partnerships across the region."

"Participants, split into three task groups, tested their ability to work together in a range of scenarios"



The upgrades will allow L3 to maintain night vision equipment in Australia.

DEFENCE

L3 expands night vision repair facilities

L3 Oceania, a division of L3 Technologies, is expanding its repair centre facilities in Brisbane to enable increased capability for the sustainment of night vision and other systems in Australia.

The centre in Brisbane is used for maintaining and repairing mission systems in support of the Land 53 and JP 2008 programs. The equipment includes night fighting technology such as night vision goggles and helmet mounts, laser aiming devices and range finders, and satellite communications systems such

as Wideband Terrestrial Terminals, Fleet broadband systems, Broadband Global Area Network (BGAN) systems, and Iridium non-secure satellite telephones.

Equipment requiring repairs or with suspected faults is returned from Defence units, evaluated, repaired and returned into service.

The enhancements to the facility include the transfer of technology and skills training to provide maintenance for a wider range of night fighting and SATCOM equipment, removing the need to return items to the US.

A new indoor SATCOM test range capability incorporating a Quad Band Satellite Simulator (QBSS) has been installed. The QBSS allows testing of the SATCOM terminals in C, X, Ku and Ka bands without the use of a satellite. The first use will be to support the upgrade of the JP 2008 3H Wideband Terrestrial Terminals to include an Advanced Waveform Modem.

L3 is anticipating to grow its existing capabilities in SA and WA. The company is headquartered in Fremantle, WA.

“The enhancements to the facility include maintenance capability for a wider range of night fighting and SATCOM equipment”



Austal has handed over three LCS vessels to the Navy this year.

US NAVY

Austal awarded two more US Navy contracts

Austal has announced that it has been awarded construction contracts by the US Navy to build two additional Independence class Littoral Combat Ships.

These ships will be the sixteenth and seventeenth in the class.

The specific value of each contract is under the congressional cost cap of US\$584 million per ship (roughly A\$1.6 billion for both vessels).

The frigate-sized vessel was originally designed in Henderson, WA. The vessel design has been transferred to Austal USA and build is undertaken in the Austal shipyard based in Mobile, Alabama.

"This latest order from US Navy is a tremendous endorsement of the Austal LCS platform and further evidence of the important role Austal plays in building the US Navy," Austal CEO David Singleton said.

"We continue hearing positive feedback from the fleet commanders on how well our ships match their mission requirements as they operate globally."

Austal has handed over three LCS vessels to the Navy this year.

Construction of LCS 32 is scheduled to begin in 2019 with delivery of LCS 34 expected to occur in mid fiscal year 2023.

"The frigate-sized vessel was originally designed in Henderson, WA"

PEOPLE ON THE MOVE

Boeing Defence Australia has appointed Claire Kluge to lead the company's defence presence in Australia's largest regional economy, the Hunter in NSW. Expanding on her role as F/A-18 Classic Hornet program manager, Kluge will additionally oversee Boeing Defence Australia's operations in the region associated with community engagement, local industry collaboration, education partnerships and employee planning.



DWS Group appointed as Defence ICT provider

DWS Group has been appointed to the new ICT Provider Arrangement (ICTPA) for Defence.

DWS has ongoing work with Defence's Chief Information Officer Group (CIOG), and a history of software development and support for Defence and the ADF.

Defence's selection of DWS follows DWS' recent appointment to the Defence Support Services Panel.

"Being selected for the ICTPA is a key milestone in DWS' continued growth in supporting Defence, and builds on the unique capabilities and knowledge the company has developed over our 15-year partnership with Defence," DWS' head of Government and National Security Patrick Winter said.

DWS has responsibility for the support and enhancement of a number of applications within Defence's information enterprise.

DWS is working to enable the government's digital transformation agenda through investments in robotic process automation (RPA) and data analytics. The company hopes to allow government to improve service delivery and the efficiency of existing IT systems.

"Being selected for the ICTPA is a key milestone in DWS' continued growth"



DWS is working to enable the Government's digital transformation agenda.

GETTY IMAGES

MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU

1. [Fighting to win: The importance of the tank to the ADF in the 21st century](#)
2. [ANAO releases scathing report into Hawkei](#)
3. [Anthony Fraser named as new CASG head](#)
4. [Defence Fuel Transformation program expanded](#)
5. [HMAS ANZAC docks at Henderson for upgrade](#)

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Forthcoming Events

ADM EVENTS

More detail on **ADM** Events can be found on our dedicated website: admevents.com.au

- [ADM Defence in Northern Australia Summit](#) – 10-11 October 2018

ICCPM 2018 Thought Leadership Roundtable

Date September 21, 2018

Location Canberra, Melbourne

Website admin@iccpm.com

The International Centre for Complex Project Management (ICCPM) is delighted to invite you to attend this open discussion workshop which seeks to bring together the collective wisdom of senior leaders from both public and private sector organisations to share perspectives on project leadership.

18th Australian Space Research Conference

Date 24 Sep – 26 Sep, 2018

Location Mantra on View Hotel, Gold Coast

Website <http://www.nssa.com.au/18asrc/>

The 18th Australian Space Research Conference (ASRC), will be held at Gold Coast in Queensland over September 24-26. The ASRC is intended to be the primary annual meeting for Australian space research. It welcomes space scientists, engineers, educators, and workers from across the university, industry and government parts of the space sector, and is not limited to Australian-based research. International participants are most welcome. The scope of the conference includes fundamental and applied research, operational matters, technology, and use of space data and facilities.

Systems Modelling Conference 2018

Date 04 October 2018

Location Adams Auditorium, UNSW Canberra

Website <https://www.unsw.adfa.edu.au/conferences/systems-modelling-conference-2018/home>

Systems thinking and modelling is the science of integration, where every system is conceptualised as a set of inter-related components. Systems thinking and systems modelling provides a problem solving approach that helps us develop the capacity to understand and manage complexity in a systemic way and how to deal with it in multi-stakeholder situations. The Capability Systems Centre in partnership with IEEE runs a one day conference on the use of whole-systems approach to design and manage complex problem in socio-technical and socio-ecological systems. The daylong conference on October 4th will feature showcases on the use of systems thinking and systems modelling in a wide range of areas.

WA Indo-Pacific Defence Conference 2018

Date 30 October 2018

Location Crown Towers – Perth, WA

Website <http://perthusasia.edu.au/defence-forum-2018>

The 2018 Western Australian Indo-Pacific Defence Conference will convene strategic thinkers from the military, industry, academic and government in Perth Australia, home to Australia's largest naval base, a growing defence industry, and a vibrant civic and academic community. This conference will promote the State's defence capability to national and international defence stakeholders. The aim is to provide new and relevant information from high-level speakers to educate and inspire our local industry, and to assist them in becoming world class and globally competitive (export ready).

NZDIA 2018 Forum

Date 30 October – 1 November 2018

Location Central Energy Trust Arena, Palmerston North (NZ)

Website <http://www.nzdiaforum.co.nz/page/528148>

The 2018 NZDIA Forum is our 21st forum. We aim to bring together industry (local, regional and international) and a wider range of government interests than has been achieved previously. The NZDIA forum has, for 20 years, been the most important event on NZ soil for defence and industry to come together. This year we are creating the opportunity and space for a wider cross section of industry: local, Australasian and global with a broader interest in national security encompassing defence, to come together. The speaking and workshop program is coming together as we identify how best to deliver excellent value to our traditional constituency and new attendees.

Veterans Film Festival

Date 1 November – 3 November

Location Palace Electric Theatre, ADFA, Canberra

Website www.veteransfilmfestival.com

The RSL National Veterans Film Festival (VFF) is an annual event, putting the spotlight on stories about veterans, first responders, their families and the influence of warfare on our society. The festival presents a curated program of carefully selected feature films, short films and media art from Australia and around the globe. Our focus is on recent work by talented indie filmmakers. However, within our program we also present mainstream films, retrospectives and provide opportunities to meet with filmmakers and content creators via Q&A's, panels, etc. All films submitted to the official competition will be eligible to compete for the coveted Red Poppy Awards.

SIA Biennial Conference

Date 7-8 November 2018

Location Rex Hotel, Canberra

Website www.submarineinstitute.com/sia-conferences

Join submarine professionals and key decision makers as the ninth in the biennial series of conferences run by the Submarine Institute of Australia returns to Canberra to explore the issues and opportunities emerging from the decision to extend the lives of the Collins class submarines.

ACA Corrosion & Prevention 2018

Date 11-14 November 2018

Location Adelaide Convention Centre

Website <http://www.corrosion.com.au>

As always, the focus of the ACA's annual conference and trade exhibition will be the safe and effective management of the continuing challenge posed by corrosion. More than 400 delegates are expected to attend the conference and extensive exhibition supported of key industry suppliers. Industry experts will deliver five plenary presentations—including the F P Thompson Lecture, which will be delivered by Professor Brian Kinsella, Curtin University, Australia.

MilCIS 2018

Date 13-15 November 2018

Location National Conference Centre, Canberra

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.

TEAM DEFENCE AUSTRALIA EVENTS

- **AUSA 2018** – 8-10 October 2018, Washington DC, US
- **Euronaval 2018** – 23-26 October 2018, Paris, France
- **Indo Defence 2018** – 7-10 November 2018, Jakarta, Indonesia

For more information go to the business.gov.au TDA webpage [here](#). TDA EOIs will open a few months prior to the event – to keep up to date [register](#) for the CDIC newsletter.