



DEFENCE WEEK

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PUBLISHING CONTACTS

ACTING EDITOR

Nigel Pittaway
Tel: 0418 596 131
Email: nigelpittaway@yaffa.com.au
Editor Katherine Ziesing is on maternity leave

SENIOR CORRESPONDENT

Tom Muir,
Tel: 02 6291 0126
Email: tom.muir@homemail.com.au

SENIOR CORRESPONDENT

Julian Kerr,
Email: jhrhkerr@bigpond.net.au

PUBLISHING ASSISTANT

Erin Pittman,
Tel: 02 6203 9535
Email: erinpittman@yaffa.com.au

MANAGING EDITOR

Judy Hinz,
Tel: 07 3348 6966
Email: judyhinz@yaffa.com.au

SUBSCRIPTIONS

Martin Phillpott,
Toll Free 1800 807 760
Email: martinphillpott@yaffa.com.au



Johnston: focus is not on numbers but on the capability

Julian Kerr | Canberra

In a much-anticipated speech to ASPI's "The Submarine Choice" conference, Defence Minister David Johnston confirmed the government's desire, but not its firm decision, to assemble the Collins class replacement in South Australia, while skirting any discussion on submarine numbers and stressing Defence's interest in Japanese technology.

Senator Johnston also quashed recent media speculation that Military-Off-The Shelf (MOTS) and Evolved MOTS options from Europe "and elsewhere" for the Future Submarine had been reinstated in addition to the previous government's decision to pursue the two options of an Evolved Collins or a completely new design.

"Our requirement is very, very different to European or even Japanese requirements," he told media after addressing the conference.

"We're progressing **Option 3 (Evolved Collins)**; there are some issues with that and we'll need to engage a design house, and we need to undertake substantial work on Option 4 (new design) which is ongoing right now. A 2,000 tonne submarine does not fulfil our purpose."



The Minister described **Japan's Soryu submarine** as the platform closest to Australia's requirements and repeated earlier remarks about Australia's interest in the class's drive train.

"There's no other diesel-electric submarine of that size, it's extremely impressive that they can get a submarine of that size – 4,200 tonnes – through the water with diesel-electric power.

"Obviously we must talk with them, and we are, on what they can do to help us going forward with our program. We would be foolish not to ask".

Senator Johnston dismissed speculation about whether Australia needed the 12 Future Submarines specified in the **2009 Defence White Paper**.

"Let me be clear on this subject – my primary focus is not on numbers but on the capability and availability of boats required to meet the tasks set by government.

"As part of the White Paper process we will re-examine the strategic objectives of the Future Submarine program including operational concepts, the number of submarines required at sea and therefore the total number of submarines."

In following key principles of the Future Submarine project, Defence must:

- Maximise the use of proven technology;
- maintain strict control of requirements;
- engage an appropriately experienced design house;
- utilise appropriately qualified and experienced personnel, and
- Finally, lessons learned from the initial Collins and similar programs should not be forgotten.

The Minister said the Abbott government wanted to give Australian industry every chance of success with the Future Submarine program "but let me be very, very clear our primary and dominant purpose is to ensure we provide Navy with a submarine which meets its requirements.

"A submarine is not industrial or regional policy by other means or another name. Industry must demonstrate an ongoing capacity to meet international benchmarks with respect to productivity – a word I don't often hear around the place in terms of large construction projects – cost and schedule.

"Furthermore, we see military shipbuilding as a strategically important industry and certainly it is desirable that the new submarine would be built in Australia but it is not a blank cheque".

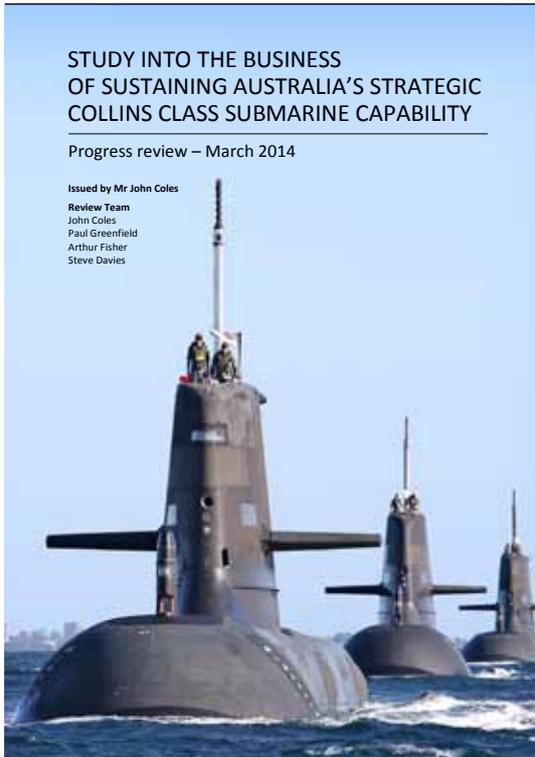
In order to avoid a submarine capability gap, it would probably be necessary to retain the Collins class beyond its original design life through another full cycle docking. Senator Johnston said he was not aware of any specific issue that might prevent this although it would be wise to retain a healthy degree of caution until this was confirmed by more detailed work.

Secondly, the Future Submarine needed to be introduced into the ADF's order of battle by the early to mid-2030s at the latest.

Developing an Australian design with a major international design house would take at least eight years from selection of the design concept to the cutting of steel, the Minister stated.

"Noting that it is now 2014, this means we are already pretty much against the wall in terms of this critical path schedule".





Coles' findings on Collins sustainment

Key recommendations in the *'Study Into the Business of Sustaining Australia's Strategic Collins Class Submarine Capability'* were designed to ensure commercial, operational, sustainment and management issues that hindered the Collins Class submarines through the 1990s, would be solved.

The study provides an insight into past lessons learnt and solutions provided to ensure the **Collins Class fleet** of submarines are better sustained and more readily available to be deployed at sea when required. Key recommendations to deliver long-term improvements for the sustainment and availability of Collins Class submarines include:

- Accepting that sustainment of the Collins Class had fallen far short of what was required due to systemic failures attributable to logistic support arrangements not being put in place initially;
- Setting realistic performance targets that will progressively improve performance over the next three years;
- Clearly defining roles, responsibilities and authority in submarine sustainment; and
- Moving quickly to bed-down the new In Service Support Contract between **DMO Organisation** and **ASC** to deliver more efficient and effective sustainment.

Findings:

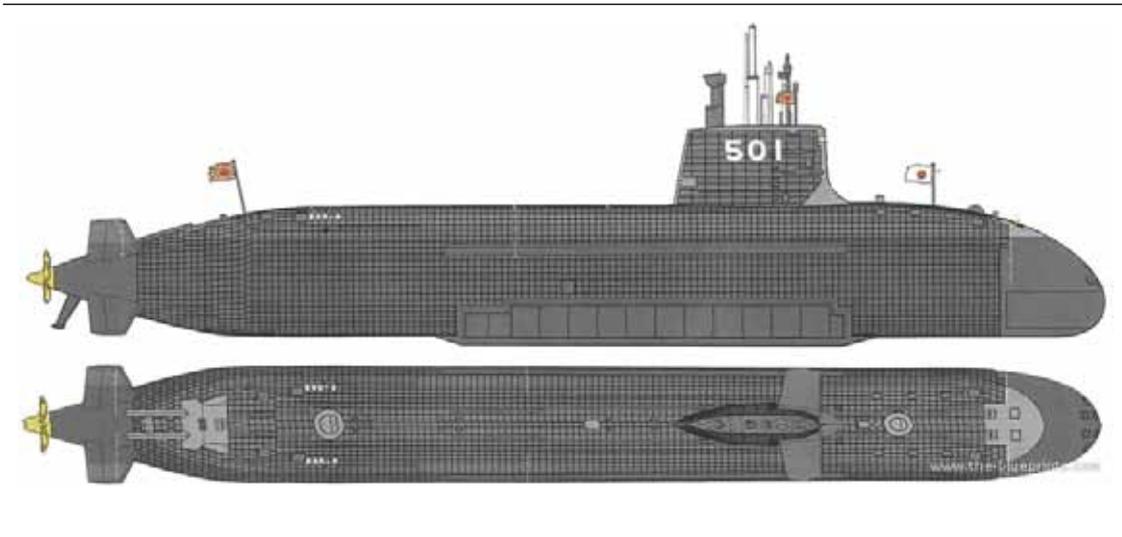
The review team concluded that submarine availability has improved significantly with the submarine force achieving nearly two and frequently three submarines materially available as measured over successive financial years. This improvement is attributable to a combination of greatly enhanced availability of spares, fewer planned maintenance overruns, along with fewer, faster repairs of defects in operational boats.

Changing to a ten year operating cycle followed by a two-year major overhaul underpins the ability to achieve and maintain benchmark availability. Preparations for the first two year Full-Cycle Docking, commencing in June 2014, are well progressed.

ASC is undertaking significant work practice changes to achieve this shorter duration, however many of the initiatives are untried so there remains more than a routine risk to be managed to achieve HMAS *Farncomb's* scheduled end date. In addition, the transformation efforts to date need to be embedded to ensure that once attained, the level of availability can be sustained. - *DMO*



Japanese submarine technology?



The Japanese submarine Soryu is powered by a diesel-electric propulsion system. Two Kawasaki 12V 25/25 SB-type diesel engines and four Kawasaki Kockums V4-275R Stirling engines provide a total power output of 2,900kW surfaced and 6,000kW submerged.

Soryu is the first submarine of the JMSDF to be equipped with Stirling engines manufactured by Sweden-based Kockums. Stirling is a silent and vibration-free external combustion engine. The Kockums Stirling air independent propulsion system onboard reduces the need for frequent battery charging surfaced and thus increases the submerged endurance of the submarine.

ADM Comment: Insofar as there is absolutely nothing new about Kockums' Stirling engine development which could have been installed on the Collins at the outset, it would seem that Kawasaki may have done something special to the Kockums system in the Soryu that has provoked interest by the Australian Government and the RAN. Perhaps some of *DWP's* knowledgeable readers might let us know!

REGISTER NOW! ADM Cyber Security Summit 19-20 June 2014 | Canberra

This year's speaker faculty will feature presentations from renowned experts from government, industry institutions/agencies, academia and leading vendors. Some of the key topics to be addressed include:

- Cyber warfare
- Mitigating and preventing cyber offensives
- Protecting critical cyber infrastructure
- Intelligence and surveillance
- Cyber terrorism
- International Policy





Boeing to cut 300 jobs in Melbourne

Boeing will cut 300 jobs at its Australian aerostructures facility by the end of the year, the company said April 3, 2014.

Boeing did not disclose the reason for the workforce reduction but in a statement made reference to financial forecasts and the stabilisation of manufacturing work.

The aerostructures unit - based at Fishermans Bend, Melbourne - employs about 1,300 people and is mainly focused on commercial aircraft production.

"In line with a long-established financial forecast, we will be releasing up to 300 people, primarily fixed-term contractors, by the end of the year," Boeing said. "This was always our intention when the company's aircraft programs stabilised at full production rates."

Thales's ATC technologies of interest to Thailand



A high level delegation from Aeronautical Radio of Thailand (Aerothai) has visited Thales Australia in Melbourne to view the latest in air traffic control technology and discuss the implementation of a recently-signed contract to modernise the country's existing system.

Thales recently won the contract to deliver a complete nationwide **Air Traffic Management (ATM)** system to Thailand, which will provide Aerothai's air traffic controllers with the world's latest technology.



Based on the **Thales TopSky-ATC system**, the system will allow Aerothai to more efficiently manage the ever-increasing air traffic in Thailand's airspace, and also enable enhanced interoperability with neighbouring countries.

The delegation visited Thales's **Centre for Advanced Studies in Air Traffic Management (CASIA)** to see the leading-edge technologies being developed in Australia, including the latest generation automation software and eye-tracking controller training technologies.

The visit also included time with Aerothai students currently in Australia. Around 20 air traffic controllers and technical support staff are being trained on the new technologies, with many more due to follow.

Thales's TopSky-ATC features multiple levels of contingency and backup, allowing it to efficiently service Thailand's national en-route air traffic control centre, the six approach control centres, and allowing the TopSky-Tower to manage 41 regional airport towers, as well as providing an enhanced TopSky-Arrival/Departure Manager and a TopSky-Simulator to train air traffic controllers.

On the domestic front, Thales is currently bidding for Australia's Civil Military Air Traffic Management System (CMATS) program, which will replace the country's separate civil and military ATM systems with an integrated solution.

Micreo achieves AS9100C certification

Micreo Limited, designer and manufacturer of RF subsystems for global defence and aerospace applications, announced the successful completion of AS9100 Rev C certification in April.

"The standard incorporates all the provisions of ISO9001:2008 which we have had in place since 2002 but adds more than 100 requirements specific to both civil and military aviation product reliability and safety," Tim Shaw, Micreo's managing director stated.

"Attainment of AS9100C enables us to step up and compete more readily against other top tier suppliers within our industry as well as to meet the demand for higher quality standards which are being flowed down from our customers and our customer's customers."

As part of the certification process, Micreo is now listed on the **Online Aerospace Supplier Information System (OASIS)**, viewable by all aerospace and commercial customers. The database contains supplier and audit assessment data for all companies who hold an accredited certification in any of the **Aviation Quality Management Systems (AQMS)** series of standards.

"Achievement of AS9100C, together with the recent completion of our building expansion program clearly demonstrates that we have the capacity and processes in place to meet the production demand that our customers forecast for the future," Shaw said. "The upgraded facilities have doubled Micreo's manufacturing clean room area to approximately 1300 square meters and we are now ready for the next phase of company growth".

Micreo Limited is an Australian-based independent company whose core business is the design and manufacture of RF and photonic products for Radar and Electronic Warfare avionics systems.





Aussie innovation leaves NASA in its wake

An Australian research institute has won an international award for technology innovation.

The University of South Australia's **Institute for Telecommunications Research (ITR)** has won **Technology of the Year 2013** for

its **Global Sensor Network (GSN)** and is now looking to commercialise the technology.

The GSN won out over tough competition, specifically a communications system designed by NASA to be carried aboard the International Space Station.

The award was presented recently at the SDR-WInnComm conference in Illinois, USA, a major annual gathering of wireless communications academics and industry leaders.

The winning Global Sensor Network is a communications system that enables very low cost one- and two-way communication via low earth orbit satellites with very large numbers of remotely located sensors.

"This is a fantastic win for Australian innovation," ITR acting director **Jeff Kasparian** said. "The GSN is typical of what Australian research can achieve: taking a really great idea from a blank piece of paper through to a field-proven system inside the space of only 24 months.

"Much of what goes on in remote areas has until now been unobserved and unknown. The GSN system opens up a whole new way of efficiently and cheaply monitoring, for example, sea temperature changes across vast areas, the exact location of thousands of individual animals on large outback properties, water levels along huge stretches of inland waterways, or the position of fleets of ships at sea. The GSN also has applications in remotely controlling mining and drilling sites, and in national security and in defence.

"The GSN program represents a significant outcome, with contributions from 28 academics and engineers within ITR. I'm immensely proud of what our team has achieved," Kasparian said.

GSN technical director, Dr **David Haley** said the technology attracted attention from communications professionals because it includes new software defined radio (SDR)-based architectures and waveform designs that provide high spectral efficiency in heavily loaded multiuser scenarios.

"SDR technology is used for the space segment, ground station and terminals. The end result is a cost effective, scalable and flexible system that is able to support very large numbers of users while maximising the use of precious satellite frequency spectrum," Haley said.

ITR developed the key technology in the program and led a consortium, with partners including **COM DEV (Canada)** and **SAGE Automation, CSIRO, DSTO** and the **Australian Institute of Marine Science**. The Federal Government's **Australian Space Research Program** also provided funding assistance for the program.





ADM Online: Weekly Summary

A summary of the latest news and views in the defence industry, locally and overseas. Check out our webpage for daily news updates on the ADM home page and make sure you bookmark/RSS this for a regular visit.

This week, the fourth and final review into the **Collins Class submarine** sustainment program recently released by John Coles confirmed that submarine maintenance and availability has significantly improved.

The Japanese Ministry of Defence ordered four **Bushmaster vehicles** for deployment with the Japan Ground Self-Defence Force (JGSDF).

And, a senior Defence chief was recalled to front a parliamentary committee investigating **reform lags** in military capability development.

International

USMC looking for high waterspeed connector

Tom Muir

Confusing signals have emanated from US Marine Corps commanders over the need for high water speed connectors to ferry Marines, their gear and even smaller amphibious combat vehicles.

Under a new amphibious combat vehicle plan, the USMC is reportedly looking for a high water speed connector like **Austal's Joint High Speed Vessel (JHSV)** to ferry its next-generation amphibious vehicle ashore, the service's top requirements officer said last week.

According to *Inside Defense* the new high-speed connector is part of the service's plan for Amphibious Combat Vehicle, Lieutenant general **Kenneth Glueck** told reporters after a Senate Armed Services seapower subcommittee hearing.

Glueck said the service held an industry day about three weeks ago at Marine Corps Base Quantico, VA, on high-speed connectors where representatives from 160 companies were in attendance. He told the subcommittee that connectors offer a way



the service can achieve a high water speed capability.

And less than a month after conceding that the Marine Corps could not afford a high-speed amphibious tracked vehicle, USMC Commandant Gen **James Amos** renewed the call for industry to provide an affordable “connector” that can move Marines from ship to shore. He insisted the Corps needs a vehicle that can “haul a lot of stuff” and “can move at high speed. He would like the vehicle to travel at 35 to 40 knots.

While the USMC has already funded a replacement program for its landing craft air cushions (also termed ship-to-shore connectors) the Corps wants to replace the landing craft-utility, a vessel capable of delivering personnel, gear and tracked vehicles.

Apparently Amos envisions vehicles that can move from ships or from “sea bases” from 80 miles from shore and deliver Marines and gear. As military bases around the world become less accessible, Amos said, forces will have to come from the sea. “If a base is going to be out at sea, connectors are going to be very important,” he said.

Amos also said it was unfortunate that more Navy ships do not have the ability to carry connectors. He said the Navy’s new JHSV was a “phenomenal” design but building 10 of them without the ability to disgorge Marines in amphibious vehicles was a mistake. “Imagine if we could load vehicles from a seabase on a joint high-speed vessel and discharge them ... and yet we’re building these with no capability to do that.”

Amos is reported as saying that the USMC was willing to put some money into research for future connectors, and called for funding joint high-speed vessels that can be brought aboard another ship at sea and then transition into connectors. They would travel at high speed when needed, and then fold up for storage “in some black bottom ship that can carry 20 of them.” - *TM/Inside Defense*



Frost & Sullivan on Austal’s JHSV

Frost & Sullivan’s New Market Insight ‘The Future of Naval Logistics’, finds that the JHSV offers notable project budget efficiency and has allowed the US Navy to quickly gain a cost-effective and operationally efficient capability, while minimising project production outlays and financial risk.

Apart from operational efficiency, a major benefit of the JHSV is low maintenance and operational costs. A commercial approach has meant that operations run smoothly and within budget – critical in times of shrinking defence expenditures.

From a military logistics point of view, the JHSV is tremendously versatile. It is capable of transporting a company size unit with equipment, a full infantry battalion (as a troop transport), or 635 tonnes of payload, and transport it in-theatre within 1,200 nautical miles of range at an average 35 knots, almost twice as fast as current ships.

“The JHSV is an interesting example of applying a low-cost, commercial solution to a



naval environment,” Frost & Sullivan’s Aerospace & Defence Industry analyst **Dominik Kimla** noted. “Due to budget constraints, it is expected that navies around the world will be leveraging **COTS solutions** and adopting other commercial approaches more frequently to provide the necessary naval capabilities.”

“The JHSV can offload the logistics at even the most basic ports,” Kimla added. “This makes it an essential tool for logistics support in various operations, including rapidly deploying response forces to distant areas, transporting cargo at high speed into an active operating theatre, conducting relief operations in small or damaged ports, responding to natural disasters, providing humanitarian assistance, and participating in multinational operations and counter-piracy missions.”

Furthermore, JHSV is able to interact with cargo ships at sea, providing logistics scalability and force projection over a larger combat footprint. Also, the shallow-draft capabilities of JHSV give it multi-sea access and increased littoral operations, which are particularly important assets in the Asia-Pacific (APAC) region, where there are many areas with shallow waters.

The JHSV is, for now, primarily a US concept, with the country ordering 10 vessels. However, Frost & Sullivan research indicates that the market potential for high-speed logistics vessels is substantially bigger.

In addition to the US military, demand is likely to come from the APAC. It is expected that the closest US allies in the region – South Korea, Japan and the Philippines – and scattered island countries, such as Indonesia and Malaysia, will be potential customers for the high-speed logistics vessels. - *Frost&Sullivan*



Now US Army wants rail gun

The US Navy has unveiled a rail gun that fires at seven times the speed of sound — noting that “there’s not a thing in the sky that’s going to survive.” The rail gun is designed to take out incoming missiles — or possibly aircraft.

It uses an electromagnetic pulse to propel a projectile down the barrel, creating a fireball of molten steel. The projectile sheds layers of its steel cladding to turn first of all into a forearm-length missile then finally into a smaller slug that punches a hole in its target. The rounds weigh only 10.4kg, which means they can be stored aboard ships by the hundreds.

The rail gun is due to go on board a navy vessel for testing in 2016. The cost of its development is \$240 million in the past 10 years.

In another report the US Navy is working with the US Army on potential ground combat applications for the electromagnetic rail gun, according to Navy officials. Program manager Captain **Michael Ziv** told *Inside the Navy* he sees a land-based application for some kind of forward operating base.

“The idea in all of this is to develop a system that is modular and can be land-based as well as sea-based ,” Ziv said at the Navy League’s annual symposium on April 7.

A “notional concept” of a land-based rail gun system would be “sort of like a forward operating base kind of application, where you would have your pulse power containers, you’d have your mount location, and then whatever amount of power you want to sustain the firing,” he said. - *Inside Defense*



Selex ES Miysis Dircm sees success in NATO Trial

The Miysis Directed Infrared Countermeasure (DIRCM) system developed by Selex ES was successfully demonstrated in March 2014 as part of NATO Trial EMBOW XIV.

During the flight trial, the Miysis Dircm system autonomously acquired, tracked and jammed the trial test equipment on the ground. Initial assessment of the results indicates that the Miysis Dircm has the capability to jam **Generation 1, 2 and 3 Man Portable Air Defence Systems (MANPADS)** using NATO jam codes.

Trial EMBOW XIV was conducted at Biscarrosse in France and the Miysis was installed on a French Direction Générale de l’Armement (DGA) CASA-212 aircraft.

The Dircm trial was assisted by **Airbus D&S**, the **Royal Canadian Air Force** and the **UK MoD**.

Launched at IDEX 2013, Miysis is readily exportable and provides protection from MANPADS for all aircraft platform types, from small helicopters to large jet transport aircraft. It has a high power, multi-band laser that delivers accurate rapid-jamming energy to defeat IR threats.

While being smaller, lighter and drawing less power than other Dircm systems on the market, the Miysis Dircm still offers the full spherical coverage required to counter advanced threats. With its modular open architecture design, Miysis also allows integration with in-service missile approach warners and defensive aids systems. In an environment where MANPADS are widely used and flare technology has limitations against advanced and emerging threats, Selex ES’s Miysis Dircm system defines and demonstrates the level of protection needed for airborne platforms.





Rheinmetall to supply Norway with new fleet of military trucks

Rheinmetall has just won another major order for military wheeled vehicles.

The Norwegian armed forces will soon be taking delivery of a large number of logistical vehicles made by **Rheinmetall MAN Military Vehicles (RMMV)**.

Signed at RMMV's Vienna plant, the framework contract for military logistical vehicles runs through 2025. It is linked to an additional agreement under which RMMV will provide the Norwegian armed forces with long-term service support.

Simultaneously, a first firm order was placed for new trucks. Worth over €100 million, this contract also includes integrated logistical support such as the supply of spare parts and maintenance services. Delivery of the first batch of vehicles – a mix of different models – is set to begin in mid-2015 and finish in mid-2017.

First C-130J Super Hercules arrives in Israel

Israel's first Lockheed Martin C-130J Super Hercules airlifter has arrived at Nevatim Air Base.

Israel ordered its C-130Js through a **Foreign Military Sale (FMS)** contract with the US Government. This is the first ferry of the C-130Js currently on order for the IAF, which has operated legacy C-130s since 1971.

This C-130J Super Hercules was first delivered to the Israeli Air Force (IAF) in June 2013 in Marietta, Ga., at the **Lockheed Martin** facility where it was manufactured. The aircraft remained in the US to receive Israeli-specific, post-production modifications.

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FORTHCOMING EVENTS

For a full list of defence and industry events, head to **ADM's** online events page at www.australiandefence.com.au

3rd annual ADM Cyber Security Summit

DATE: 19 - 20 June, 2014, Canberra

ENQUIRIES: ADM Events - Adam Wiltshire, Ph: 02 9080 4342;

Email: adam.wiltshire@informa.com.au

Web: www.admevents.com.au

Over the last 2 years, the summit has gathered 150+ senior Defence, National Security and Industry executives to address current and emerging cyber threats to Australia's security.

ADM will
be in
attendance

Defence and Industry (D+I) conference 2014

DATE: 29 - 30 July, 2014, Adelaide

ENQUIRIES: Defence Materiel Organisation

Email: DMO.Communication@defence.gov.au

The Conference is an opportunity for Industry to discuss with Defence officials acquisition and sustainment investment opportunities.

ADM will
be in
attendance

SimTect 2014

DATE: 25 August, 2014, Adelaide

ENQUIRIES: Web: <http://www.simtect.com.au/>

SimTect is the annual Simulation Technology and Training Conference held by Simulation Australia. Since its inception in 1996, SimTect has grown to become Australasia's premier simulation conference for industry, government and academia.

ADM will
be in
attendance

Northern Australia Defence Summit

DATE: 15-16 October 2014, Darwin Convention Centre

ENQUIRIES: ADM Events - Adam Wiltshire, Ph: 02 9080 4342;

Email: adam.wiltshire@informa.com.au

Web: www.admevents.com.au

Bringing together key figures from the NT Government, senior military figures, and senior industry representatives, this conference is all about the continuing development and support of Defence in the Top End. Hear about the current and new initiatives offered by Government and what industry can bring to support Defence's strategic objectives

ADM will
be in
attendance

New Zealand Defence Industry Association Forum (NZDIA Forum)

DATE: 21-22 October 2014, New Zealand

In association with New Zealand Industry, Ministry of Defence and NZ Defence Forces. More details to come.

Land Forces Conference 2014

DATE: 22 - 26 September, 2014, Brisbane

The Land Forces Conference is a major event for users, providers, academics, designers and manufacturers to meet, present, share and exchange new and visionary ideas on Land Systems. More details to come.

**ADM will
be in
attendance**

