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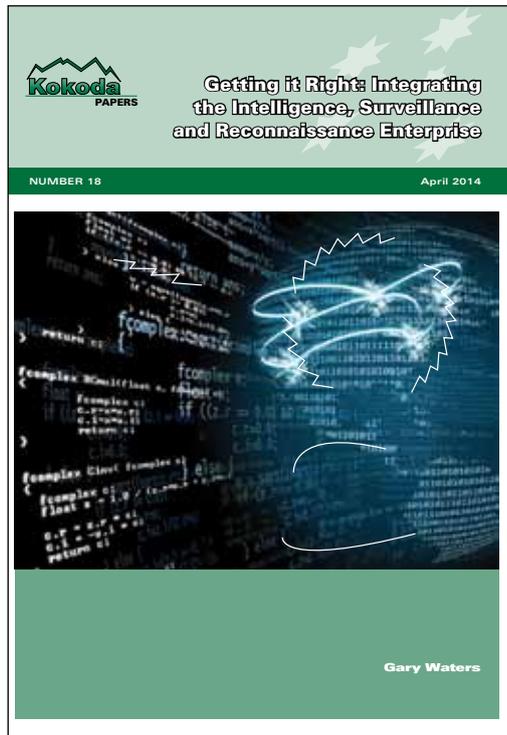
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Getting it right: ISR enterprise

Julian Kerr

Australia appears to be on the cusp either of continuing with modest improvements in its Intelligence, Surveillance and Reconnaissance (ISR) capabilities, or of seizing the moment for driving step-change improvements, a Kokoda Foundation report suggests.

The report, *Getting it right: the challenges for Australia in integrating the ISR enterprise*, says such major changes will demand adopting four policy approaches – whole-of-nation involvement, improving public engagement, accelerating the data-to-decision cycle through leveraging the benefits of **Big Data**, and synchronising ISR capabilities.

Written by strategic consultant **Dr Gary Waters**, the report states ISR must be treated as an integrated process, moving it in complexity, speed, and effectiveness beyond the current model of interagency cooperation.

“Indeed, cooperation, coordination and interoperability are no longer enough; collaboration must be the order of the day,” it says.

Modest improvements could flow from a more aggressive pursuit of the national trajectory in improving existing organisations, capabilities, international relationships, and national cooperation.

However, the ISR function and its community represent a national capability which means all efforts should come together in a whole-of-nation approach involving industry, academia, State jurisdictions and Federal agencies. Australia should also expand its partnering role with the US in terms of ISR across the Indo-Pacific region, as well as in space and cyberspace.

Greater transparency of the checks and balances imposed on the ISR Enterprise could lead to a substantial increase in the level of public trust – “the social balance between expectations of actions for security and the need for privacy must be struck if the ISR Enterprise expects to retain any form of social licence”.



The report notes that the ISR Enterprise can learn from how successful businesses have used Big Data – large and complex data sets – to improve their competitive advantage by identifying the information and how and where it is stored; tagging the data to allow its characteristics to be identified; and running the data through an algorithm that allows it to be collated and presented to an analyst. Competence and capability in Big Data is likely to become a mandatory requirement for future operations with the US, it adds.

Finally, a clear capability manager is required to ensure the many ISR projects under way are being effectively phased-in and integrated, the report suggests.

In Defence this would sit best with a Three-Star; for whole-of-government, with a Band-Three officer in the Department of Prime Minister and Cabinet.

Any real ISR capability should be connected to the US Pacific Command and to the US Marines training in Darwin, and a greater focus placed on deployed forces and their ISR requirements.

Australia should also leverage the lessons learned by the US in the rapid buildup of separate, **Service-centric DCGS (Distributed Common Ground System) networks** and its consequent development of the **Defence Intelligence Information Enterprise** (a search engine able to tap into disparate sources of data from information resources across the US Defence Department and intelligence community).

Assistant Defence Minister talks up Land 400

The Assistant Minister for Defence, Stuart Robert, together with South Australian Senator David Fawcett spent Tuesday afternoon (April 29, 2014) speaking to local business and community leaders about Army's Land 400 Combat Vehicle program at the historic Adelaide Oval.

"The Land 400 program is the Australian Army's largest, most expensive and most complex combat vehicle program and will provide Army with an essential capability for future land operations," Robert said.

"I am very pleased to be in Adelaide with David to talk to over 140 local leaders, industry representatives and Defence SA about Army's Land 400 Combat Vehicle program and the significant opportunities it could bring to South Australia."

Land 400 will allow for the retirement of Australia's current armoured vehicles including the **Australian-Light Armoured Vehicles (ASLAV)** and the armoured personnel carriers (**M113-AS4**) in line with their expected Life of Type, as well as providing new armoured manoeuvre support vehicles. These new vehicles will provide the Army with precision firepower capabilities while providing high levels of survivability and tactical mobility.

Senator Fawcett said it was an important visit by Minister Robert as South Australia continues to campaign for the multi-billion-dollar contract for the next-generation of Army combat vehicles.

"While a decision on the awarding of contracts is a number of years away, South Australia is a key provider to Australia's defence industry and is working hard to look at opportunities where we can assist with Army's multi-billion dollar project."

Roberts said he was working to ensure Australian industry opportunities were maximised under this important project.

"The Australian Government is committed to working with defence industry to build a strong, capable and sustainable Australian Defence Force," Robert said.



NextGen jammer for RAAF EA-18G's?



Tom Muir

With the introduction into service of 12 EA-18G Growlers in 2018 or thereabouts, the RAAF will, for the first time, have an airborne electronic attack capability which will be able to disrupt or jam a range of military electronics systems, such as air defence systems.

Used in either a stand-off or escort jamming role, this EA capability will enable the penetration of hostile territory for strike and ground-support missions.

However, all of this assumes that counters to the venerable **ALQ-99 tactical jamming pod**, or other high powered tactical jammers capable of outmatching the ALQ-99, are somehow not to be found in the inventories of those whom we may somewhat euphemistically describe as 'relatively more advanced adversaries'.

It has been reported that a US Navy document soliciting sources for the **next generation jammer (NGJ)** dismisses the current system as out-classed indicating that the aging ALQ-99 tactical jamming system lacks the capability to match today's complex integrated air defence, communication, data link and non-traditional radio frequency (RF) threats. Reference has been made to a 'deluge of data that is overwhelming the warfighter'.

This being the case, one might wonder what steps are being taken to ensure that the EA-18G electronic attack capability, widely touted by senior RAAF luminaries as a state of the art system, but now also seen as a potential liability, will be reinstated big-time with the introduction into RAAF service of the ALQ-99's replacement—the NGJ. Defence plans to achieve Initial Operational Capability (IOC) for the EA-18G in 2018, not long before the NGJ is introduced into US Navy service. - TMI/USN

COMING SOON! ADM May 2014

- Armed UAV for the ADF?
- DSTO MAV research takes flight
- Offensive cyber warfare
- ACSC to become one stop shop
- The emergence of 'cyber labs'
- Raydon Gates chief executive of Lockheed Martin Australia and New Zealand speaks to ADM
- and much more!



Australian Helicopters awarded Ambulance contract

Following a competitive tender process, Australian Helicopters has been awarded a 10-year contract with the Victorian Government and Ambulance Victoria.

The agreement will see the supply of new state-of-the-art **AgustaWestland AW-139 twin engine helicopters** and includes a dedicated back-up aircraft to maintain services when heavy aircraft maintenance is required.

Australian Helicopters managing director, John Boag, said the aircraft are faster, can travel longer distances without refuelling and utilise state-of-the-art avionic technology.

Australian Helicopters is a direct supplier to the Australian Army for aero-medical evacuation support to its national training exercises in conjunction with the Royal Flying Doctor Service (QLD).

Australian Helicopters has also provided aircraft in conjunction with **Boeing Defence** to provide Crash Response support and Loadmaster training year-round at the Army Aviation Training Centre at Oakey in Queensland.



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, Minister for Defence David Johnston and the Japanese Minister of Defense **Itsunori Onodera** met in Perth for their first official meeting to discuss ways in which the defence relationship between the two nations could deepen.

The **Australian Defence Force Gap Year program** for 2015 was launched.

And, the RAAF commenced an investigation after a **C-130J Hercules** left the runway on landing at Kabul International Airport.

International

The NGJ program underway

Tom Muir

The Next Generation Jammer (NGJ) is an ambitious program to upgrade the technologies and performance of the EA-18G.

A particular target is the use of distributed planar antenna array technology to improve the performance envelope of the system, signal acquisition accuracy and the production of jamming envelopes. The use of advanced digital processing techniques, yielding improved data display characteristics for the crew is part of the package.

The **ALQ-99** will be replaced due to technology vintage and increasing unreliability. But the **N-G ALQ-182 (V) 2**, or a variant of it; the **Raytheon ALQ-227 Communications CM Set** that uses current low-bandwidth technology for communications jamming and the ITT Interference Cancellation System (INCANS) that provides a UHF communications capability in a low frequency jamming environment are identified candidates.

Four competitive NGJ "Technology Maturation Phase" studies, each worth US\$42 million, were awarded to **BAE Systems Information and Electronic Systems**, **ITT Electronic Systems**, **Northrop Grumman Integrated Systems** and **Raytheon Space and Airborne Systems**.

Raytheon's NGJ proposal will provide airborne electronic attack and jamming capabilities, and will include cyber-attack capabilities that use the aircraft's active electronically scanned array (AESA) radar to insert tailored data streams into enemy systems.

Raytheon was subsequently selected for the technology development phase of the program which may eventually be expanded to include an add-on electronic warfare (EW) jammer for the **F-35 Lightning II joint strike fighter** that would not require a specially made EW aircraft like the EA-18 Growler. It is planned to introduce the NGJ into fleet operations in the EA-18G mid FY 2018.

Other potential applications for the NGJ, or derivatives of it, may include the **P-8A** and **HALE UAVs**. But the **F-35** is considered unlikely to be assigned any of the offensive roles of the EA-18G and therefore may be restricted to the adoption of some of the NGJ's EW subsystem self-protection capabilities and only limited offensive capabilities.

ADM comment: The APG-81 radar for the JSF is understood to be slated to be modified to provide "point source" jamming in addition to that capability being provided on the Growler.

REGISTER NOW!

ADM Northern Australia Defence Summit

15-16 October 2014 | Darwin

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





USN's offensive cyber weapons

The US Navy appears to be ramping up its cyber war capabilities with a contract award that includes support for offensive cyber technology that could “destroy” enemy computer networks and perform cyber espionage.

The **Space and Naval Warfare Systems Command's** \$98 million dollar contract, announced recently, was awarded to 14

small companies for “Integrated Cyber Operations support.”

According to the original contract solicitation, the integrated cyber operations include “computer network defence, computer network exploitation, and computer network attack.” The solicitation defines network attacks as: “Actions taken through the use of computer networks to disrupt, deny, degrade or destroy information resident in computers/computer networks or the computers and networks themselves.”

As a practical matter, it's unclear how the technology would be fielded. It's also still not clear what law governs the use of cyber-attacks, though the State Department's top lawyer has said that a cyber-attack in certain cases could be considered a “use of force” and would be subject to international humanitarian law and the laws of armed conflict.



Growler as future beam shooter?

The US Navy's acquisition of 26 additional EA-18G Growlers will be assigned to four squadrons operating with the USAF's expeditionary air forces and mounted on those craft could be some very advanced cyber weapons.

There will be technology enhancements for the **Next Generation Jammer**, which is designed to function as the “shooting end” for the electronic attack weapon system. There will be versatile new antennas, open-architecture exciters that can produce exotic waveforms and algorithms on demand, and stronger power sources in smaller packages (aided by nanotechnologies). A highly automated, electronic attack battle management system also may be added - something that could make many of the decisions for a pilot with no crew or for an unmanned aircraft with no pilot.

ADM comment: Perhaps **DARPA's ALIAS system** described below may help?





Cyber-attack – a military operations task

US Cyber Command, which has focused on developing forces to blunt attacks against national critical infrastructure, should delegate operational control of distinct combat forces designed to support military operations, a new report urges.

Because **CYBERCOM's** "highest priority is to defend the nation," its development of "national mission teams" to defend against a strategic cyber-attack on national critical infrastructure has taken precedence over the formation of "combat mission teams" to support US military activities across the globe and "cyber protection teams" to safeguard defence networks, Commander Vice Admiral **Michael Rogers** contended last month in testimony for his confirmation hearing.

Cautioning that theatre cyber forces like combat mission teams are "often overlooked" in policy discussions that "emphasize rare, high-end covert 'strike' capabilities and the broader challenges of critical infrastructure protection," a report issued April 24 by the Centre for a New American Security urges Rogers to take concrete steps to transfer operational control of the combat mission teams to the Defense Department's combatant commanders. - *Inside Defense*



UK Government launches cyber security division

The UK Government has officially launched a new cyber security team which aims to manage cyber security threats and will function as a hub for sage and considered security response thinking.

The £860m **Computer Emergency Response Team (Cert-UK)** will deal with cyber issues of national importance and will report to government and industry with relevant information, advice and alerts.

According to Cabinet Office Minister **Francis Maude**, 93 per cent of large corporations had a computer security breach over the past financial year, costing somewhere between £450,000 and £850,000. However, Maude also outlined the potential opportunities on offer for organisations which can be early adopters of cyber technology and which can be innovators in providing enhanced security measures to other firms, stating that security innovations were "an essential feature of – and a massive opportunity for – the UK's economic recovery".



Chris Gibson, director of Cert-UK, said: "The launch of Cert-UK is a milestone in the development of the UK's cyber security capabilities helping the UK to become more resilient. "Cert-UK will build on existing arrangements for supporting the critical national infrastructure, and incorporate the Cyber Security Information Sharing Partnership which was launched last year and has proved extremely effective as a means of collaborating between industry and government." - UK Govt



DARPA aims to reduce pilot's workload

Despite half a century of creating automated flight systems, emergencies aboard military aircraft still require flight crews to multitask like a one-

tentacled octopus. DARPA is hoping to change this with its Aircrew Labor In-Cockpit Automation System (ALIAS) program aimed at producing a drop-in automated flight control system designed to make the pilot's life simpler, while reducing the size of flight crews.

Military aircraft have grown increasingly complex over the years, and automated systems have also evolved to the point where they provide so much help that some aircraft can't be flown without them. However, the complex controls and interfaces require intensive training to master, yet can still overwhelm even experienced flight crews in emergency situations. In addition, many aircraft, especially older ones, require large crews to handle the workload. According to DARPA, avionics upgrades can help alleviate this problem, but only at a cost of tens of millions of dollars per aircraft type, which makes such a solution slow to implement.

This is where the **ALIAS program** comes in. The idea is that instead of retrofitting aircraft with a bespoke automated system, DARPA wants to develop a tailorable, drop-in, removable kit that takes up the slack and reduces the size of the crew by drawing on both past decades of work in automated systems and newer developments in **unmanned aerial vehicles (UAV)**.

DARPA says that it wants ALIAS to not only be capable of executing a complete mission from take-off to landing, but also handle emergencies. It would do this through the use of autonomous capabilities that can be programed for particular missions, as well as constantly monitoring the aircraft's systems.

According to DARPA, developing ALIAS will require advances in three areas. First, because ALIAS will require working with a wide variety of aircraft while controlling their systems, it will need to be portable and confined to the cockpit. Second, the system will need to use existing information about aircraft, procedures, and flight mechanics. And third, ALIAS will need a simple, intuitive, touch and voice interface



because the ultimate goal is to turn the pilot into a mission-level supervisor while ALIAS handles the second-to-second flying.

At the moment, DARPA is seeking participants to conduct interdisciplinary research aimed at a series of technology demonstrations from ground-based prototypes, to proof of concept, to controlling an entire flight with responses to simulated emergency situations.

“Our goal is to design and develop a full-time automated assistant that could be rapidly adapted to help operate diverse aircraft through an easy-to-use operator interface,” **Daniel Patt**, DARPA program manager said. “These capabilities could help transform the role of pilot from a systems operator to a mission supervisor directing intermeshed, trusted, reliable systems at a high level.” – *DARPA*



AW609 TiltRotor completes autorotation trials

Following on from the completion of flight envelope expansion trials in December 2013, AgustaWestland gave the first customer demonstration

flights of the AW609 tiltrotor aircraft in February. This was followed by autorotation trials, which the company has announced were successfully completed earlier this month.

Starting off in 1996 as the **Bell/Boeing**-developed Bell **XV-15**, the AW609 tiltrotor aircraft combines the benefits of helicopters and fixed-wing aircraft. AgustaWestland, which took full ownership of the program (and renamed the aircraft the AW609) in 2011, has now announced that autorotation trials carried out between the end of March and early April were completed successfully.

Autorotation refers to the rotors of a helicopter turning in response to air moving up through the rotor as the aircraft descends, rather than being driven by an engine, thereby allowing the aircraft to land safely in the event of a complete engine failure. The autorotation trials, in which the aircraft clocked up 10 dedicated flight hours, saw the AW609 complete over 70 power-off conversions from airplane mode to helicopter mode.

AgustaWestland says the test flights, which were flown from an Arlington, Texas, facility and monitored by the FAA, covered the full wind-milling and autorotation envelopes, with aircraft performance exceeding characteristics seen in the engineering simulator. A full flight simulator that will allow commercial pilots to be trained is also planned.

AgustaWestland is aiming to gain **FAA certification** for the AW609 in 2017 and said it is acquiring new equipment and tooling to ensure that existing orders will be fulfilled immediately following said certification. – *AgustaWestland*





Long range Griffin missile for LCS?

Raytheon is developing a longer-range, fire-and-forget version of its Griffin tactical missile, with an eye toward eventually deploying the weapon as part of the Navy's Littoral Combat Ship surface warfare mission package, *Inside the Navy* has learned.

The **Sea Griffin** is an advanced version of Raytheon's Griffin B Block II

missile that reached initial operational capability early this year and is now deployed on four of the Navy's Cyclone-class patrol ships (PC) in the Persian Gulf, **Steve Dickman**, Raytheon's director for Griffin programs, told *ITN* in an interview on April 14. The company is using internal funds to develop the new weapon, he said.

The Sea Griffin will be equipped with an extended-range rocket launcher that will approximately triple the missile's range from about 5 km to more than 15 km, Raytheon spokeswoman **Tara Wood** told *ITN* in an April 16 email. The extended-range motor adds 22 pounds to the current Griffin model, she wrote, bringing the Sea Griffin's weight to approximately 55 pounds.

The new weapon will be outfitted with a dual-mode seeker and digital data link that will supplement the semi-active laser seeker and lend the weapon its fire-and-forget capability, Dickman said. These new features will enhance the missile's targeting capabilities and ease of operation for the crew, he said. – *InsideDefense*

More on US 'Future Connector' proposal

The US Marine Corps is looking at a "family of systems" that will ferry its amphibious vehicles ashore in the near future, rather than one singular connector solution, a service official told *Inside the Navy* last week.

"There is no singular connector of the future. Everyone wants to know, where's the magic elixir?" **James Strock**, director of the Marine Corps' seabasing integration division, told *ITN* in an April 23 interview at Marine Corps Base Quantico, VA.

"It's going to be a family of systems, it's going to be both vertical and surface, it's going to span the full range of military operations."

The search for a connector solution is part of a Navy and Marine Corps effort to mitigate the effects of a shortfall of amphibious ships on amphibious operations and seabasing. Service officials are searching for creative, affordable ways to conduct amphibious operations under tight budget constraints.

The total lift requirement for the amphibious force is 38 amphibious ships. But Chief of Naval Operations Admiral **Jonathan Greenert** and Marine Corps Commandant General **James Amos** have agreed that given current budget constraints, a 33-ship force is acceptable. Today, the force is at just 30 ships, the Navy's top acquisitions official **Sean Stackley** said recently on Capitol Hill, and won't reach the 33-ship level until about 2018.



OpTest for USN's new mobile landing platform

The US Navy's (USN's) first Mobile Landing Platform (MLP) has completed installation of cargo transfer features, and is en route to San

Diego, California, for its initial operational test and evaluation (IOT&E), Naval Sea Systems Command (NAVSEA) officials announced April 24, 2014.

During an industrial work period at Vigor Marine in Portland, Oregon, USNS Montford Point (MLP 1) had its 'core capability set' installed. The work, which commenced in the final quarter of 2013, included installation of a raised vehicle deck, a vehicle transfer ramp, and **Landing Craft Air Cushion (LCAC)** hovercraft vessel lanes. The 233 m long Montford Point is the lead ship in the USN's new class of support vessels designed to serve as a floating base for amphibious operations.

The Mobile Landing Platform (MLP) is a new class of auxiliary vessels under construction for the US Navy that will enter service with three Maritime Prepositioning Force (MPF) squadrons. The MLPs can be deployed in wide range of operations including humanitarian assistance, disaster relief, amphibious, and other combat missions.

The MLP ships will allow the transfer of vehicles and equipment from Large Medium-Speed Roll-on/Roll-off (LMSR) and Joint High Speed Vessel (JHSV) to shore through LCACs in Sea State 3 conditions. The mobile landing platforms will allow the amphibious operations in the absence of ports. The ships will be equipped with a mission deck and float-off (FLO/FLO) technology allowing loading and unloading of the floating cargo.

The ship will have storage tanks for 100,000gal of potable water and 590,000gal of JP5 fuel. The mission deck can accept future platform upgrades including command and control, vehicle transfer system, crange, accommodation module, medical facilities, and a helicopter landing spot.

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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

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.



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.



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.



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



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 2014

DATE: 22 - 25 September, 2014, Brisbane

The Land Forces 2014 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

