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APDR

ASIA-PACIFIC DEFENCE REPORTER

AUSTRALIAN DEFENCE IN A GLOBAL CONTEXT

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US Submarine Industry
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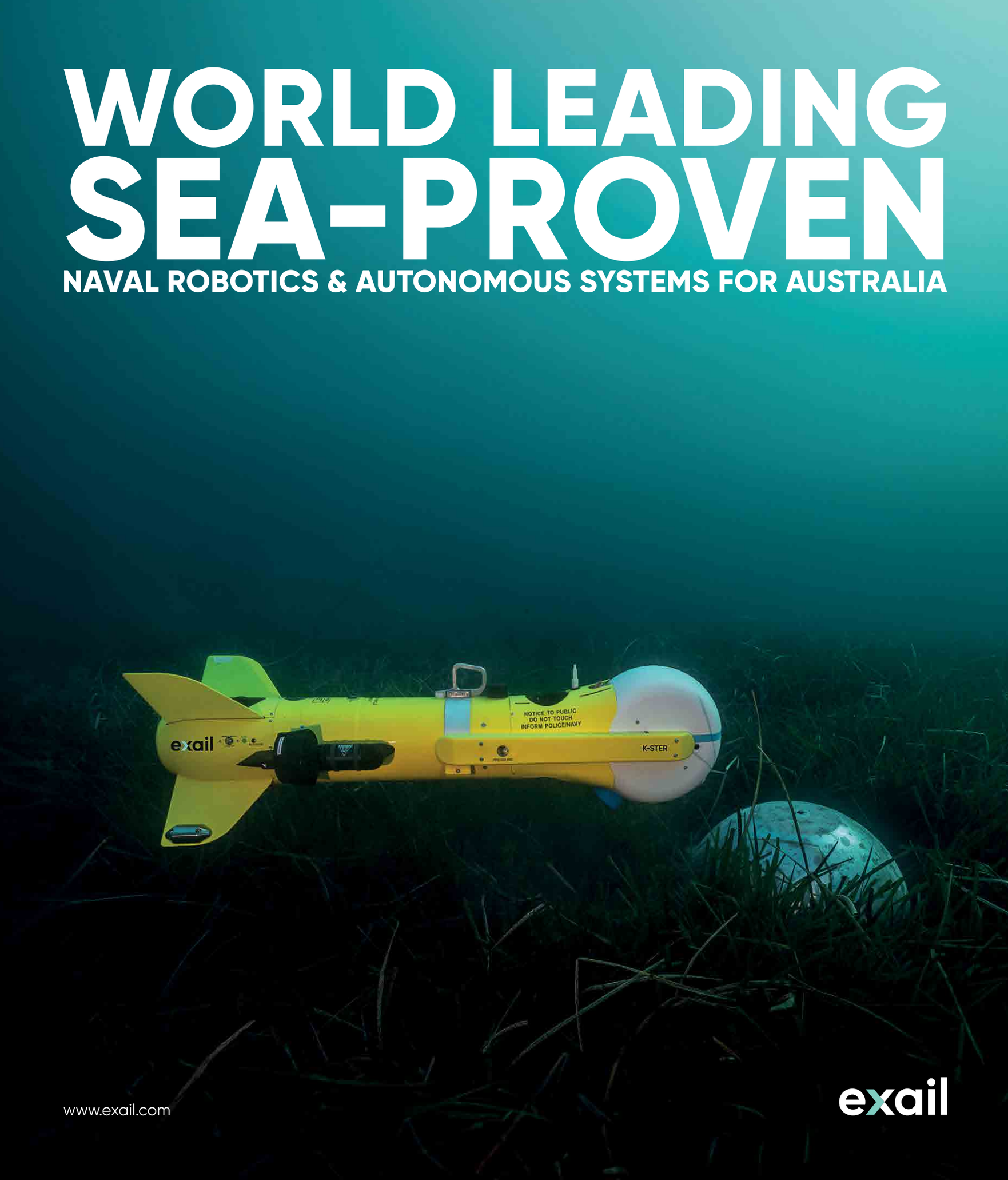
Australian Army
BMS update

LAND 8710
Landing craft design update

WORLD LEADING SEA-PROVEN

NAVAL ROBOTICS & AUTONOMOUS SYSTEMS FOR AUSTRALIA



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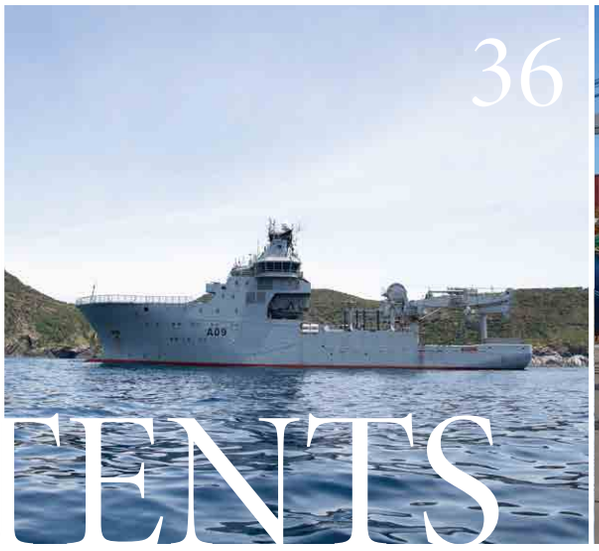

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Cover description: HMAS Brisbane leads the entry into Sydney Harbour for the start of Exercise Malabar 2023. (DoD photo / Daniel Goodman)

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The relationship between Defence and Ministers

Kym Bergmann // *Canberra*

There has been some press reporting, triggered by a February 8 article in the Australian Financial Review, of a deteriorating relationship between Defence Minister Richard Marles and his Department. By which we mean the Department of Defence and not the Department of Prime Minister and Cabinet, which we will get to in a moment. While probably exaggerated, the dynamic does appear to be shifting.

First, a bit of recent history. In October 2022 the ANAO handed down its annual report on major Defence projects, detailing further delays and cost overruns. Minister Marles seized on this to berate the former Coalition government, saying:

"And I want to be clear on one point - this is not the fault of the Department of Defence, this is not the fault of Australian defence industry. They are fantastic and do a wonderful job in serving the national interest. What we have seen is a complete failure of leadership by the former Coalition Government and we intend to rectify that. We are going to manage defence spending in a way which achieves value for money for taxpayers."

Today, the situation is even worse – and in a report published on February 9 the ANAO detailed a total slippage of 453 months, compared with 405 months under the Coalition. By his own words in 2022, it's all the fault of the Defence Minister – but don't expect the him to resign in shame anytime soon.

What Mr Marles might be learning is while Ministers indeed have responsibility for their portfolios, the management of individual programs – many of enormous complexity and spanning a number of years – are best left in the hands of the experts in the Department. Some matters are outside the control of Australia – such as the F-35 program.

Currently, the RAAF's final nine jets are awaiting delivery to Australia. They were meant to arrive by the end of 2023 but it might be until the end of this year before they show up. There is a good reason for the delay – flight testing by the USAF involving new computers and software is taking longer than expected.

As tempting as it is to blame Minister Marles personally, there is nothing unusual about this – and when it comes to flight safety, everyone in their right mind would prefer a cautious and methodical approach, not something rushed to meet artificial and largely meaningless political deadlines.

This is to point out that the management of a large portfolio such as Defence is difficult and it is almost impossible that everything will go neatly to schedule, no matter how much the Minister wishes it would do so. The falling out between the Minister and the Department – APDR doesn't have a particular view on that – might be no more than a level of mutual frustration. The Department hasn't been able to magically make projects run on time – but nor has the Minister managed to secure the extra funding needed to turn many commitments into reality.

Another cause of the unhappiness might be the continuing fiasco of the retired Taipan helicopter fleet – a story extensively covered in this publication with a further update in this edition. This sordid tale of the destruction of the entire fleet – attempted in complete secrecy and with truly grotesque haste – when they were requested by Ukraine still has a long way to run. Hopefully there will be a Senate inquiry soon with Coalition, Greens and Independent support.

Sorting out what Ministers knew and when they knew it will be a fascinating exercise – and whether the information supplied by the Department was entirely accurate. A case in point is that both Ministers Marles and Pat Conroy parrot the line that the helicopters were unreliable. But were they ever informed that New Zealand has managed their fleet of eight identical helicopters successfully for years? Were they ever informed that the Taipan/NH90 family has one of the best safety records of any military helicopter ever built?

Army must have assured the Ministers that no one else was interested in acquiring Taipans – and presumably the two accepted that at face value. We now know that in whatever bogus investigation Army carried out, they never asked Ukraine if they wanted them.

Speaking of Ukraine – that country is now in desperate trouble and needs all the military help they can get. Richard Marles insists on the conceit of being called the Deputy Prime Minister – hence the earlier reference to the Department of PM & C – and he now needs to use all that authority to override whatever objections Army has to the transfer of systems no longer wanted by the ADF.

These include but are not limited to: M1A1 main battle tanks; ASLAV armoured vehicles; RBS-70 air defence missiles and three mobile radar units; Armidale class patrol boats; potentially an ANZAC frigate or two – and of course more than 12 Taipan helicopters that could be reassembled, despite Army's best attempts to destroy them so no one else could be seen to be operating them competently.

For reasons that are unclear, this government is less supportive of Ukraine than its predecessor. Ridiculously, our Embassy in Kyiv remains shut – two years after the illegal Russian invasion. All other 50 nations in the Ukraine contact group have re-opened theirs. Australia is completely isolated in this regard.

Late last year the Albanese government couldn't even be bothered replying to a request from Ukraine for an emergency shipment of coal. There is the still murky story about why some Classic Hornet fighters could not be donated. Army refused to transfer Hawkei vehicles on fictitious safety grounds, making decisions for Ukraine about what they can and can't operate.

The government has taken a recent hit in the opinion polls for many reasons – but the management of Defence and the attitude towards Ukraine are probably two of them.


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ELBIT SYSTEMS AWARDED AN APPROXIMATELY $600 MILLION (AU $917 MILLION) CONTRACT TO SUPPLY SYSTEMS FOR THE REDBACK IFV UNDER THE AUSTRALIAN LAND 400 PHASE 3 PROJECT

Haifa, Israel, 26 February 2024

Elbit Systems Ltd, announced today, following its announcement from August 16, 2023, that it was awarded a contract worth approximately $600 million (AU $917 million) to supply systems to Hanwha Defense Australia for the Australian Land 400 Phase 3 Project. This project aims to deliver advanced protection, fighting capabilities and sensors suite to the Redback Infantry Fighting Vehicles (IFV) for the Australian Army. The contract will be performed over a period of five years.

Bezhalel (Butzi) Machlis, President and CEO of Elbit Systems said: "This milestone reaffirms our commitment to delivering advanced, mission-critical solutions to the Australian Army. Elbit Systems is dedicated to supplying cutting-edge defense technologies that will safeguard troops on the modern battlefield."

Redback IFV (Hanwha photo)

STAHL METALL ENTERS INTO NEW CONTRACT WITH KONGSBERG FOR CABLE ASSEMBLIES FOR THE NAVAL STRIKE MISSILE CAPABILITY

27 February 2024

Stahl Metall is pleased to announce it has entered into a new contract with Kongsberg Defence Australia (KDAu) for the manufacture and delivery of Electrical Control systems / Cable and Harness Systems for the Naval Strike Missile (NSM) capability being delivered under Project SEA 1300 Phase 1 - Navy Guided Weapons.

Located in Knoxfield, Victoria, Stahl Metall specialises in the design and manufacture of custom "Robust" cable and harness assemblies, complete communication, power/electrical enclosures & box assemblies.

Committed to maintaining its quality management system in compliance with AS 9100D, Stahl Metall is certified to undertake build-to-print, custom design and lean manufacturing activities. Mr Anton Fonseka, Director of Business Development at Stahl Metall, said:

"We look forward to working with KONGSBERG in Australia on this important program. Stahl Metall is committed to building and supporting sovereign defence manufacturing capability in Australia.

"Stahl Metall products are known for their reliability, precision and resistance to demanding and harsh environments, and commonly used in fields requiring faultless quality, such as Aerospace and Defence, Marine, and Subsea applications with proven track record in complex Defence platforms and on-time delivery."

Mr John Fry, General Manager of Kongsberg Defence Australia, said:

"We are delighted to announce our partnership with Stahl Metall. Stahl Metall is one of many Australian suppliers we are working with to deliver the NSM capability to the Royal Australia Navy. This Australian manufacturing opportunity is a demonstration of the talent that exist in Australia's Defence Industry and supports KONGSBERG's ongoing commitment to developing domestic production for this modern, effective and survivable precision strike missile capability".

NSM test firing (Kongsberg photo)

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AUKUS DEFENCE SCIENTISTS TEST ROBOTIC VEHICLES

8 February 2024

Defence scientists from Australia, the United Kingdom and the United States collaboratively tested a range of robotic vehicles and their sensors during a trial at Cultana Training Area, South Australia. The Trusted Operation of Robotic Vehicles in a Contested Environment (TORVICE) trial was conducted in autumn 2023 to identify and resolve vulnerabilities faced by autonomous systems in a congested electronic warfare environment.

Dr Peter Shoubridge, Chief Land and Joint Warfare at Defence, said the trial was designed to test autonomous vehicle behaviour when under attack. "Understanding how robotic vehicles react in contested environments accelerates our collective know-how and helps improve the system to overcome such attacks," Dr Shoubridge said.

A network of robotic ground vehicles from the United Kingdom and the United States were configured to represent autonomous Multi-Domain Launchers and Uncrewed Ground Vehicles conducting Long Range Precision Fires and associated missions. The vehicles carried no weapons during the trial. Australian scientists then subjected the vehicles to electronic warfare, electro optical and position, navigation, and timing attacks.

"Transitioning trusted robotic capabilities into the hands of our warfighters safely and ethically is a priority," Dr Shoubridge said.

TORVICE is part of the United States, United Kingdom, and Australia's commitment to the AUKUS Advanced Capabilities Pillar, known as Pillar II, under the Artificial Intelligence and Autonomy Working Group. The trial is part of an ongoing series pursuing a trilateral program of work on a range of leading-edge technologies and capabilities to promote security and stability in the Indo-Pacific region.

Dr. Kimberly Sablon, the U.S. Department of Defense's Principal Director for Trusted Artificial Intelligence and Autonomy, said "The TORVICE project builds upon the work the AUKUS partners demonstrated in Salisbury in April. During this exercise, we performed rigorous red teaming of our autonomous/AI systems to assess and mitigate vulnerabilities and to improve their resilience in contested and complex environments."

Through AUKUS, Australia, the UK, and the United States have collaborated to accelerate collective understanding of AI and autonomy technologies, and how to rapidly field robust, trustworthy AI and autonomy in complex operations, while adhering to the shared values of safe and responsible AI.

TORVICE follows the first AUKUS artificial intelligence (AI) and autonomy trial held in the UK in April. The aim of this AUKUS collaboration is to rapidly drive these technologies into responsible military use.

TAGVIEW M113 (BAE Systems photo)

BAE AND TAS PASS MILESTONE FOR UNCREWED VEHICLES

11 February 2024

BAE Systems Australia and Trusted Autonomous Systems (TAS) have moved a step closer to delivering a next generation autonomous capability for the Australian Army. The companies recently completed a four-year research and demonstration program during which they developed an advanced Artificial Intelligence (AI) system that could be used in uncrewed ground vehicles (UGV).

The TAGVIEW (Trusted Autonomous Ground Vehicles in Electronic Warfare) system would allow multiple UGVs to operate simultaneously to carry out mission objectives while identifying and evading potential threats. Modular in design, and integrated with BAE Systems' autonomous Vehicle Management System, TAGVIEW will be compatible with a range of different UGVs. It can feature a range of technologies, including optic cameras, LiDaR (Light Detection and Ranging) and internal navigation and route planning systems, making it easier for the user to control.

During the demonstration phase, TAGVIEW was installed on several M113 Optionally Crewed Combat Vehicles (OCCVs) and put through its paces in a series of planned relocation, logistical and sweep search missions.

BAE Systems Australia's Defence Delivery Managing Director, Andrew Gresham, said: "We continue to push the boundaries of science and technology to provide Australia and our allies with a capability advantage on a future battlefield. TAGVIEW has been a unique collaboration, bringing together the strengths of Defence, industry and academia to fast track the development of a transformative autonomous technology."

Trusted Autonomous Systems' Chief Technology Officer, Dr Simon Ng, said: "TAS was instrumental in developing the project, reviewing its technical progress and achievements, and working with BAE Systems on the design of trials and demonstrations. It's been exciting to see what a diverse team from industry, researchers and DSTG can do and highlights the value of a collaborative approach in achieving innovation for Defence."

Australian Army's Robotic and Autonomous Systems Implementation and Coordination Office (RICO), Lieutenant Colonel Rachael Ayoub, said: "The army requires autonomous capabilities like this to protect our soldiers from harm, removing them from the most dangerous tasks, while still maintaining a human in the loop directing the system. The successful demonstration on the

M113s shows that through enhancing or augmenting our existing capabilities, we can create trusted autonomy and extend functionality."

Funded by the Commonwealth of Australia and led by TAS, Australia's first Defence Cooperative Research Centre (CRC), the TAGVIEW program also involved the University of Melbourne, the University of Adelaide's Australian Institute of Machine Learning (AIML) and the Commonwealth's Defence Science and Technology Group (DSTG).

University of Melbourne Head of the Department of Electrical and Electronic Engineering, Professor Chris Manzie, said: "This project is a great demonstration of how academia and industry can work together to develop capability and highlights the important role research can play in supporting national interests."

University of Adelaide's Australian Institute for Machine Learning (AIML), Professor Ian Reid, said: "For a vehicle to operate with any degree of autonomy, it must be able to sense and understand its surroundings. Computer vision and machine learning are the core technologies that unlock this capability to understand the vehicle's environment. Our experts have been excited to showcase these technologies integrated on a M113 platform for the first time."

Defence Science and Technology Group's Program Leader – Artificial Intelligence, Associate Professor Rob Hunjet, said: "TAGVIEW is a great example of how partnerships between industry, academia and Defence can achieve more together, pushing the boundaries of autonomy, particularly in the area of perception and path planning."

ITALIAN ARMY SELECTS SITAWARE HEADQUARTERS

22 February 2024

Systematic announced the Italian Army has deployed its SitaWare Headquarters solution for the organisation's Imperio programme. SitaWare Headquarters will be used from regimental to army corps level.

Delivered in conjunction with Italian partner Fincantieri NexTech – a Fincantieri Group subsidiary which specialises in innovative solutions – the selection and implementation came after rigorous testing and evaluation by the Esercito Italiano through a competitive tender. SitaWare Headquarters stood out with its open architecture allowing additional modules to be easily integrated into the platform, scalability to support rapid integration and deployment of new modules, security, and survivability and availability.

"We are proud to be supporting the Esercito Italiano as part of its Esercito 4.0 [Army 4.0] modernisation programme, which includes the digitisation of command posts and the deployment of an integrated, redundant, multidomain broadband communications network. Systematic's SitaWare Headquarters has been selected to provide a Common Operational Picture (COP) for static and mobile headquarters units to enable the management and distribution of the COP across the armed forces command," said Systematic Senior Business Development Manager Paul Fielding. "As we continue to leverage a range of new technologies such as artificial intelligence into the SitaWare suite, we are looking forward to the long-term partnership with Fincantieri NexTech and Esercito Italiano that will come from this contract," Fielding added.

The new capability will enable the Esercito Italiano's operational units to easily integrate current and future tactical systems, and further enhance interoperability within the Italian military, NATO, and beyond. To date, the Esercito Italiano has employed SitaWare Headquarters in a number of training exercises, with the Pinerolo Brigade spearheading the deployment of the system.

SitaWare Headquarters is the market-leading C4ISR platform that enables all levels of command to share situational awareness, track friendly and enemy forces, as well as supporting the development and delivery of operational plans in both deployed and fixed locations.

The platform supports increased flexibility in the planning cycle through collaborative construction of both textual and graphical plans and all orders for all staff functions. SitaWare further supports a wide range of military and civilian data communication standards, promoting joint, coalition, and civil-military interoperability.

Over 50 nations have deployed SitaWare Headquarters, including the US Army, British Army, German Army, New Zealand Defence Force, Royal Danish Army, NATO, and more.

USS Halsey, JS Sazanami and HMAS Warramunga conduct a cooperative activity between Japan, the United States and Australia during a regional presence deployment. (DoD photo / Leo Baumgartner)

AUSTRALIA TO PARTICIPATE IN EXERCISE MILAN 24

18 February 2024

Australia will continue to deepen its relationships with India and like-minded regional partners this month by participating in Exercise Milan 24.

Hosted by India from 19-27 February in the port city of Visakhapatnam and the adjacent Bay of Bengal, Exercise Milan 24 will bring together approximately 50 nations and around 20 international vessels and aircraft from across the Indo-Pacific and beyond.

Exercise Milan 24 is a key element in the Australian Defence Force's first regional presence deployment for 2024 and the first large-scale multilateral exercise on the Navy's calendar for the year.

The Australian Defence Force will be represented by the Commander of the Australian Fleet, Rear Admiral Chris Smith, AM, CSM, RAN, and HMAS Warramunga, with an embarked MH-60R Seahawk helicopter, which is currently conducting an Indo-Pacific regional presence deployment.

Pursuing the theme 'Camaraderie, Cohesion, Collaboration', Exercise Milan 24 will feature a six-day harbour phase offering knowledge sharing, leadership engagement and a table top exercise along with a street parade and cultural exchanges.

The four-day sea phase will comprise advanced maritime training including anti-submarine, anti-surface and anti-air warfare exercises along with large force maritime manoeuvres.

Australia's Joint Force Maritime Component Commander, Commodore Jonathan Ley, said the exercise was important for building international relationships, professional development and for Warramunga's crew to practise operating at sea as part of a large multilateral fleet.

"Exercise Milan is an important biennial training activity for the Indo-Pacific region and valuable for advancing Australia's place as an Indian Ocean neighbour," Commodore Ley said.

"Our participation in Exercise Milan 24 will help deepen Australia's navy-to-navy relationship with India, provide opportunities for naval leaders to contemplate shared security challenges and enhance mutual understanding among the navies of like-minded nations.

"I am very grateful to the Indian Navy for the opportunity to again join the growing number of participants in 2024."

Milan 24 will be the twelfth edition of India's biennial flagship exercise, which began with just four nations in 1995. Australia has been a participant since 2003.

Australia's participation in Exercise Milan 2024 follows its hosting of Indian-owned Exercise Malabar for the first time in 2023, which drew together naval forces from India, Japan, the United States and Australia for exercises in Sydney and the seas off the NSW coast.

HMAS Warramunga departed for its current three-month regional presence deployment in late January and will participate in several exercises, cooperative activities and joint patrols with partner navies along with regional port visits.

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Royal Australian Navy destroyer HMAS Hobart off Australia's east coast during Exercise Diamond Seas 2022. (DoD photo / Annika Smit)

Navy surface fleet facing a worrying fall in numbers later this decade

Kym Bergmann // *Canberra*

To the presumed delight of the government, the immediate reporting of its response to the review of the RAN surface fleet, released on February 20 was positive, talking about a doubling of ship numbers. However, even a cursory review of the timetable suggests that this effect will only be achieved in the mid- to late-2030s. In the near-term, fleet numbers shrink.

Titled 'Enhanced Lethality Surface Combatant Fleet', its analysis is weakened by leaving out of the equation forthcoming platform upgrades and maintenance activities that will have an important impact on availability from at least 2026. These include:

- Hobart class Air Warfare Destroyer midlife upgrades. These will begin in 2026 and will take at least two years, possibly longer for the first ship. There are three Hobart class, so until about 2033 only a maximum of two will be available at any one time;
- Anzac class frigates. Of the current eight in service, two will be retired immediately. The remaining six will be upgraded – presumably one at a time. This means that, optimistically, five will remain available with the caveat that they are old platforms;
- Since the Arafura class have been stripped of their weapons by the RAN, their initial small but important contribution to the surface fleet has been deliberately downgraded to zero;
- Even though the focus is on the surface fleet, it is important to remember that the Collins class submarines are also starting their Life of Type Extension (LOTE) program in 2026. Each boat is scheduled to be out of the water for

two years, but it would come as no surprise if the first one was unavailable for three years – or more. Submarines are notorious for being much more difficult to overhaul than planned because it is only when they are fully opened up that the extent of the corrosion, wear & tear, and damage becomes apparent.

In summary – and in the best case scenario – later this decade the RAN will have:

- Tier 1 combatants: 2
- Tier 2 combatants: 5 (realistically 4 or less)
- Submarines: 5 (realistically 3 or less)

This is the combat power of the RAN from 2026 until about 2033. By then it is possible that the first of up to 11 general purpose frigates will enter service, along with the new Hunter class frigates. For offshore patrol the RAN will have 12 Evolved Cape class and 6 Arafura class. Of these an unknown number will be in maintenance at any one time but since they are relatively simple designs that should not be too many.

Around three years ago the RAN cancelled a contract with Leonardo for a 40mm main gun for the Arafuras. Despite a number of promises to select a new gun – and as an interim measure equip them with 25mm Typhoons – nothing seems to have been done. As a consequence, all of the OPVs will go to sea with nothing other than some short range automatic weapons – and not a single missile or torpedo among them.

On releasing the report, Defence Minister Richard Marles said:

"Today, the Albanese Government is announcing an increase in the number of warships in the Royal Australian Navy to being the largest fleet since the end of the Second World War.

"Right now, the Royal Australian Navy has 11 warships. As a result of the Government's response to the service fleet review, today we are committing to take that number to 26.

"At the heart of that will be building six Hunter-class frigates at the Osborne Naval Shipyard in Adelaide. This will see the first of those ships delivered in 2034, which is the current timeframe."

As we have explained above, the problem for Richard Marles is that by 2026 that number of warships will have sunk from 11 to just 7. This trend has been apparent for years and yet Navy and Defence seem to have been drifting along with no sense of urgency to address what could be a critical capability gap.

If we have had difficulty deploying to the Red Sea now because of platform unavailability, just imagine what the situation will be two years from now.

HMAS Warramunga conducts a cooperative activity between Japan, the United States and Australia during a regional presence deployment.

One can only wonder how Navy plans to keep fully trained – and motivated – sailors across such a tiny number of platforms. As an aside, another 12 MH-60R helicopters are on order to add to the 24 already delivered.

One can only wonder how Navy plans to keep fully trained – and motivated – sailors across such a tiny number of platforms. As an aside, another 12 MH-60R helicopters are on order to add to the 24 already delivered. To have 36 expensive ASW assets – and their aircrew and maintainers – for just 7 platforms seems excessive. Charitably, some could be operated from Canberra class LHDs, but if those are ever used to hunt Chinese submarines Australia is in big trouble.

Some parts of the response to the review of were expected, such as the reduction in the number of Hunter and Arafura classes to a total of six each. What was unexpected is the acquisition of six Large Optionally Crewed Surface Vessels from the US that do not yet exist. Another surprise is that the word AUKUS doesn't appear once.

While six Anzac class frigates will be upgraded and remain in service for years to come, there will now be a competition between four suppliers for between 8 and 11 new general purpose frigates. The first three are likely to be built in yards in either Germany, Japan, South Korea, or Spain.

Taken together, this package will eventually substantially increase the size of the RAN surface fleet, something that the government says is essential to protect Australia's sea lanes of communication during a time of enhanced strategic risk. The report indicates that there will be an increase in funding of $11.1 billion over the next decade – something that will presumably be detailed in the May budget. As welcome as that amount is, it's not a lot in scheme of things.

The report also calls for the upgrade of the three Hobart class Air Warfare Destroyers to be accelerated, but since work is scheduled to begin in 2026 there's not a lot of room for improvement there. The decision to bring forward that upgrade should have been taken years ago.

The 11 general purpose frigates will be in the 3,000 – 4,000 tonne range with the choice being:

- Meko A-200 (built by tkMS)
- Mogami 30FFM (Mitsubishi Heavy Industries)
- Daegu class FFX Batch II and III (Hanwha Ocean)

Royal Navy Offshore Patrol Vessel, HMS Spey, and Royal Australian Navy Armidale Class Patrol Boat, HMAS Childers, conduct Officer of the Watch Manoeuvres on 06 September 2023.

- Navantia ALFA3000 (Navantia)

How they were selected is unknown – though they are all modern designs of similar size and capability. An obvious problem is schedule – if this is managed as a classic four-way competition with a mandated Aegis combat system and a CEA radar suite that screams delay. The only sensible solution for a ship of this size would be the Saab 9LV combat system – though we note Aegis has been mandated for the non-existent optionally crewed ships.

Several industry sources have indicated that they believe the list of four are merely an indication of what the RAN wants, and these designs are not the only ones possible.

In the unlikely event that the RAN has a specification ready to go – because that would have meant working in advance - companies will have to wait for the release of an RFI or RFT. After that, they will need a year to respond, followed by a possible short list, then offer definition activity, source selection, contract negotiations and so on.

If all goes well, construction in a parent European or Asian yard might start in 2028. If Hanwha of South Korea is selected, they might deliver the first ship in 2030 – for all the others it would be a year or two after that.

For BAE Systems, six Hunter class frigates seems to be the least-worst outcome. However, there is zero chance of that program being accelerated – and the government says it has discovered a massive cost blowout in the project. If correct, this increase would seem to eat up most, if not all, of the foreshadowed Defence budget increase.

The existence of this alleged blow-out has been denied by BAE Systems – and it would be in character for both Ministers Marles and Conroy to seek to gain political advantage in trying to blame their predecessors for poor performance. However, they have been in government for almost two years and those excuses are starting to wear very thin.

The Hunter project has both supporters and detractors. Taking to social media, program director Commodore Scott Lockey wrote:

"This week I have had the privilege to address members of Team Hunter, in both Defence and with our prime Industry partner, BAE Systems Australia. After many months of uncertainty, it was wonderful to be able to stand in front of our people and give them an assurance that they have ongoing employment.

"There is no doubt that this program is ambitious. We are integrating an Australian radar with a US combat management system and integrating it into the UK reference ship design. We are integrating the MH-60R Seahawk Romeo helicopter, Australian weapons and communications systems, and ensuring that the design meets Australian legislative and Royal Australian Navy seaworthiness requirements. And we are producing the ship in a shipyard that incorporates high levels of automation and technology, the likes of which have never been used before in any Australian shipyard.

"Individually, any of these 'first of class' activities would be challenging, but we are doing all of them at the same time!

"The ultimate outcome will be a highly capable multi-role frigate optimised for anti-submarine warfare, and a sovereign ship building capability, both of which will be a source of pride for our nation. These ships will contribute to the security of our nation and our way of life. They will be a national asset."

He concluded with a plea, including to the media:

"I believe in this program and I am determined to lead Team Hunter to success. So my plea to our stakeholders, commentators and the media is a simple one: when reporting on our program, please choose a different adjective. Instead of 'troubled', 'expensive', or 'controversial', how about using 'ambitious', 'optimistic', 'progressive' or 'pioneering'.

"Please help us to avoid a repeat from the Collins Class Submarine program. Collins attracted an early description of being a 'dud sub' and it took a couple of decades to shake that moniker. But look at them now - a world class submarine, built and sustained in Australia, that has served our nation with pride for decades. The Hunter can be a similar source of pride for our nation, but we need your help."

Here at APDR, we shall attempt to do so – and ambitious is a good word.

It's a profoundly disappointing result for Luerrsen, with the Arafura class cut to a mere six down from 12. The ships have been heavily criticised as being under-armed – but that was

a decision taken by the RAN themselves. As we have frequently pointed out, the parent ships for Brunei pack a decent punch with four surface-to-surface missiles and a potent 57mm main gun. It remains a perpetual mystery why the RAN took a useful ship and turned it into the opposite – and then blamed the shipbuilder.

The only way of fast-tracking capability and maintaining the Australian supply chain would have been to transition from the Arafuras to the C90 corvette being constructed by Luerssen for Bulgaria in their Varna shipyard. This could have seen a heavily armed +2,000 tonne warship with 70% AIC delivered from Henderson in 2028 at the latest.

The Bulgarian corvette carries canister-launched surface to surface missiles and surface-to-air missiles. It has a high-performance Israeli hull mounted sonar and ASW torpedoes and is armed with a 76mm rapid firing main gun. The slightly stretched 100 metre version that Luerssen had in mind for Australia could additionally have had a CEAFAR radar suite, VLS missiles and extended range.

Other than wasting money on second hand ships, the Luerssen offer was the only conceivable way of getting new ships in the water quickly and roughly within the existing budget. It was ignored.

Other areas of concern are Mine Counter Measures (MCM) and logistic ships. SEA 1905 has been rebadged and rescoped so often it is difficult to tell if the RAN has any serious interest in mine warfare – something usually considered to be a critical capability. There is now the very real prospect that the only platforms available for deployable mine countermeasures will be yet another ex-Norwegian offshore oil and gas tender purchased on the open market for exorbitant brokerage fees.

SEA 2200 – the proposed purchase of two logistic support ships – seems to have metaphorically sunk without trace. Overlooking the rhetoric of the government, wiser heads might have decided that there is no point buying extra support ships when there is nothing to support - at least, not until the mid-2030s.

The big mystery are the six large optionally crewed ships. The concept is great since the RAN has huge problems with shrinking personnel numbers – but these ships simply do not exist. The review recommends that these imaginary ships be purchased from the US – but why?

In a truly surreal twist, Defence Minister Richard Marles has said that the optionally crewed ships will in fact be fully manned. This begs the question: why building in all those hugely expensive AI-enabled systems if you have no intention of ever using them? This sounds like an acquisition shambles in the making. He said on February 20:

"They have the capacity to operate in an uncrewed fashion, but it is the intention of the Royal Australian Navy to crew these vessels. They will operate in combination with the Hobart-class anti-warfare destroyers, Air Warfare Destroyers and they will also operate in conjunction with the Hunter-class frigates."

That's fine in theory, but what if the USN cancels the program – a not unusual occurrence? Or even more basically, if they are only going to be operated as crewed ships then why not just buy six regular ships instead? What could be the possible advantage in paying extra for a feature you decide in advance you don't need. Would anyone in their right mind hire a chauffeur and then do all of the driving themselves?

There are many questions to be answered in all of this and a cynic would say this is yet another perfect job for a retired USN Admiral.

The first Arafura Class Offshore Patrol Vessel to be built in Australia was launched in an official ceremony at Osborne Naval Shipyard in South Australia on 16 December 2021. (DoD photo / Stewart Gould)

The Virginia-class fast-attack submarine USS Washington (SSN 787) prepares to moor pierside during the boat's homecoming at Naval Station Norfolk, Dec. 15, 2023. (U.S. Navy photo by Mass Communication Specialist 1st Class Cameron Stoner)

AUKUS fail – US legislation to fund submarine industrial base blocked

Kym Bergmann // *Canberra*

A necessary precondition for the sale of second-hand Virginia class submarines to Australia in the 2030s is that their rate of production needs to be substantially increased. This, in turn, requires an increase in funding – an increase that now will not happen because of internal US politics.

Republicans in Congress have rejected even considering an omnibus bill that has the main objective of increasing security at the southern border – but which also contains numerous provisions for extra defence spending. What has received the most attention is that the legislation includes desperately needed money for Ukraine and Israel – but Australia is also a casualty. Not that you will learn that from our own government, which remains determined to conceal what is really happening from the public.

Known as the National Security Supplemental Appropriations Act – 2024, it also included a total of US $3.3 billion in various measures designed to expand the industrial base for submarine construction. The money is divided across a number of areas, including directly on Colombia class missile firing SSBNs (an extra US $1.95 billion); Virginia class SSNs (US $200 million); and a variety of activities such as facilities construction and R&D.

With overall US defence spending capped for the next two years by Congress, there appears to be no way – at least in the short term – for submarine construction to be lifted from its current rate to anything like that required for a sale to Australia. Virginia class SSNs are being produced at a rate of 1.5 per year – and this needs to reach an annual rate of 2.33 before they are being churned out at a rate exceeding the needs of the USN.

In another blow to expanding the industrial base, the US Presidential budget request for 2025 only includes funding for a single SSN – though to be fair, components for a second are also part of the deal.

Against this background, Australia is on course to transfer $4.59 billion at today's exchange rate (US $3 billion) to the US Secretary of the Navy by the end of 2024. So, while the US is not prepared to spend its own money to increase submarine production, a supposedly close ally in the form of Australia is on the hook to hand over a massive amount of cash – with no visibility on how it will be spent, and apparently no refund clause.

This complete travesty has been negotiated in secret by national security bureaucrats in both countries with Australian politicians – and in particular Defence Minister Richard Marles – too spineless to even consider some form of renegotiation.

In the US, a political champion of the Virginia class sale is Congressman Joe Courtney, whose district in Connecticut – not coincidentally – is the location of the Groton shipyard that makes submarines. Regarding the Republican decision not to even consider the bill, he issued a statement referring to Congressional House Speaker Mike Johnson:

"This week, Rep. Joe Courtney made it clear again, again, and again to Speaker Johnson that his refusal to allow a vote on the national security supplemental is a vote against AUKUS and our allies in their time of need.

"The bill, which passed out of the Senate on Monday morning with the support of 22 Republicans, includes support for Israel, Ukraine, Taiwan, as well as an often "overlooked" $3.3 billion investment in the U.S. submarine industrial base (SIB) to increase shipyard capacity and availability of attack submarines.

"On the House Floor Wednesday, Courtney highlighted the impact of the SIB investment on the AUKUS mission and implored Speaker Johnson to follow the Senate's bipartisan lead."

This complete travesty has been negotiated in secret by national security bureaucrats in both countries with Australian politicians – and in particular Defence Minister Richard Marles – too spineless to even consider some form of renegotiation.

This plea has fallen on deaf ears.

In mid-December when the US passed their 2024 defence budget, which included provision for AUKUS-related legal changes, Richard Marles was euphoric, saying on December 15 to numerous media outlets, including the ABC:

"Well, we're very pleased. We were confident that this is what would happen. Obviously, we're very grateful to the Biden administration, but also to members of the Senate and the House, across both the Republicans and the Democrats.

"I mean, in all the work that we were doing in speaking with members of the Senate and the House, what was clear is that there was genuine bipartisan support, both for the relationship with Australia, but also for this arrangement. But this is a historic achievement. It's the first time in American history that there has been the authorisation of a sale of a nuclear-powered submarine to another country."

And your thoughts now, Minister? How are you feeling about US bipartisanship? Any comment?

Incidentally, the legislation to which the Minister referred does not authorise a sale – that decision needs to be taken by a future US President at a yet to be determined date, but not before 2028.

In the meantime, as reported by Defense One, the US Secretary for the Navy, Carlos Del Torro, has lambasted local shipbuilding companies for their excessive greed. Speaking in San Diego at an industry conference on February 15, he said:

"Overall, many of you are making record profits, as evidenced by your quarterly financial statements, and you can't be asking for the American taxpayer to make greater public investments while you continue to goose your stock prices through stock buybacks, deferring promised capital investments, and other accounting manoeuvres."

He might have had in mind Huntington Ingalls Industries – co-producer of nuclear-powered submarines, along with General Dynamics Electric Boat. On January 31, the company issued a media release saying:

"HII authorizes a $600 Million Increase in its Share Repurchase Program to $3.8 Billion

HII (NYSE: HII) announced today that its Board of Directors has authorized an increase in the company's share repurchase program from $3.2 billion to $3.8 billion and extended the term of the program from Oct. 31, 2024 to Dec. 31, 2028.

"This action demonstrates continued confidence in HII's free cash flow generation and supports our commitment to return free cash flow to our shareholders," said Chris Kastner, HII's president and CEO."

Buybacks are a somewhat controversial tactic designed largely to boost share prices by reducing the number of them available to be traded. The principal beneficiaries – especially in the US environment – are company senior managers, whose employment packages typically include generous share options. The HII buyback in Australian currency is $5.82 billion.

The time is long overdue for Defence Minister Richard Marles to come clean and explain to the Australian public how they benefit from the unprecedented transfer of cash to the already bloated, massively profitable, US submarine construction firms when their own government is critical of their greed. Australian taxpayers: don't hold your collective breath.

The forthcoming Australian transfer – it has never been revealed whether the money was volunteered by our officials or sought by the US – is as likely to boost corporate profits as go on actual submarine construction.

The time is long overdue for Defence Minister Richard Marles to come clean and explain to the Australian public how they benefit from the unprecedented transfer of cash to the already bloated, massively profitable, US submarine construction firms when their own government is critical of their greed. Australian taxpayers: don't hold your collective breath.

Army Battle Management Systems

Geoff Slocombe // *Victoria*

A Battle Management System (BMS) provides a near real time information flow to tactical commanders in the field and to headquarters elements. Currently, the ADF has two BMS available to it. One is in operational service with Army since late 2023 and another which was successfully put to the test in October 2023 at Puckapunyal.

This latter trial was in collaboration with the Defence Science and Technology Group (DSTG). These systems are not yet in operational use by Defence although personnel have been involved with the test program.

The operational Army BMS, using SitaWare software was supplied by Danish company Systematic under Project Land 200 Phase 3 Tranche 1. A Defence spokesperson explained:

"The interim Battle Management System (iBMS) has been in use within Army since 2020. The iBMS uses a limited number of SitaWare Headquarters and SitaWare Frontline licenses and has been used in a range of exercises and activities, including Talisman Sabre 2023.

"The iBMS has recently been transitioned into Sustainment within CASG with Systematic Software Engineering Australia as the lead contractor.

"Further development of the Battle Management Systems will be achieved through Project Land 200 Phase 3 that is scoped to deliver the next generation of battlefield command and control capabilities to meet the current and future needs of the Land domain. Defence has released a Request For Information regarding Battle Management System – Command and Control (BMS-C2) applications to assist in understanding industry capacity and technology opportunities to achieve the battle management applications and radio systems for the Land domain being sought in LAND 200 Phase 3 Tranche 2."

Systematic advised by return email:

"As the preferred vendor of globally-proven C4ISR technology for the Australian Army, we are currently at a critical point in the bid evaluation stage with the Australian government, so it would not be appropriate to give you many of the details you have requested.

"What we will say is that Systematic prides itself on being an enabler for local industry within the many countries in which we work – our open architecture allows for integration with other systems where required and gives indigenous technology a global platform."

We understand that the software order will almost certainly be for five years plus one when the long-term contract is finally submitted to the Government in up to 18 months' time.

Meanwhile, since 2020 Army has been gaining experience by using SitaWare Headquarters software for battlegroup formations and above with Deployable Force Headquarters.

This project acquires and sustains digital command and control support systems that enhance combat power through the BMS, with the main elements being:

1. Enhances situational awareness and facilitates the navigation and execution of complex operations.
2. Increases the speed of decision action cycles within the Battle Group environment.
3. Enables land tactical commanders to exchange combat related data and voice information across the Battlespace.
4. Enables joint and coalition information exchange interoperability through voice communications.
5. Reduces the chance of fratricide via the display of friendly force tracking

Meanwhile, sponsored by the Australian Army and in part funded by the US Defense Threat Reduction Agency, Lockheed Martin Australia's Agile Shield battle management system passed its counter-drone operational test on October 25, 2023 after a three-week Field Capability Demonstration collaboration with the DSTG.

Although the early version is targeted specifically at assisting in managing and countering the evolving drone threat, the company apparently foresees a wider potential application of the technology, possibly in conjunction with its own C2 system recently procured under the Air 6500 contract. This would vastly expand the potential for Agile Shield, currently the subject of an $9 million contract won in 2021 under the Counter Improvised Threats Grand Challenge.

Over three weeks, the BMS was subjected to a real-life field evaluation, as well as a series of live demonstrations for select Defence personnel.

Lockheed Martin and Defence know that in today's contested environment, there is a serious need to counter the threat of today, while also preparing to counter future ones.

Agile Shield is a tactical system designed to detect, neutralise and mitigate improvised threats in a complex battlespace, helping to address the problems of tomorrow.

Developed for Defence by Lockheed Martin Australia's Science, Technology, Engineering, Leadership and Research Laboratory (STELaRLab), the system uses a range of sensors and effectors to defeat these threats, which can include unmanned aerial systems (UAS) and improvised explosive devices.

It also uses simulation technology, allowing users to adjust and configure the system based on the environment.

The successful drone tests came after an impressive software development process coming a few short months from initial simulation to field testing. This included the ability to fuse data from several sources. The target drones used in this initial testing were typical of the small quadcopters chosen by both armed forces and terrorist organisations worldwide.

"Unmanned aerial systems under 25kg have become a real problem because they are low-cost. It can cause more problems for tracking systems because they are trying to identify something that size hovering close to a target," said Mr Jeff Vesely, DSTG's Counter Improvised Threat program lead.

Senior military adviser in DSTG's Land and Integrated Force Division, Brigadier David Westphalen, said the system was designed to minimise risk from these threats:

"Any system that reduces the risk to the war fighter and civilians in the battlespace will enhance our likelihood of success".

Lockheed Martin Australia makes much of the local nature of the system – every line of code and all the original concepts being Australian. Both Agile Shield and the Air 6500 C2 system are developed with open systems architecture, so their potential to work together is a near certainty.

Other companies involved in developing the system include Clearbox Systems, Codarra Advanced Systems, Department 13, DroneShield, InTrack Solutions, Silentium Defence and Trakka Corporation.

Australian Army soldiers from 3rd Battalion, The Royal Australian Regiment embark a MRH-90 Taipan as part of air mobility operations on Exercise Brolga Run 23 at Townsville Field Training Area, Townsville, Queensland. Note the rear ramp. (DoD photo / Riley Blennerhassett)

Australian Army blocks Taipan helicopters for Ukraine to cover up their own failures

Kym Bergmann // *Canberra*

Army and the government continue to stall and misdirect when it comes to the sad tale of Australia's Taipan helicopers – no longer wanted here but being destroyed rather than given to Ukraine. During Senate Estimates on February 14, Army witnesses tried to maintain the fiction that they only received the request from Kiev on December 17 – completely air-brushing several months of history.

During the same hearings Defence officials had to take on notice a number of simple questions, such as the identity of the person – or persons – who signed advice to government on the condition of the Taipans and their disposal strategy.

Earlier, on September 29, Defence Minister Richard Marles said of the grounded Taipans and the decision not to return them to service:

"I mean, the Taipans, I should say, over a period of time, have provided service for our country and great service for our country. They are a highly capable platform. They are able to operate in ways that other platforms, including the Black Hawk, can't."

Australian Army MRH-90 Taipans from the 5th Aviation Regiment prepare to land as part of air mobility operations. (DoD photo / Riley Blennerhassett)

Why the decision was not taken at time – let alone months before - to donate them to Ukraine is unknown because the needs of that country since the illegal Russian invasion two years ago are a matter of obvious public knowledge. A brief timeline:

October 10: Senator David Fawcett (Lib, SA) notified the government during a NATO meeting in Copenhagen of Ukraine's interest in acquiring the Taipans specifically for aeromedical evacuation. He told the office of Richard Marles that when the Ukrainian military delegation returned to Kiev they would submit a formal request.

October 18: Disassembly of the Taipans commenced.

December 17: Formal request from Ukraine received.

January 17: Acting Defence Minister Pat Conroy Army says the request was "too late" and the helicopters had been disassembled to the point of no return.

Photographic evidence and independent engineering advice shows that was not the case. The mad rush to destroy the helicopters between October 18 and December 17 is itself evidence of malpractise.

On February 19, it took only 90 seconds and two questions from Senator David Fawcett to Foreign Minister Penny Wong to confirm what many have long suspected – the only thing between desperately needed Taipan helicopters being donated to Ukraine is a veto by the Army, which the government is too weak to overrule:

Sen Fawcett: The reality is that Ukraine first expressed an interest in using the Taipans for casualty evacuation during a meeting I held with them during a NATO conference in October last year – and I made sure that your government was advised of that interest even before I left Copenhagen and returned to Australia. Minister – why didn't the Albanese government even bother to pick up the phone to consult the Ukrainians before deciding on a plan to dig a hole and bury the helicopters?

Sen Wong: As I understand it, in relation to these matters the Government has acted on advice from Defence. The advice I have is that the advice from Defence is that these were not the right platform for Ukraine and the Government and Defence made decisions on that basis.

Sen Fawcett: Minister, I think the Ukrainians are well placed to decide what platforms will keep their soldiers alive (shouts of Hear! Hear!). Now that the Government has a formal request from Ukraine – and it has been established that a number of helicopters remain airworthy in Townsville – will the Albanese government reverse its decision and donate the aircraft, even in their current state, to allow Ukraine to work with its NATO partners that continue to safely operate the same type of helicopter to establish an Aeromedical capability to save the lives of their people?

Sen Wong: In relation to this issue, I will continue to take the advice from Defence about the best way forward for this platform, but also I will make the broader point that the government continues to keep under review the nature and breadth of the assistance to Ukraine.

The arrogance of the Australian Army in

deciding what is, and what is not, suitable for Ukraine is a level beyond breathtaking.

The last time the Army was engaged in a conflict of the scale and savagery of the invasion of Ukraine would have been during the Siege of Tobruk in 1941 – and even that was a minor skirmish compared with the ongoing assaults being launched daily by Russian forces. Taking into account the static nature of much of the current conflict and the use of massed artillery, and the daily casualty rate, one would need to go back to Passchendaele on the Western Front in late 1917 for a closer analogy.

The armed forces of Ukraine have collected more combat experience in the last two years than the ADF has in the previous six decades. When they say that they can make good use of Taipans it is ridiculous that the Australian Army from the comfort of the offices of Canberra can overrule their request.

Ukraine is well aware that the Taipan/NH90 family have an excellent safety record – and the sensor mix is unmatched in its class. The idea that the helicopters are unsuitable for Ukraine, or would be impossible for that country to maintain, are complete fabrications, backed by zero evidence.

Asked by APDR at the National Press Club on February 28, Ukraine's Ambassador Vasyl Myroshnychencko explained that the country has more than 300,000 software engineers – some working for Australian companies such as Atlassian – and an advanced industrial base (at 52'12") https://www.youtube.com/watch?v=VMbdjPDY01w

The motivation is obvious: senior officers in the Army would be highly embarrassed if another nation was able to safely and effectively operate Taipans when they have so mismanaged the program. While prime contractor Airbus Helicopters is not completely without blame, the poor availability of Taipans is explained largely by:

- Not enough trained and qualified aircrew;
- Not enough spare parts ordered;
- Unintegrated logistic data bases such as CAMM2;
- A deliberate unwillingness to learn from successful operators, such as New Zealand;
- Too many geographically diverse centres of support;
- A support contract that gave Defence a perverse financial incentive to ground the fleet;
- Spurious or unnecessary groundings, caused by a failure to implement updates recommended by the manufacturer

An Australian Army MRH90 Taipan helicopter from the 5th Aviation Regiment, at the capability display, during Exercise Vigilant Scimitar at Charters Towers Airfield, Queensland. (DoD photo / Carolyn Barnett)

This list needs to be combined with an unhealthy, illogical and uncontested obsession on the part of a few senior Army officers to return the good old days of Black Hawk helicopters.

As has been widely reported, the cost to the Australian taxpayer of returning between 12 and 20 helicopters to flying condition will be minimal because there are plenty of volunteers to do the work for free: https://www.abc.net.au/news/2024-02-07/last-ditch-offer-to-divert-taipan-helicopters-help-ukraine/103434286

If even that is unacceptable, then the Government should transport helicopters and parts to Europe and let Ukraine's NATO allies France and Germany – major operators of the Taipan / NH90 family – do the work over there.

At about the same time as Senator Fawcett's questions, Defence Minister Richard Marles had an extraordinarily softball interview on the ABC's "Afternoon Briefing" program during which he made a number of inconsistent or misleading claims:

- He said he had no idea how much the Taipan parts would be sold for. How then can he claim that this strategy represents the best value for money for taxpayers;
- Claimed that the dismantling had commenced before the request from Ukraine had been received. This is close to a lie – Senator Fawcett advised the government of Ukraine's interest around October 10; disassembly started around October 19;
- He said on several occasions that Army faces a major capability gap with the early retirement of Taipans and was unable to say when, or how many, Black Hawks will be fully operational, despite the expedited delivery of 12 of them. Even if the first 12 are operational by the end of 2024 that does not replace 45 Taipans. There is no logical explanation for why this has been allowed to happen;
- Repeated that Australia – not Ukraine – is better placed to decide what is "useful and practical" for the armed forces of Ukraine.

Clearly, the Australian Army has convinced the Government to fully back their strategy of destroying Taipans simply to stop anyone else from using them. In their minds, the fate of Ukraine is far less important than covering up for their own incompetence and mismanagement.

In some remarks at the end of Question Time, Senator Fawcett commented that Army – and the Government – are more interested in saving face than in saving the lives of Ukrainian soldiers. He concluded:

"That is not the Australia that I know. That is not the Australia that has put its shoulder to the wheel many times to support like-minded nations – particularly here, where we are seeing such a great loss of life and injury to their population as they fight against totalitarian regimes in order to protect the democracy that we share and want to preserve."

Army M1A2 crews to train on Australian-developed MBT simulator

Kym Bergmann // *Canberra*

Under Project LAND 907 Phase 2, Australia is paying $2.4 billion to acquire 75 Abrams M1A2 Main Battle Tanks and associated armoured engineering support vehicles from the US. The process involves purchasing a total of 160 M1A1 hulls out of storage and having them re-manufactured to produce the tanks for Australia.

The original 2021 notification to Congress detailed the package:

"The Government of Australia has requested to buy one hundred sixty (160) M1A1 Tank structures/hulls provided from stock in order to produce the following end items and spares: seventy-five (75) M1A2 SEPv3 Abrams Main Battle Tanks; twenty-nine (29) M1150 Assault Breacher Vehicles; eighteen (18) M1074 Joint Assault Bridges; six (6) M88A2 Hercules Combat Recovery Vehicles; and one hundred twenty-two (122) AGT1500 gas turbine engines.

"Also included is development of a unique armor package, Common Remotely Operated Weapon Station Low Profile (CROWS-LP), Driver's Vision Enhancer, mission equipment, special tools and test equipment, ground support equipment, system and engine spare parts, technical data, publications, Modification Work Orders/Engineering Change Proposals (MWO/ECPs), U.S. Government and contractor technical and logistics assistance, quality assurance teams, transportation services, program management, New Equipment Training (NET); and other related elements of logistical and program support. The total estimated value is $1.685 billion."

A U.S. Army M1A2 Abrams tank from Comanche Company, 4th Battalion, 6th Infantry Regiment moves to refuel during exercise Talisman Sabre 23 at the Townsville Field Training Area, Townsville, Australia, July 25, 2023. \ (U.S. Army photo by Spc. Charlie Duke)

The Abrams family are relatively expensive to operate because they are powered by a 1,500hp gas turbine engine from Honeywell, rather than far more common and less thirsty diesels used by most MBTs. During conflicts that is only a trivial consideration, but in peacetime it can be a cash drain because of the cost of training – particularly participation in live exercises.

The most recent Australian Defence budget papers for the project have the value as US $1.5 billion, so the original package might have been trimmed – but as usual no details are available. The document describes the activities for this year – valued at $971 million – as the manufacture of the vehicles plus a number of tasks, including planning for their introduction to service in Australia and training.

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Which brings in Australian company Thomas Global Systems (TGS). Having been awarded a contract to develop an Immersive Tactical Trainer (ITT) in 2022, deliveries to the Army are now starting. Not as well known as some other local companies, Thomas won the deal after a competitive tender – and this builds on simulation work that they have previously conducted for ASLAVs and the Collins Class submarine.

APDR discussed progress on the Abrams contract with Michael Hall, Director of Business

TGS M1A2 simulator (TGS image)

For the Australian customer, TGS will deliver 16 sims. All are high fidelity, meaning that the buttons and switches inside it look and feel exactly the same as in the real thing. Every periscope is simulated so the crew can look out and see the same view of the external environment.

Development at TGS who explained that the company won the contract against some tough competition, including Lockheed Martin. The result is a fully Australian designed, developed and manufactured M1A2 SEP9v3 simulator. As a consequence, TGS owns the IP for the system and is looking for export opportunities – of which there could be several since more than 10,000 Abrams were built, with many still in service around the globe.

While the TGS sim is for the latest version of the tank, modifying it for earlier models is not particularly demanding because it involves removing a few interfaces. As well as direct sales to existing users, Mr Hall said the company was receiving good support from CASG in working with the US, possibly to include the sim in future FMS contracts.

There is a lot of interest coming out of Eastern Europe in particular for MBTs – and large numbers of Abrams have also been sold in North Africa and the Middle East. The US Army is also a potential customer because their current sim only represents part of the tank, unlike the full immersive system developed by TGS.

The advantage of the TGS sim is that it includes all five crew positions in the MBT, allowing more collective training. According to Mr Mall, using a virtual environment before getting in the real thing means savings not only in fuel but other items such as reducing track wear, saving the drive motors in the turret – and generally reducing the wear and tear on the vehicle.

The data to develop the sim was provided to TGS as a consequence of the original FMS

Australian Army M1A1 Abrams provide support by fire for a combat team quick attack during Exercise Iron Warrior 23 at Puckapunyal on November 28, 2023. (DoD photo / Michael Rogers)

package, which included all of the necessary technical data packs and licensing agreements. The company then also undertook site surveys with their engineers having the opportunity to inspect actual hardware – namely the tanks themselves – to undertake data capture missions in Detroit, where the manufacturer General Dynamics has vehicles available.

For the Australian customer, TGS will deliver 16 sims. All are high fidelity, meaning that the buttons and switches inside it look and feel exactly the same as in the real thing. Every periscope is simulated so the crew can look out and see the same view of the external environment. The one trade off was the loader station for the 120mm main gun, which for reasons of cost and space is a representation rather than the actual weapon.

The entire thing fits inside a 20' shipping container for ease of transport and deployment and they can be powered by a mobile generator. The company is in the final stages of testing the first device prior to delivery.

Four sims will go to the School of Armour at Puckapunyal allowing for troop manoeuvre,

An Australian Army M1A1 Abrams Main Battle Tank in Indonesia during Exercise Super Garuda Shield 2023. (DoD photo / Dustin Anderson)

driver, and gunnery training. In addition, the three units operating the M1A2s will receive four transportable sims each. This allows deployments into the field – for example to the Mount Bundy and Shoalwater Bay training areas – so the sims can be used alongside the actual tanks before they start burning fuel and shooting for real.

It is possible to connect the tank simulators with each other allowing multiple vehicle play, and ultimately to Army's broader synthetic environment. The ultimate goal is to connect everything through a land sim network so that multiple platforms and users can train together. This will lead to Infantry Fighting Vehicles in one part of Australia being able to exercise with M1A1 simulators thousands of kilometres away, potentially with other platforms being added to the mix - including in other countries.

This will allow combined arms manoeuvre operations to be rehearsed in something like a networked video game environment. This will not only have enormous cost savings but will also allow exercises to be conducted in a safe way without physical 65 tonne MBTs travelling at 60km/h firing their weapons and roaring across a landscape populated by occasional humans and unlucky wildlife.

The Defence Strategic Review was not particularly kind to Army and the service is under pressure to find further cost savings – and an increased use of simulation is a good way to do it.

On the current hot topic of Ukraine – a recipient of Abrams – for the moment their armed forces are training on the tanks themselves, presumably from a sense of urgency – and have not yet put long-term training measures in place.

Asia-Pacific AEW&C market flying high

Guy Martin // *Johannesburg*

The US and NATO's recent acquisition of Boeing E-7 airborne early warning and control (AEW&C) aircraft to replace veteran E-3 Sentry fleets has once again highlighted the rapid growth of the global airborne early warning market. Tensions in the Asia-Pacific are also driving procurement as well as local development there, with nearly a dozen countries in the region operating AEW&C aircraft and more looking to acquire – even North Korea is believed to be pursuing an AEW programme.

AEW&C aircraft have traditionally been used for the monitoring and control of the air, but growing sensor sophistication is seeing these aircraft become more versatile, and function as battlespace monitoring platforms able to provide a real-time picture of the movement of aircraft, ships, missiles and vehicles across air, land and sea. This ever-increasing utility and growing multi-role capability is an important factor in the Asia-Pacific, where many disputes are over islands and ocean resources.

China operates the biggest AEW&C fleet in the region, with 60+ fixed-wing AEW&C aircraft in service, and this number is growing rapidly. The country's newest AEW aircraft is the Xian KJ-600, designed for the People's Liberation Army Navy (PLAN). Although very similar in appearance to Northrop Grumman's E-2 Hawkeye, the KJ-600 is a completely new design. It's not clear what radar the twin-turboprop KJ-600 uses, but it's likely to be an active electronically scanned array (AESA) type fitted inside a rotodome, possibly CETC's KLC-7. This is claimed to track targets at all altitudes, including sea-skimming cruise missiles. It is possible the KJ-600 airframe may be developed for other carrier-based roles, such as anti-submarine warfare.

When the KJ-600 enters service, China will be the third nation to operate fixed wing AEW aircraft from its aircraft carriers, after the US and France. Between four and six KJ-600 prototypes have been built, with flight trials from late 2020 ahead of service entry aboard the new Type 003 aircraft carrier Fujian, which, unlike China's first two carriers, features electromagnetic catapults. The Fujian was launched in June 2022 and will likely be commissioned in 2025, vastly expanding Chinese carrier capabilities.

A PLAN KJ-500 (Gao Hongwei and Zhang Bin - China MoD

The PLA Air Force long since gave up on acquiring foreign fixed wing AEW aircraft, after abortive attempts buying Beriev A-50 and Israeli Phalcon aircraft in the 1990s and 2000s.

In the meantime, the PLAN is reliant on rotary wing AEW platforms. Nine Kamov Ka-31s were acquired from Russia by mid-2011, fitted with E-801M Oko radars, and used on board guided missile destroyers. The Oko radar has a range of up to 250 km against a fighter sized target and to the radar horizon against surface ships. It can track 40 targets simultaneously.

The much larger Changhe Z-18J was first seen in November 2009, and at least three examples have been observed aboard the Liaoning aircraft carrier. It appears improved Z-18JAs entered service aboard the carrier Shandong in late 2021, and more examples may be acquired for China's new landing helicopter docks. The Z-18J is believed to be fitted with an AESA radar with a roughly 200 km range. Once in flight, the radar is lowered from the aircraft's rear doors and begins rotating.

A PLAAF KJ-2000 AEW aircraft (Lu Bingguang - China MoD)

Complementing the KJ-200 is the larger Shaanxi Y-9-based KJ-500, with a triangular AESA radar setup in a radome above the cabin for 360-degree coverage.

The PLA Air Force long since gave up on acquiring foreign fixed wing AEW aircraft, after abortive attempts buying Beriev A-50 and Israeli Phalcon aircraft in the 1990s and 2000s. After unsuccessful domestic efforts in the 1960s/1970s, a new indigenous AEW aircraft generation emerged in the early 2000s: in November 2001 the Shaanxi Y-8-based KJ-200 flew for the first time, with a phased array radar in a 'balance beam' antenna above the fuselage. The KJ-200's active electronically scanned array (AESA) radar has 240-degree coverage and a range of about 450 km.

Around half a dozen KJ-200s were built for the PLA Air Force (PLAAF) and half a dozen for the PLAN, with service entry from 2007. Although to some degree supplanted by other types, upgraded KJ-200s were seen from 2016 and a new variant (KJ-200B) with electro-optical sensors, satellite communications, synthetic aperture radar and electronic support measures (ESM)/electronic intelligence (ELINT) equipment was seen undergoing testing in early 2023, indicating the type still has a healthy future.

Complementing the KJ-200 is the larger Shaanxi Y-9-based KJ-500, with a triangular AESA radar setup in a radome above the cabin for 360-degree coverage. Service entry was a decade ago, with 18-20 KJ-500s in PLAAF service and two dozen with Naval Aviation. Shaanxi may have produced more than 40 as the type is still in production. Some models (KJ-500A) have been fitted with refuelling probes. The KJ-500 has been extensively deployed around China, Tibet, and to islands in the South China Sea. They regularly support combat aircraft incursions into Taiwan's airspace.

Inspired by the Russian A-50I and Israeli Phalcon, the jet-powered Xian KJ-2000 in fact used the A-50I prototype Israel had started converting for China. The KJ-2000 has a locally manufactured Type 88 radar system (comprising three AESA antennas in a fixed radome, with an estimated 470 km range and ability to track hundreds of targets simultaneously). First flight was in November 2003, with years of testing before the type was declared operational in December 2007. Four are in service – no more were converted due to a shortage of Il-76MD airframes.

It is believed that China will develop an AEW version of the new Xian Y-20 transport (possibly the KJ-3000), and a new smaller KJ-700 AEW&C aircraft has been rumoured, which will continue to give the PLA a good mix for regional and longer-range missions.

Pakistan

Pakistan became the only export customer for the Shaanxi ZDK-03 AEW aircraft, based on the Y-8, as part of its JF-17 Thunder acquisition.

A Pakistan Air Force ZDK-03 AEW aircraft (PAF)

Indian Air Force Rafales flank a Netra AEW aircraft ahead of 2023 Republic Day celebrations (PIB)

The Erieye has been widely exported, in different configurations and platforms, including to Thailand, which acquired it as part of its Gripen C/D procurement.

The ZDK-03 features a CETC AESA radar in a rotodome above the fuselage. Four were delivered between 2011 and 2015 and serve as the airborne command and control centre for the Air Force's JF-17s.

Pakistan previously received four Saab 2000-based Erieye AEW&C aircraft from Sweden in 2009-2010, mainly to monitor its rival India. Given Pakistan's varied terrain, including glaciers and high mountains, AEW aircraft are extremely useful in providing a complete aerial picture. One of Pakistan's Erieyes was destroyed in a 2012 Taliban attack (another two were damaged but repaired). Three more were delivered in 2018/19. They are fitted with PS-890 radars with a 300-450 km range and 300-degree coverage. Up to 1,000 airborne and 500 maritime targets can be tracked simultaneously. The Erieyes were used to support air strikes against India in February 2019, directing F-16s, amongst other activities aimed at Pakistan's rival.

A new Pakistani Erieye was observed on a delivery flight in October 2023, and it has been reported three additional Saab-2000 based platforms are being acquired (in 2020 Saab announced an order for an undisclosed customer). These will be fitted with Erieye Extended Range (ER) radar, giving a range in excess of 650 km (as with all AESA radars, range can be dramatically extended by focusing the radar's energy in a particular direction). It has been rumoured the ZDK-03s will be retired in 2024 due to technical and compatibility issues, but this has not been confirmed.

The Erieye has been widely exported, in different configurations and platforms, including to Thailand, which acquired it as part of its Gripen C/D procurement. The two Saab 340-based Erieyes, delivered in 2010 and 2012, form a key part of Thailand's Integrated Air Defence System and are fitted with Link-T datalink systems that connect the Gripens, Erieyes, ground-based radars, and warships.

India

As with the rest of its military modernisation, India is pushing ahead with indigenous AEW development as AEW aircraft are considered vital in monitoring Pakistani and Chinese activity. The Indian Air Force (IAF) currently operates three Ilyushin Il-76-based A-50EI and two Embraer ERJ-145SM-based Netra Mk I AEW aircraft (a third Netra remains with the Defence Research and Development Organisation/DRDO). In 2023 it was revealed the IAF will be getting another six ERJ-145 Netras.

India's A-50EI aircraft, delivered from 2009, are fitted with the Israel Aerospace Industries (IAI)/ Elta EL/W-2090 Phalcon radar with a 380-400 km

The Erieye has been widely exported, in different configurations and platforms, including to Thailand, which acquired it as part of its Gripen C/D procurement.

A Republic of Singapore Air Force G550 CAEW during Ex Pitch Black 2016 (RAAF - LSIS Jayson Tufrey)

range. The radar has three transceiver arrays in a fixed dome for 360-degree coverage.

The Netra Mk Is, delivered between 2017 and 2019, are fitted with a domestic DRDO-developed AESA radar with a 250 km+ range over 240-degree coverage, housed in a 'balance beam' above the fuselage. Netra aircraft were used in February 2019 to support Indian air strikes against Pakistan.

The IAF will also develop six AEW and signals intelligence aircraft using former Air India Airbus A321 airframes, with the DRDO the prime contractor. Project development was greenlit in September 2021. Modification and refurbishment work will take place in France and India. The Netra Mk II platforms should have double the Mk I radar range.

For naval use, India acquired 14 Ka-31s from Russia between 2003 and 2013, for use aboard frigates and aircraft carriers. Another ten were expected to be acquired in 2020 for US $520 million, but India suspended negotiations apparently over uncertainty that Kamov would be able to supply the aircraft due to the Ukraine conflict, and payment transfer issues. The additional aircraft are needed for the country's second aircraft carrier INS Vikrant.

In numerical terms, Hawkeyes form the backbone of Japan's AEW&C fleet, and were its first AEW&C aircraft to enter service (from 1982). Small E-2C batches have been acquired, starting with eight Group 0 models and five Group II aircraft with Lockheed Martin AN/APS-145 radar.

Japan

Russian and Chinese aerial intrusions pushed Japan to become the first regional nation to acquire large AEW&C aircraft; the flagship Japan Air Self Defence Force (JASDF) AEW platform is the Boeing 767-based E-767. Four entered service in 2000, equipped with Northrop Grumman's AN/APY-2 passive electronically scanned array radar (as found on the E-3 Sentry) giving 360-degree coverage out to more than 375 km.

Russian and Chinese aerial intrusions pushed Japan to become the first regional nation to acquire large AEW&C aircraft; the flagship Japan Air Self Defence Force (JASDF) AEW platform is the Boeing 767-based E-767.

An E-2D Advanced Hawkeye being delivered to Japan in October 2022 (USMC - Lance Corporal David Getz)

The JASDF's E-767s receive regular upgrades to keep them current - the radars are now to Radar System Improvement Programme standard with improved performance against low radar cross section targets, amongst others. The most recent upgrade (Mission Computing Upgrade installation) is underway and is valued at US $870 million.

In numerical terms, Hawkeyes form the backbone of Japan's AEW&C fleet, and were its first AEW&C aircraft to enter service (from 1982). Small E-2C batches have been acquired, starting with eight Group 0 models and five Group II aircraft with Lockheed Martin AN/APS-145 radar. The latter can track more than 2,000 targets simultaneously to over 320 km and control 40–100 intercepts. The APS-145 has a 40% greater range than the preceding APS-138. Japan's E-2Cs were upgraded to Hawkeye 2000 standard from 2004 (retaining APS-145 radar but with various avionics improvements).

The JASDF ordered nine E-2D Advanced Hawkeyes in 2018 for US $3 billion - six have been handed over so far; an August 2023 contract ordered another five for US $1.25 billion. More advanced E-2Ds are replacing older C models and will help improve situational awareness in the Pacific area, particularly in response to greatly increased Chinese activity.

Dubbed a 'digital quarterback', the E-2D features Lockheed Martin's AN/APY-9 radar designed to see smaller, and more, targets at greater ranges – out to an estimated 550 km. It can apparently detect stealthy aircraft. In Japanese service, the Hawkeyes cover the nation's nearly 30,000 km long coastline (coupled with a 4.4 million square kilometre exclusive economic zone), with the E-767s functioning as strategic assets.

Taiwan

Chinese aerial incursions against Taiwan continue to put pressure on the island nation, with nearly 4,700 Chinese aircraft being detected

A RAAF E-7A Wedgetail in formation with Hawaii ANG F-22s during Pacific Edge 21 (USAF)

in 2023, of which around 1,600 intruded into Taiwan's Air Defence Identification Zone. The Republic of China Air Force has relied on Hawkeyes working together with a network of ground-based air surveillance radars to help monitor Chinese military activity for more than 25 years, with half a dozen E-2Ks (to Hawkeye 2000 standard) in service (although one was written off in a November 2022 landing incident).

Taiwan has been looking for an E-2K replacement for some time and in 2021 it was reportedly interested in six E-2Ds, but the deal stalled over issues with cost and export approvals. L3Harris is now hoping to partner with Elta to offer a modified Global 6500 with EL/W-2085 radar, as used in the Gulfstream G550 AEW aircraft. The Global 6500-based solution is also being offered to South Korea.

The Asia-Pacific is home to an increasingly tense geopolitical environment, with one hotspot being the China-India-Pakistan nexus.

Singapore

Singapore is, along with Israel and Italy, a G550 AEW operator, using the type primarily for overwater operations. The Republic flies four G550 Conformal Airborne Early Warning (CAEW) aircraft, which were delivered by IAI between 2009 and 2011, replacing four E-2Cs flown since 1985. IAI mounted the dual-band EL/W-2085 multi-sensor suite in a unique low drag conformal installation to provide 360-degree coverage out to more than 370 kilometres against airborne and maritime threats.

Korea

The Asia-Pacific is home to an increasingly tense geopolitical environment, with one hotspot being the China-India-Pakistan nexus. Another is the North Pacific, riven by increased tensions in the region and ongoing missile testing by North Korea – at least 50 ballistic missiles were launched by the North between October 2022 and April 2023.

The Republic of Korea Air Force (RoKAF) identified an AEW requirement more than 40 years ago due to the country's mountainous terrain, but only in 2005 it launched the E-X competition that saw Boeing beat a Gulfstream,

A JASDF E-767 arrives in Alaska for Red Flag Alaska 23-2 (USAF - Airman 1st Class Julia Lebens)

L-3 and IAI/Elta consortium due to export restrictions nixing the US-Israeli offering. Four Peace Eye aircraft were delivered in 2011/12, with Korea Aerospace Industries modifying the aircraft with South Korean mission equipment.

The Peace Eye is based on a modified Boeing 737-700 IGW airframe with Northrop Grumman's Multirole Electronically Scanned Array (MESA) radar providing 360-degree coverage out to more than 320 km for aerial targets and 240 km for boat-sized surface contacts. Ten mission system operators can oversee 4 million square kilometres; over a thousand sea and air targets can be tracked simultaneously, and 24 interceptions handled.

South Korea has been contemplating acquiring at least two additional AEW aircraft since 2021, but it was only in May 2023 that a draft purchase plan was approved. The project will cost an estimated US $3 billion, indicating more than two aircraft will be acquired. Competitors include Boeing with its E-7; L3Harris/Elta with its Phoenix; Saab with its GlobalEye; and IAI with its CAEW. Although Boeing could be expected to be the natural fit for the Korean requirement, the RoKAF has expressed concerns about E-7 serviceability and cost. In the meantime, it is upgrading its Peace Eye fleet with IFF and Link 16 datalink systems, amongst others.

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Surprisingly, it appears North Korea may be pursuing its own AEW&C program. The country has relatively limited ground-based early warning radar systems, making an AEW capability a useful addition - particularly to detect southern missile and aircraft launches. Satellite imagery from November 2023 revealed one of its three Il-76s at Pyongyang undergoing modifications, with a large mount above the fuselage. Russian involvement may be possible, given the closer ties between the two nations since the invasion of Ukraine.

Australia

Another Asia-Pacific nation determined to keep an eye on its northern neighbours is Australia, which received six Boeing 737-based E-7A Wedgetail aircraft with MESA radars between 2009 and 2012. Although technical issues delayed full operational capability to 2015, they have been widely deployed, demonstrating solid capabilities supporting air campaigns over Iraq and Syria (against Islamic State), and more recently Europe - in October 2023, an E-7A arrived in Europe to assist in the delivery of military and humanitarian assistance to Ukraine. RAAF Wedgetails are currently being upgraded under Project AIR 5077.

Conclusion

A new addition to the growing AEW market is Indonesia, which in early 2023 approved plans to acquire two aircraft with up to US $800 million in loans from a foreign lender. A contract is expected by the end of December 2024. The Indonesian programme is further evidence of how competing claims in the South China Sea, growing assertion by China and North Korea and general global instability following the invasion of Ukraine have spurred on the AEW&C market in the Asia-Pacific, assisted by an unprecedented number of offerings from Airbus to Saab.

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Birdon progressing Landing Craft Medium design

Kym Bergmann // ***Canberra***

The industrial landscape for Army's future Littoral Combat Manoeuvre vessels changed – probably permanently – on November 23 last year when the government announced that it was negotiating a strategic partnership with WA shipbuilder Austal. This was a consequence of the earlier Defence Strategic Review, which concluded that there was not enough work in the Henderson precinct to support to naval construction yards.

Future Landing Craft – Medium (Birdon graphic)

Defence Minister Richard Marles explained the unexpected move:

"Under the strategic shipbuilder pilot, Army's Landing Craft Medium and Heavy (Littoral Manoeuvre Vessels) will be built at Henderson by Austal, subject to successful commercial negotiations and ongoing performance.

"This will accelerate and expand the delivery of vessels that will provide Army with the ability to conduct littoral manoeuvre operations, consistent with the recommendations of the Defence Strategic Review.

"Australia's Birdon Group Pty Ltd has been selected as the preferred designer for the Landing Craft Medium capability. The Commonwealth will work with Birdon to undertake further design maturation to prepare the Landing Craft Medium design, for the construction of 18 vessels at Henderson.

"Subject to the Landing Craft Medium project's performance, the Government also intends to build the Landing Craft Heavy capability through the strategic partnership."

Defence Industry Minister Pat Conroy said:

"A continuous pipeline of work and an efficient, streamlined approach will not only benefit the delivery of Defence capability but create industry confidence to invest in a highly capable shipbuilding workforce in Western Australia

"Australian industry can compete with the best in the world, but for too long has suffered the boom bust cycle of shipbuilding, undermining productivity and workforce retention. This ends with this strategic partnership."

This means that barring unforeseen circumstances, Austal will be building the current fleet of LCMs and also the larger, future heavier landing craft designed to move Main Battle Tanks. The company will also construct between 8 and 11 future general-purpose frigates with a design to be chosen hopefully by the middle of this decade. To the mix can be added an immediate future order of Cape Class patrol boats.

Then in the 2030s, it looks set to manufacture a future generation of optionally crewed vessels currently in the conceptual stage – putting it mildly – in the US. Little is known of these ships, other than they will be in the 3,000 tonne class and might have 32 VLS cells each.

In the meantime, the exact relationship between Austal, Birdon and Defence is a work in progress. While Austal is negotiating their Strategic Heads of Agreement with the Commonwealth – noting that this will cover several projects in Henderson - Birdon is continuing with the detailed design of the landing craft themselves. They signed a separate MoU with Austal covering this activity on December 12.

While Austal is negotiating their Strategic Heads of Agreement with the Commonwealth – noting that this will cover several projects in Henderson - Birdon is continuing with the detailed design of the landing craft themselves.

The competition for the Littoral Combat Manoeuvre (LCM) vessels pre-dates the decision that effectively makes Austal the prime contractor for a number of projects. This means that several companies, including Birdon, bid as prime contractors themselves in their own right and have had to adjust to the changed circumstances.

As Joe Smith, Birdon's General Manager

Defence, explained, the LCM has a length of 50 metres and can carry up to 94 tonnes of cargo. With a slightly reduced payload it can achieve a range of 2,000nm (3,700km).

The overall scope of Birdon has been reduced so they become the preferred designer, but at this stage seem unlikely to be involved in physical construction, which is now the role of Austal. This means that the design might be supplied directly to Austal, or be provided to them as a type of Government Furnished Equipment (GFE) package, or using some other type of model.

As the presumed design authority, Birdon will be involved in the through life support of the LCMs – including potentially for export sales. These could be considerable as many countries continue to operate the obsolescent LCM8s – and Australia looks like the first country that is planning to replace them with a far more modern, capable landing craft.

To position themselves for the project, Birdon – at their own expense – started the construction of a demonstrator LCM in Henderson early last year to reduce risk, and as a commercial strategy that seems to have succeeded. Work on the vessel is continuing to a design that is now quite mature, even though construction used a rapid prototyping approach. When completed, it might be used as a training platform for the Army or used as a concept demonstrator.

On the other side of the globe, Birdon is chasing an opportunity that could also be the basis of the future Australian requirement for a Landing Craft – Heavy (LCH) capable of transporting Main Battle Tanks. The US Marine Corps is in the process of acquiring just such a ship, and Birdon are one of three companies under contract to build an example for test and evaluation purposes.

Birdon has offered their H260 – originally designed for the Australian requirement - which the company describes as a shallow draft, independent ship able to carry a payload of 440 tonnes with a range of 5,000nm (9,260km). The company says:

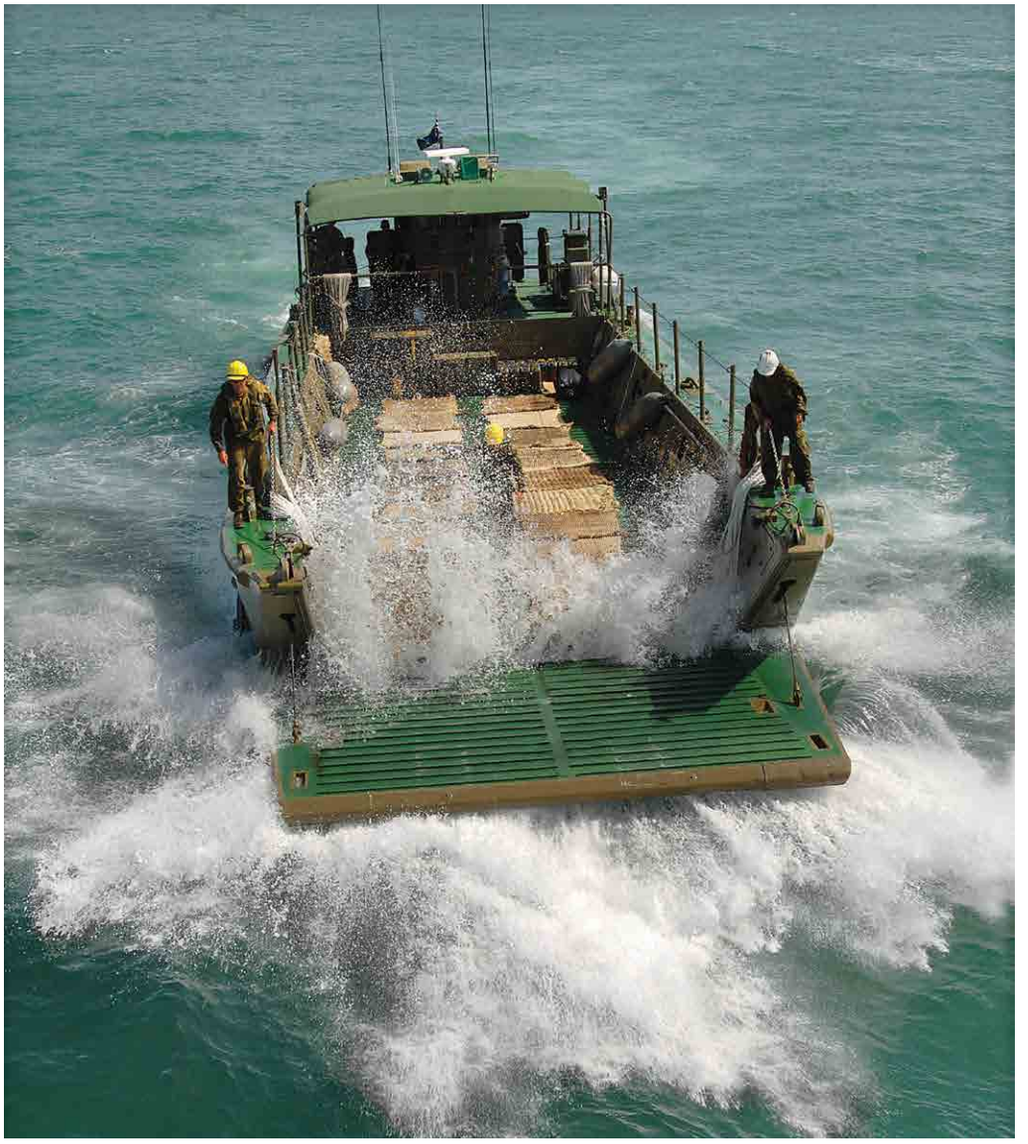
"Looking outwardly similar to many oil and gas offshore support vessels, but with integrated signature reduction features, the 260-foot-long craft features a payload of 440 short tons, deck space of 8,000 sq ft, the ability to accommodate 72 Marines and 26 crew, a range of over 5,000nm, and a draft of only 6.5 feet allowing it to access a far larger proportion of beach and riverine offload locations than similar sized vessels. Its inherent robustness and resilience enable the H-260 to adapt to a wide range of mission profiles and sustain multiple deployments.

To position themselves for the project, Birdon – at their own expense – started the construction of a demonstrator LCM in Henderson early last year to reduce risk, and as a commercial strategy that seems to have succeeded.

"The aft loading and forward enclosed ramps enable rapid load transfer while adding flexibility to cope with a wider range of landing sites. Its forward wheelhouse and accommodation are distanced from the noise and vibration of the propulsion systems, and combined with the proprietary bow, reduces pitching moment and accelerations on embarked personnel, all of whom have bunks, delivering an enhanced habitability.

"Crew and commanders have extensive visibility for all operational activities."

For operations in the littoral domain, there seem to be a number of overlapping requirements between the Army and the USMC in particular. This could open the door for a number of combined, or collaborative, acquisitions.



A Landing Craft Medium 8 (LCM8) from No. 35 Water Transport Squadron (WTS) approaches HMAS KANIMBLA for stern door marriage training. (DoD photo / Andrew Dakin)

News from across the Tasman

Geoff Slocombe // *New Zealand*

Women lead from the front in today's Royal New Zealand Navy (RNZN)

For more than a year now the RNZN have had four female commanders of warships in its fleet.

It coincides not only with the highest percentage ever of women in the Navy (27.4 per cent) but the largest number of women taking command of Navy ships and shore units, with four in command of ships and three in command of shore units.

For the Chief of Navy, Rear Admiral David Proctor, all of these numbers are significant milestones.

"We celebrate the diversity of our personnel and recognise the value women bring to our organisation," he said.

"But we also need to walk the walk and demonstrate that women have just as much opportunity to succeed as men. Having wāhine as commanding officers on more than 60 per cent of our ships, as well as heading up shore units and other important portfolios, is a realisation of that goal."

This is quite a sea change from the early days of Navy's history.

Despite the fact that women were first approved by the War Cabinet to join the Navy in 1942, it took 44 years for a pilot programme to allow women to go to sea in non-combatant vessels. This programme was a success and in 1989 all women joining the Navy were required to serve at sea – and from 1993 they could serve on frigates.

Since then, there has been a steady increase in the number of women joining the Navy. The reasons they do are exactly the same as their male counterparts – to learn a trade, to make a difference, to see the world, to experience things others never will and to make life-long friends.

Captain Maxine Lawes, who joined the Navy in 1985, notes the change that has occurred in Navy culture over the years – particularly with the focus on diversity, equity and respect for personnel.

"Our Navy had to adapt to a changing world," she said. "It wasn't easy initially but nothing worth doing is."

"I now look at the confident, well-supported, motivated and highly trained women in our Navy and feel enormously proud that they don't just serve in the Navy, but they thrive in it and are in command of it."

HMNZS Manawanui (RNZN photo)

HMNZS Aotearoa (RNZN photo)

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