

APDR

A soldier in camouflage gear and a helmet with a night vision device, holding a rifle, in a desert environment. The soldier is in the foreground, looking towards the camera. Another soldier is visible in the background, also in camouflage gear. The background shows a desert landscape with hills and sparse vegetation under a clear blue sky.

ASIA-PACIFIC DEFENCE REPORTER

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Australian Army soldiers from the 6th Battalion, Royal Australian Regiment conduct a live-fire activity supported by soldiers from the 2nd Combat Engineer Regiment during Exercise Diamond Dagger 2026 at Shoalwater Bay Training Area, Queensland. (DoD photo / Jason Slape)

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Global instability on the rise



Kym Bergmann // Canberra

The world is becoming less predictable – something that most governments seem to be aware of, just not Australia's. Despite US behaviour becoming more erratic almost by the day, blind faith in ANZUS and AUKUS is rock solid among government ranks. Why this is the case when all evidence is pointing the other way requires a complex explanation.

Probably the most pro-US person in Federal Parliament is Defence Minister Richard Marles, whose fascination for – and allegiance to – all things American has been a lifelong feature. People in Canberra joke that he is an honorary Colonel in the Kentucky National Guard – a rank he received even before he was elected to office. He joins Colonel Sanders of Kentucky Fried Chicken fame, who received the same rank twice.

Minister Marles was also mentioned in Wikileaks as a frequent source for the US Embassy of internal ALP gossip – a revelation that had no negative effect on his career whatsoever. When questioned by the media about erratic behaviour under Donald Trump such as attacking Iran, kidnapping the Venezuelan President or threatening to invade Greenland, he insists that nothing unusual is taking place.

He is supported by a Prime Minister in Anthony Albanese who has little natural interest in foreign policy, though he certainly likes the standard of international travel and the luxurious treatment received on arrival. Foreign Minister Penny Wong has been completely captured by her department and uncritically accepts their advice no matter how absurd – such as keeping the Australian Embassy in Kyiv shut for two years longer than

all other countries had reopened theirs and adopting an attitude of mild handwringing at the behaviour of the current government of Israel.

But the problem goes even deeper than that. For Labor candidates seeking preselection, a litmus test is a belief in the US alliance – and more recently AUKUS – and so all members of Caucus have near-identical views. Whatever else he might not be, the Prime Minister is a ruthless and at times petty organiser and made certain that there was no debate about AUKUS at the recent ALP national conference – as if stifling discussion on such a large and vital topic is something to be proud of.

Gough Whitlam and Bob Hawke – the writer knew both – must be rolling in their graves at such spinelessness and sycophancy. Living former Prime Minister, Paul Keating, despairs at the supine attitude of the current Parliamentary leadership group. With an addiction to total secrecy – the most extreme in living memory – the government is determined that as little as possible about Defence, and AUKUS in particular, ever sees the light of day.

The Coalition are no better – though recently both Shadow Defence Minister James Paterson and Shadow Minister for Industry & Sovereign Capability Andrew Hastie have dared to start questioning whether AUKUS is being handled for the benefit of Australia. In doing so they are quite correct – but they are in opposition and if past performance is any indication they will both snap back into line within five minutes of getting into government.

Richard Marles travelled all the way to Washington to meet with self-declared US Secretary of War and former part-time Fox News presenter Pete Hegseth to mark the 75th anniversary of the ANZUS treaty. For some reason this is often presented as evidence of US commitment to Australia and New Zealand. In fact, it is no such thing – and the closest it gets is a commitment to consult with each other in the event of hostilities.

In the meantime, Donald Trump's personal tariff war on Canada continues to escalate. It is hard to argue that Australia is in a different – or better – position than the Canadians when it comes to the closeness of the relationship and shared security interests. Yet Canada is openly

in breach with the US – something that has been forced on them. For Australians to think that the same thing could never happen to us is illogical bordering on absurdity.

This is not to say that it will – but it might, and the government ignores that possibility at the country's peril. The UK is not safe either with recent leaked documents showing that the US is thinking of changing its position on the ownership of the Falkland Islands from neutrality to supporting Argentina's claim of sovereignty. The reason is because this is seen by the US as not being fair or consistent with some principles, but as a mechanism to force Westminster into spending more on defence – presumably on equipment sold by US companies.

At the same time Pete Hegseth seems to be doing his best to reduce, not increase, the capabilities of the US military by sacking around 90 high ranking competent officers and replacing them with Trump MAGA loyalists. He has cut innovative drone and counter-drone programs – which will decide the outcome of future wars – and seems preoccupied with testosterone levels in soldiers and getting rid of beards in the USN.

In the light of these developments, Canada is increasing defence spending and reversing the amount of military hardware it imports. The current ratio is 70% from non-Canadian sources – mostly from US suppliers. Official Canadian government policy is to reverse that within five years – a huge undertaking and the chances of achieving a transformation of that magnitude look slim – but at least they are trying.

Europe has collectively realised that they are on their own not only because of Trump's rhetoric but because the US is actively pulling forces out of the continent and that process will continue. Refusing to supply meaningful aid to Ukraine and often siding with Russia is another hallmark of this administration.

Our government is oblivious to all of this.

IN THE NEXT ISSUE

- > Drone and counter drone technology
- > Indirect fire support
- > ADF training

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This extraordinary rate of effort has been repeatedly demonstrated during some of the nation's most severe natural disasters. (Airbus Helicopters photo)

RNZAF'S NH90 SETS 3,000 FLIGHT HOUR MILESTONE

8 September 2026

Airbus Helicopters. Out at RNZAF Base Ohakea, a NH90 Tactical Troop Helicopter designated TNZA002 has quietly written aviation history. On Wednesday, 26 August 2026, the aircraft clocked 3,000 flight hours, the first NH90 anywhere on the globe to pass the 3,000 flight hour mark.

Leading the global NH90 fleet

Out of roughly 530 NH90 aircraft in active service across multiple configurations worldwide, New Zealand's No. 3 Squadron leads the entire international fleet. Remarkably, the squadron achieves this global benchmark from a base of just eight operational aircraft.

The world record is not a matter of product age, as older NH90 airframes continue to fly across Europe, but rather a reflection of pure operational intensity. Fifteen years after the first two NH90s arrived in New Zealand in December 2011 to replace the Air Force's ageing Iroquois fleet, the Kiwis fly each aircraft harder and more frequently than any other operator.

"It's a significant achievement for what is a small fleet and small team," NH90 Flight Commander Squadron Leader Lachie Johnston said. "We need to always have these aircraft available to fly and it's a testament to the maintainers, who put in the long days in often trying conditions to get the helicopters flying, as well as the supply chain, and the fleet planners. "They are the secret sauce to our success."

Built for the frontlines: Disaster relief to alpine mission

The New Zealand NH90 fleet is unique, as it supports a broad range of both civil and military missions. From tactical troop transport, search and rescue, casualty evacuation, and support for police and government agencies, to complex alpine tasks, maritime deployments off HMNZS Canterbury, and humanitarian disaster relief across the Pacific, the fleet is in constant demand.

When the November 2016 Kaikōura earthquake severed every road into the region, RNZAF NH90s established an emergency air bridge by midday. Patrick Power, Airbus Team Lead for the NH90 programme and the only person in New Zealand to have worked continuously

on the platform since its introduction in 2011 across both uniformed RNZAF and civil roles, was right in the middle of the response.

He recalls arriving in Christchurch that evening with three NH90s to deliver critical aid and evacuate stranded civilians. "Trucks would arrive with aid and we would load it onto the helicopter, they would depart for Kaikōura, and return with a full load of people," Power recalls. "We would load it again, repeating that cycle many times a day." Maintainers also had to keep up with the intense pace on the ground.

"I always remember we had to clean the windscreen every time they came back because there were so many other helicopters in the sky doing rescue work that any small black mark looked like another aircraft," Power says. "The rate of effort was intense as we had to perform all the maintenance and get them ready for the next day, but it was very rewarding because you knew you were making a difference."

A similar story unfolded during Cyclone Gabrielle in February 2023. When the Commanding Officer of No. 3 Squadron walked into the maintenance office asking how many aircraft could be readied, a surveying NH90 had just radioed back requesting maximum assistance as floodwaters rose rapidly around trapped residents.

Power was serving as Hangar Manager at the time, in charge of day-to-day maintenance when the maintenance team made seven of the fleet's eight helicopters available that day. With the eighth airframe mid-servicing, a full 100 per cent of available aircraft deployed into harm's way.

Over the course of the disaster response, No. 3 Squadron crews evacuated 384 people and 23 pets, many winched directly from the roofs of submerged homes, while transporting 25,600 kilograms of external and 66,810 kilograms of internal cargo. Coupled with emergency deployments during the 2019 Whakaari White Island eruption and the 2020 Australian bushfires, the high demand placed on the airframes is clear.

Strengthening Australia's defence capabilities, together.

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Airbus and RNZAF maintenance

Sustaining such high operational outputs requires an exceptional maintenance foundation. Since 2015, Airbus Helicopters has provided an embedded workforce that sits directly inside the RNZAF's own maintenance organisation at Ohakea.

Working as a single unit alongside Air Force mechanics like Aviator Warren Bignoux, who carries out system checks and overhauls as part of his path toward becoming a licensed engineer, this joint Deeper Maintenance team performs the major 600 flight hour servicing that take approximately three months per airframe.

Power, who trained on the type in Marignane in early 2011 and helped establish the initial deeper maintenance line in 2015 alongside Airbus specialists from Brisbane before transferring to Airbus himself in 2017, has seen the embedded workforce grow from four to ten personnel. This stable, long-tenured team provides continuity of knowledge that directly feeds training, repair development, procedure updates, and technical risk assessments.

The tangible result of this integrated approach is remarkable availability. RNZAF NH90 fleet serviceability consistently runs at around 75 per cent, far surpassing the global operator average.

Thanks to this outstanding standard of technical support, the Ohakea team locally performed a major fleet-wide software upgrade (Software Release 2) in record time. And as a result, New Zealand became the first country in the world to complete the upgrade across its entire fleet.

For Power, maintaining the platform remains a deeply engaging mission. He shares that honestly, the thing he likes about the NH90 is the challenge of continuous improvement to keep the TNZA fleet as the exemplary model for NH90 operations. Even though he has been working on this type for 15 years, there is still something new almost every day and he is still learning.

That passion is shared by Airbus

avionics technician Alexandra "Allie" Thompson, who has spent two and a half years on the Airbus embedded team focusing on 600-plus hour checks for the NH90.

Thompson explains that her role involves regular maintenance and repairs. "Because they're an older aircraft and not brand new, there's always going to be something fun to fix," she says.

She describes it as a very unique job from her perspective, pointing out that not often do you get to work on the mighty beast of an NH90 as a civilian person.

Thompson also highlights the broader horizon that comes with the role, sharing that she really enjoys working for Airbus because being an international company, there are obviously international opportunities available and a wider network to be a part of, which opens up many doors for future possibilities.

Through extreme weather, tactical missions, and long-range Pacific flights, New Zealand's small fleet continues to demonstrate that high standards and close collaboration yield world-leading results.

Backed by an integrated maintenance team in Ohakea, airframe TNZA002's flight hour record stands as proof that a dedicated team and an extraordinary rate of effort can set the benchmark for the rest of the world to follow.

AUSTRALIAN GOVERNMENT INVESTS MORE THAN \$129 MILLION TO SUPPORT NAVY'S ANZAC CLASS SHIPS

2 September 2026

The Australian Government is investing more than \$129 million in a new contract with Babcock Australia to sustain the Royal Australian Navy's Anzac class frigates and strengthen Australia's commitment to continuous maritime sustainment.

Babcock Australia has been appointed the Capability Life Cycle Manager (CLCM), providing engineering, supply of spare parts and asset management services throughout the ships' service life.



HMAS Perth berthed alongside Fleet Base West in Western Australia. (DoD photo / Shaun Chatfield)

This five-year contract will support over 70 defence industry jobs based in Western Australia and New South Wales from mid-2026.

This appointment is part of the Australian Government's \$150 billion investment in a secure, sustainable, and continuous naval shipbuilding and sustainment program for Australia.

Deputy Secretary Naval Shipbuilding and Sustainment David Hanley said the five-year contract will strengthen the asset management for several of Australia's most critical maritime vessels.

"Building a strong sovereign naval shipbuilding industry is not only good for jobs, it's essential for our national security," Mr Hanley said.

The Capability Life Cycle Manager is a key element of Defence's national approach to sustaining the Navy's surface fleet under the Maritime Sustainment Model, as outlined in the 2024 Naval Shipbuilding and Sustainment Plan.

Defence is building a continuous sustainment environment to ensure Navy's fleet is ready when and where

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it is needed, with greater agility to operate across Australia and the region. In today's challenging strategic environment, this approach strengthens the security of Australia's sea lines of communication and maritime trade, supporting key commitments of the 2026 Defence Strategic Review.

The Capability Life Cycle Manager contracts improve the efficiency and effectiveness of asset management across Australia's maritime fleet. This partnership will ensure sustainment of Navy's Anzac class vessels and their support systems.

Babcock Australia will work with small and medium-sized enterprises, acting as a single point of contact for supply of spare parts and asset management enabling work to flow across a broader industrial base.

"This partnership will strengthen opportunities for Australian industry to contribute to sustainment of our Navy's fleet," Mr Hanley said.

Importantly, the contract provides long-term certainty, allowing defence industry to invest, grow and strengthen regional capacity.

KONGSBERG Australia and Thales Australia welcome NSM deployment with NATO

Australian-made deterrence is playing a role in a North Atlantic Treaty Organisation (NATO) training exercise in Northern Europe, with the StrikeMaster launcher deployed to an island in the Arctic Ocean 600 kilometres from Iceland.

StrikeMaster is an Australian-designed coastal defence platform that combines KONGSBERG's proven Naval Strike Missile (NSM) with Thales Australia's Bushmaster Protected Mobility Vehicle, delivering a highly mobile and rapidly deployable maritime strike system.

StrikeMaster is participating in Operation Atlantic City, a NATO training



Photo credit – British Armed Forces

exercise involving US, UK and Norwegian forces being conducted on and around the remote Norwegian territory of Jan Mayen, as part of Arctic Sentry, NATO's enhanced Vigilance Activity for the High North of Europe.

StrikeMaster's involvement demonstrates its readiness to support real-world operational requirements alongside allied forces. As a highly mobile, land-based maritime strike capability, StrikeMaster can be rapidly deployed to remote and contested environments, providing commanders with flexible and survivable response options.

The deployment to Jan Mayen highlights the system's ability to operate where logistics, weather and terrain place significant demands on personnel and equipment. Operating StrikeMaster in these conditions provides an opportunity to validate its deployability, mobility and integration with NATO forces, reinforcing the system's readiness to support deterrence and collective defence missions.

Thales Australia and KONGSBERG

Australia remain committed to delivering advanced, sovereign capabilities that strengthen interoperability and support defence forces operating in complex environments.

Jeff Connolly, CEO Thales Australia and New Zealand said, "This is a clear recognition of the 'ready now' capability of the StrikeMaster platform. Our proven Bushmaster vehicle combined with KONGSBERG's in-service Naval Strike Missile allows the coastal defence system to provide deterrence right now – in this instance, for NATO".

John Fry, Managing Director KONGSBERG said "Operation Atlantic City has clearly demonstrated the deployability, flexibility and utility of StrikeMaster and its ground launch application of the proven Naval Strike Missile which has been selected or fielded by a dozen NATO nations and partners. This leading land based maritime strike capability, made in Australia, is a highly capable and cost effective for defence of national interest through deterrence. StrikeMaster is mobile, survivable, and lethal."

Transforming Australia's Ground Based Air Defence

International collaboration delivers a world-leading air defence capability for the Australian Army



The National Advanced Surface to Air Missile System High-Mobility Launcher during Exercise Talisman Sabre 2025. Credit: Image supplied by the Department of Defence.

The 2026 National Defence Strategy and the Integrated Investment Program highlight missile defence capabilities across the air, land and maritime domains as priorities for an integrated defence force.

This builds on the LAND 19 Phase 7B program which introduced state-of-the-art National Advanced Surface-to-Air Missile System (NASAMS) for the Australian Army, transforming its air and missile defence capabilities.

When discussing the program, Raytheon Australia's Neil Gibson stated, "It has modernised the Australian Defence Force's ground-based air defence capability, delivering enhanced protection for manoeuvre forces and high-value assets.

Delivering certainty in uncertain times

Over the past several years Raytheon Australia and their partners, including KONGSBERG and CEA Technologies, have successfully executed one of the more ambitious defence integration programs in Australian history. This was during a time of a global pandemic and disrupted international supply chain.

Dr. Brad Ferguson, Director of Technology at Raytheon Australia, underscores the importance of fostering Australian expertise through the program.

"Working closely with Australian and international industry partners, including Kongsberg and CEA, we successfully integrated complex, mature, combat-proven international systems from multiple nations with advanced local technology, adapting the capability to meet the Australian Army's operational requirements."

"This collaborative approach involved over 300 engineers and technicians across three continents. Resulting in the integration of technologies like the AIM-9X sidewinder missile and the development of a novel Australian Electro-Optic and Infrared system. This system is being manufactured for the export market."

"The program also integrated Australian designed and manufactured CEA Active Electronically Scanned Array (AESA) radars into the NASAMS architecture. The first time an AESA radar has been integrated with NASAMS. It demonstrates the strength of Australia's sovereign defence industry

in contributing advanced capabilities to a globally recognised air defence system and proving Raytheon Australia's ability to certify complex kill chains within a challenging schedule" he said.

Strengthening Australia's sovereign defence capability

The success of LAND 19 Phase 7B provides a sovereign technical capability that can now be leveraged to support the ongoing evolution of NASAMS and future integrated air and missile defence requirements.

Raytheon Australia's highly skilled engineers and systems integrators in South Australia were supported by a network of Australian suppliers and small-to-medium enterprises.

"This enabled Australian engineers to contribute to globally significant efforts while representing national interests. As future defence requirements are assessed, Australia now has a sovereign capability — through Raytheon Australia and our local partners — to respond rapidly and effectively", Ferguson said.

A trusted partner for long-term defence success

Exercise Talisman Sabre 25 signified a key milestone in Australia's integrated air and missile defence capability with the successful firing of two AIM-120 AMRAAM® missiles from NASAMS by Army's 16th Regiment.

General Manager Multi Domain Effects, Amanda Selway led the LAND 19 Phase 7B team in providing critical support to the Australian Army. "Supporting Army in this critical exercise has been a key focus for our team. We are privileged to work alongside our Army customer and contribute to Australia's unique NASAMS capability, including several world-first milestones."

As illustrated by the success of the Land19 Phase 7B program, Raytheon Australia and partners stand ready to deliver genuine capability advantage to the Australian Defence Force.

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Ground-based medium range air defence is more complex than it looks

Kym Bergmann // Canberra

When LAND 6504 first appeared in the 2026 Integrated Investment Program – without being identified by name – it rated a single bullet point of three sentences. It was identified as an urgent requirement that would be progressed during 2026 with an initial \$210 million allocated, presumably to fast track an appropriate defensive missile, such as something in the Patriot PAC-3 MSE class.

However, things seem to be slowing down – not for the first time – and an industry brief to outline the essentials, such as the requirement and timetable, keeps being delayed. This appears to be because Defence has started to realise the complexity of defending against a wide variety of threats – but especially ballistic missiles of the type that Iran is currently firing at US bases in the Middle East.

Pinning down the exact nature of what protections are needed has been further complicated by the test firing of a Chinese JL-3 submarine launched intercontinental ballistic missile, which splashed down 600km south of Nauru on 6 July. In the light of that, it is clear that Australia is now within range of an increasing number of air and missile threats – air breathing, hypersonic and ones descending from outside the atmosphere.

Also, there are definitional problems. There are no fixed parameters from what separates a medium range missile from others classified as short or long range. Depending on who you speak with, a medium range ground-based air defence (GBAD) missile can be anything from 30km to 500km. This figure refers to horizontal distance, but an equally important figure is the altitude the missile can reach – with 100km above the earth's surface the bare minimum for an exo-atmospheric interception of a ballistic missile.

Other matters include the nature of the warhead the defensive missile is carrying. The most common – because it's the easiest – is a blast fragmentation warhead that explodes close enough to the target to damage it with a cloud of fragments rather like an exploding hand grenade. This is considered more than adequate against most air breathing threats such as aircraft, cruise



U.S. soldiers from 1-1 Air Defense Artillery Battalion fires a Patriot missile during Exercise Talisman Sabre 2021 on July 16, 2021, at Camp Growl located in Queensland, Australia. (U.S. Army photo by Maj. Trevor Wild, 38th ADA BDE Public Affairs.)

As the US has discovered after their unprovoked attack on Iran of 28 February – along with Israel – using a hit-to-kill PAC-3 MSE, each one of which would cost Australia between \$8 million and \$12 million, to destroy a drone worth at most \$100,000 is unsustainable.

missiles and drones.

However, blast fragmentation is inadequate against ballistic and hypersonic missiles – and the only effective way to destroy those is using a “hit to kill” approach of making direct contact with the incoming threat. As we have mentioned in previous articles, this is far harder to achieve, mainly because of the tremendous speeds involved and the problem has commonly been described as “trying to hit a bullet with a bullet.”

Putting this together, an effective medium

range system would probably require more than one type of missile and one type of warhead. As the US has discovered after their unprovoked attack on Iran of 28 February – along with Israel – using a hit-to-kill PAC-3 MSE, each one of which would cost Australia between \$8 million and \$12 million, to destroy a drone worth at most \$100,000 is unsustainable. This, by the way, is a lesson Ukraine learned defending itself from Russian missiles at least two years earlier.

The nominal ten-year acquisition budget from

LAND 6504 is \$10 billion over a decade. This does not look to be anywhere near enough to buy missiles of sufficient variety and quantity to defeat the full range of today's threats – let alone what is coming down the pipeline. Buying nuclear-powered submarines is no use against stuff coming at us from the sky – and the most worrying possible adversary, China, has the industrial muscle to mass produce ballistic and hypersonic missiles.

As Defence is realising – see interview in this edition with outgoing GWEO head, Air Marshal Leon Phillips on page – the US will be struggling for several years to meet their own needs before being able supply even close allies, such as

A dark horse in all of this is Ukraine, which is developing its own systems because the US has cut off direct support and European industry – for the moment – is unable to meet the demand.

Australia. Even before the Strait of Hormuz crisis, Ukraine had been told informally that there was no chance of them receiving even a single new PAC-3 for “at least” three years. With the US and Middle Eastern allies now using so many more against Iran, the rumoured delay will be 7-10 years.

The US not only needs to resupply its own Patriot batteries, of which they have 60, using both PAC-3 and older PAC-2 missiles, but the USN is now a high-priority additional user. The configuration of a battery can vary, but normally they have between 96 and 128 missiles carried in six to eight launch vehicles. At this time, it is not known how many PAC-3s the USN will want as they are likely to deploy a few per ship to supplement SM-2, SM-3, SM-6, as well as ESSM for short range self-defence.

Since PAC-3 appears to be out of contention, at least in the short to medium term, Australia will have to look at other solutions. There are some options, with the most obvious being the European MBDA Aster family; Israel's David's Sling; and South Korea's KM-SAM. Because of lessons learned – and being refreshed daily – all of these manufacturers are updating their designs and looking to increase performance.

A dark horse in all of this is Ukraine, which is developing its own systems because the US has cut off direct support and European industry – for the moment – is unable to meet the demand. At what stage Kyiv will have sufficient excess capacity to export to nations such as Australia is unknown – though they could possibly assist

building a factory here, if we were sufficiently bold and imaginative as to take that approach. MBDA and Hanwha / LIG NEX1 (the Korean suppliers) would also be prepared to transfer technology – though establishing a missile production line in another country takes a few years.

The overall architecture of AIR 6504 would seem to be that it will have to work within Lockheed Martin's Integrated Air and Missile Defence system being developed through AIR 6500. The concept is for a continent wide – and beyond – massive thunder dome displaying all aircraft, drone and missile movements within this vast volume and then treating medium range air defence as a smaller dome – or more likely,

under LAND 19 Phase 7B – a KONGSBERG-Raytheon product that uses three different types effectors – two ‘dual use’ air-to-air missiles in AMRAAM and AIM 9X, and AMRAAM ER – all fired from ground launchers.

The Army has two NASAMS batteries, each comprising three fire units with three or four launchers each. The launchers are either on Rheinmetall trucks or Hawkei 4x4 protected mobility vehicles from Thales. They are supported by a command vehicle with a C2 Fire Distribution Centre, a dedicated fully integrated CEA tactical radar and an EO/IR sensor.

Indeed, there seems no reason why a version of the Australian NASAMS could not meet the expected requirement, with the addition of longer range GBAD missiles. It is already designed to work with AIR 6500 and has advanced long-range active phased array radars also from Canberra-based supplier CEA. The current missiles are



An Australian Army National Advanced Surface to Air Missile System (NASAMS) from the 16th Regiment, Royal Australian Artillery firing an AIM-120 missile during Exercise Talisman Sabre 2025 at Bradfield Training Area. Image has been digitally altered for security purposes. (DoD photo / Jacob Joseph)

several domes – located over critical targets such as the future nuclear submarine base at HMAS Stirling in WA and the Prime Minister's residence.

Other protective “domes” would be naval assets such as Hobart class Air Warfare Destroyers and Hunter and Mogami frigates with SM-2 and SM-6 missiles – and potentially long range, high-altitude SM-3s. In addition, existing ground-based air defence systems are already operated by the Army in the form of NASAMS batteries acquired

probably in the 20km – 120km bracket but don't have the altitude or the hit-to-kill capability required for ballistic missiles in particular.

According to John Fry, Managing Director of KONGSBERG Australia, NASAMS is effector-flexible. Add in a weapon that meets the customer's requirements and it's good to go – a low risk, Australianised solution. His Norwegian colleague Carsten Thiis, Senior Manager Business Development explained:

"Presently, NASAMS is delivered to 16 countries – and that number is growing. Most of those customers are interested in countering normal medium-range air breathing targets. However, about five years ago some countries understood that the system is a proven, open architecture solution with growth potential – and we have already proven that our Threat Evaluation Weapon Assignment (TEWA) function is compatible with different missiles."

This means that the Kongsberg C2 system will decide which is the best effector to use against each hostile track and provide recommendations to the operator. The company is in the process of introducing a number of new effectors and sensors for several customers interested in additional capability to achieve full spectrum air defence.



A Royal Australian Navy Standard Missile 2 (SM-2) is fired from the Derringer trailer-mounted Expeditionary Launch System during Taipan Strike 26 at the Woomera Test Range, in South Australia. (DoD photo)

The basic position of Kongsberg is that it is up to the customer to decide what weapons they want to fire – and if they are supplied with the necessary data then technically there should be no problem interfacing with NASAMS.

On 9 September the government announced that NASAMS has reached Final Operational Capability. According to the media statement, NASAMS provides Army with a world-leading, networked air defence capability designed to detect, track and defeat a range of airborne threats, including cruise missiles, aircraft, helicopters, and drones.

The government believes the capability, delivered under the Short Range Ground Based Air Defence (SRGBAD) project, forms part of the inner layer of Defence's integrated air and

missile defence architecture, which combines ships, fighter aircraft and surface-to-air missile systems to protect ADF personnel, assets and critical infrastructure.

Defence Industry Minister Pat Conroy said:

"The achievement of Final Operational Capability delivers a world-leading capability for Defence and provides a major boost to Australia's integrated air and missile defence.

"This air and missile defence capability strengthens Defence's ability to protect Australian forces from modern airborne threats, including cruise missiles, aircraft, and drones."

"NASAMS demonstrates how Defence and industry are working together to deliver advanced capability and operational outcomes for the Australian Defence Force."

"Australian-designed radar technology is a key

part of this capability, highlighting the important contribution local industry makes to Australia's national security."

"This milestone marks the culmination of years of collaboration between Defence, Australian industry and international partners to deliver a world-class air defence system for the Australian Army."

Lockheed Martin could also be a provider of their own GBAD system and in June conducted a trial at Woomera with a ground-launched SM-2 in Exercise Taipan Strike. The missile firing integrated a CEA radar that communicated with a US weapon control system and missile launcher, to shoot down a cruise missile target. This followed a period of close collaboration, innovation and engineering to produce this

successful prototype.

Australian industry partner CEA Technologies worked with Lockheed Martin to complete this first-of-type integration between a CEA radar and the Aegis Combat System used for the trial. At the time, Chief of the Air Force, Air Marshal Stephen Chappell, said:

"Taipan Strike 26 is an Air Force-led Integrated Air and Missile Defence activity designed to explore medium range air defence capability options to inform capability acquisition decisions.

"The success of the Taipan Strike 26 live-fire event is further evidence of the strength of our partnerships, as well as our integral relationship with industry."

Another possible contender is Northrop Grumman offering their Integrated Battlefield Command System (IBCS), which is the US Army's air defence solution connecting various sensors – such as airborne, ground-based radars and naval radars such as Aegis – to Patriot missile batteries. In a recent development, long range THAAD (Theatre High Altitude Air Defence) batteries can also be connected. It achieved Initial Operational Capability in May 2023.

IBCS – which has also been exported to Poland – should be well known to Defence because during the competition for AIR 6500 it was the core of the Northrop Grumman bid. The winner was Lockheed Martin, but IBCS was well thought of but was not the evolving flexible, developmental approach that RAAF was looking for at the time.

However, times have changed and this is now an Australian Army project – hence LAND 6504 – not an Air Force project, which might fundamentally change perceptions of risk. It would not be a surprise if commonality with the US now becomes a powerful argument in favour of IBCS.

The field is already quite crowded – apart from Lockheed Martin and Kongsberg, Leidos and Anduril also have air defence capabilities, especially in the anti-drone domain. We asked Northrop Grumman's Vice President International, Frank Morley, how IBCS could come into the picture:

"Certainly, it would be under the umbrella of AIR 6500 – with Defence reworking what they want and who they want to contribute, so it's not necessarily a competition with Lockheed, but IBCS could fit into that equation. That's a decision that the Commonwealth will have to make.

"Your point is well taken – it is a crowded field. But competition is great, and having options is great. Our view is that the customer needs to look



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at what is real and not real. A lot of systems can be confused for a command-and-control effort for only a small part of the overall requirement.”

Mr Morley indicated that the way forward is unclear – a view shared by all the bidders given the current inability of Defence to articulate a vision. This has led to inevitable industry – and media – speculation about what might be required. He said that IBCS is real – and Northrop Grumman had spent US \$3 billion (AUD \$4.16 billion) and a decade developing it.

He said Poland has moved from IOC to Full Operational Capability (FOC) and in testing the system had achieved 24 out of 24 target intercepts. He indicated that several other countries are looking at the system, including some in the Middle East. Using the example of Link 16, he said that as more countries acquire IBCS it will be possible to share costs and experience for future enhancements.

If Defence redefines what they want from

a medium range GBAD system and take into account the full range of threats from ballistic missiles the budget will need to be much more than the current \$10 billion project cost. This is not only because the C2 system will need to be fully integrated with the ADF but to be effective it might be that at least two types of missiles are needed.

These could be PAC-3 MSE plus THAAD, Korea's M-SAM and L-SAM (which comes in two variants), or MBDA's Aster 30 and Aster 30 Block 1 NT (the latter with improved anti-ballistic missile capabilities). As US systems, Patriot and THAAD have received all the publicity – but M-SAM and Aster 30 have also performed exceptionally well in the Middle East protecting facilities and ships from Iranian and Houthi missile attacks.

L-SAM is Korea's equivalent of THAAD – and while it will not be operational until next year or possibly 2028 it is in mass production. Aster 30 has been used successfully by Ukraine against a

variety of Russian air-breathing threats such as supersonic cruise missiles but initially struggled against ballistic missiles descending from the near-vertical because of limitations of the radar supplied with the system.

The default position of Defence is all-too-often to buy a US system even when better options are available elsewhere, including from Australian industry so predicting the outcome of LAND 6504 is fraught. This was meant to be a rapid acquisition, but early indications are that deciding on the nature of the threat – and implications on the budget – are taking a while to be worked through.

Maybe putting so much emphasis on AUKUS Pillar One and spending tens of billions of dollars on the remote possibility of acquiring a small number of nuclear-powered submarines in the 2030s – completely useless for air and missile defence – is not looking like such a smart idea after all.

Lockheed Martin awarded \$1.32 billion contract to advance Australia's Joint Battle Management System

CANBERRA, 9 Sept 2026

The Australian Government has awarded Lockheed Martin Australia a \$1.32 billion contract to advance and sustain AIR6500—a sovereign, high-tech joint air battle management system that integrates Australia's air and missile defence capabilities across all-domains into a single, unified view of the battlespace to detect and counter threats at various ranges.

Under Tranche 2B, Lockheed Martin Australia, together with the Department of Defence and Australian industry, will enhance AIR6500's core architecture with advanced C2 aids, expanded comms, and cyber security to maintain resilient, networked sensor and C2 capabilities that can sense and track incoming threats and integrate with the Australian Defence Force's targeting enterprise, allies

and partners. This framework establishes a scalable path for ongoing systems innovation and rapid integration of future technologies, keeping Australia ahead of emerging threats.

Lockheed Martin Australia will continue to sustain, train, and grow its 360 locally skilled engineering workforce, the largest integrated air and missile defence industrial base in Australia, while expanding the team to 400+ within 18 months. Over the next six years, a substantial share of the AIR6500 Tranche 2B effort will be delivered by Australian Industry partners.

Independent of the program, Lockheed Martin Australia is investing \$85.9M in a national integrated air and missile defence facility to ensure end to end system resilience.

Lockheed Martin's president of Rotary and Mission Systems, Stephanie C. Hill, said, “As the strategic partner for AIR6500,

Lockheed Martin is proud to continue working with the Department of Defence to rapidly evolve an advanced integrated air and missile defence system that safeguards the Indo Pacific region.”

“Together, we are maturing a significant capability that strengthens Australia's national security and increases allied interoperability to combat future threats.”

Over the past two years, Lockheed Martin Australia has delivered a series of milestones in Tranche 2A AIR6500, laying the groundwork for the next phase of AIR6500:

- produced a modular joint air battle management system prototype, two joint tactical operations centres and a single persistent operations node, for testing and evaluation
- provided training to the Royal Australian Air Force on delivered elements
- completed fit out of the AIR6500 integration lab in Adelaide
- developed a 360-strong engineering and technical workforce while partnering

with Australian Industry to maximise sovereign content in the system.

Lockheed Martin Australia and New Zealand's Chief Executive, Jeremy King, said, “This contract confirms the Australian Government's confidence in Australian Defence Industry's capacity to deliver world class, Australian built capabilities that are trusted to protect our nation and its allies.”

“Lockheed Martin Australia remains firmly committed to continue partnering with primes, small-to-medium enterprises, and academia to source the best of breed technologies, delivering a sovereign solution that strengthens Australia's industrial self-reliance and prosperity.”

“The next phase of AIR6500 fortifies the core of Australia's integrated air and missile defence.”

King added, “AIR6500 enhances the joint force by bringing all ADF defence assets together on a scalable, resilient, and collaborative platform. It gives us clearer cross domain awareness and a more effective way to respond to air and missile threats.”



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Project Land 156 – increasing the C-UAS urgency

Gordon Arthur // Christchurch

The threat from drones and loitering munitions are well documented in conflicts such as Ukraine and Iran. Yet many militaries – including Australia – seem to be ambling along at snail's pace to counter this aerial danger identified years ago.

The Australian government launched Project Land 156 in February 2025, and it duly selected Leidos Australia as its prime systems integration partner. In a press release dated 27 August 2025, Canberra revealed a \$45.9 million contract where Leidos will “deliver a sovereign capability designed to detect, track, classify and neutralise small uncrewed aerial system (sUAS) threats through an integrated network of sensors, effectors and command-and-control technology”.

Asia-Pacific Defence Reporter sought repeatedly to secure an interview with Defence for an update on Land 156 – with zero effect. It seems the military has no desire to talk about it. APDR requested an interview with Leidos Australia too, but its hands were tied by the diktats of its benefactor.

The urgent need

One thing is clear and that is the desperate need for counter-UAS (C-UAS) networks. In June 2025's twelve-day Iran-Israel War, special forces on the ground helped decimate Iran's air defence network in the first 24 hours by pre-emptively attacking with drones. The very same month, Ukraine successfully employed similar tactics in Operation Spiderweb, where armed drones simultaneously emerged from disguised cabins transported by truck close to Russian airfields to attack dozens of parked bombers. Against surprise and short-range threats such as a swarm of drones launched nearby, most traditional air defence systems are rendered helpless.

One can only ponder what would happen if an adversary released a swarm of one-way drones near Australian airbases without hardened shelters. Its vaunted fighter fleet and other force-multiplier aircraft would be incredibly vulnerable.



An Australian Army soldier from 3 RAR “takes a sight picture with an anti-drone gun” during Exercise Talisman Sabre 2025, according to the original ADF photo caption. Hopefully, troops are now gaining more effective solutions than shotguns. (ADF)

Already in service with the Indian Air Force and Army, the MR-SAM can intercept aircraft, cruise missiles, ballistic missiles, guided weapons, and UAVs at ranges of up to 100 km.

When APDR asked this question last year of Air Vice-Marshal Glen Braz, Air Commander Australia, he argued the Royal Australian Air Force (RAAF) is “very deliberate about our passive efforts to protect bases”. Furthermore, “As threats evolve, and warfare evolves, we’d seek to have layers of defence systems that we’d want to have in place. But we’re very much training our teams to fight the network of bases as a system.”

However, far more than passive measures are needed to protect bases, facilities and assets. Especially as Australia establishes a nuclear-powered submarine base, it too needs to be protected from drones and missiles.

Certainly, there is a desperate need to go far beyond the scene depicted in an ADF photo published during last year's Exercise Talisman Sabre. The photo caption read, “Australian Army

soldier from the 3rd Battalion, Royal Australian Regiment takes a sight picture with an anti-drone gun..." The photo? It was of a soldier kneeling atop an M113AS4 aiming a standard shotgun skywards. Naturally, military personnel need better drone countermeasures than that.

APDR asked EOS about the most critical aspects for defending against drones and aerial threats. A spokesperson highlighted three things, the first being that a range of effectors must be multi-layered. Secondly, "Longer-range effectors are required (part of the multi-layered approach). Rockets and missiles are in demand, but ideally they must be cost-effective and used against appropriate unmanned aerial vehicle targets." Finally, EOS noted, "It's becoming more difficult for soft-kill solutions such as jammers and spoofers to remain effective as drones become more hardened against these effects. More and more, it's the kinetic effectors that have the most effect."

Interestingly, this year's Integrated Investment

Already in service with the Indian Air Force and Army, the MR-SAM can intercept aircraft, cruise missiles, ballistic missiles, guided weapons, and UAVs at ranges of up to 100 km.

Program did not even mention Land 156 by name, though it did promise \$7.2-\$10 billion over the coming decade for "active missile defence capabilities across the air, land and maritime domains". This includes "acquisition and introduction of dismounted and vehicle-mounted systems to protect deployed forces from low-altitude aerial threats, including uncrewed air systems and helicopters". It also noted "continued development of C-sUAS systems and associated command and control, in collaboration with industry and in response to lessons learned from the ongoing conflicts in Ukraine and the Middle East. This is complemented by the development of new technologies such as directed-energy weapons."

However, observers must look past the political grandstanding and hoopla. Nothing like this figure of \$7.2-\$10 billion is going on C-UAS, for most is destined for wider missile defence. Offering more clarity, the government said in August 2025 that it had set aside \$1.3 billion for counter-drone capabilities over the coming decade. Divided by ten, that is an average of \$130 million annually for C-UAS.

Is that enough and is there a sufficient sense of urgency? Those were questions APDR put to



EOS Slinger remote weapon stations are here mounted on Hawkei vehicles – one armed with a 7.62mm machine gun/M230LF 30mm cannon combination, and the other an M134D Minigun – at Land 156's Capability Target State 1 demonstration in December 2025. (ADF)

Defence, but which received no response. Given the paucity of inputs from the authorities, the remainder of this article sets out in chronological order significant Land 156 contracts that have been announced to date. Readers can determine for themselves whether the rate of progress is adequate or not.

September 2024

Anduril Australia announced it had received a three-year \$30 million contract so the RAAF could trial C-UAS and counter-intrusion capabilities at RAAF Base Darwin.

July 2025

Defence awarded a cumulative \$16.9 million in a rolling wave of contracts to eleven vendors to rapidly deliver equipment such as high-energy lasers, radio frequency (RF) jamming and kinetic countermeasure effectors for Land 156. Five companies were Australian, including DroneShield that received an approximately A\$5 million contract for Drone Gun MkIV jammer and RfPatrol detection devices.

August 2025

As already mentioned, Leidos Australia was

appointed systems integrator for Land 156 in response to an invitation to tender issued on 21 November 2024. Leidos is drawing upon experience garnered in the USA where its AirShield architecture was trialled by the US Department of Defense.

The government has adopted a continuous modernisation model for Land 156, ensuring access to cutting-edge capabilities as they appear. This multi-stage programme counters small Class 1-2 drones weighing up to 24kg. It includes sensors, effectors and a command-and-control (C2) network, but it is vital to understand this is not about exquisite pieces of equipment, but rather laying down the architecture to create a system of systems effective both now and in the future.

Alex Rothwell, Assistant Secretary at the Electronic Warfare and Intelligence Systems Branch Joint Systems Division of the former Capability Acquisition and Sustainment Group (now Defence Delivery Group), said, "These capabilities will be used to protect deployed forces, domestically and internationally, to secure infrastructure, expeditionary bases, dismounted personnel and all classes of ADF vehicles." He added, "The mature C-sUAS capability will necessarily need to be agile to respond to threat evolution, and be scalable for multiple, large-scale deployments."

The government is prioritising the involvement of Australian small and medium enterprises.

Thus, as part of its August 2025 announcement, it declared EOS would provide effectors and Department 13 sensors. Defence also announced the Cortex C2 platform from Acacia Systems would be central to the C-UAS solution. Leidos stated: “This system is designed to support rapid integration of sensor and effectors, fuses data into a coherent threat picture, and manages engagement workflows under a human-in-the-loop command framework.”

“Countering drones is not an air defence problem, it’s an everybody problem ... It’s an asymmetric threat, the technology advances at an extremely fast rate, and the countermeasures to those drones must keep up.”



The Portable Fractl Laser Weapon System from AIM Defence underwent its first successful testing in May 2024. Directed-energy weapons offer some advantages when integrated into wider C-UAS systems. (ADF)

September 2025

DZYNE in the USA was selected to supply Detect, Track, Identify and Mitigate (DTIM) kits through Australian firm HIFraser in a “multi-million-dollar” deal. Each mission-ready kit includes a Dronebuster DB4 handheld effector and omnidirectional RF detector that spots UAVs up to 25km away.

December 2025

An important live demonstration of Land 156’s Capability Target State 1, a baseline C-UAS

capability, occurred on 4 December 2025. This activity in Exercise Southern Arrow 25 in Cultana was important since it was the first showcase of a minimum viable counter-drone capability. Pledging a wider rollout in 2026, Minister for Defence Industry Pat Conroy promised, “We’re doing the trials right now and they’ll be in place early next year. That’s light speed by Defence procurement [standards].”

Australia’s fledgling C-UAS system shot down

and L3Harris’ VAMPIRE laser-guided rocket system. Incidentally, VAMPIRE has been used in Ukraine since 2023. Another Hawkei vehicle was armed with a 7.62mm MAG 58 machine gun and M230LF 30mm cannon.

That month, American firm Genesis Arms also won a contract for its GEN-12 semiautomatic, 12-gauge shotgun, and these are being rolled out across the Australian Defence Force (ADF). Supplied in 5-inch and 10.5-inch barrel versions, the GEN-12 that can fire specialised G-Shot anti-drone rounds underwent testing and certification in early 2026.

Regarding the Capability Target State 1 demonstration, Lieutenant Colonel Josh Mickle of Land Capability Division shared, “Countering drones is not an air defence problem, it’s an everybody problem ... It’s an asymmetric threat, the technology advances at an extremely fast rate, and the countermeasures to those drones must keep up.” Mickle added, “This is a developmental project and we’re moving extremely fast. ICARUS is a complex system and it has required a massive effort from the team, from both the Commonwealth and industry partners.”

The aim is to find the best of the best and to meld them together into a C-UAS system of systems. Mickle said, “We’ve taken into account technical assessment, cyber assessment and soldier usability assessment to identify the most suitable systems that we’ll acquire more of. We’ll be training dismounted forces on these systems from early 2026.”

January 2026

On 29 January, a C-UAS industry panel – called the C-sUAS Standing Offer Panel – was created. Designed to support Land 156, it advises Defence on counter-drone solutions. The 28 companies appointed were: Advanced Design Technology; Anduril Australia; ASR Defence; Axon Public Safety; Beca; Codarra Advanced Systems; Cubic Defence Australia; DEWC Services; DronesShield; EPE; Hensoldt Australia; HighCom Technology; Insitec; Integrated Frontline Services; JVAT Solutions; Leidos Australia; Key Options; L3Harris; Nova Systems; Protegas Australia; Qinetiq; Raytheon Australia; Saab Australia; SME Gateway; Solinnov; Syraq Systems; Systems Planning and Analysis Australia; and Systra ANZ.

At the same time, Canberra enacted the Defence Amendment (Counter-UXS Measures) Regulations 2025. These revised laws permit the ADF to detect, disable and destroy errant drones

drones kinetically and non-kinetically under this first iteration of Land 156’s Integrated C-UAS Acquisition, Refresh and Upgrade Schedule (ICARUS). Defence stated it “validated and integrated core technologies, bringing together advanced sensors, effectors and C2 capabilities into a cohesive, mission-ready solution”.

ICARUS elements included Acacia Systems’ Cortex, EOS Defence Systems’ Slinger remote weapon station armed with an M134D Minigun mounted on a Hawkei, and Department 13’s DART RF detection system. Additionally, there was Echodyne’s EchoGuard short-range radar



Soldiers deployed in Joint Task Force 629 in Weipa recently tested and trained with counter-drone technology during Exercise Austral Shield 2026. This is a DZYNE Dronebuster DB-4 jammer. (ADF)

posing a threat.

Elsewhere, Silentium Defence secured a contract for its Maverick M8 passive radar. Because this lightweight, deployable radar does not emit radio signals, it does not broadcast its location.

February 2026

Defence signed a three-year agreement with DroneShield to accelerate research and development of C-UAS systems for the ADF. This enables DroneShield and the Defence Science and Technology Group to share technical information and test facilities to advance C-UAS development.

Conroy claimed that, by this point in time, Defence had awarded Land 156 contracts worth a cumulative \$41.4 million to 21 companies.

April 2026

Defence revealed that Sypaq had received a \$10.4 million contract to develop a fast drone interceptor called the Corvo Strike. Designed to chase after and destroy hostile drones, this winged interceptor powered by four propellers can also act as a loitering munition. Sypaq is working with the Advanced Strategic Capabilities Accelerator (ASCA) initiative through Mission Syracuse, and Nioa has partnered with Sypaq to

“There are three main objectives here. First, it gives soldiers an opportunity to apply their learning in the field. Second, it helps us understand the capabilities and limitations of the equipment. Finally, it allows commanders and soldiers to adapt their tactics and procedures to respond to a UAS threat.”

provide the Corvo Strike’s fuses and warheads.

Simultaneously, AIM Defence was awarded a \$21.3 million contract for a fourth-generation Fractl portable, high-energy laser system. The army earlier demonstrated its Fractl first-generation weapon in May 2024. The suitcase-sized laser can track objects as small as a 10c piece travelling at 100km/h, before knocking out a drone up to 1.5km away in just 2-3 seconds. The advantage of such directed-energy weapons is their endless magazine, as long as they have a power source. AIM Defence claims a price of just 90c per shot for the Fractl.

Under a \$4.8 million deal signed in August 2024, AIM Defence had supplied two other Fractl laser units to Australia. At the time of this announcement, Conroy promised to double government spending on counter-drone systems. If we take Conroy’s August 2025 spending pledge at his word, this suggests the government now

plans to spend \$2.6 billion on C-UAS over a decade.

June 2026

OpenWorks Engineering in the UK received a contract to supply its Vision Guard sensor system for Land 156. The ADF will evaluate it as a “tripwire” warning system to alert dismounted soldiers to drone threats. Able to be carried in a backpack, Vision Guard can be set up in less than two minutes.

July 2026

Defence awarded another contract for DZYNE DTIM kits. Worth \$6.9 million, this deal delivers an undisclosed number of wearable and hand-held C-UAS systems. Ondas acquired DZYNE Technologies in July 2026.

August 2026

To illustrate the fact that Australian soldiers are now rolling out Land 156 equipment, soldiers of JTF629 – from the reserve unit 25/49 Royal Queensland Regiment – employed handheld C-UAS solutions during Exercise Austral Shield 2026 in Weipa, Queensland. Soldiers used the

DZYNE Dronebuster DB-4 handheld jammer, KeyOptions Sky Control software and hardware, and DroneShield’s RfPatrol Mk2.

Lieutenant Colonel Paul Middleton, Officer in Charge of the C-UAS program, said the exercise provided troops their first collective training experience in a tactical environment using counter-drone technology. “There are three main objectives here. First, it gives soldiers an opportunity to apply their learning in the field. Second, it helps us understand the capabilities and limitations of the equipment. Finally, it allows commanders and soldiers to adapt their tactics and procedures to respond to a UAS threat.”

Middleton added, “We’re getting down to the lowest tactical level and coaching soldiers on how to employ the capability. We’re discussing tactics, not just at the section level, but also how individual counter-UAS actions can be integrated into a battlegroup-sized force element.”



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Redefining Rotorcraft Capability for the Future Battlespace

The modern battlespace demands more than individually capable platforms: it requires interconnected systems that share information and effects to create decision advantage. The AH-64E Apache and CH-47F Chinook are evolving in parallel to meet that requirement. Through open architectures, technologies to reduce crew workload, enhanced teaming with autonomous systems and integration with new capabilities such as Launched Effects, these two proven rotorcraft platforms are being developed to operate as force multipliers within a Family of Systems—extending reach, resilience and lethality across land, air and maritime domains.

Enabling the Family of Systems

Defence planners increasingly evaluate platforms by how they contribute to a wider combat mission rather than by metrics such as range or firepower alone. Version 6.5 of the Apache prioritises an open systems approach so new sensors, radios, datalinks and Launched Effects can be easily integrated to shorten the time from concept to capability. As TJ Jamison, Boeing's Business Development Director for Attack Helicopter Programs, put it: "Once that new capability is available... it will be able to be rapidly integrated into the aircraft." That agility is central to a Family of Systems mindset—allowing Apaches to receive targeting from other sensors, share ISR, and coordinate long-range precision fires and electronic warfare in near real time.

Complementary developments in the Chinook match that intent. The CH-47F Block II program adds a digital backbone and smarter electrical controls. After years of development and post-production modifications, Boeing has added the Active Parallel Actuator System (APAS) to the Chinook production line. APAS is a feature that provides workload reduction, increased safety and improved mission effectiveness. It also lays the foundation for supervised autonomy capabilities in the future. Recent tests have also demonstrated fully automated approach and landing using Boeing-developed Digital Automated Flight Control System (DAFCS) software. These advances create a platform that can reliably host future autonomy, Modular Open Systems Approach-style upgrades and the networks necessary to exchange data with Apaches, ground units and joint assets.

Launched Effects, scale and tactical flexibility

Launched Effects—small, air-launched ISR, EW or kinetic systems—are a pivotal enabler for networked aviation. Controlled by pilots through open systems advancements that Boeing has demonstrated for the Apache cockpit, launched assets can make first contact, provide persistent sensing, jam hostile communications or prosecute targets well beyond the helicopter's

traditional direct-fire range. Crucially, Chinooks offer complementary scale: their heavy-lift capacity makes them a logical host for larger sortie packages and mass-deployed Launched Effects that extend theatre reach. A practical concept under exploration involves Chinooks deploying multiple launched assets from the rear ramp while Apaches command and control them to shape the battlespace or direct them as needed.

This is not a choice between crewed or uncrewed systems. Jamison's assessment is clear: "Crewed is not the answer, uncrewed is not the answer. It's a collaboration and a complementary effort between the two." Keeping humans in the loop for critical decision points while automating routine tasks increases tempo and enables warfighters to gain the operational advantage.

Operational utility and interoperability

Apache-Chinook teaming within a broader, integrated battlespace offers tangible operational benefits. Chinooks enable forward arming and refueling points (FARPs) that sustain Apache tempo and extend persistent presence. The Chinook's heavy lift supports rapid resupply, casualty evacuation and the carriage of autonomous mules or larger launched-effect bundles—capabilities that multiply the force's options in contested environments. Interoperability is fundamental and deliberate, with open interfaces and common data baselines allowing allied and partner systems to plug into the same network, increasing coalition lethality and shared situational awareness.

While many developmental milestones have been recently demonstrated by the U.S. Army, the implications can be applied globally. Nations like Australia that operate both platforms can benefit from the value of integrating their capabilities into joint and coalition architecture. A Family of Systems approach ensures investments remain relevant as new sensors, autonomy and long-range effects mature, without requiring repeated depot-level redesigns.

Delivering operational advantage

The Apache and Chinook are being modernised not as isolated upgrades but as complementary platforms in an integrated combat ecosystem. Together they extend sensing, safeguard troops and tactical maneuvering, sustain operations and enable the rapid introduction of new capabilities via open systems and software-defined interfaces. For forces adapting to faster, more contested and data-rich battlefields, evolving these platforms as part of a Family of Systems offers a pragmatic path to greater survivability, decision advantage and operational flexibility—today and into the future.

Connecting the dots – Project Land 4140

Gordon Arthur // Christchurch

The Australian Army is modernising its land command, control, communications and computers (C4) networks via the multi-phased Project Land 4140, an effort that will continue for years.

It is particularly pertinent as the Australian Defence Force (ADF) moves towards a focused and integrated force that operates seamlessly in the maritime, air, land, cyber and space domains. Amidst the introduction of new vehicles and helicopters, the army is focusing on littoral manoeuvre and long-range fires. It is therefore vital that networks can support archipelagic warfare over increased ranges.

Asia-Pacific Defence Reporter reported extensively on Land 4140 in November 2025, and since then Defence has made several significant steps forward in terms of contracts. However, Defence could provide only the briefest of comments to APDR, even though Land 4140 “is army’s flagship digital modernisation project, delivering the next generation of command, control and communication capabilities”.

A Defence spokesperson related: “The project is designed for continuous development and delivery, enabling army to improve its capabilities while rapidly adopting new technologies and adapting to emerging threats.” They added, “Supporting Australian industry is a key consideration for Land 4140, and it’s focused on maximising opportunities for Australian industry participation across capability integration and delivery where it offers value and capability outcomes.”

Canberra is yet to announce the outcome of a key tender for Land 4140’s program integration partner, for which a tender closed on 1 November 2024. This partner will help Defence make decisions and run 4140 programatics, and it will not necessarily be an equipment or solution provider. Working at the program level, it will possess the horsepower to test solutions on Defence’s behalf.

Land 4140 is an omnibus program, and Defence has engaged industry early in the process. In fact, 4140 could perhaps become an exemplar for this approach. So, what tenders have been awarded to date?



A Hawkei is seen here towing a Medium SATCOM Terminal, provided by Boeing Defence Australia under Project Currawong. (Gordon Arthur)

Battle management system: Systematic

An important contract for the battle management system (BMS) was awarded to Systematic on 19 June 2026. The company will supply SitaWare Headquarters software under a \$98 million contract lasting from 1 July 2026 till 30 June 2031, plus two one-year extension options.

Importantly, the army is already using Headquarters as its interim BMS solution, offering great familiarity. The army adopted it as an interim solution after Defence mysteriously cancelled a contract with Elbit Systems in 2021. SitaWare Headquarters is used by more than 50 nations, including all Five Eyes partners.

Mark Gainsford, Vice President, Business Development at Systematic Australia, told APDR the interim BMS contract involved Headquarters, some SitaWare Frontline capability and underlying

communications protocols for risk reduction testing. He added, “It has been a controlled and scaled activity to better understand the capabilities, train a portion of their workforce in the platform and integrate with some other parts of their ecosystem.”

With the army now plumping fully for Headquarters, the future is more assured for Systematic. This Land 4140 BMS contract will see “a much larger rollout and a much more deliberate program, where the software is fully accredited and then it’s rolled out across multiple years,” Gainsford explained. Australia is acquiring software licenses, maintenance of software to keep it current, and services support such as training and collaboration with the BMS integrator.

Gainsford said the BMS is a common

operational picture platform. “So, within that it correlates a lot of data points in the battlespace, a lot of tracks and information that’s flowing around the battlespace. At its very core it presents that information to various users of SitaWare Headquarters at the various command echelons – so from a division level, brigade level and even lower.” Another important function is planning. “With all that rich information, it enables military commanders and their staff to step through their very structured planning processes,” including mission planning and writing orders.

Furthermore, “That system scales across the battlespace, and there’s some smart technology in there to allow communications to work when it’s denied, when it’s low bandwidth. The way in which it manages information flow and how that’s presented and distributed is also a key part of our Headquarters.”

With the deal signed, Systematic will go through a six-month test and evaluation process to verify the software meets requirements. Indeed, Systematic expects it to be accredited by year’s end. After that, the tempo will increase as work packages with the software are delivered across various networks and infrastructure environments in conjunction with the integrator over the next 2-3 years.

While there is commonality between the interim and new solutions, Gainsford said they may have

a “different architecture and design”. An example is subtly different communication network requirements; these decisions are being scoped out and will mostly be made in the coming year. Gainsford said Systematic has helped develop more than 20 bespoke standards and formats for Australian networks already.

Gainsford added: “The fact that SitaWare has already done a lot of those developments core to the product is, I think, one of the major reasons why army and Defence are going with that product. It enables Five Eyes interoperability, other coalition and allied interoperability, as a standard part of our platform.”

This Land 4140 contract does not take the BMS down to lower tactical levels, such as widespread individual tablets for dismounted use or screens in combat vehicles. Gainsford shared, “I don’t think there’ll be a lot of that in the initial Land 4140 program. I think it’s going to be more the command posts and the compute environments – laptops, hardened laptops and that sort. Having said that, those commanders do step outside their headquarters from time to time, and they’re on the move in a vehicle. So, we’ll see some of that vehicle-on-the-move environment in this first, phased rollout.”

Future phases of Land 4140 should see greater dispersion of the BMS. “Army is still working through different activities around those things.

We have a solution that can support those things, but I think initially the focus will be much more at those planning echelons using our SitaWare Headquarters and the smarts that are in the system.”

BMS systems integration partner: Boeing

On 4 June 2026, Boeing Defence Australia (BDA) announced its selection as systems integrator for Land 4140’s Battle Management System. Interestingly, the contract became effective on 6 March though its operative date will be September 2026 under an initial five-year term. This means BDA will lead integration efforts of BMS elements such as SitaWare Headquarters and any other BMS the army chooses, ultimately delivering a unified, mission-critical, command-and-control capability for the army.

Likely, BDA’s long association with battlespace communications systems (BCS) – such as Project Land 2072 Phase 2B’s (aka Currawong) Integrated Battlefield Telecommunications Network (I-BTN); Project Sea 1442 Phase 5’s maritime warfare network; and as a Project Air 6500 subcontractor – played a part in that selection. The I-BTN has evolved since then to cover air, land and sea domains as a wider BCS.

Matt Buckle, BDA’s Director of Joint Systems, enthused, “So, what began as Project Currawong, we’re excited that the BCS portfolio has expanded and has really matured into a capability that now supports the integrated force across every domain. And that really remains our core mission: to deliver a trusted, sovereign communication capability that supports seamless connectivity, commonality and interoperability across the ADF and coalition partners.”

Buckle added, “The adoption of BCS technology really enables the integrated force to securely exchange operational data across dispersed and contested environments. But our strength comes from not just what we deliver, but how we deliver it, and that’s through a strong sense of collaboration, innovation, a highly skilled workforce and continued investment in emerging technologies to keep pace with the threat, the technology and operational needs. It’s built in Australia by a team of over 300 skilled experts and supported by a solid local supply chain of over 200 businesses.”

Darcy Rawlinson, Senior Manager - New Business at Boeing Defence Australia, said BDA, as BMS systems integrator, is “agnostic to the actual software product, and I think Defence will



Boeing Defence Australia scooped a Land 4140 contract to supply transportable satellite communication ground terminals to the ADF. (Boeing Defence Australia)



Codan is currently competing in a tender to supply tactical-edge radios to the army. This is its Sentry 6161 integrated radio, already in production in Australia. (Codan)

have several different software products across different levels of tactical command. Our role really is to take whatever Defence choose as their software system, the actual battle management system, and make sure it's integrated across the ecosystem – that includes things like making sure it works over the radio networks that they've got both now and into the future, making sure it can exchange information with other BMSs that do other functions, making sure it can operate on the right hardware that's appropriate to Defence at that right level, whether it's vehicle-mounted, soldier-carried or whether it's something in a command post."

Defence's spokesperson also said, "The outcomes delivered by Land 4140 support numerous projects across the Integrated Investment Program, including Air 6500 Joint Air Battle Management System command and control and JP9111 Warfighting Networks and Applications.

Asked about this relationship between Land 4140 and Air 6500, a Boeing spokesperson told APDR: "From BDA's perspective, Defence's network design is based on a common standard across deployed networks. The I-BTN...was built to that standard and serves as a reference network for it. Boeing has built the Air 6500 network to the

same standard, using the same technology, so the two are interoperable. This enables Defence to operate them separately or integrate them if required."

SATCOM terminals: Boeing

In another success for Boeing Defence Australia, it announced on 3 August 2026 that it will deliver beyond-line-of-sight satellite communications (SATCOM) ground terminals for Land 4140. This transportable, Class 2 SATCOM equipment will "enable faster, uninterrupted and more reliable connectivity in increasingly complex and contested operational environments".

Buckle explained, "Designed for the modern battlefield and drawing on BDA's proven experience delivering enterprise-wide communications systems for Defence, this capability will connect Australia's integrated force across multiple domains. Underpinned by high-speed, wideband SATCOM links, the advanced BLOS system will ensure uninterrupted data flow that allows the ADF to connect when needed and operate with confidence when it matters most."

He further shared, "The capability will provide high-speed, wideband SATCOM links integrated into the I-BTN, improving connectivity, interoperability, situational awareness and

decision advantage in those contested environments." He explained these devices are smaller, more deployable and will replace obsolete and degraded in-service terminals.

Tactical-edge radios: TBC

After being issued in late June, a tender closed on 4 September 2026 for non-ITAR soldier radio systems under Land 4140 Work Package 16 Tactical Edge Radio. Codan is one bidder, and on 5 August 2026 it hosted an industry briefing for 62 interested parties at its Mawson Lakes campus. The company is seeking long-term partners who can provide advanced manufacturing, engineering, software, systems integration, training, logistics and through-life support. Codan has already proposed five work packages if it wins the contract, covering components like metalwork housing, cabling, connectors, bracketry and electronics for battery adapters.

Alf Iannello, Codan's CEO and Managing Director, commented, "The strength of the response from Australian industry has been outstanding. It demonstrates Australian companies have both the capability and the determination to contribute to the technologies that will protect and connect Australian soldiers. Land 4140 is more than a radio acquisition. It's an opportunity to build sovereign capability, strengthen Australia's advanced manufacturing base and create enduring skilled employment, intellectual property and export opportunities here in Australia."

Matthew Jones, Codan's Vice President Asia-Pacific, told APDR the army is seeking a combination of a personal role radio and platoon radio aimed at the company-and-below level. "It's replacing a couple of different radios that army currently operates with a single tactical-edge radio." Codan is proffering the locally assembled and in-production Sentry 6161, which is already utilised under DEF129 as the data link for Sypaq's Corvo X drone in army combat teams, and APDR believes it is also used in unmanned ground vehicle applications.

For Land 4140, Codan is offering the Sentry 6161 integrated with the Kägwerks Dismounted Operator's Combat Kit (DOCK) Ultra. This tablet-type device worn by soldiers integrates the 410g Sentry 6161 radio, a compute capability, tactical phone and C2 device. It saves weight as a company or platoon commander has one less radio to carry. Codan acquired Kägwerks in December 2024, and DOCK devices are also currently being delivered to the US Army.

The author understands the army is looking

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for a battle group's worth of radios annually, equating to 344 systems over three years. However, this is just a first radio work package, and the army might eventually need up to 11,000 radios over the program's life.

These are not Type 1 encrypted radios, for they could potentially be shared with regional partner forces. Nonetheless, these radios must use the TrellisWare TSM waveform as operated by Five Eyes partners.

Jones said the Sentry 6161's multiple antennas give distinctive advantages, some of which "mean we can deploy very advanced signal processing techniques to nullify threats, as in jammers, and we can also direct energy to enhance our communications and reliability through steering electronically the multiple antennas to deliver into the network". He related how the Sentry 6161's open architecture allows continuous software updates, alternative waveforms and sovereign encryption.

In the past four years, Codan has grown from 250 employees to 1,100+. Possessing 20 sites worldwide, Jones said 93% of company revenue comes from outside Australia.

Future considerations

Land 4140 is a complex, multi-phased project. It will typically go to government every two years for approvals encompassing perhaps three to five components each time, with the next one due later this year. This biennial process defines the program's evolution window, and it is likely to be Defence's methodology for the next decade or so.

Australia will face challenges, though, and Rawlinson of Boeing outlined some of them based on experience gleaned from the Ukraine conflict. The first is the challenge of a larger-scale network, simply because the ADF is more integrated. It is not exclusive to the army, but now crosses all domains. Add to this the proliferation of unmanned systems that must be cued and coordinated on the network too.

The size and mobility of networks is important as well. The aim is to avoid detection of command nodes, so being small and agile increases survivability. Command nodes need to be broken up into smaller parts, hiding in plain sight. "That ability for the equipment to get smaller and much more mobile is probably another big lesson," Rawlinson said.

Associated too is data's rising importance. Rawlinson noted, "It's a critical input to capability now, so making sure the right data is in the right



Systematic is supplying its SitaWare Headquarters software suite to the Australian Army as the Land 4140 Battle Management System. (Systematic)

place in the right format at the right time and can be assured is really critical. That's what's going to give people an advantage. For us, it's making sure we understand where that data comes from. Is it weapons quality? Has it had artificial intelligence assisting in the decision-making, and how is that AI trained? What's the assurance of that data that we're getting to decision-makers?"

Another challenge is resilience, as the electromagnetic spectrum is increasingly contested and congested. "We're going to operate in a contested environment, so the ability to defend our network, repel attacks, operate while being attacked, and then recover from an attack is really important. I don't think it just all goes on, hoping that you don't get attacked or just defending against it. We know we're going to have to work through that, and we're going to have to be able to respond and get back to a known baseline so that we can recover from those sorts of attacks."

Nor will networks work in a warfighting domain as they do in benign lab environments. "They're going to be attacked; we need to get comfortable with that." Another takeaway is how to update networks quickly, especially if a nation is on a wartime footing and processes are compressed.

Rawlinson pointed out the challenge of maintaining simplicity too. "When you talk about simplicity, it seems a little bit unusual. But what we've got to do is make it simple for users, the

humans operating this. Some of that complexity comes from scale, some of it comes from the speed decisions need to be made. Some of the complexity is the technology and the evolution of new technology that will be continually added. So, our focus is making it simple for the humans who need to plan, operate and make decisions in this network – so a lot of automation, a lot of either AI or some other systems to help those humans understand the problem and make decisions."

The final challenge is the pace of change, or adapting at the speed of relevance. "We've certainly seen that in Ukraine," Rawlinson said, "where the adaption cycles have gone from weeks to days, and in some cases hours. We need to adapt. The Ukraine conflict is showing us that everything's an action and counteraction, and those who adapt the quickest are being more successful."

Rawlinson concluded: "One good thing – and I'll take my hat off to army the way they've structured their 4140 programme – is that they're not taking a big-bang approach of trying to replace a network; they're evolving everything they've got and they're taking similar approaches with some other domains such as counter-UAS. So that allows them to continually invest and upgrade. You can't rely on big step changes anymore. You need to be able to identify a threat and then respond to that and evolve the system."

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Hardening and networking the Army well underway

Kym Bergmann // Canberra



Australian Army soldiers from the 4th Regiment, Royal Australian Artillery, conduct an indirect fire mission during a live fire activity with the AS9 Huntsman Self Propelled Howitzer at Townsville Field Training Area, Queensland. (DoD photo / Lizi-Mari Swart)

It takes policy decisions a long time to flow through to hardware being fielded, especially for the Australian acquisition system. The Army decided to buy 155mm tracked Self Propelled Howitzers (SPHs) in May 2019. This was followed by new Main Battle Tanks (MBTs) in January 2022 – and the selection of Redback Infantry Fighting Vehicles (IFVs) in July of 2023.

Collectively, these acquisitions are worth around \$9 billion and will drastically increase Army's mobility, protection and firepower. In parallel, projects such as LAND 4140 C4I modernisation and JP 9102 military satellite communications will see all armoured vehicles connected into a seamless network capable of handling huge amounts of data. The collective effect will be a major increase in Army's capability to operate in a large number of scenarios, including high intensity conflict.

Manufactured near Geelong by Hanwha Defence Australia – the local subsidiary of South Korea's huge Hanwha conglomerate – the Huntsman 155mm is receiving rave reviews from Army operators. Known as the AS9 in the local configuration, Australia is acquiring 30 of these 49 tonne highly manoeuvrable beasts, along with 15 in-theatre resupply vehicles built on the same hull. Army was originally planning to acquire double these numbers but that increase became an illogical casualty of the 2023 Defence Strategic Review.

The SPHs replace conventional towed artillery – in Australia's case the BAE Systems lightweight M777. Mechanised systems have numerous advantages, including the crews are well protected behind armour rather than operating in the open. As events following the Russian invasion of Ukraine, conventional artillery faces the threat of almost

immediate, accurate counter battery fire – and any soldier in the open has a high probability of becoming a casualty.

A Huntsman – either individually or more often in a battery of six – can remain hidden until fire support is needed. They can move into position and be ready to fire within 30 seconds of stopping. With a crew of five and a semi-automatic loading system they can fire up to 8 rounds per minute – or 3 rounds in a 15 second burst – and in another 30 seconds be able to move in what is known as a “shoot and scoot” approach.

Given the flight time of a 155mm shell with a range of up to 40km, by the time an enemy has detected an incoming round, calculated the firing point and ordered a retaliatory strike, the Australian SPHs will be long gone, ready to repeat the dose from a new, safe, location. Using a technique called Multiple Rounds Simultaneous Impact - which involves varying the firing angle of the gun and the amount of shell propellant used - several rounds from an SPH can be timed so that they hit the target at exactly the same moment.

In comparison, a single 155mm towed gun has to be set in place manually by a team of around ten soldiers with shovels. It can take many minutes to set up and an equal amount of time to lower the gun and hook it up to a towing vehicle. All of this takes place in the open – which is no longer viable under modern combat conditions. A few M777s might remain because they have one remaining advantage – they can be moved to remote locations slung under a CH-47 Chinook, and that could be useful in low intensity conflicts.

Early feedback from Army users in Townsville has bordered on the euphoric, with reports indicating that all of the promised advantages of moving to SPHs are real. While a lot of publicity now surrounds the use of rocket artillery in the form of HIMARS, which can fire GMLRS rounds to 80km and PrSM to 500km, conflicts such as Ukraine show the importance of SPHs remains undiminished.

This is because they are able to keep firing almost indefinitely while rocket artillery takes more time to reload – and truck-mounted systems such as HIMARS have no crew protection to speak of. A Huntsman will not survive a direct hit from an enemy 155mm shell – even an MBT would be destroyed or crippled – but its armour is heavy enough to protect from air burst shell splinters, drones, near misses, mines and heavy

machine gun fire.

In a further boost to survivability, each AS9 can be resupplied in the field by an AS10 tracked vehicle that uses an automated connection to move 155mm shells from one to the other. A Huntsman typically carries 49 shells – and an AS10 has double that number, meaning they operate at a 1:2 ratio. While the AS9s are carrying out firing missions, AS10s can return to concealed supply depots to take on board more ammunition.

Because of the centrality of 155mm artillery to NATO doctrine – and for allies such as South Korea, Australia, Japan and Singapore – a great deal of research is taking place into the ammunition.



Australian Army soldiers from the 2nd Cavalry Regiment, fire the M1A2 Abrams Main Battle Tank during Exercise Southern Jackaroo at Townsville Field Training Area, Queensland. (DoD photo / Alli Craig)

Using techniques such as base bleed, rocket assist and the use of sub-calibre munitions, ranges of 60km are being regularly achieved and in the near 100km and further are considered realistic. Putting all this together, the case for additional SPHs from the Geelong production line is a strong one – budgets permitting.

For the MBT part of the restructure, Army has received almost all 75 M1A2 SEP V3 variants – along with about 30 heavy engineering and breaching support vehicles that were part of the same FMS package. They replace 49 M1A1s, ordered in 2004 and more recently donated to Ukraine – with several already destroyed in combat after successful missions against Russian positions.

Abrams tanks are some of the most recognised in the western world and their shape and dimensions have not altered since they were first introduced into service in the 1980s. The Australian SEP V3

(System Enhancement Package Version 3) are the latest update that has been fielded with a hunter-killer sensor package and enhanced survivability, especially in urban terrain.

The tanks, which weigh approximately 70 tonnes – depending on exact configuration – are considered among the best protected available. The Rheinmetall 120mm main gun is the most powerful available – and as well as firing anti-tank rounds it can also use a variety of smart munitions. They can be fully connected and in that sense become sensor and shooter nodes in a wider network.

Of the three Army platforms, the Redback AS21 IFVs are the most recent and deliveries to the Army will start early next year with series production well underway. However, their capability is well understood because Hanwha delivered three prototype vehicles in 2021 for the Risk Mitigation Phase of LAND 400 Phase 3, the parent acquisition program. Additionally, several vehicles are currently undergoing final test and trials at the company's facility.

At a standard combat weight of 42 tonnes, they are among the heaviest and best protected IFVs in the world with the hulls rated to NATO Level 6 for survivability. They are more than twice the weight of the approximately 600 legacy Vietnam-era M113s they are replacing – with greater mobility, firepower and safety.

Designed and built by Hanwha – and constructed at the same Geelong plant as the AS9s – they have a crew of nine. Three operate the vehicle – a commander, gunner and driver – with six fully armed soldiers in the back able to deploy via a rear ramp. The main armament is a 30mm Bushmaster cannon from Northrop Grumman, two Spike anti-tank guided missiles, a 7.62mm machinegun in a remote weapon station from Canberra's EOS and an Iron Fist active protection system from Israel.

The original tender was for 450 IFVs, itself a reduction from an earlier aspirational Army number of 600. However, similar to the AS9 story, the 2023 Defence Strategic Review slashed that number to a barely viable fleet of 129. Given that combat experience in Ukraine has shown that IFVs have been more effective than MBTs in many circumstances – being far more manoeuvrable yet with enough firepower to destroy any other vehicle on the battlefield – there might be scope to increase that number.



The 3rd Brigade will have a full artillery regiment's worth of 18 AS9 SPHs from Hanwha Defence Australia operational by the end of 2027. (Gordon Arthur)

Australia's 3rd Brigade chases modernity and lethality

Gordon Arthur // Townsville

The Townsville-based 3rd Brigade has transitioned from a multirole brigade to an armoured amphibious brigade and is now a dedicated armoured unit. Its commander, Brigadier Ben McLennan, said it “has the potential to be the most lethal formation of its type on the planet”.

As part of its transformation, the 3rd Brigade is the repository of new armoured vehicles like the M1A2 SEPv3 Abrams tank, AS21 Redback infantry fighting vehicle, AS9 155mm self-propelled howitzer (SPH), AS10 ammunition resupply vehicle, M1150 Assault Breacher Vehicle, M1074 Joint Assault Bridge and Boxer combat reconnaissance vehicle.

McLennan explained the brigade's armoured vehicle fleet is increasing 630% in just three years. Furthermore, the brigade is growing from 3,200 to around 4,000 personnel in the same timeframe. To cope with all this new “heavy metal”, the 3rd Brigade's stock of M88A2 HERCULES recovery vehicles has tripled over the past two years.

Artillery barrage

The brigade's artillery firepower is increasing significantly. Three batteries will receive four AS9 SPHs each, before finally filling out to six-gun batteries. Once the full regiment of 18 AS9s and nine AS10s is operational by the end of 2027, McLennan pointed out the 4th Regiment, Royal Australian Artillery will have “increased our capability, our firepower, our mobility, our protection by at least 300%” compared to towed M777A2s. Batteries are moving from four M777s to six AS9s, a massive gain in capability, and McLennan noted a single AS9 is the equivalent of “numerous M777s”.

Major Fergus Robinson, Battery Commander of 106 Battery – the first unit to field the AS9 – enthused: “That's very exciting for us, because that means we'll have completed our transition

from towed guns to SPHs. It's something that I think the Australian artillery has waited for a pretty long time.”

Robinson explained what the AS9 brings. “The main difference in the capability is this provides us survivability and mobility. In layman's terms, with the towed gun the soldiers have to stand around the gun exposed, whereas with the SPH they're inside under armour, protected, so they have the ability to survive better.”

SPHs are obviously faster to bring into action too, and, “Because it's a tracked vehicle, it can essentially go anywhere a tank can go. So the ability to push deeper into scrub, go farther off roads – or not even use roads, preferably – now becomes a much more viable option.”

Personnel from the 3rd Battalion, Royal Australian Regiment will start training on the



Australia's 2nd Cavalry Regiment based in Townsville now has two squadrons boasting 36 M1A2 SEPv3 Abrams main battle tanks. (Gordon Arthur)

AS21 Redback later this year, and the brigadier expects to receive the first combat team's worth of vehicles over the next 9-15 months. Because of delays in rolling out the Boxer, the brigade will not get its hands on these till 2028.

Logistics burden

All this new equipment has a serious logistics impact. McLennan revealed that, formerly, the 3rd Brigade would consume around 40,000 litres of diesel per day in high-intensity operations. Once fully equipped with all its new kit, the daily fuel requirement will rise to an average of more than 300,000 litres!

The same kind of snowball effect is evident in ammunition that needs to be moved forward on the battlefield. McLennan said the brigade's heavy nature "will take us from about 30 pallets of ammunition a day to 105, when we factor us conducting high-intensity combat as a brigade with all our equipment. So it's a significant transformation."

Brigade modernisation does not just relate to equipment either, as significant construction is taking place at Lavarack Barracks. McLennan explained, "We'll have opened by the end of the year probably the best common user facility – certainly in the Southern Hemisphere and perhaps the most modern in the world – that services all these fleets with light- and medium-grade repair." Other infrastructure work will continue at Townsville for the next couple of years too.

Here comes the cavalry

The 3rd Brigade's strike power resides within the

2nd Cavalry Regiment, now replete with a full complement of 36 M1A2 SEPv3 Abrams tanks. Some argue the tank has become obsolete, but Lieutenant Colonel Josh Higgins, Commanding Officer of the 2nd Cavalry Regiment, responded, "There's nothing yet that replaces the main battle tank's lethality of its direct-fire weapon, its protection, its communications, its mobility. So if you make an active choice to not have that capability, what else is filling that gap?"

During Exercise Southern Jackaroo earlier this year, an ASLAV squadron within the regiment operated leased all-terrain vehicles (ATV). Higgins praised their quietness, which "enables you to focus a bit more on reconnaissance by

stealth". However, no decision has been made yet on whether ATVs will be adopted within cavalry squadrons.

Higgins said the regiment's approach to warfare is changing. "The catch cry of the unit's training in the last 18 months is we're learning how to fight beyond line of sight. Gone are the days where you use armoured vehicles to acquire a target and then prosecute it. Largely we're now using armoured vehicles back in depth and we're using our robotics, uncrewed systems and some of our people forward to find and prosecute targets so that there's a bit of standoff and depth. That's something we've focused on this year, and the soldiers have picked it up very quickly."

Higgins shared this lesson from Ukraine: "There's increased lethality of uncrewed systems, of long-range strike capabilities, so that forces you to master concentration and dispersing, and it forces you to fight beyond line of sight."

Digitisation is vital to modern warfare, with McLennan revealing 98% of the brigade is fought on data, which permits brigade-level actions to be turned around and executed in just 4-6 hours. Over 19 days during Southern Jackaroo, for example, his headquarters moved 75 times to enhance survivability, and 45-50 major brigade actions occurred. "Fundamental to that has been a C4I plan that's survivable, that has redundancy and is functional. I've never seen it as quick as it has been on this activity, and it has all been developed on how we'd choose to fight and impose our will on a future battlefield."



All the new heavy armour arriving in the Australian Army requires bolstered support, such as M88A2 HERCULES recovery vehicles. (Gordon Arthur)

Australia successfully increasing local production of guided weapons and munitions

Kym Bergmann // Canberra

One of the effects of the Covid 2020-21 epidemic was to remind Australian defence planners of our strategic vulnerabilities – and one of those was (and remains) the difficulty of resupplying weapons. This led to an overdue effort to increase domestic manufacture and then Prime Minister Scott Morrison announced on 31 March 2021, the fast tracking of \$1 billion to kick start the effort.

However, it's fair to say that it was off to a slow start and it wasn't until a year later that the international strategic partners – Lockheed Martin and Raytheon – were announced. Norwegian company Kongsberg was added to that list in August 2024. Another important milestone occurred in October of the same year with the release of Guided Weapons and Explosive Ordnance (GWEO) plan – and since then the pace has really been picking up.

Instrumental in this has been Air Marshal Leon Phillips, appointed on promotion to head the organisation on 5 May, 2023. This, in turn, was based on a recommendation of the Defence Strategic Review that the GWEO enterprise needed to be energised and led by a single military figure.

Air Marshal Phillips was kind enough to update APDR on how things are unfolding in a detailed interview.

Kym Bergmann: Would you like to set the scene with a broad overview.

Air Marshal Leon Phillips: Sure. As you saw in the 2024 Australian GWEO plan, which set aside \$16 billion - \$21 billion, we started with a focus on domestic manufacturing and uplift. That amount constituted about 5% of the IIP (Integrated Investment Program), but if you include all of the separate missile purchases that amount jumps to something like \$72 billion.

That's a further 7%, so combining everything we were about 12% of the IIP. If you look at the most recent 2026 IIP and National Defence Strategy, we have increased to the \$26 billion to \$36 billion range as the result of a further investment by the current government. This is more than continuity; it's a significant uplift to accelerate it further.

Kym: If we look at what's happening in conflicts across the globe, greater use of guided weapons is an irreversible trend.

Leon: Yes – what we've seen in the Middle East and Ukraine is that there is appetite for the consumption of expendable weapons, especially at the upper end of capability. In these cases, resupply takes some time. That's not lost on us.

We were aware of this when we started in 2021, but it really took off in 2023 with the formation of the GWEO Group that led to the deepening of our war stocks and enhancing their reach and lethality. This is particularly important for long range maritime strikes given Australia's geography.

Then of course there's the importance of domestic manufacturing. This means we have had something of a two-speed approach. The quickest way to deepen our war stocks is to buy from existing supply lines and we have been doing that. On top of that, we have started the journey around domestic manufacturing. It's the old adage – the best time to plant a tree was ten years ago, the second best time is now.

We are building on our existing industrial base, particularly around energetics production at Benalla and Mulwala. On top of that we are also moving into higher end missile production.

Kym: Can you expand on that a bit more.

Leon: OK. Here we are just over three years into the life of the GWEO Group. We started in 2021 but the Defence Strategic Review in 2023 famously said that we didn't have enough traction and a bit more organisational alignment and drive was needed.

What we have seen in the last three years is demonstrably different from the first two. We

have procured Naval Strike Missiles and already conducted our first firing after integrating them onto the Hobart class Air Warfare Destroyers. In addition, they will soon be on Anzac frigates. We have also fired Tomahawk missiles – again proving the capability – and also SM-6, so there has been a lot of activity, particularly in the maritime domain.

There has been a focus across the whole Department – not just in GWEO Group – as well as the services, and the intelligence enterprise, to make all of this happen.

For the RAAF, we have had JASSM (Joint Air-to-Surface Stand-off Missile) firings; LRASSM (Long Range Air-to-Surface Missile) firings from Super Hornets, demonstrating long reach and lethality.

When it comes to range, Army tends to be a bit closer in – though we had both GMLRS (Guided Multiple Launch Rocket System) and PrSM (Precision Strike Missile) firings at Exercise Talisman Sabre. Earlier this year we fired the first two pods of GMLRS that were assembled and certified in Australia.

Turning to domestic manufacturing and where we sit now after early foundational work in our first two years, things are happening. We have the GMLRS factory at Port Wakefield, which has gone through its full certification process. We have tidied up various ITARS-related issues and agreed with both the U.S. Government and Lockheed Martin on all the certification requirements.

This has been fabulous work from our Security and Estate Group to lean in and accelerate the build process, which has been led by an indigenous company. We now have our first missile factory up and running.

Another key activity underway is with Norway



Chief of Guided Weapons and Explosive Ordnance Air Marshal Leon Phillips, and General Manager and Vice President of Tactical Missiles, Lockheed Martin Corporation with Minister for Defence Industry and Minister for Pacific Island Affairs the Hon. Pat Conroy MP after touring the missile assembly facility at Port Wakefield in South Australia. (DoD photo / Kym Smith)

and the company Kongsberg with both the Joint Strike Missile (JSM) and Naval Strike Missile (NSM). We will soon have a factory in the Newcastle airport precinct for the production of both in 2027.

Defence Industry Minister Pat Conroy was there in May and it's going wonderfully well. This is to the credit of the Norwegian government and also Kongsberg. This will be the first factory outside Norway to produce JSM and NSM – and we are particularly proud of that partnership.

A further activity has been with 155mm artillery ammunition – of which we can see a lot of use by Ukraine. We are leveraging off the energetics produced at Mulwala and Benalla and are adding more components to the process.

It was wonderful to be in Maryborough recently with Rob Nioa and open a new facility and announce a new contract. That's been an interesting journey for us. We went to market with a view of what the export conditions were like. We down selected and initially partnered with Thales and then had a further look at market conditions.

We learned from the experience and went back to the market and formed what you might call a more pragmatic view on what uplift might look like. For about a third of our planned investment, we are now working with Rob Nioa and his team – which is not to take anything away from Thales. Their solution was wonderful, but we have tweaked the requirements and are pleased to be working with Rheinmetall NIOA Munitions and we are on track to be producing additional 155mm shells in 2028.

Kym: I've been to Maryborough as Rob's guest and it's a positive story about regional Australia.

Leon: Yes, I think so. It's good to see investment in areas outside the major cities. You really feel that with the Maryborough workforce – very committed. It was great to speak with many of them and hear a bit more of Rob's vision for the factory, including the connection with Rheinmetall and the existing production of DM-series 155mm shells.

There has also been some government investment in the facility and it was good to be able to leverage that and expand its capabilities for M795, which is a more complicated shell. You earlier mentioned the usage rate of munitions – it's the case that if you can manufacture your own that's the best outcome, a view shared by Minister Conroy.

Putting this together, we span shorter range and probably lower tech in terms of artillery through to the high end very advanced systems in the form of NSM and JSM.

Kym: How do you decide between stockpiling munitions instead of manufacturing them?

Leon: Stockpiling is a useful buffer to allow your resupply system to catch up, for example when you go from annual training usage to something more intense during conflict. That buffer period depends on whether you are building the replacement products yourself as well as the complexity of the weapon.

It's fair to say that if you look at the very exotic high-end weapons, they will take a number of years to resupply. There's been some public commentary that if you are looking at advanced missiles, these could take anything from six to eight or even potentially ten years to be available, depending on where you are in the order queue.

There is no doubt that a certain level of stockpiling is absolutely necessary.

We have a combination of both buying and manufacturing, which is based on Australia's current manufacturing capabilities. We have to factor in efficiencies of production and also the value of the weapon itself and usage rates. We are working with foreign governments and companies to uplift our industrial base.

Kym: From memory, we discussed this a couple of years ago, and I have to say your views are very consistent.

Leon: Thanks. It's fair to say we have had an emergent strategy in this space and we evolve and update our approach. These are often really complex projects and where we are making good progress there's a tendency to reinforce that. On the other hand if there are difficulties – be that export policy, IP issues or company willingness – there might be a need to manoeuvre.

In 2024 we produced a public plan and we have stuck with the principle of that, as well as being pragmatic when needed. We are looking to update that with a view to releasing it later this year.

I expect that it will reflect on what we have done since the 2024 GWEO Plan was unveiled and will



Australian Army soldiers from the 1st Regiment, Royal Australian Artillery operate an M777A2 155mm howitzer at a live-fire mission during Exercise Diamond Dagger 2026 at Shoalwater Bay Training Area, Queensland. (DoD photo / Jason Slape)

then look at new areas where we might focus. This looks at things such as JSM and NSM production where we are part way through that journey and so far it has been a success.

We might also look at what we have achieved in areas such as Solid Rocket Motors (SRM) and consider what might happen in the future.

There are other areas to consider such as low-cost affordable munitions, where bodies such as ASCA (Advanced Strategic Capabilities Accelerator) are already involved. We are moving towards truly sovereign weapons development and production – with full control – in the mid-tier of capabilities. This will be consistent with the size and capabilities of Australia's economy.

Kym: I assume a critical element is that the value of the investment that companies make has to be matched by sufficiently large orders to make economic sense. That was presumably the case for JSM and NSM.

Leon: That is always a vexing and difficult issue. The reality is that when you are standing up additional production lines for competing products – particularly at the higher levels of complexity – Australia's annual consumption alone probably would not get a business case

across the line.

It's a complicated market – and countries understandably put technology release controls around various weapons and munitions. There are only a limited number of buyers – we're not talking about products like iPhones.

However, if you're really on a just-in-time approach that's problematic because governments and militaries cannot afford to risk shortfalls. We experienced consumer product shortfalls during Covid – but you couldn't afford to run out of munitions during a conflict.

Kym: I guess the problem could be fixed if the ADF simply fired off ten times the amount that it currently does.

Leon: Well, that's always the balancing act. If we look at consumables – and AIDN and Rob Nioa did a study into this – in times of conflict, consumption rates go up by more than 10 times the annual average of what is used during activities such as training.

Think about it in these terms – F-35s are produced at something like 120 aircraft per year in a mile-long plant at Fort Worth. Imagine if you asked Lockheed Martin to produce 1,200 F-35s the following year. Do you think the company has

a 10-mile long plant sitting dormant somewhere with all the equipment and suppliers ready to go?

Ramping up production – particularly for complex weapons – is difficult. Some of the missiles we are talking about are aircraft, just without the landing gear. They have all the same sorts of complex electronics, propulsion systems, guidance and communications technologies – as well as sensors and warheads. These are very advanced pieces of hardware.

We don't magically produce a new fighter aircraft within a year – and for the same reasons high-end weapons also take time to design and build.

Kym: Also, conflict has an economic dimension. We are seeing that played out in the Persian Gulf where multi-million dollar effectors are having to be used against large numbers of far cheaper threats, which is unsustainable.

Leon: That's exactly right – and it's not just the economic cost, it's the effort needed to resupply systems. This is another vexing conundrum for all Western militaries at the moment.

Kym: If we can switch to a recent announcement – Solid Rocket Motors. You have selected Northrop Grumman as the industry lead. How will it all work?

Leon: To understand our approach to rocket motors, you have to go back to our core strategy of crawl, walk, run. We've been upfront in saying we are going to partner with other nations and their main weapon supplier and build on that to start producing things of our own. Importantly, there is a lot of work involved getting the licensing right, along with various approvals – ITARs (International Traffic in Arms Regulations) from the US, for example.

There's a lot of work going on in the background to get all of those things sorted. Even if all we wanted to do was assemble missiles, we would still need to be going through the same processes for component supply chain issues. Our core view is that we will start with that, then we'll look at signature components and add additional production capacity for those.

Things such as rocket motors and warheads I believe are a logical progression. This is because Australia has both the industrial capability and the experience to be producing those, especially being able to mix and manage energetics. Some great work has been done by DSTG (Defence Science and Technology Group) on their Advanced Rocket Motor Technology Demonstrator program working with Thales.

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We have built up a good understanding of what it takes to build and fire rocket motors, but not yet at an industrial scale. To address this, we went to market to 15 companies with a problem statement about what we wanted to do that went beyond the 2024 GWEO Plan and moved us into rocket motor production at scale. The local assembly of GMLRS looked like a good first step and it has given us the appetite to produce at volume.

Going to market was a useful exercise and companies responded to our perspectives and also started speaking with each other, leading to a lot of cooperation.

It's a very complex, evolving and contested space. We have some tried and proven entities

of GMLRS with standard components so that whether the weapon came out of the Australian factory or the one in the US Camden facility it will be essentially an identical product.

The end result will be an Australian GMLRS round that can be used with equal safety and confidence by other users, such as the US Marine Corps. This will be especially important for the Marine Rotational Force in Darwin. I said to then US Defense Secretary Lloyd Austin a few years ago that we could provide food and water, some rotational basing – and through our industrial base the production of munitions such as GMLRS and 155mm artillery rounds – that surely this would be in our collective interests.



HMAS Sydney (V) conducts a Naval Strike Missile (NSM) firing during RIMPAC Sea Phase off the coast of Hawaii, United States. (DoD photo / Lauren Pugsley)

- a small number of them – such as Northrop Grumman, Nammo, and L3 Harris. To that can be added some novel approaches from companies such as Anduril, and in Australia Black Sky and DefendTex.

We are making a number of parallel efforts. One part is starting the journey for industrial scale production – and that's the Northrop Grumman part, which by the way doesn't exclude activities by other competent primes. We are also investing in Black Sky and DefendTex to better understand their technologies.

We are also exploring raw material production with ammonium perchlorate being a particular example. All of these things are happening simultaneously and as part of a staged approach and are being formed into an emergent strategy. This will allow us to adjust our strategy during the next couple of years.

In the first instance – similar to other activities – we are looking to produce a GMLRS rocket motor in Australia that's interchangeable with the US product. This will ultimately lead to the production

Kym: That obviously makes more sense than the USMC having to bring all their own munitions with them.

Leon: We think that's of great value – hence why Australia and the US at the highest levels of AUSMIN statements have moved the narrative from exploring production to now being committed to production. We are going beyond that to look at lifting the collective output available to western allies to support our collective deterrent efforts.

Kym: Could I take you back a moment and outline what the Australian companies Black Sky and DefendTex do?

Leon: Sure. Interestingly I was speaking with Travis Reedy, the DefendTex CEO a month or two ago – and they, along with Black Sky, are delivering lower tech expendable solutions that are being used by Ukraine at the moment. Both companies have a positive mindset around how do they scale manufacturing as quickly as possible.

They are coming at this through the lens of a wartime approach – if you can't ramp up production quickly, you have your design wrong.

I've been impressed with both companies and they have done some innovation and we would like to see where we could take them to produce some higher-end capabilities through our emergent strategies work.

Kym: There's nothing at all wrong with things at the lower end of complexity such as loitering munitions.

Leon: Correct – and I think that loitering munitions, to be honest, is ripe for a number of fully indigenous solutions. We talk about affordable mass – which generally means you have a small number of them, but when you need them you have to be able to make lots of them.

Logically, if you suddenly need lots of them, so will everyone else. If these were coming from supply lines in other countries, it would be difficult to ensure that Australia's priorities could still be met. When it comes to affordable mass, what we really mean is producible mass. If we can ensure that we have the infrastructure in place to do that we are in a good place – and that's something that 3D printing can help with.

There's some really great work being done by ASCA (the Advanced Strategic Capabilities Accelerator) and now Defence has to build on that and focus on a couple of key areas and really focus our money and efforts and uplift producibility. It doesn't necessarily have to be the most advanced thing available because the best thing is what you can actually deliver.

I think mass can come in at that mid- to low-tier level and we should concentrate our efforts there.

Kym: The effectiveness of Ukraine's fightback against Russia is showing the importance of having a very rapid technology feedback loop.

Leon: That's correct. There are two things – producible mass and also agile iteration of that mass. The first stage is about production capability and the second is about design capability and having insight into the design process. For indigenous solutions that we control, both can be done – affordable and responsive, evolving mass production.

Kym: Switching to high-end systems – is the Australian production of PrSM (Precision Strike Missile) part of the plan?

Leon: Yes. We have been part of the PrSM collaborative program with the US for a couple of years. We are expanding our MoU (Memorandum of Understanding) with the US government and we are working to put in place the co-production element of that. Like all good teasers for movies, we will say that the main reveal to the Australian

GWEO plan is coming towards the end of the year.

It is fair to say that while GMLRS is a useful industrial entry point, it's ultimately the longer range weapons like PrSM that will give us more utility. We will have a balance and a blend of those capabilities that we want to produce that will give us a combination of land and maritime strike.

Kym: If I remember correctly, PrSM increment 2 has a range of about 500km and the future increment 4 doubles that to 1,000km.

Leon: That's about right. In terms of range and lethality, it's a combination of the carriage platform plus the missile. When we think about land-based fires – mindful of the region we are in – it's possible to think about placing them on certain parts of the surface of the earth that gives us a certain amount of freedom when it comes to deployments.

We can look at naval assets that can take a bit of time to deploy, or air assets that are more agile but don't have quite the same duration of presence at forward ranges. So they all have their pros and cons.

Kym: For JSM and NSM, I assume there will be an initial period of low rate production.

Leon: Yes, we start production next year and hit the full rate in 2029.

Kym: To justify the investment, I assume the business case involves a certain number of missiles being exported.

Leon: Yes – importantly I have to mention the notion of surging to increase production. We are building capacity into the factory so that we will have enough missiles for our own needs but will be able to increase that either for ourselves or for export orders. That's something we are working closely with Kongsberg and the Norwegian government to achieve – and they see Australia as part of their global production system.

What has impressed me about Kongsberg is that in Australia they are already building the launchers and other ship-borne equipment for Naval Strike Missiles – and they are exporting some of those launchers back to Europe. This is very much to the credit of Kongsberg Australia – and also the vision of the parent company in expanding its component production capacity.

Hardware built in Australia is going to Poland, Denmark and Spain.

We recently signed a Strike Missile Family MoU with Norway and ten other countries about future iterations of our weapons. As good as they are, you have to keep iterating and improving as you go. We have someone embedded in Norway's

program office as part of the team to influence developments and understand future directions for the technology.

Kym: With an eye on the clock, do you have some concluding thoughts?

Leon: I think we have started some important lines of effort around NSM and JSM, as well as GMLRS, PrSM and 155mm artillery rounds – and solid rocket motors as well. Over the next 12 months you will see us continuing to operationalise all of these developments and get things into production. As well, we will continue to look for export opportunities.

We are also working on the next iteration of the Australian Guided Weapons and Explosive Ordnance Plan. Another issue is that we need to deepen second sources of supply for local production. Recently there has been work by Lockheed Martin, Northrop Grumman and Thales on a GMLRS warhead that can be produced and certified locally.

There's ongoing work in de-risking local production and we recently signed a contract with AW Bell – a wonderful Victorian company – for the manufacture of canards for GMLRS. Also we signed a contract with Moog Australia for control and actuation systems – so it's all part of a careful journey to deepen our industrial capability.

I was recently reading "Freedom's Forge" by Arthur Herman, which is all about how the US was able to move their entire industry to a war footing with the outbreak of World War Two. It's a great story, but you need to have an industrial base from which to pivot in the first place.

We are putting the building blocks in place – including the energetics work being done at Mulwala and Benalla, which is a national gem. To this we are adding rocket motors and other components – and this will put us in a position where in times of need we have the industrial capacity and understanding to really lean into what the country will need.

Kym: It would be remiss of me not to ask – are we walking yet, in reference to the crawl, walk, run approach?

Leon: Yes, I think we definitely are. And now that we are well into 2026 the pace is picking up further. It's one thing to draw up plans and documentation – it's a lot harder to be actually implementing that vision. I've been honoured to lead the GWEO initiative with a wonderful group of people, not only in GWEO Group but across the department, the government more broadly – and especially industry – that has coalesced into a team that is getting runs on the board.



Minister for Defence Industry the Hon Pat Conroy MP and Chief Guided Weapons and Explosive Ordnance AIRMSHL Leon Phillips OAM

Defence statement:

Defence has commenced internal consultation on organisational changes that will help establish the foundations of the Defence Delivery Agency from 1 July 2027.

As part of the changes, the Guided Weapons and Explosive Ordnance (GWEO) Group will be integrated more closely with Defence's broader capability delivery system. The new structure reflects the success and maturity of the GWEO enterprise, but also how modern military capability must be delivered, supporting the Australian Defence Force as an integrated force. Closer integration with joint, air and space delivery will create clearer accountability, stronger integration and faster decision-making across some of Defence's most complex capability programs.

Defence acknowledges the outstanding contribution of Air Marshal Leon Phillips OAM, whose leadership has helped transform the Government's vision into an enduring national capability. Under Air Marshal Phillips' leadership, GWEO Group has established the foundations of a sovereign guided weapons and explosive ordnance enterprise, strengthening Australia's ability to develop, manufacture, acquire and sustain critical capabilities in support of national defence.

Asia-Pacific nations are driving the next nuclear arms race

Guy Martin // Johannesburg

Four out of the world's nine nuclear-armed states are in the Asia-Pacific - ground zero for global nuclear weapons competition - where three nuclear powers share a direct border and have unresolved territorial disputes. Tension between North Korea and South Korea, India and Pakistan, and China and Taiwan risk intensifying military confrontation and nuclear escalation, and have prompted conventionally armed countries like Japan and South Korea to consider their nuclear options.



A PLA Rocket Force ICBM is launched into the Pacific Ocean in September 2024 (China MoD)

China, which has possessed nuclear weapons since 1964, is growing its nuclear arsenal more quickly than any other country, with an estimated 620 warheads in its stockpile by early 2026, up from 600 the year before. The Stockholm International Peace Research Institute (SIPRI) puts China as the world's third largest nuclear weapons holder, after Russia and the United States (5,000 warheads each, out of a global total of 12,200).

American assessments believe China has tripled its warhead stockpile over the last six years and is expected to have over 1,000 by 2030 and 1,500 by 2035. New launch sites for these weapons continue to emerge - by the beginning of 2026 China had loaded hundreds of missiles into three silo fields in the country's north and is completing 30 silos in three mountainous areas in the east. China may possess as many intercontinental

ballistic missiles (ICBMs) as Russia or the US by 2030.

Since 2020, Beijing has operated a nuclear triad of ICBMs, submarine-launched ballistic missiles (SLBMs) and nuclear-capable bombers. This triad is being upgraded through the development of the Xian H-20 stealth bomber, Type 096 nuclear-powered ballistic missile submarine (SSBN), and hypersonic glide vehicles. These will replace and supplant about 20 Xian H-6N nuclear bombers and half a dozen Type 094 Jin class submarines.

The Type 096 is expected to carry new JL-4 missiles with a longer range than the existing JL-3. China displayed its nuclear triad publicly for the first time in 2025, parading the JL-1 (Jinglei-1) air-launched ballistic missile (not to be confused with the JL-1/Julang-1 SLBM), JL-3 SLBM, and DF-5C, DF-31BJ and DF-61 ICBMs. The new DF-61 is likely able to carry up to a dozen nuclear warheads and has an estimated range of 18,000 km, making it one of the world's longest-range ICBMs.

Coupled with the unveiling of new weapons, China has been expanding testing. For the first time since 1980, in September 2024 it launched an (unarmed) DF-31B ICBM into the Pacific Ocean, splashing down some 11,000 km away. For decades it has mostly tested ICBMs within its own borders, making the 2024 test a notable signal of the People's Liberation Army's (PLA's) increasing outward focus.

Another milestone came in July 2026 when a Chinese nuclear submarine launched an SLBM from the South China Sea to the Pacific Ocean - its first ever SLBM launch into international waters. The missile - possibly a JL-3 - travelled 8,000 km. Although it entered service around 2022, the JL-3 was first revealed in public last year and is expected to become a key part of China's nuclear arsenal. At about 10,000 km, it has a greater range

than the JL-2 (7,200 km) and JL-1 (1,770 km). The JL-3 is believed to carry multiple independently targetable re-entry vehicles (MIRVs).

The PLA Rocket Force has a large nuclear-capable arsenal, deploying dual-capable missile systems. The PLA is estimated to have some 1,300 medium range ballistic missiles (MRBMs) with a 1,000-3,000 km range in service (DF-16, DF-17, DF-21), about 550 intermediate range ballistic missiles (IRBMs) with a 3,000-5,000 km range (DF-26 series) and about 400 ICBMs with a range of over 5,500 km (DF-4, DF-5, DF-27, DF-31, DF-41, DF-61). These are backed up by some 900 short range ballistic missiles (SRBMs) with 300-1,000 km ranges like the DF-11, DF-15 and DF-16 as well as hundreds of ground-launched cruise missiles.

China is ramping up efforts to produce weapons-grade plutonium as it continues to grow its nuclear arsenal. Although it still reaffirms its commitment to its No First Use policy, Beijing has not made much effort to take part in nuclear non-proliferation initiatives. In addition to building up its arsenal, China is expanding its early warning systems to include satellites, radars, and anti-ballistic missile defence systems like the HQ-19 and HQ-29, hinting at an early warning counterstrike policy.

Taiwan

Following China's first nuclear test in 1964, Taiwan began its own nuclear weapons program several years later, but it was shut down in the late 1980s under US pressure. At the time it was halted, Taiwan was estimated to be a couple of years away from completing a deliverable weapon. Taiwan has ratified the Nuclear Non-Proliferation Treaty but this has not stopped the question of developing nuclear weapons being occasionally raised, such as during the mid-1990s Taiwan



DF-5B nuclear missiles during China's October 2019 national day parade (Xu Yu - China MoD)

Strait Crisis. Taiwan possesses a nuclear energy industry and is considered a nuclear threshold state capable of producing nuclear weapons in a relatively short time.

India

India became the world's seventh nuclear power in May 1974 with its first weapons test, driven in part by the Indo-Pakistani War of 1971 and tensions with China. India is not a party to the Nuclear Non-Proliferation Treaty but maintains a No First Use policy and has committed to only using nuclear weapons in retaliation against a nuclear attack. Nevertheless, its nuclear program has been a cause for concern to its neighbours.

Today, India possesses the world's sixth-largest nuclear arsenal, and added to it an estimated ten more warheads last year to reach 190, according to SIPRI, with a dozen warheads operationally deployed. India is developing new delivery systems, with a focus on long-range weapons capable of reaching all of China. These include hypersonic cruise missiles such as the LRAShM and BrahMos II that could be dual capable. It is also looking to develop the longer-range Agni-VI ICBM that will feature MIRVs – it recently tested an Agni-V with a MIRV capability in May 2026.

India has operated a nuclear triad since 2018, comprising some 90 Prithvi and Agni ballistic missiles, including the 5,000 km+ range Agni-V

ICBM, backed by 32 Mirage 2000 and 16 Jaguar aircraft capable of nuclear weapons delivery, and Arihant class SSBNs armed with K-15 Sagarika (750 km range) or K-4 (3,500 km range) SLBMs. The Arihant class is the first SSBN built by a country other than one of the five permanent UN Security Council members. Three of four vessels have been commissioned and will be followed by the future S-5 SSBN class armed with longer-range K-5 and K-6 SLBMs.

Pakistan

Initiated in 1972, Pakistan's nuclear programme was a direct response to regional tensions with India. Believed to have been helped by China, Pakistan carried out its first nuclear weapon test in 1998. Today it possesses a nuclear triad, although its air and land capabilities are more well established. Three dozen Mirage III/V aircraft can carry nuclear weapons like the Ra'ad air-launched cruise missile. Pakistan has tested new technologies such as MIRVs, launch from underwater platforms, and announced the sea-based deployment of missiles with nuclear warheads on surface ships and diesel-electric submarines.

The majority of Pakistan's nuclear weapons are land-based (about 125 launchers) and mostly shorter range such as the Hatf-2/Abdali, Hatf-3/Ghaznavi, Hatf-4/Shahen I, Hatf-6/Shahen II, Hatf-5/Ghauri, Hatf-9/Nasr, Ababeel and



DF-41 nuclear missiles during the October 2019 national day parade in Beijing (Xia Yifang - China MoD)



JL-2 nuclear-capable submarine-launched ballistic missiles at the October 2019 National Day Parade in Beijing (Wang Kai - China MoD)

Babur/Hatf-7 ground-launched cruise and ballistic missiles. Its longest range system – the Shaheen-3 ballistic missile – can reach 2,750 km. In addition to ballistic missiles, Pakistan developed the Babur-3 nuclear-capable submarine-launched cruise missile to provide a sea-based second strike capability.

Pakistan is believed to be close behind India in terms of the number of nuclear warheads in its arsenal, at 170. Like India, Pakistan continues to develop new nuclear weapon delivery systems and accumulate fissile material, indicating expansion of its nuclear arsenal. It is also not a party to the Nuclear Non-Proliferation Treaty but its nuclear policy is based on deterrence; it does not maintain a No First Use posture.

The May 2025 skirmish between India and Pakistan saw India attacking Pakistani air and missile bases likely to have nuclear-related roles, revealing how deliberate or accidental attacks could heighten the risk of nuclear conflict – although both sides took steps to keep the conflict conventional and reduce the nuclear risk.

North Korea

North Korea has been pursuing nuclear weapons for several decades, conducting its first nuclear test in October 2006. The Democratic People's Republic of Korea is believed to be growing its nuclear arsenal very rapidly, adding ten warheads over the last year for a total of 60 – it is estimated to have enough fissile material for another 30. It has stated a goal of exponentially increasing its nuclear arsenal and is accelerating the production of fissile material in response.

North Korea tested its first ICBM (Hwasong-14)

in 2017 and last year unveiled the new Hwasong-20 long-range (15,000 km) ICBM as well as medium-range highly manoeuvrable systems designed to evade missile defences. These join an extensive range of at least 150 short, medium, and long-range ballistic missile launchers (Hwasong 1-20 series) – North Korea claims to have tactical warheads and can mount them on at least eight delivery systems, including cruise missiles.

North Korea has also spent the early 2020s diversifying its delivery systems. The five-year plan announced in 2021 pursues the development of strategic and tactical weapons including

miniaturised nuclear warheads, tactical nuclear weapons, large nuclear warheads, hypersonic warheads, solid fuel ICBMs, nuclear-powered submarines, and SLBMs. It is also working on hypersonic glide vehicle systems such as the Hwasong-12B as part of its nuclear weapons programme, which is proceeding despite numerous sanctions and diplomatic efforts, including six-party talks.

North Korea is developing an SSBN, which appeared largely complete by late 2025. It will likely be armed with Pukguksong series of SLBMs (Pukguksong-1 to 6). The country already has multiple guided missile destroyers (such as the Choe Hyon class) and conventional submarines capable of firing ICBMs/SLBMs and cruise missiles.

With Russian and Chinese support continuing, it is highly unlikely that North Korea will curb its nuclear ambitions: China has eased back its support for a nuclear-free Korean Peninsula while Russia has expressed support for North Korea's nuclear ambitions and imported conventional North Korean ballistic missiles, amongst others, for use in Ukraine. North Korea's nuclear capabilities come with a relatively low threshold for use, including pre-emptive strikes, and give it an advantage over South Korea's superior conventional military capabilities.

South Korea

Given the growing nuclear risk from North Korea, South Korea has occasionally floated the idea of



Kim Jong Un walks by a Hwasong-17 ICBM (KCNA)

acquiring its own nuclear weapons. Between 1970 and 1980 it actively pursued a nuclear weapons program, but abandoned it in favour of the US nuclear umbrella. In 2023, since-removed South Korean President Yoon Suk Yeol briefly suggested his country may need to acquire nuclear weapons to deter North Korea. Incumbent President Lee Jae Myung is not calling for the development of nuclear weapons, but there are regular discussions about the value of acquiring them.

With the election of Donald Trump as US President in 2024, fresh doubts have been raised about the reliability of US support, with Trump demanding South Korea (and Japan) do more for their own security. Trump has relocated US troops and equipment from Asia to fight Iran and scaled back joint US-South Korea military exercises, further alarming South Korea. Three quarters of South Koreans now support developing an independent nuclear arsenal, the highest level since surveying began in 2010, indicating growing concern over North Korean, Russian, and Chinese nuclear capabilities.

South Korea could swiftly develop nuclear weapons – it has an advanced nuclear power industry – and possesses delivery mechanisms such as the Hyunmoo series of ballistic and cruise missiles as well as SLBMs (Hyunmoo-4-4). Although Seoul agreed to forego enrichment and reprocessing when it signed a nuclear cooperation agreement with the US in 1972, it has been pushing for a revision over the last decade.

In 2025 the US pledged support for South Korea to enrich uranium and separate plutonium to advance its civil nuclear program, but those capabilities would theoretically give the country the ability to produce fissile material for nuclear weapons. Last year the US also allowed South Korea to build nuclear-powered attack submarines – it plans to launch the first Jangbogo-N submarines in the mid-2030s.

Japan

As the only country to have been the victim of nuclear weapons in conflict, Japan has long discouraged nuclear proliferation. However, in response to regional developments, including in South Korea, Japan has suggested adding nuclear-powered submarines to its fleet and members of the government – including Defence Minister Shinjiro Koizumi – have also suggested debating the nuclear issue – something previously taboo. This could include permitting nuclear weapons to be stationed on Japanese territory (Japan's currently policy is not possessing, producing or



Test launch of a nuclear capable Agni-P ballistic missile in December 2021 (Press Information Bureau)

permitting the introduction of nuclear weapons on its territory).

With Trump in power, Japan has less confidence in the US nuclear umbrella and is seeking alternatives: it is set to revise its three main defence documents before year-end, including its national security strategy document. As a nuclear threshold state, Japan could rapidly develop nuclear weapons – it has a robust civilian nuclear power program, a stockpile of plutonium, the capability to enrich uranium, and hypersonic missile technologies.

Russia

Russia possesses the world's largest stockpile of nuclear weapons, with an estimated 5,420 in its inventory. It is in the process of replacing its Soviet-era strategic nuclear forces with modern systems, including fixed and mobile versions of its Yars ICBM, Sarmat heavy ICBM, and Borei class SSBN.

It hopes to deploy a dozen Borei class submarines and is working on a next generation SSBN as well as the Khabarovsk class submarine designed to carry the Poseidon nuclear-powered torpedo. It is further modernising its airborne and sea-based nuclear weapon systems. Although some of its strategic bombers have been destroyed by Ukrainian drones, Russia still possesses about 45 Tu-95 and 15 Tu-160 nuclear capable bombers, and over a dozen SSBNs.

However, its nuclear ambitions are facing headwinds from Western economic sanctions and pressure from the Ukraine war – the next generation Sarmat is eight years behind schedule, for example, and is now due to enter service by year-end. Nevertheless, Russia is pursuing novel delivery systems such as the Burevestnik nuclear-powered cruise missile, Poseidon nuclear-powered torpedo, Avangard hypersonic boost-glide vehicle, and Kinzhal air-launched ballistic missile. It has even developed the nuclear-tipped R-37M air-to-air missile.

With the expiry of the New START treaty in February this year, there are fewer guardrails to contain Russian – and American – nuclear ambitions, leaving the world's two largest arsenals without verifiable limits or disincentives to expand them. Russia is believed to have deployed nuclear weapons on Belarusian territory and President Vladimir Putin has often hinted at using nuclear weapons against Ukraine – Russia has already used conventional variants of its MIRV-capable Oreshnik IRBM in combat against Ukraine.

Conclusion

Globally, nuclear-armed countries – such as the UK and France – are expanding their arsenals (around 100 deployable nuclear warheads were added to world inventories in the last year), while non-nuclear nations like Germany are exploring nuclear options such as nuclear sharing arrangements. Several Asia-Pacific nations – including Vietnam, Indonesia, Malaysia, and the Philippines – are looking to develop civil nuclear power projects, potentially increasing the risk of nuclear proliferation down the line.

The usefulness of nuclear weapons is up for debate. Possessing nuclear weapons has not helped Russia win in Ukraine, but if Ukraine had kept its nuclear weapons instead of giving them up after the Cold War, it is less likely Russia would have invaded. Although nuclear weapons may deter large-scale war, they do not prevent conflict – the May 2025 fighting between India and Pakistan bear this out.

While nations are still reluctant to actually use nuclear weapons and are favouring conventional warfare, the increasing global nuclear stockpile, pursuit of hypersonic and other dual-use capable missile systems, geopolitical competition, increasing risk of miscalculation, and erosion of nuclear arms control agreements is pushing the world – including multiple Asia-Pacific nations – closer to the possibility of deliberate or accidental nuclear conflict.

Australian Army Aviation – Up, up and away!

Gordon Arthur // Christchurch

Australian Army Aviation is undergoing tremendous changes as it simultaneously adopts two brand new rotary-winged platforms, keeps a heavy-lift helicopter fleet flying, prepares to retire the Tiger, and grapples with unmanned aerial vehicle (UAV) advancements.

This year's Integrated Investment Program stated, "The government is investing \$6.3-\$7 billion over the decade to continue to uplift army's battlefield aviation capabilities to enhance aviation firepower." In this article we look at the three main combat helicopter platforms flown by Army Aviation, beginning with the two newest ones, which is where most of this money is going.

UH-60M Black Hawk

Following the controversial way in which the Australian Army divested – or dismantled – its MRH90 fleet in 2024, the introduction of Sikorsky's UH-60M Black Hawk under the Foreign Military Sale process is going well. The first fast-tracked units arrived in July 2023 after a US \$1.95 billion deal was inked with the US government.

Rodahn Gibbon, Lockheed Martin Australia's Program Manager, UH-60M Sustainment, told Asia-Pacific Defence Reporter that, "From a production perspective, everything's on schedule." Nineteen UH-60Ms have reached Australia so far, six of which are at Oakey to support pilot and aircrew training, and the remainder with the 6th Aviation Regiment at Holsworthy. Once fully delivered, the fleet is likely to be split 50/50 between Oakey and Holsworthy.

Gibbon does not expect any more Black Hawks arriving until Q3 of 2027, although the complete fleet of 40 will be delivered on schedule by 2030. He explained the reason for the wait is because around 14 Australia-destined helicopters delivered to the US Army in Huntsville, Alabama are awaiting final operating capability modifications. This process is conducted by the US Army and its subcontractors, so time is needed to design, develop and incorporate these modifications such as role equipment being put onto the helicopters. Gibbon shared, "The mod process is not overly complex, but it does take a little bit of time to incorporate on each aircraft."



A total of 19 UH-60M Black Hawks have been delivered to the Australian Army so far, almost half the batch of 40 that it ordered. (Gordon Arthur)



'A64-603' was the third AH-64E Apache delivered to the Australian Army in late 2025. It is seen here at its home in RAAF Base Townsville. (Gordon Arthur)

Gibbon stressed component maintenance, repair and overhaul opportunities for Australian industry, for items such as hydraulics, wheels, tyres and brakes.

Lockheed Martin Australia's role is to provide a range of support services to help the army sustain and operate the Black Hawk fleet acquired under Project Land 4507 Phase 1. It does so under a five-year, \$340 million integrated support contract signed in late 2023 and which extends through till November 2028.

Gibbon explained: "Predominantly, we provide what's known as embedded services. So that's where we have a range of staff that operates within army units, whether it's at 6th Aviation Regiment, 5th Aviation Regiment or the School of Aviation Training Command. We have a range of aircraft maintenance engineers, supply officers, logisticians, aircraft maintenance trainers, qualified flying instructors, aircraft refuellers and the like. They all work hand in hand, side by side with army personnel, maintaining, supporting and operating the aircraft."

Gibbon said his company recently surpassed 210 employees for the Black Hawk program, a figure that will rise to 250. "So we're getting close to full strength at this point in time. It's been important that the workforce grows ahead of the aircraft delivery, so that we've got time to train people up and get them ready." He admitted it is a tight workforce market right now, but Lockheed Martin Australia has brought in fixed-wing

maintenance engineers and got them qualified on rotary-winged aircraft. "That's been one way that we've been able to address some of the shortfalls," plus the company has initiated an apprenticeship programme.

Asked how the Black Hawks are doing, Gibbon enthused: "I think the aircraft is performing better than expected from their perspective. Certainly, the availability rates have been excellent, and they're achieving their rate of effort. Lockheed Martin Australia staff are very happy to be working, maintaining and supporting the Black Hawks again."

Asked about future Black Hawk upgrades, Gibbon talked about more powerful GE Aerospace T901 engines that "will increase the lifting capacity fairly substantially". He also mentioned open-architecture software and air-launched effects. "There's a range of things to make sure the aircraft improves in terms of what it can do, its level of reliability, how it integrates with other systems, and keeping abreast of the latest in technology such as launched effects."

With the Royal Australian Navy (RAN) operating the MH-60R Seahawk, Clifford Kyle, General Manager of Sikorsky Australia, spoke of the benefits of a portable workforce able to support Romeos and Black Hawks as requirements dictate.

He said this flexibility has proved useful a couple of times already. Once the full fleet of Black Hawks and Seahawks are in service, Australia will have an impressive fleet of 76 Sikorsky helicopters. Kyle said, "Wherever there's commonality, we're looking to exercise existing capability and also utilise our network within Australia, small to medium enterprises, to provide support where it makes sense for them to provide repair or supply services." He said 99 Australian businesses already support the MH-60R fleet, a number set to rise.

Australia is keen to establish a sovereign, in-country helicopter sustainment capability, and Gibbon said "there's opportunity, I think, to expand current capabilities in Australia to support those arrangements. But it needs to be financially viable to do so. You know there's cost associated with it, but then there are other advantages in having that capability in country as well, and reducing reliance on shipping lanes and turnaround times and those sorts of things."

Gibbon stressed component maintenance, repair and overhaul opportunities for Australian industry, for items such as hydraulics, wheels, tyres and brakes. "We're also conducting a number of business cases to identify more of the specialist helicopter dynamic components that could potentially be repaired ... and whether it's a good value proposition we can put forward to the Commonwealth to do that."

In March 2025, Lockheed Martin Australia opened a logistics warehouse in Sydney to support the UH-60M fleet. Located near Holsworthy, the 4,500m² Primary Storage Unit was established as part of the company's integrated support contract with the army.

Gibbon concluded about the Black Hawk: "Look, it's just a very well-proven product ... It's arrived here in Australia. It's performed the missions that it's needed to do straight away. The army is ahead of its curve in terms of reaching its capability milestones, reaching the rate of effort. And high reliability coupled with that capability means the aircraft is ready to do the job that it needs to do when you need it to do it."

AH-64E Apache Guardian

The second new platform for Australia is Boeing's AH-64E Apache, with the first examples arriving in September 2025. The Townsville-based 1st Aviation Regiment received its fifth and sixth examples in May, with two more due later this year. The full fleet of 29 is on track for delivery by 2029. Defence said Apaches "are a key element of army's transformation into a force optimised



The 1st Aviation Regiment conducted Exercise Possum Walk in July, the first time that Australian Apaches had fired weapons in Australia. (ADF)

for littoral manoeuvre and with a long-range strike capability". It added that the AH-64E will "provide critical attack aviation effects, including reconnaissance, communications and networking, firepower and offensive support to the integrated force".

APDR interviewed Lieutenant Colonel Jason Perrins, Commanding Officer of the 1st Aviation Regiment, and he praised the Apache's capabilities. "Having operated it now, I think the benefit that Apache brings over any of the other types – because I've flown the Tiger and the Cobra with the US Marines – is just the connectivity and the situational awareness that you can give to the crew. By using those data systems when you're connected across the battlespace, we can enable the rest of the joint force with a bunch of situational awareness." He continued, "I don't think there's anything else out there that's doing that level of integration for an attack platform right now."

While the focus is currently on mastering a land-based capability, the regiment will eventually turn its attention to integrating into the amphibious force too.

Significantly, in mid-July, Apaches fired live

ordnance for the first time during Exercise Possum Guns at the Townsville Field Training Area. The Apache fired its 30mm chain gun and launched 70mm rockets and Hellfire missiles. This was an important step in the build-up to next year's Talisman Sabre, and a declaration of initial operating capability in the latter half of 2027.

While the focus is currently on mastering a land-based capability, the regiment will eventually turn its attention to integrating into the amphibious force too.

One complication for the 1st Aviation Regiment is moving locations to Townsville. There, 161 Reconnaissance Squadron is now operating the Apache, while 162 Reconnaissance Squadron still in Darwin will only begin doing so after relinquishing its Tigers. Two operational support squadrons therefore currently exist to support the respective platforms in Darwin and Townsville, but these will merge once the Tigers retire. The relocation to Townsville should be complete by the end of 2027.

Perrins shared, "I guess the good thing with the design of the move of the unit is it has been phased, and it's not one big influx. Also, Darwin

is focused on ARH. Then you come off ARH, go onto an Apache course in the US, move across to Townsville on return from that and focus on Apache. So they're very much split as far as their focus goes. At this stage it seems to be working pretty well for the crews." As of midyear, slightly more than 50% of the regiment's 240 personnel

had already transitioned to the Apache.

To assist maintenance, the 16th Aviation Support Battalion stood up in Townsville in January 2025. This formation supports all helicopter types across the 16th Aviation Brigade. Considerable infrastructure construction is also occurring at RAAF Base Townsville to accommodate the Apaches and additional personnel. Some \$370 million is being invested on hangars, administration areas, parts storage and a wash facility. Works commenced in September 2025 and should finish in 2028.

The current training model sees personnel learning their trade in the USA, before completing

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an Australian standardisation course run by the School of Army Aviation in Townsville upon their return. In the longer term, it is planned that more training will eventually shift to Australia.

So what of the Tiger's fate? Just one troop is still flying, which the author assumes to be around four aircraft. Under an accelerated schedule, these will all be withdrawn by the end of 2026.

Certainly, Ukraine is interested in obtaining them, and that would be more sensible than simply scrapping or burying them alongside the MRH90s. Vasyl Myroshnychenko, Ukraine's Ambassador to Australia, said last year: "We'd be interested in having that conversation [about Tiger helicopters] and about something that will help... And if those could be provided to Ukraine, we'll be thankful."

Perrins did note: "The Tiger was an outstanding attack platform, but it also just set the conditions for us for an easy transition to Apache. So every time I'm out with the teams – whether it's maintenance, ground crew or aircrew – they've all made the step reasonably easily, and the crews have transitioned fairly well."

The army is also exploring manned-unmanned teaming (MUM-T) with UAVs. Perrins said: "The Apache has obviously got a bunch of good capabilities for manned-unmanned teaming. We're getting all of that, and so we have a plan to integrate that into how we operate. We've had a good relationship with the 20th Regiment, even on Tiger where we do a lot of joint activities together. Obviously, they have a bunch of complementary skill sets and capabilities that they bring, and vice versa for us. So we work with them closely."

Yet with the Apache, "We're going to be able to do it on an even newer level, so we're trained on it through the simulator. We'll get the MUM-T equipment in time, and work out how we're going

Closer to home, Chinooks delivered emergency supplies to Papua New Guinea after a 2018 earthquake, and flew 400+ hours during the 2019-20 bushfires.

to do that. There's definitely a plan that'll be a key part of what the Apache brings to the Australian Defence Force."

The 20th Regiment flies the Integrator UAV, but Perrins said the Apache can work with any unmanned system that employs the same antenna frequencies. It is also simple to swap over a Longbow fire control radar or upper-receiver UR-X antenna on an AH-64E. Perrins said pairing Longbow- and MUM-T-equipped Apaches together obviously "gives the most flexibility".



C Squadron, 5th Aviation Regiment in Townsville flies 14 examples of the CH-47F Chinook. This one was seen during Exercise Talisman Sabre 2025. (Gordon Arthur)

"The Tiger was an outstanding attack platform, but it also just set the conditions for us for an easy transition to Apache. So every time I'm out with the teams – whether it's maintenance, ground crew or aircrew – they've all made the step reasonably easily, and the crews have transitioned fairly well."

In 2024, Boeing Defence Australia (BDA) received a seven-year A\$306 million initial support contract for the Apache fleet. A BDA spokesperson said its "focus locally is on supporting the growing fleet and embedding engineering, maintenance, training and logistics capabilities alongside our Australian Army counterparts in Townsville, Brisbane and Oakey".

parts installed on aircraft, including our Australian Apaches, and others are progressing through qualification and initial production."

CH-47F Chinook

The Australian Army expanded its Boeing Chinook fleet to 14 aircraft, with the final two arriving in mid-June 2022. These are supported by BDA via the Chinook Integrated Support Services contract, with the company telling APDR, "BDA's team of 90+ employees across Townsville, Oakey and Brisbane deliver maintenance, engineering, logistics and training solutions to the Australian Army's 5th Aviation Regiment."

In August, the army marked 31 years of service for the Chinook, and BDA shared, "In that time, it's become an indispensable asset, playing a crucial role in military operations and humanitarian missions, solidifying its importance to the army, the ADF and allies." For example, it supported ADF operations in Iraq, and flew 6,000+ combat hours in Afghanistan from 2006-13. In that time, they moved nearly 40,000 personnel. Closer to home, Chinooks delivered emergency supplies to Papua



A leased H135 T3H Juno helicopter, seen here at the School of Army Aviation in Oakey, is an important part of the army's helicopter training pipeline. (ADF)

New Guinea after a 2018 earthquake, and flew 400+ hours during the 2019-20 bushfires.

More generally, Naomi Smith, Director, Sustainment Operations for Boeing Defence Australia, commented, "Working alongside the ADF

aviation warfare officer, remote pilot warfare officer, aircrew and sensor operator training, plus instructor refresher training for qualified aircrew in support of the Australian Army and RAN. This HATS program entails 15 Airbus H135

H135 quintet currently achieves around 3,000 flying hours annually.

Conclusion

Some posit that the day of the attack helicopter has passed, but Smith of BDA argued, "While uncrewed systems continue to advance, no drone can do what an Apache can do. Combined with its unparalleled sensing, targeting, networking, munitions and weapons capabilities, the Apache enables crewed-uncrewed teaming across joint forces and all domains." She highlighted how the Apache is evolving to remain relevant, including the adoption of counter-drone missions.

It is also pertinent to note that Australian Army Aviation now operates the same three combat helicopter types as the US Army – the UH-60M Black Hawk, CH-47F Chinook and AH-64E Apache Guardian. This brings obvious advantages in terms of training, interoperability, interchangeability and technology refreshes for Australia's fleet.

"While uncrewed systems continue to advance, no drone can do what an Apache can do."

and Republic of Singapore Air Force, we draw on our deep operational understanding to help turn capability into dependable support when needed. Backed by decades of sustainment experience across multiple defence platforms, we embed local expertise to support the full spectrum of aircrew and maintainer training, and help sustain readiness across the helicopter types we support."

HATS

A quick comment is also due about the Helicopter Aircrew training System (HATS). Located at HMAS Albatross at Nowra, BDA helps deliver pilot,

T2+ helicopters. In March, the Nowra-based fleet surpassed 50,000 flying hours achieved from 32,500+ sorties since they started serving in 2016. Boeing stated the H135s have seen more than 580 Australian aircrew trained to date.

Meanwhile, BDA delivers aircraft maintenance, engineering, supply chain and programme support to the Australian Army's fleet of five H135 T3H Juno helicopters at Oakey too. Leased from the UK since late 2024, these H135s are used for advanced pilot training prior to transitioning to Chinooks, Apaches or Black Hawks. Replacing three Leonardo AW139s leased from Toll, the

Small Albury company supporting Army Aviation

Kym Bergmann // Albury

At APDR we always like a good news story about local defence industry and Lockheed Martin has selected Albury-based Australian Aerospace Engineering (AAE) to join their supply chain to support Army's fleet of new UH-60M Black Hawk helicopters. This coincided with a 25 August event with the company opening a new 1,900sqm building to support its three-pillar Maintenance, Overhaul and Repair business.

AAE Chief Executive Officer Adam Johnston said: "Opening this new site represents the next chapter in the AAE story, a story built over more than 20 years through technical expertise, hard work, enduring partnerships, and a commitment to doing the job well for our customers."

"We're incredibly proud of how far we've come, from a small-scale family business to a trusted Australian SME supporting the Australian Defence Force and other major Defence, aviation and commercial customers. This new facility gives our people the space and resources to take on more complex work and deliver outstanding solutions for our customers."

The company is very much part of the local fabric and is run jointly by Adam and his brother Viv, who is the Sales and Quality Manager. The two brothers have degrees in aerospace engineering, which goes some way to explaining the 25% annual compound growth the company has experienced in the past five years – a trajectory that looks set to continue.

Formed by their father in 2005, AAE started business supporting helicopters used mainly for forestry work with their dad a pioneer in using rotary wing aircraft for firefighting. Their grandparents were something of aviation pioneers in the area flying Tiger Moths from Albury airport in 1948. More recently, Andrew and Viv made a strategic decision to start targeting defence work in 2015.

The breakthrough happened quickly, with Defence contacting AAE to supply structural components for Kiowa helicopters. The move into the military market meant that the company needed to invest in quality assurance and security systems at the highest level. That strategy was boosted in 2021 when they formed a relationship with US company Eaton Aeroquip, a world leader



Australian Army UH-60M Black Hawk helicopters from the 16th Aviation Brigade conduct aerial gunnery during Exercise Centurion Guns at El Alamein Airfield in Cultana, South Australia. (DoD photo / B Spencer)

Their grandparents were something of aviation pioneers in the area flying Tiger Moths from Albury airport in 1948. More recently, Andrew and Viv made a strategic decision to start targeting defence work in 2015.

in the supply of high-pressure hoses, particularly for aviation and military use.

Aeroquip hoses are found on almost all RAAF aircraft, and AAE manufactures and tests the assemblies in Albury – and is the only company in Australia licensed to do so. The company also has a large stockpile of spares and has developed its own AI-enabled ordering and dispatch e-commerce business, shipping 45,000 parts annually to 900 Australian customers.

It has the ability to manufacture highly specialised parts and has come up with engineering solutions that have eluded others – such as a new cockpit canopy hinge design for Pilatus PC-21 trainer aircraft. As well as being a military aerospace specialist, the company has also expanded into the land domain and produces components for Canberra-based EOS, a global supplier of remote weapons stations (RWS) – a growing market, especially for counter-drone missions.

Asked about the relationship with Lockheed Martin Australia, Viv explained:

"Several years ago, we were able to schedule a meeting with them at Nowra and were put on the Approved Supplier List (ASL) for Sea Hawk helicopters and we supplied some low dollar, low risk parts. We were successful with that – and that led to further orders. It's a relationship that has just evolved.

"We have done more and more on Sea Hawk – and following that we started working with Lockheed Martin about what their requirements would be for the new Black Hawk UH-60Ms. They have recognised that we are a very good fit for what they need for the Black Hawk and Sea Hawk sustainment program."

The company is a mix of commercial and defence business, which fluctuates year-to-year. Defence – and defence industry – is roughly 20% of the company's turnover. Just on helicopters alone, this looks like a significant long-term undertaking with Army acquiring 40 Black Hawks and RAN increasing their MH-60R Sea Hawk fleet to 36, for a total of 76 platforms in service for the next 20-30 years.

Commercially, the older the platform, the greater the need for maintenance and spares, so the workload during the life of the fleet looks set to gradually increase. Viv continued:

"We are excited about it because it's a long-term opportunity. This didn't just happen overnight. We're 10 years into our journey – and partnerships like the one we have with Lockheed Martin are forged over a long period of time. We know we are going to be able to support the ADF in an important way for a significant amount of time."

The global fleet of Black Hawks and Sea Hawks is vast with thousands of platforms of various ages in use – and construction of both platforms is continuing. MH-60R production is expected to end by 2028 and UH-60M in 2032 – but the helicopters will remain in service for decades to come. The company also supports the Army's CH-47 Chinook fleet.

Asked about a small Australian company getting into the international support effort, Viv explained:

"To be honest, we have found it tough to navigate. I've been to the US to figure out what the opportunities and pathways are for us to be able to support the global fleet from this side of the world. I know Sikorsky are interested – particularly for regional sustainment – but I think we are a long way away from that."

Like all Australian companies, there are numerous hurdles to overcome such as



Squadron Leader Jason Easthope and Flying Officer Rhys Easthope shared a memorable moment over RAAF Base Williamtown, flying side by side in an F-35A Lightning II and PC-21. (DoD photo)

"We have done more and more on Sea Hawk – and following that we started working with Lockheed Martin about what their requirements would be for the new Black Hawk UH-60Ms. They have recognised that we are a very good fit for what they need for the Black Hawk and Sea Hawk sustainment program."

competition from traditional, established suppliers protected by US law. There are also administrative issues around licensing and ownership of Intellectual Property. However, the hope is that if the company continues to perform well in Australia, export opportunities will eventually emerge.

So far, none of the AUKUS-related license-free industry policy changes have flowed through to the AAE. Despite that, another export opportunity might be tied to sales of ITAR-free Boeing Australia's MQ-28A Ghost Bat uncrewed collaborative combat aircraft (CCA), for which AAE supplies numerous hose assemblies. Even for the RAAF, if a formula of three CCAs for each crewed combat aircraft is followed, that looks to be significant business – and export sales could be multiples of that amount. Viv continued:

"The first Eaton Aeroquip hoses we built, once we were certified, went on the Ghost Bat. That's a good thing for us because we have just produced another 30 hoses for the program – and that translates into more orders for that product line."

Work supporting the Black Hawk fleet is still in

its infancy because the helicopters are new and so far, 19 have been delivered – and they have flown a total of only 5,000 hours, which works out at about 300 hours per aircraft. As a mature platform, they are very reliable and so the demand for spare parts has not yet been felt.

Lockheed Martin has asked AAE to look across a broad of components fitted to the aircraft and analyse what work could be done in the future in Albury. It will probably take several years for this effort to mature when the company – and the Army users – have more real-world data about what needs to be done locally.

To support their growth strategy, every year AAE offers traineeships for local gap-year students to come into the aviation industry. Andrew and Viv regularly participate in career nights sessions and other related activities to encourage young people to join the company.

(The author travelled to Albury as a guest of Lockheed Martin Australia. He would like to thank Stacey Ward for her friendly assistance)

Aurizn CEO Rebecca Humble in conversation with APDR editor Kym Bergmann



Rebecca Humble

Kym: Aurizn is quite a new company, so can we start with some background about how it was created.

Rebecca Humble: We're a relatively new brand, but we're not a new company. Aurizn was formed in 2022 by the merger of two technology software providers. One was Consilium Technology and the other was elmTEK. That brought together two complementary science, engineering and technology companies under a single brand, which has been rebadged as Aurizn.

The capabilities and customer relations that we have had go back about two decades, so that's the genesis of the company supporting defence and national security customers to help build sovereign capabilities. It's not just creating sovereign capabilities; it's about growing and scaling them. We have responded to government policy that calls on smaller Australian defence companies to take on capital so that they can grow.

We are backed by private equity – and we are one of probably only two companies in that position in the Australian defence sector.

Q: What was the motivation behind the 2022 merger? Presumably the two companies were already successful in their own right.

A: Yes, they were successful. There was a lot of capital market interest in Australia around the time of the AUKUS announcement, and the respective founders were both approached and saw there was an opportunity to bring two complementary software technology organisations together.

Back in November 2024, we acquired another company, Pacific Aerospace Consulting. They are located on the east coast, and that further strengthens our national footprint, with Aurizn headquartered in Adelaide.

Q: What are your main areas of activity?

A: To put it broadly, we work in the area where advanced technology meets real defence problems. This is in fields like decision support, decision advantage, modelling & simulation, advanced sensing, and complex specialist engineering. We work with Defence and national security organisations to solve their complex problems and technical challenges.

Recent government policies really benefit Australian SMEs with a technology orientation. There's a recognition that those companies should be brought into the lifecycle equation much earlier, and they should be involved in requirements setting. This is so that technology is taken into account when requirements are being developed.

We have two pillars of activity: decision advantage – which I mentioned – and also autonomous systems. Our core expertise is in Artificial Intelligence, Machine Learning, modelling & simulation, decision support and advanced sensing. Those areas are very topical and relevant.

Q: Is your business model to work with Defence or also prime contractors?

A: We operate across the entire defence ecosystem. The genesis of the original two companies was supporting the Defence Science & Technology Group (DSTG) and we now assist other agencies such as the Defence Intelligence Group, the Joint Operations Command and also major global prime contractors. As well as that, we collaborate with other defence SMEs.

Q: I'm not good at conceptualising things so it would be a help if you can give an example or two of the sorts of contracts you have.

A: OK, a good example is the work we are doing with Hanwha Defence Australia.



RAAF Super Hornets. (DoD photo)

Our core expertise is in Artificial Intelligence, Machine Learning, modelling & simulation, decision support and advanced sensing. Those areas are very topical and relevant.

We have worked with them on the AS9 Huntsman 155mm Self Propelled Howitzer program. We partnered with them to deliver a secure communications capability that enables sensitive information to flow more safely between the onboard vehicle networks.

We provided the systems engineering, software development and the architecture design – all of which we integrated within our secure laboratory environment in Adelaide.

Q: Did you also procure the radios and all of the computing devices, or was that someone else?

A: No – we are a software company, not a hardware supplier. Our role is software provider and integrator – so we enhanced the digital communications network between the vehicles. That's a secure communication architecture for the vehicles.

Q: How big a job was that?

A: It was a significant piece of work and the program is still active today. The initial software development, systems integration and acceptance effort ran for around 12 months, including the development of our CDS Gateway software.

With software, though, it is very rarely a case of implementing it once and walking away. From

the outset, the program included an agreed delivery schedule for software updates aligned to Hanwha's vehicle delivery program. We have continued to execute against that schedule, with delivery activities still underway today as the broader program progresses.

We also have a product called Infinite Studio that we co-designed with DSTG that creates realistic synthetic environments and enables Defence organisations and allied partners to test, evaluate and train for missions ahead of deployments – a high-fidelity scene generator, if you like.

DSTG is a user of it, along with the UK and major international defence primes. We are the designated commercial partner for the software and we sell the licenses, with royalties going back to DSTG. That's a good example of working with DSTG to build a sovereign capability that is sold not only in Australia but to international allies also.

Q: There are some other companies working in the same space. How do you market Aurizn?

A: There are good companies operating in this space, but our differentiation comes from the combination of our people and our products.

Our team brings together experience from across the defence and national

security ecosystem. We employ people who have worked within defence primes, major technology companies, Defence agencies and government organisations, and we're also proud that veterans make up 12.2 per cent of our workforce.

That breadth of experience means we understand our customers' challenges from multiple perspectives and can draw on insights from across industry, government and Defence.

Historically, we built our reputation as a specialist consultancy, providing high-end expertise in areas such as data science, modelling and simulation. Today, we're leveraging that experience to develop products that solve repeatable customer challenges.

We're building capabilities in areas such as decision advantage, automatic target recognition and infrastructure vulnerability analysis, alongside products such as Infinite Studio. Those products are informed by years of working directly with customers, they're designed around operational outcomes rather than technology alone.

That's how we position Aurizn: a company with the agility of a specialist business, the operational understanding that comes from people who have served, worked in Defence, government and industry, and a growing portfolio of products designed to solve complex problems at scale.

Q: What were your previous roles in defence industry?

A: I started with BAE Systems here in Australia, and then was seconded to the UK to work in corporate strategy and mergers and acquisitions. I worked there for nine years including roles on the Tornado military aircraft program and Head of Strategy for a GBP 4 billion business.

The UK was followed by eight years in Washington D.C. as Vice President Global Strategy. I came back to Australia in 2018 and decided to work with smaller Australian defence companies to help them grow and scale.

Q: You sound very positive about the future but that's not shared by all Australian SMEs. Many of them tell me they are struggling because Defence doesn't have money to spare, presumably because so much is being bled off by AUKUS. What are your impressions?

A: I agree to an extent given around 41% of the Integrated Investment Program is in the maritime sector, which sends a strong message

about where the funding is being prioritised and allocated. But companies like ours, which are a bit smaller, are different. The Primes do large, complex platforms and systems integration capabilities and global reach. What we have – as

system – what nodes could it take out, what are the implications, that sort of thing. We can actually model all of that in a synthetic environment so that they can see the impacts and what has caused them.

generate really good ideas. I think the challenge we face – both industry and government – is how we turn those innovations into actual deliverables that have operational relevance and can solve operational issues.

We need to get better at doing that – and we need to do it with pace and urgency.

Defence is reforming itself. I get a sense that the messaging is changing – as it needs to. My feeling is that Defence is trying to inculcate that sense of urgency that's needed and also create a different relationship with industry.

a smaller technology-focused company – is the software, technology along with flexibility and agility. As I mentioned earlier, it's important to get SMEs into the acquisition lifecycle a lot earlier so technology can be considered much earlier in the lifecycle given advancements are evolving rapidly. All large complex platforms need to have relevant technology in them so they remain current and competitive.

Q: Companies associated with AUKUS seem to be doing fine, but it appears problematic for others.

A: We hosted a breakfast recently and we had the Chief Defence Scientist, Tanya Monroe there as well as MAJGEN Hugh Meggitt. What came out of that is already reflected in our strategy, the focus on co-development, joint ownership of the problem, co-investment and risk sharing.

That's challenging for many in industry – particularly SMEs that don't necessarily have the capital – but Aurizn is backed by private equity which gives us some extra optionality and so we are in a position to build before Defence buys. The work we are doing around Automatic Target Recognition – as I mentioned – and vulnerability analysis reflects this. Infinite Studio is also another example of putting our money in to fund a sovereign capability that is used by allied partner nations.

This means at the right stage of the Technical Readiness Level (TRL) cycle, we can engage with the customer to discuss their problem space to ensure what we provide is operationally relevant.

Also it's worth remembering that we are not just a defence contractor. We also do work for other agencies in the broader national security sector and with industry Primes and supply chain partners.

An example of that is there might be a government organisation that wants to model what happens if a foreign actor gets into the

Q: Can you tell me a bit more about the Pacific Aerospace Consulting acquisition.

A: With an aerospace and operational focus, PAC Australia or our Mission Enablement business as we now call it, has built a strong reputation

We are recruiting in very specialised areas, such as software engineers and data scientists with particular high-end skillsets. We don't supply generic services – we are using those very smart people to build very smart products so that we become a services product supplier.

for its services, including cybersecurity, systems integration, software engineering, specialist technical services focused on communications, tactical data link networks, mission planning and enablement along with other bespoke capabilities. They deliver the operator maintenance on the RAAF's fleet of fixed wing aircraft based at Nowra, Williamstown and Amberley and across Australia.

Q: Can you give me an overview of your numbers and whether you are hiring or holding steady.

A: We have about 200 specialist engineering, scientific and operational employees across Australia (nine locations in total) which enables us to work closely with Defence and the rest of industry as well as research partners and academia. We have more than 20 early careers professionals and more than 15 employees with PhDs.

It's a good story of local businesses that have grown and then merged in response to policy changes and giving the government what they have asked for – smaller defence companies seeking to grow and scale. We are also investing to build products not just for Australia's defence but also ones that we can ultimately export.

In my opinion, in Australia we don't have an innovation problem – we have proven that we can

Q: My observation is that historically the Department has not been especially receptive to good Australian ideas – with some exceptions. I hope that's changing.

A: Defence is reforming itself. I get a sense that the messaging is changing – as it needs to. My feeling is that Defence is trying to inculcate that sense of urgency that's needed and also create a different relationship with industry. There's always a challenge of turning good policy into action – and the policy does recognise that the

relationship between Defence and industry has to be fundamentally different if we want different outcomes

In the past the relationship has been transactional rather than strategic and I think that has to change.

Q: How are things looking for growth?

A: There's an imperative to grow because Aurizn is private equity backed. We are being very focused in our recruitment – and we face the same workforce challenges as everyone else with an extremely tight labour market.

We are recruiting in very specialised areas, such as software engineers and data scientists with particular high-end skillsets. We don't supply generic services – we are using those very smart people to build very smart products so that we become a services product supplier.

We are looking at offering these into the major programs of record to deliver capability outcomes faster, better and more efficiently.

Q: Any final thoughts? How is defence industry doing overall?

A: Because I've worked in the US and UK as well as here in Australia, I think it's likely we will see an imminent change in the local industrial landscape. This is because we are different

in Australia as we don't have that breadth of representation in the local industrial base that the US and UK have.

Now that's partly because of the size of our market compared with theirs – but I think that representation is what needs to change – and that's been recognised in recent policy documents. The Primes have a role – they are important for those very large complex programs. But you need more than that in the force structure and industrial base – you need technologies, sensors and smart subsystems, and I think that's now been recognised.

The Primes have a role – they are important for those very large complex programs. But you need more than that in the force structure and industrial base – you need technologies, sensors and smart subsystems, and I think that's now been recognised.

Where does that innovation sit? It's within the SMEs in Australia. We have the big primes and then the SMEs – with not much in the middle. Those SMEs need to grow and scale so that technology can also be scaled.

Q: In my opinion, Australia gets a very poor industry return for the money we spend on Defence. South Korea is one of my favourite examples – they spend only fractionally more than we do but their defence industry is absolutely massive. We haven't had a truly coherent industry policy since the 1990s.

A: I agree with you – and that's what needs to change. There are other nations – South Korea as you just highlighted – that are smaller than us but who have done it better and they now have a truly sovereign industrial defence capability. This is because they have made very focused, conscious, procurement decisions for generations to achieve that. Look at Sweden – or France.

I know that some of those entities are government-backed – but nations much smaller than us, and with smaller Defence budgets than ours have done it. We need to look at those nations and see what lessons can be learned that we can take and nuance for Australia's strategic circumstances.



Hanwha Huntsman SPH (Hanwha photo)



French peacekeepers with a Chinese mine clearance robot (Huang Yuanli - China MoD)

China's unmanned ground offensive

Guy Martin // Johannesburg

China's People's Liberation Army (PLA) is modernising across all spheres as it works towards becoming a world class military by 2049. This includes embracing unmanned systems and artificial intelligence, which it aims to employ across all frontline operations. While Chinese unmanned aerial and naval capabilities are well established, 'robotic wolves' and a growing range of tracked and wheeled unmanned ground vehicles (UGVs) are now entering landward service, where they are working closely with soldiers in logistics, surveillance and combat support roles.

China is leading military UGV use in the Asia-Pacific, having pursued these platforms for over a decade - in 2016, for example, the PLA held a UGV trial event called Conquer Obstacle to evaluate robotic technologies for the military. An August 2019 exercise saw Chinese armoured units conduct high-altitude drills with unmanned systems, including route clearance robots, and by April 2020 the PLA had deployed UGVs for reconnaissance operations.

The extent to which UGVs are being embedded in the PLA could be seen in China's September 2025 Victory Day parade, which had a large emphasis on autonomous systems and intelligent weapons: the PLA is integrating artificial intelligence (AI), automation, virtual and augmented reality, robotics, and big data systems into military operations ('intelligentised warfare'), something being driven through its military-civil fusion strategy, in which civilian capabilities support military development and do so faster than traditional defence procurement cycles.

Highlighted in the September parade were two dedicated combat UGVs: the tracked ZRY222 was fitted with four turret-mounted missile launchers and a 7.62 mm machinegun, while the wheeled 8x8 ZRZ100 was fitted with a machinegun and four missile launchers in a more compact turret. The ZRY222 was subsequently seen in a January 2026 training exercise with infantry. Remote operators managed the type from nearby vehicles to provide fire support to soldiers. The 1.2 ton ZRY222 is believed to have entered PLA service in 2024.

A month before the September 2025 parade, the PLA released footage of manned-unmanned teaming in an urban warfare exercise, with ZBL-08 8x8 infantry fighting vehicles working alongside small tracked UGVs fitted with 120 mm rocket launchers. The UGVs were sent ahead of the other vehicles and infantry to identify and engage hostile positions. They were controlled by soldiers with first person view (FPV) goggle headsets and handheld controllers. The small tracked UGVs were not showcased in the September parade.

Also not showcased at the Victory Day parade but observed with PLA forces are unmanned versions of Norinco's CS/VP16B Lynx 6x6 all-terrain vehicle, serving in reconnaissance, command and combat support roles. The Lynx series was publicly unveiled in 2008, and includes the manned 8x8 CS/VP17B and 4x4 CS/VP15. Weapons integrated onto the series include 120 and 82 mm mortars, rocket launchers, and cannons.

Armed variants of the CS/VP16B have been observed being operated remotely by PLA

personnel. Other variants displayed in an unmanned configuration have included an air defence vehicle armed with four surface-to-air missiles, as well as a target detection radar and an engagement radar.

Some of the first armed UGVs seen in PLA service were part of Norinco's Sharp Claw series, which is available on the international market. The tracked Sharp Claw 1 electrically powered vehicle has been designed for urban and counter-terror missions. Weighing 120 kg, it is armed with a 7.62 mm machinegun. Control is by radio (800 metres) or via cable at shorter distances.



A cannon-armed Norinco VP16B UGV (Norinco)

Maximum speed is 9 km/h. It had entered PLA service by early 2020 and was subsequently deployed to Tibet where the thin air and extreme temperatures make unmanned systems sometimes more resilient than humans (UGVs are also touted as being useful for missions like nuclear, biological and chemical [NBC] reconnaissance and have been seen carrying out these roles in PLA exercises).

The Sharp Claw 1 can be carried and deployed by the much larger Sharp Claw 2 electrically powered 6x6. The Sharp Claw 2 can be fitted with a 7.62 mm machinegun. Maximum combat weight is nearly 1 000 kg and endurance four hours or 50 km. It can be remotely operated or use autonomous path tracking based on a digital map.

Earlier this year Norinco unveiled its Sharp Claw VU-T2 tracked UGV, designed for combat support, reconnaissance, and direct engagement while operating under remote control or in coordination with crewed platforms. It can be fitted with a 12.7 mm machinegun and Blue Arrow 5 missile launcher. Navigation is through a combination of sensors such as LiDAR (light detection and ranging), electro-optical cameras, radar, inertial

navigation systems, and digital maps. The Sharp Claw VU-T2 weighs 2.1 tonnes and is operated by two crew. It is 2.6 metres long and 2 metres high. An electric or hybrid drive system gives a maximum road speed of 40 km/h and endurance of 100 km or 20 hours at 15-20 km/h – control range is up to 3 km.

Logistics

Also seen in the 2025 Victory Day parade were GPJ221 tracked unmanned mine clearance vehicles, and six-wheeled CWB221 logistics UGVs, each of the latter carrying a multirotor unmanned aerial vehicle (UAV). The CWB221 is designed for tasks such as ammunition supply and medical evacuation and features a flat cargo bay on the top of the vehicle. It is believed that the GPJ221 entered service in 2025.

Logistics UGVs have been deployed by the PLA for a number of years, with Mule-200 UGVs manufactured by Zhong Tian Zhi Kong Technology Holdings Company seen in Tibet some five years ago. This tracked vehicle weighs 500 kg and has a 200 kg payload. It can be remotely controlled by wireless or cable links. It can reach 50 km/h with a maximum endurance of 50 km thanks to a petrol-electric hybrid engine.

Also around this time the PLA introduced the Dragon Horse II 8x8 UGV to carry cargo, with a video released at the beginning of 2022 showing it transporting artillery rounds. The vehicle is made by Sunward Intelligent Equipment Co and is powered by a diesel engine. It has a range of 200 km offroad and 1,000 km on road, and top speed of 50 km/h. Payload is up to 1,000 kg. With a fully independent axle at the front and the rear, it offers high levels of mobility, and can cross a vertical obstacle up to 1.2 metres high.

More recently, the PLA this year showcased quadrupedal robots carrying out logistics operations during an exercise in the Gobi desert, which also featured small optionally manned 6x6 logistics vehicles apparently belonging to the Lynx family.

In early 2025 autonomous driving solution provider Landship showcased a CS/VP16B logistics vehicle that it said was capable of autonomous operations thanks to DeepSeek artificial intelligence software as well as Landship self-driving technology, indicating China's use of DeepSeek and AI to catch up to the US. Norinco revealed the updated CS/VP16B has a combat weight of 2 400 kg and payload of 1 000 kg. It can be operated autonomously or remotely with a communication range of 2 km. Cruising range is

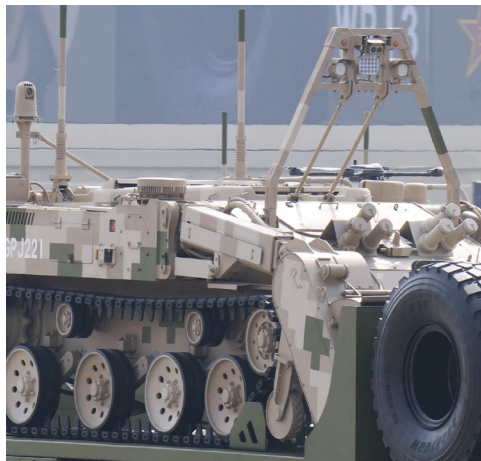
200 km (hybrid) and pure electric range 20 km, with speed of 50 km/h while driving autonomously.

Robot dogs and robot wolves

China has been a big proponent of quadrupedal robots and commercially leads this market segment. Multiple 'robot dogs' have been evaluated by the PLA over the years and have now evolved into 'robot wolves' – quadrupedal robots that are able to operate in a coordinated 'pack'.

Robot dogs - notably Chinese robotics company Unitree's Go2 and B1 quadrupeds - have been used by the PLA in multinational military exercises, amongst others. For example, during the Golden Dragon 2024 exercise with Cambodia, a B1 armed with an automatic rifle was used for assault operations. The LiDAR and camera-equipped Go2 weighs about 15 kg and has a battery life of two to four hours while the B1 weighs 50 kg and can carry a 20 kg payload. It has an endurance of two hours.

The robot wolves displayed in the September 2025 parade are manufactured by China South Industries Group Corporation and have been seen in PLA exercises over the last couple of years. In a recent CCTV segment, the state broadcaster claimed the UGVs have gone from being single soldier support systems to a coordinated swarm platform, operating through a shared sensor network acting like a collective brain for autonomous collaboration and joint decision-making.



A GPJ221 unmanned mine clearance vehicle during the PLA's September 2025 parade (CCTV)

The pack can also be integrated with unmanned aerial vehicles. Members of the robot pack have different roles: a 'Shadow' variant is tasked with reconnaissance and situational awareness; a 'Bloody' variant is fitted with weapons including missiles, grenade launchers and assault rifles; and the 'Polar' variant is used for logistics. Together, the wolf pack is able to scout ahead of soldiers and map terrain for them, breach defences, provide fire support, and assist with logistics.

The wolf pack can be controlled remotely, by voice, and with a tactical glove or stick mounted on a soldier's rifle. The roughly 70 kg robots can carry 25 kg at speeds of up to 15 km/h. They can climb

stairs and navigate uneven terrain, and operate in extreme temperatures and high altitudes.

Footage from a recent exercise showed a dozen of the robot wolves operating together, some armed with quad missile launchers. A single soldier was seen controlling nine robot wolves and six UAVs simultaneously during one exercise. The integration of manned and unmanned elements apparently expands the combat radius of a standard infantry squad by four times.

Norinco (a sister company to the China South Industries Group Corporation) is promoting the robot wolf series on the international market, available in three versions: the Yuxue strike model (which can carry assault rifles, grenade launchers and missiles), Anying surveillance and reconnaissance model, and Jidi logistics model.

The PLA has also tested Unitree's innovative Super Athlete AS2-W wheeled quadrupedal UGV, most notably during the Chinese-Mongolian joint army exercise Steppe Partner 2026, where it was used for reconnaissance and fire support. The AS2-W features wheels on the end of each leg, giving it greater mobility and speed than purely wheeled or quadrupedal robots.

The 25 kg UGV can travel about 30 km on a battery charge and 25 km with a 16 kg payload. It is equipped with an autonomous navigation system incorporating LiDAR, camera, and GPS, giving centimetre-level positioning accuracy. During the Steppe Partner 2026 exercise, AS2-Ws were seen fitted with assault rifles.

Related developments

In addition to UGVs, the PLA has rolled out exoskeletons to enhance soldier mobility, and Chinese researchers have developed a wearable two-legged hybrid device that could transform soldiers into four-legged 'centaurs'. In November last year, the PLA showcased a humanoid combat robot that mimics the movements of its human operator using real-time AI. At the same time, the PLA highlighted a bomb disposal robot operated using voice commands, and a mine clearing vehicle using artificial intelligence to locate buried explosives.

Chinese industry is also tinkering with unmanned amphibious ground vehicles, although development seems erratic. In 2019 the China Shipbuilding Industry Company unveiled its 12 metre long Marine Lizard amphibious autonomous vehicle which can reach speeds of 80 km/h on water and deploys tracks for a land speed of 20 km/h. Not much has been seen of



CWB221 logistics UGVs during the PLA's September 2025 parade (CCTV)

this vehicle since, nor of an unusual quad-tracked amphibious unmanned vehicle that was unveiled by China South Industries Group Corporation in 2022. This fairly large UGV features a boat-like hull and four sets of triangular tracks that extend for land operations.

Export market

Chinese companies are marketing a growing range of UGVs to international customers, although it's not clear how much uptake there has been. One of the largest is Norinco's tracked VU-T10, designed to provide a fire support capability, with a focus on manned-unmanned teaming. First unveiled in 2024 and subsequently seen undergoing trials in 2025, it is armed with a 30 mm cannon and 7.62 mm machinegun in a turret that can fire Red Arrow 12 anti-tank guided missiles. The vehicle is nearly 4 metres long and 2 metres high, weighing about 12 tons. Its electric motor gives a road speed of 60 km/h. It is remotely operated from a command and control vehicle.

Chinese technology company Nexwise recently showcased its quadrupedal wheeled UGV to the export market, designed for either net capture or autonomous patrol tasks. The platform weighs 15 kg and is equipped with wireless following, voice control, autonomous path planning and obstacle avoidance functions as well as LiDAR-based navigation.

Poly Technologies is also promoting UGVs for the export market, and in February showcased its Lynx 4x4 UGV fitted with an integrated launch-ready reconnaissance quadcopter. Other designs from various manufacturers regularly appear at defence shows.

From remote control to autonomy

The PLA has taken a cautious but logical approach to the rolling out of unmanned ground systems, beginning with remotely controlled UGVs with humans in the loop and progressing towards semi-autonomous, fully autonomous and swarming/networked systems. Patents and tenders reveal Chinese military entities are investing in increasingly autonomous technology, including using AI to recognise and track targets and work in swarms with minimal human intervention.

One of the key technologies enabling autonomous operation is LiDAR, which gives greater accuracy than radar or cameras. For example, many of the UGVs and even manned armoured vehicles seen during the September 2025 parade incorporated LiDAR. The technology



A rocket launcher-equipped robot wolf quadruped (China MoD)

is being successfully used in civilian sectors such as surveying and autonomous driving. It appears China sees LiDAR as integral to its UGV capabilities and in 2018 mandated the integration of LiDAR into military systems under its military-civil fusion strategy. China has provided subsidies to domestic LiDAR firms, which account for about 80% of global LiDAR sales.

This is part of its robotics push that has seen Beijing designate the robotics sector as a strategic priority. Its latest five-year plan (2026-2030) puts robotics and artificial intelligence at the heart of its modern industrial system. China is already the world's largest industrial robot maker and accounts for about half of all industrial robot installations worldwide but it is also pushing to incorporate robots into other real-world applications.

It is deploying quadrupedal robots for airport security and humanoid robots for traffic police duties, for example. In August China hosted the 2026 World Robot Conference that showcased some 3 000 different robotics products. At the same time China hosted the World Humanoid Robot Games, where a robot beat the human 100 metre record, amongst a host of others.

The PLA – like many other militaries – has been studying the use of unmanned systems in Ukraine, where UGVs are heavily used for logistics and medical evacuation – especially on the front line where it is almost suicidal to use large manned vehicles. Ukraine aims to get unmanned systems to carry out all frontline logistics in

the future, and is also gradually increasing the combat use of UGVs, primarily to support infantry. However, controlling UGVs in a heavily contested electromagnetic environment is a challenge, resulting in the use of fibre optic cables, Starlink, aerial relay nodes and other solutions.

Ukraine sees UGVs as cheap and expendable platforms that cost US\$8-20 000 per unit – far less than comparable Western systems. Chinese UGVs are already significantly cheaper than for example American systems, giving China a major cost and numerical advantage.

In Ukraine, UGVs are not replacing infantry but augmenting them and greatly reducing the risks soldiers face. Similarly, the PLA is particularly enthusiastic about using UGVs for challenging scenarios such as amphibious landing operations (such as for a possible Taiwan invasion) and urban warfare, where infantry casualties would be high. It has carried out numerous amphibious landing and urban warfare exercises with unmanned systems, which have for example seen quadruped robots airdropped onto rooftops by multi-rotor UAVs.

By the 2030s, it is likely that UGVs will be a key component of the modern military, providing extra firepower and assisting soldiers tackle dangerous, dull or difficult tasks. The PLA seems to realise that robots do not replace humans or conventional capabilities, but extend and improve them – at least until fully autonomous systems become viable, which may happen sooner than expected.

Rewriting the rules: UGV lessons from Ukraine's frontlines

Guy Martin // Johannesburg

Unmanned ground vehicles (UGVs), alongside other unmanned systems, are heavily used in Ukraine for a multitude of roles. In the last couple of years, Ukraine has gone from fielding one-off experimental unmanned ground vehicles to deploying thousands for logistics, engineering, transport and combat roles – some even drive explosives into Russian positions as kamikaze robots. Last year Ukrainian industry delivered around 15,000 UGVs to frontline units – up from 2,000 the year before – and aimed to deliver 25,000 UGVs in the first half of 2026.



A Ukrainian assault rifle-armed UGV (Ukrainian MoD)

Although some offensives have been carried out using only unmanned systems, Ukraine's goal is not to entirely replace soldiers but keep them out of kill zones whenever possible and reduce casualties – the Ukrainian General Staff reported that robotic systems have reduced personnel casualties by up to a third. This is critical given the manpower asymmetry Ukraine faces against Russia.

Ukraine is using UGVs extensively for logistics operations – this is the main task assigned to them. Especially for last mile logistics under fire, UGVs are proving critical. In some Ukrainian battalions, UGVs handle up to 90% of frontline supply missions, with nearly 500 missions a day on average by mid-2026 – the number of military units operating ground

robots stands at nearly 250. Ukraine hopes to soon get all frontline logistics handled by robotic systems.

Medical evacuation – one of the most dangerous tasks in the theatre – is another UGV forte: in one case, a Maul UGV was used to retrieve a wounded Ukrainian soldier 64 km inside Russian-held territory, surviving drone strikes and a mine blast. The soldier survived inside a polypropylene armoured capsule. Casualty evacuation is now the second most common UGV mission after logistics.

For engineering tasks, UGVs are used to lay and clear mines, move electronic warfare and surveillance equipment into position, emplace obstacles, and attack Russian positions with explosive charges and anti-tank mines. UGVs can

carry significantly larger payloads than unmanned aerial vehicles (UAVs), making them useful for demolition and indirect fire. The Zmiy demining UGV, for example, can clear 7 000 square metres of ground per day. Both sides use mine clearance vehicles such as the Uran-6 (Russia) and DOK-ING MV-4 (Ukraine).

UGVs are increasingly being fitted with various weapons for a purely combat role, including machineguns, grenade launchers, and rockets. In April 2026 it was announced that Ukrainian UGVs and UAVs had captured a Russian position without infantry participation or losses – the first publicly acknowledged operation of its kind. In December 2025 it was reported that a Droid TW UGV, armed with a 12.7 mm machinegun, was used to hold a frontline position against Russian infantry assaults for 45 days, ensuring Ukrainian soldiers suffered no casualties.

However, UGVs are unlikely to replace armoured combat vehicles and armed unmanned ground vehicles are not as widely used in Ukraine as logistics and casualty evacuation UGVs – soldiers are still critical for holding ground. Integrating weapons onto UGVs is straightforward and proven, but integrating them into a wider system is more challenging.

Operating UGVs under constant aerial surveillance and electronic attack is a major challenge, and one of the issues flagged in Ukraine is the importance of secure control links to unmanned systems in heavily electromagnetically contested environments. Even without electromagnetic interference, it is difficult to maintain communications through obstacles like buildings and ditches, and over distances – in Ukraine the kill zone has expanded to tens of kilometres, exceeding the control links many earlier

systems were designed for – it is extremely risky for soldiers and vehicles to enter this relatively wide zone, making UGVs a better proposition. Ukraine has consequently tested fibre optic controlled UGVs to reduce vulnerability to jamming. It also controls UGVs and UAVs through multiple methods such as Starlink, line-of-sight radio, and aerial relay nodes, but control remains a challenge in the face of heavy Russian jamming – friendly fire electronic warfare has also claimed a large number of Ukrainian drones.

Solutions to these battlefield problems could include fully autonomous systems, networked robotics, and fitting UGVs with electronic warfare and counter-UAV systems. Full autonomy, however, is still far away for UGVs, with the majority retaining a human in the loop and using only pre-programmed automation (following set routes).

Another important lesson from Ukraine is sustainment – frontline UGV workshops are essential in ensuring they remain serviceable, as they cannot be quickly returned to their manufacturer or repair facilities far from the front (expansion of the frontline kill zone has made traditional logistics as well as casualty evacuation and crew rotation extremely difficult). Frontline workshops ensure vehicles are repaired within hours rather than weeks and allow for immediate modifications: engineering workshops embedded within unmanned systems battalions diagnose problems, fabricate replacement parts and adapt to new threats (such as evolving electronic warfare) in real time and avoid many supply line challenges. 3D printers and other equipment can repair vehicles in the field – UGVs tend to wear out faster than UAVs



MV-4 de-mining UGV for Ukraine (DOK-ING)

as they face harsher mechanical stresses. One of the benefits of frontline workshops – for all types of unmanned systems – is that mechanics, engineers, and operators modify platforms under fire and share the results with manufacturers within days, rapidly advancing research and development.

Another issue highlighted in Ukraine that needs to be addressed is standardisation – dozens of different platforms often use different batteries, motors and software, making it difficult to set up logistics chains for each type. Ukrainian units ordering equipment individually as well as a growing proliferation of manufacturers compounds the standardisation problem.

Ukraine treats UGVs as simple, cheap and expendable platforms that cost US\$8-20 000 per unit to ensure widespread use and accessibility – most UGVs don't survive beyond a dozen missions. Russian and some western platforms are large and expensive, eroding their practicality. Ukrainian experience has shown that UGVs should be small enough to be moved by several soldiers and be able to fit onto a pickup truck, otherwise they cannot be deployed easily enough.

Another lesson from Ukraine is that multi-drone operations are becoming the norm, where drones carry drones and drones attack other drones. Unmanned surface vessels are carrying UAVs; UGVs are carrying UAVs; and drone motherships are becoming commonplace.

Ukraine has accumulated millions of hours of operational experience with unmanned systems, providing valuable combat lessons. While the majority of this is with UAVs and unmanned surface vessels, UGV experience is rapidly catching up. The first purely unmanned ground battle is believed to have been fought in Bakhmut in March 2024 when Ukrainian drones destroyed Russian ground robotic platforms, giving Ukraine more unique experience in this field.

Tactics and technologies developed in Ukraine are being mirrored elsewhere around the world such as Myanmar, Mexico, Colombia, Palestine, Lebanon, Iran and Iraq, in the hands of both regular and irregular combatants. Indeed, the world continues to watch developments in Ukraine – ground zero for the combat development and refinement of unmanned ground systems.



Zmiy Droid 12.7 (devDroid)

NZ Army matures its Motorised Infantry Battle Group

Gordon Arthur // Waiouru

The Australian and New Zealand armies re-signed Plan ANZAC on 10 July 2026, renewing their bilateral agreement that builds upon 100+ years of shared experience and service. First inked in 2023, Plan ANZAC's aim is to enable soldiers of the two nations to train, deploy and operate together more effectively.



The heart of the NZ Army's Motorised Infantry Battle Group is the NZLAV, one of which is seen here in the background. (Gordon Arthur)

Major General Rose King, NZ's Chief of Army, told Asia-Pacific Defence Reporter that the relationship with Australia "is really important to us". Furthermore, "Now our plans are more aligned than they've been, and we work hand in glove with a whole lot of things." She highlighted increasing interoperability and interchangeability between the two neighbours, where "it's being operationalised every day, to be honest".

This alignment of interests was apparent at the NZ Army's Exercise Hill 60, held at the Waiouru Military Training Area in the central North Island from 15-30 August. The exercise took its name from the final battle in the Gallipoli campaign in World War I, and its purpose was to put the army's nascent Motorised Infantry Battle Group (MIBG) through its paces.

Another exercise aim was stepping forward in the build-up to Exercise Talisman Sabre 2027, when NZ will deploy a complete MIBG for the very first time. This represents the NZ Army's largest ever commitment to Talisman Sabre, as last time it contributed a combat team rather than a full battalion-level battle group. Hill 60 was therefore an opportunity for the MIBG to test its mettle as a cohesive unit under the tempo and pressure of "battle".

MIBG

Shortly after a live-fire assault on 27 August, Lieutenant Colonel Caleb Berry, Commanding Officer of the 1st Battalion, Royal New Zealand Infantry Regiment (1 RNZIR), explained to APDR: "The army's land combat output is the Motorised Infantry Battle Group. That's our contribution to a coalition, or our ability to operate by ourselves in

the region." He continued, "So we can say to the government: you have a Motorised Infantry Battle Group that consists of roughly 1,100 people. It takes the entire army to generate that, and you can deploy that. But if you deploy bits and bobs of it, then obviously it gets degraded."

While the MIBG does not sound like a large formation – and it is not relatively speaking – it actually represents a quarter of the army's current roster of 4,358 active-duty personnel. Importantly, Queen Alexandra's Mounted Rifles (QAMR) amalgamated with 1 RNZIR last December, an aid to creating the MIBG.

Berry noted the MIBG is closely connected to the Brisbane-based 7th Brigade, and the latter's commander had actually been at Exercise Hill 60 on 26 August to watch the MIBG in action. He explained the reason for this alignment is their shared focus on the Southwest Pacific region. Australia's two other brigades – the Darwin-based 1st Brigade and Townsville-based 3rd Brigade – focus more on the littorals north of Australia and mechanised warfare respectively.

While the NZ Army has integrated with Australia's 7th Brigade at the combat team level before, Talisman Sabre 2027 will be a real test of doing so at the larger-scale battle group level. Nonetheless, Berry pledged, "I have every confidence in my team to be able to achieve that next year."

Brigadier Jason Dyhrberg, the Land Component Commander, also emphasised to APDR the importance of maturing the army's MIBG ahead of Talisman Sabre 2027. "For us that's an incredible contribution within a large-scale divisional construct. It's highly valued by our Australian ally because they're also very busy. They also have, despite their significant scale compared to us, staffing and equipment shortfalls. So us being able to provide a capable, well-trained battle group into the organisation does add considerable value."



In the next decade, the NZ Army will need to replace its L119 105mm towed light guns with something far more mobile. (Gordon Arthur)

Equipment modernisation

Exercise Hill 60 was a good workout for the army's relatively new Bushmaster 5.5 fleet. These are operated by Queen Alexandra Mounted Rifles Company, part of 1 RNZIR after a December 2025 amalgamation, as well as other disparate units such as artillery, logistics and combat engineers. The Bushmasters are a reminder how the NZ Army is seeking to align with Australia equipment-wise wherever feasible. This is in line with last year's Defence Capability Plan that stated, "New Zealand will seek to procure the same assets and equipment as Australia where it makes sense to do so. This will help with interoperability."

This raises an interesting spectre as NZ examines future procurements such as long-range fires to replace its ageing L119 105mm towed howitzers in the 2029-39 timeframe. Asked what future solution seems best, Lieutenant Colonel Brent Morris, Commanding Officer of 16 Field Regiment, told APDR: "In any system that we look at, it needs to be self-propelled. In my opinion, it needs to have the ability to be able to shoot and move. So what that means is the gun generally needs to be mounted on a chassis of some description, to be able to fire it and then move it quickly."

He noted his artillery unit currently specialises in the ability to provide intimate fire support for a moving friendly force. "When we look ahead and we look at future capability, what we need to first understand is what we need and what effect do we want to achieve. And it probably looks like the ability to fire a long distance and precisely.

At this stage it's rocket artillery that can provide that effect, and it's a different effect, a different requirement, than what we currently have."

Something like HIMARS, as being fielded by Australia, is therefore likely to be in the frame, or perhaps an Asian alternative like the K239 Chunmoo. However, the NZ Army is extremely unlikely to ever field tracked vehicles again, making the K9/AS9 platform a nonstarter. However, a number of truck-mounted howitzer solutions are available, including Hanwha's 8x8 K9MH that the US Army ordered recently in limited numbers.

Dyhrberg noted, "We still have to determine the actual platform," but he said it does need to be mobile, rapidly deployable and be able to move over shorelines. "So, ideally for me, if I can get it on a C-130 or on a landing craft, that's great."

Long before replacement artillery systems arrive, the army is already investing in one-way strike drones. Former Defence Minister Chris Penk said in July, "We'll soon place with industry a request for information and, while we'll consider all viable options, we're especially interested in supporting local innovation, skills and industrial capability."

APDR asked Morris whether his regiment has been designated as the unit to operate one-way strike drones. He responded, "Not officially, no, but it would make logical sense as the offensive support regiment, and the only one in the New Zealand Army, that that capability would come to us to figure out."

Exercise Hill 60 was the first time too that the

NZ Army used an updated radio suite aboard an NZLAV. A solitary prototype system was installed in Berry's NZLAV command vehicle, but it is due to be rolled out across the wider MIBG under Tranche 3 of the Network Enabled Army (NEA) programme. The new radio solution comprises L3Harris AN/PRC-163 and AN/PRC-160(V) radios to replace older AN/PRC-119 SINCGARS sets. The NZLAVs also run Systematic's SitaWare Frontline software, so the new radio system allows transmission of data and positional updates.

The Bushmaster fleet already has these new L3Harris radios as an interim solution, but these will be fully integrated into a more sophisticated command, control, communications, computers and intelligence (C4I) suite from 2028. A C4I design and integration tender was awarded to Australian-based Luminact on 12 December 2025.

Dyhrberg also provided an update on other equipment expected to arrive in coming months. Expected later this year is some "exquisite electronic warfare equipment that will be a great capability going forward", this also falling under the multi-phased NEA programme. The army also recently ordered 26 Carl-Gustaf M4 84mm recoilless rifles from Saab, these due in the first quarter of 2027.

Also due in the next month or two is a batch of VAMTAC vehicles from Spain. These pilot vehicles will be tested to ensure they meet NZ Transport Agency regulations, and the first vehicle tranche will be issued to the army next year. This will begin a transition from the Pinzgauer 6x6 fleet, plus ageing Unimogs that remain in widespread use will be withdrawn in favour of more garrison and training trucks.

Conclusion

The NZ Army has adopted Australian training doctrines, and all sorts of cross-training is occurring all the time. For example, Kiwi troops have been attending a mortar course in Australia.

Despite a paucity of funding for NZ's military, Dyhrberg praised the quality of Kiwi personnel. "What we do is produce great soldiers, great officers and we produce great platoons and companies, and we're now working to produce a great battalion as well." While he acknowledged NZ cannot replicate larger formations as others can, he said the army is becoming a victim of its own success because its troops are in demand. "What we can do is produce those well-trained officers that can integrate into an Australian brigade headquarters or an American divisional headquarters, which we do quite regularly."

News from across the Tasman

Gordon Arthur // *Christchurch*

Political intrigue

Defence Minister Chris Penk, a former naval officer, was only in the job for four months before being forced to walk the plank. Prime Minister Chris Luxon unceremoniously stripped Penk of his portfolios on 12 August after he was accused of masterminding a leadership coup.

Penk's portfolios of Defence, Veterans, Space, Government Communications Security Bureau and Security Intelligence Service were immediately handed to Paul Goldsmith. Once his existing portfolios are counted, Goldsmith now has a ridiculous workload of twelve portfolios.

This does not bode well for the NZDF, and one of Goldsmith's first moves was to cancel a major meeting in Canberra with Australian and Japanese counterparts in August. A coterie of 60 from a dozen Kiwi defence companies – such as Rocket Lab and Obsidian Systems – were also booked to attend the Australian summit, which would have given them valuable facetime with potential customers.

Goldsmith admitted: "As I've just taken over the Defence portfolio, I was unable to change my schedule and attend the meeting at such short notice." Yet he argued, "I'd note this showcase of defence capability to counterparts was not time-sensitive and no contracts have been lost as a result."

With the Japanese Upgraded Mogami frigate contending for the Anzac-class frigate replacement, a chance to meet with Japanese Defense Minister Shinjiro Koizumi was important. Goldsmith said, "Defence remains committed to supporting engagement opportunities for New Zealand companies in Australia, and will explore options for holding a similar event in Canberra next year."

Pacific Response Group

On 7 August, the NZDF announced it had taken over responsibility from Australia for leading the Pacific Response Group (PRG), a multinational capability designed to militarily support humanitarian assistance, disaster relief and crisis response operations across the Pacific.

Established in 2024, the PRG combines personnel from Australia, Fiji, France, NZ, Papua New Guinea and Tonga, plus Chile in a supporting

role. Each nation contributes planners and staff across functions such as operations, logistics, intelligence, health and communications, and they can deploy a headquarters element at short notice following a crisis event.

Major General Rob Krushka, Commander Joint Forces New Zealand, remarked, "Natural disasters in our region are increasing in frequency. The PRG ensures we can respond smarter, together. This is about supporting our Pacific neighbours, respecting sovereignty, and working alongside civilian agencies to deliver the right assistance at the right time."

Krushka added, "NZ is proud to assume leadership of this important initiative, building on the strong foundations established by Australia and our regional partners." The PRG will be based at Trentham alongside the operational headquarters until 2028, at which point leadership will pass to another host nation.

FPV drones take off

Based near Christchurch, the 2nd/1st Battalion, Royal New Zealand Infantry Regiment (2/1 RNZIR) conducted a three-week first-person-view (FPV) unmanned aerial system (UAS) course. The NZDF explained the course "provides already qualified drone operators additional training on emerging UAS platforms and the skills required to operate, maintain and integrate them into military operations. This starts with building the UAS they will use, including 3D printing parts and building fibre-optic control systems."

The FPV course drew upon training delivered by the Australian Army's Land Combat College, and it was also supported by Australian instructors. This integrated effort thus embodies the aims of Plan ANZAC.

Lieutenant Colonel Jerry Mateparae, 2/1 RNZIR's Commanding Officer, noted, "The course provides soldiers with a broad understanding of emerging UAS technologies and how they're employed in modern military operations. Building our own UAS and 3D-printing parts is pretty innovative, but also enables effective training in a very cheap and realistic way." Soldiers developed mission plans, conducted briefings, employed UAS in tactical scenarios, identified faults and made field repairs. Such skills improve



NZ Army soldiers recently completed a three-week FPV drone course. (NZDF)

resilience in challenging operating environments, Mateparae said.

The FPVs have both daylight and thermal-imaging systems for day and night operations. They can thus perform surveillance missions or be armed to conduct kinetic strikes. Mateparae noted: "To be clear, we're not flying UAS with live explosives, but it's clearly a mature technology now that's being used in current conflicts, so we're future-proofing our needs by developing the skills to be able to do this."

Exercise Pitch Black

The RNZAF's fighter jet cupboard might be bare, but this did not stop the service from participating in Exercise Pitch Black 2026 in Australia's Northern Territory. NZ contributed just over 50 personnel from the three armed services. They represented ten ground support trades, including security forces, aviation refuellers, air load teams, catering, ground support equipment maintainers, intelligence, medics, physical training instructors, logistics and photographers.

Squadron Leader Dan Hynds, the Kiwi detachment commander, said, "Our enabler trades are a critical part of getting those aircraft in the air to conduct their tasks, whilst keeping personnel equipped, fed and safe." Pitch Black was thus a good training opportunity to demonstrate interoperability with partner nations.



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