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LABOR NEEDS TO CHANGE MINISTERIAL ARRANGEMENTS – FAST.

KYM BERGMANN // CANBERRA

There are at least two thoroughly bad ideas in the structure of the new Federal Labor Ministry. The first is that Richard Marles is both Deputy Prime Minister and Defence Minister - a potential disaster since it will be extremely difficult to do both jobs well given the workload involved. The second is to move the Defence Industry portfolio from Cabinet back to the outer ministry. This apparently is based on the thinking: “because the Liberals elevated the importance of defence industry to Cabinet, we won’t.”

The combined effect will be to weaken political control of Defence just at a time when it needs it most. Both seem to be a product of hubris: we are in government, we won – and now we will behave exactly as we want without thinking about the consequences. Another manifestation of this mentality is the outrageous decision to cut staffing entitlements to the Independents – without consolidation.

So much for Anthony Albanese’s words about wanting to make Parliament a better place. Instead, he has given in to basic political instincts to weaken anyone who is not Labor, hoping that will hurt them at the next election. This sort of tit-for-tat vengeance has long been a regrettable and childish part of how Parliament has functioned behind the scenes – you treated us badly when we were in Opposition, but now it’s our turn to do even worse to you. Why not be generous and rational, increasing staff for everyone? It’s not going to have an impact on our $1 trillion of debt but it will improve the quality of government.

While understandably relieved to be in government and able to enact a modestly progressive program, this was no triumph for Labor. The party barely achieved a primary vote of 31%, which is 600,000 less than in 2019. It took until nine days after the election before they were confident of achieving majority government, which is hardly a ringing endorsement. Mr Albanese was carried to office not on a massive swing but instead by the preferential voting system and the deep unpopularity of Scott Morrison.

Returning to Defence, the last time that Ministry was run by the Deputy Prime Minister was when Lance Barnard was given the portfolio by the incoming Whitlam Labor government in 1972. Back then, the world was a different place and even though the Defence department existed, the services had separate Ministers for Army, Navy and Air Force – and that was where the real power was held.

That was then, this is now. We have already seen Richard Marles spend considerable time on the international stage in his first few weeks, perhaps most significantly meeting the Defence Minister of China in Singapore and senior officials in India and Japan. All of these things are necessary – especially since Australia cut itself off from the outside world during Covid - and there is a backlog of meetings that need to be attended, but they take large amounts of time and can be distractions.

Back home, the Ministerial in-tray must be absolutely overflowing. To add to the problem, at the time of writing he has not filled all of his senior advisor roles, so one imagines that every day the Departmental courier is delivering more and more paperwork with very little going back.

There are a large number of matters that need attention – the most critical being to direct the Department to immediately start work on delivering an interim conventional submarine capability. The Department and the Navy do not want to do it and are ignoring the problem of a huge capability gap before nuclear submarines arrive hoping that it will go away. It won’t. The tactics are transparent – institute a bureaucratic go-slow and start spreading rumours about an early delivery of nuclear-powered submarines to muddy the waters.

This is designed to so drag out consideration of a conventional gap filler so that when it is finally brought to government, the earliest delivery of capability will be in the late 2030s – and then, what will be the point? Work needs to start now – as in this week – and not wait until March next year to see what the nuclear submarine task force has come up with. On its current trajectory, the Department and the RAN have no intention of even picking up the phone to Saab Kockums to discuss the timetable for a new generation Collins.

A random sampling of other issues that the Minister needs to urgently address include the future of Army’s Battle Management System. As has been extensively reported, the Elbit system was partially withdrawn more than a year ago – and since then everyone has been waiting for a way forward. This is a critical issue and needs to be addressed.

Another is the cancellation of AIR 7003 – the acquisition of Predator B armed drones. Rather than being scrapped it should have been fast tracked, instead with Air Force waffling about being able to deliver similar capabilities through other methods. The question back needs to be – what other armed platforms can provide 24-hour, continuous loitering coverage of a particular area in a cost-effective manner?

Australian history has several good examples of Ministers taking charge and just directing Defence to get things done and stop haggling. The most famous is Brendan Nelson and the 2007 decision to buy 24 Super Hornets. This was increased by another 12 and then a further dozen Growlers were added. Another equally momentous decision was Kim Beazley’s in the late 80s to shift half of the RAN fleet to WA – fought tooth and nail the entire top brass.

Now that they have finished their victory lap, it’s time for the government to start governing.
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GENERAL NEWS

MERGER CREATES NEW PLAYER IN AUSTRALIAN AI AND SENSOR MARKET

23 June 2022

A new player has emerged in the Australian AI and sensor technologies space, with the merger of two of Australia’s leading advanced technology providers, servicing defence, agriculture and mining. South Australian companies Consilium Technology and elmTEK have joined forces to form a new group, bringing together more than 20 years’ combined experience and innovation in software engineering, systems integration, digital sensors, simulation and AI.

The merger is being backed by leading Australian growth investor Pemba Capital Partners, supporting the new group’s ambitious growth targets in a market where 9 out of 10 Australian organisations are looking to implement AI solutions, and defence spending is expected to increase by more than 20 percent over the next five years. The founders said the synergies between elmTEK and Consilium make a natural alliance that will enable the new group to increase its scale and capabilities in the delivery of large defence and space programs, and other sectors such as agriculture, mining, logistics, energy and infrastructure.

“Over the past 10 years, we’ve proven ourselves and built a truly fantastic business focused on solving mission critical problems at pace for defence and other customers. The two companies have experienced significant growth in the past decade, and this merger with the support of Pemba demonstrates a real maturation of Australia’s digital defence sector,” said elmTEK co-founder and Managing Director Ganen Ganeswaran. “Our wish has always been to grow a sustainable and resilient business in South Australia, and this merger will allow us to continue on that trajectory.”

CEO of Consilium Technology, Seth Thuraisingham said the new group’s capabilities in sensors, simulation and AI are critical to solving defence challenges, improving productivity in agriculture and lowering costs and improving margins in medium to large enterprises. “With growing global uncertainty in national security, food production and other social elements such as rising inflation and Covid-19 impacts, the strengthened capabilities through this merger will provide industries with tools to improve predictability. Technology like AI and sensors are akin to prediction machines that can deliver competitive advantage against emerging threats in the defence environment, improved yields in agriculture and automated knowledge work in enterprise. We’re excited about the competitive advantage that the combined capabilities of elmTEK and Consilium can provide for Australian industry, and the opportunity to grow the export of our Australian-owned intellectual property and products to international markets,” said Thuraisingham.

ElmTEK co-founder and head of strategy Bjorn Wharff said after a decade of nurturing and growing a successful sovereign defence technology business, the new partnership was an exciting prospect for elmTEK and will significantly contribute to Australian technology IP. “We will be leveraging our extensive experience to be able to support the future submarine and adjacent maritime programs and combining this with deep AI expertise to offer specialised capabilities at scale to the new AUKUS and future submarine enterprise (and allied nations). This will be one of the most important strategic capabilities Australia will invest in over
the next 20 years, and we’re thrilled to be perfectly positioned in this regard” said Wharff.

The new group, which will announce its new name and brand soon, will remain headquartered in South Australia, bolstering the State’s growing defence industry and capability. It will be chaired by Alexis de Pelleport, formerly CEO of Safran Electronics & Defense Australia, former French fighter pilot, author – and someone with formidable domestic and international connections.

“Over 160 people, including scientists, mathematicians, and engineers, will be employed by the new entity, with further investment in developing a highly-skilled Australian workforce expected in the coming months and years. This will create a significant boost to Australia’s STEM related innovations,” said Ganeswaran.

Professor Tanya Monro, Chief Defence Scientist, said defence has an ongoing and successful working relationship with both Consilium and elmTEK. “Innovation – to grow and sharpen Defence capability – must deliver advantages for Australia quickly, tangibly and enduringly. It is good to see Australian Defence Industry supporting and accelerating the development of disruptive technologies beyond the research and initial demonstration stages. Previous Defence Science and Technology Group partnerships with both elmTEK and Consilium are great examples of Defence working alongside Australian Defence Industry to transfer ideas through to commercialisation,” said Monro.

**CYBER TECH FIRM PENTEN JOINS TEAM MAIER**

19 June 2022

Airbus Defence and Space announced that Penten, one of Australia’s leading cyber security companies, has joined Team Maier to provide ground segment sovereign encryption for the JP9102 milsatcom program.

Working in tandem with other Team Maier partners, Penten will design and build the transmission security module to ensure that Australia’s milsatcom capability cannot be jammed or intercepted. The solution will leverage Penten’s AltoCrypt Stik technology, which enables the safe exchange of sensitive information using modern devices and is Approved for Use by the Australian Signals Directorate.

Penten will apply its encryption technology to Airbus Defence and Space’s proprietary Proteus software defined radio (SDR) modem to deliver a battle-proven, high bandwidth, and resilient anti-jamming solution capable of mitigating interference from even the most sophisticated foreign entities. With Team Maier going further than any other bid in its commitment to Australian Industry Capability (AIC), Penten will be offered the opportunity to evolve the Proteus modem into a domestic solution suitable to addressing Australia’s future needs.

Matthew Wilson, CEO, Penten, said: “We are excited to partner with Airbus in Team Maier and offer an entirely Australian-developed cyber technology solution to protect Australia’s military communications. Joining Team Maier also offers a potential export gateway for Penten’s technology to be used across Airbus’ satellite solutions globally.”

Martin Rowse, Director, Space – Australia, Airbus Defence and Space, said: “Encryption is a key cornerstone of milsatcom and, as Australia’s leading sovereign encryption solutions provider, Penten will be critical to the future success of Australia’s capability. Combined with Airbus Defence and
Space’s Proteus SDR modem, Penten will enable Team Maier to offer a proven, ready-to-launch solution with world leading resilience and anti-jam capability.

“Given that Proteus’ predecessor, the Paradigm modem, was developed here in Australia, it’s fitting that this technology should return home to enable Penten to lead a new wave of Australian technology development for the future of Australian military capability.”

Team Maier’s solution will provide the Australian Government with sovereign control, enabling milsatcom to provide communications and imagery in support of civil authorities’ disaster response efforts, without the need for third country permission.

Penten is based in Canberra, Australia, and will join other Team Maier members SSTL, Willyama Services, Microsoft, Clearbox Systems, as well as other ground segment members Blacktree Technology, and UGL. Team Maier is the Airbus-led unique teaming arrangement that brings together Australian technology and engineering SMEs and academic partners to design and build a sovereign, secure milsatcom solution, built in Australia, for Australia.

AUSTRALIAN ARMY RECEIVES TWO MORE BOEING CH-47F CHINOOKS

24 June 2022

The Australian Army has received the final two of four new CH-47F Chinook helicopters, taking the fleet to 14 and further strengthening the Australian Defence Force’s rotary wing capability.

The two advanced multi-mission helicopters arrived at the Australian Army’s 5th Aviation Regiment, 16th Aviation Brigade at RAAF Base Townsville on Thursday 23 June via a U.S. Air Force C-5 Galaxy. The previous two aircraft arrived in Australia on 23 June 2021.

The delivery comes six weeks after the Commonwealth of Australia’s decision to proceed with the acquisition of 29 Boeing AH-64E Apache helicopters, which will provide Australia with a low-risk, fully-integrated and battle-proven attack helicopter capability.

“The Chinook remains the premier heavy-lift helicopter in the world and we are excited to see more aircraft reach all edges of the globe,” said Ken Eland, vice president and program manager of Cargo Helicopters. “We’re honored to continue supporting Australia’s heavy-lift aircraft needs now and in the future.”

Boeing will continue partnering with the Australian Army and Australian industry on the CH-47F Integrated Support Services contract, delivering local engineering, maintenance, training and supply chain support to keep the Chinooks mission ready.

“For more than 40 years, the Chinook has been the backbone of the Australian Defence Force’s rotary wing heavy-lift capability, providing vital assistance for humanitarian, disaster relief, and military missions, both locally and overseas,” said Scott Carpendale, managing director and vice president, Boeing Defence Australia.

“Our Boeing Defence Australia team in Townsville, Oakey and Brisbane continues to grow and is proud to be delivering a highly capable sovereign platform sustainment capability that maintains the Chinooks’ operational readiness.

“The success of the contract, and of the Chinooks’ performance, is a testament to our strong partnership with the Australian Army and the Department of Defence and we thank them for their confidence in Boeing to continue supporting this mission critical fleet and the women and men who operate them.”
When it comes to humanitarian missions, the rapid reconfiguration, speed and flexibility of the C-390 Millennium has proven indispensable for the Brazilian Air Force. During the height of the COVID pandemic, they employed the C-390 to deliver vital medical supplies, including ambulances and liquid oxygen, to remote communities in the Amazon Basin. After the 2021 Haiti earthquake, a C-390 was used by the Brazilian Air Force to deliver 10.5 tonnes of medicines, food and health equipment to help victims and support the emergency relief operation. And when a devastating explosion occurred in the port area of Beirut, Lebanon, the Brazilian Air Force got vital medicines and food supplies "on the ground" in just under 16hrs. Proven in the field and in the toughest of environments, the C-390 has now been chosen by the Portuguese and Hungarian air forces to lead their humanitarian missions.

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NAVANTIA INCREASES PRODUCTION RATE IN THE F-110 PROGRAM AFTER THE SUCCESS OF ITS LAST DESIGN REVIEW

23 June 2022

Navantia, the Spanish Navy and the Ministry of Defence have successfully concluded this Thursday the Critical Design Review (CDR) of the F-110 frigate program, with the culmination of the design of the ship from the point of view of its engineering.

This milestone, key in the development of a system as complex as the F-110 intelligent frigate, is a fundamental element within the program, as it ensures that the design developed by Navantia meets the capabilities requested by the Ministry of Defence and therefore allows to advance with intensity in the construction phase.

The construction of the first pilot blocks of the F-111, the first of the series, began last April in an act headed by the President of the Government, Pedro Sánchez. These first constructions, as well as the progress in the purchases of equipment and materials, have allowed the CDR to arrive with the shipyard fully prepared to increase production work with total guarantee and with properly trained personnel.

From this moment on, the production and employment generation of the program will be intensified, which will mean up to 9,000 jobs (direct, indirect and induced) over a decade. Deliveries, which will occur in a staggered manner, will end in 2032.

In accordance with the progressive increase in production, in the last quarter of 2022 the program will employ more than 600 workers in production and another 600 in areas such as Engineering, Planning or Purchasing.

The development of the design, which is considered consolidated after this review, has included an important contribution from suppliers and collaborating industry, which has had to adapt its proposals to the new developments and capabilities that the frigate will incorporate.

In fact, this CDR has included new elements not contemplated in previous projects, given the digital and intelligent profile of the new frigate, analysing the functionality of the future Digital Twin.

Thus, this milestone is an important boost to Navantia’s international strategy because with the design consolidated and validated by the Ministry of Defence and the Spanish Navy, potential international customers will show interest in this advanced and intelligent frigate.

The CDR process began last December and culminated this June with around 30 technical sessions and two plenary sessions at the Navantia shipyard in Ferrol, on 21 and 22 June. Never in a frigate construction has the degree of maturity in design that has been achieved in this program been reached.

The plenary sessions were attended by representatives of the Ministry of Defence, the Navy and Navantia, as well as the U.S. Navy and top-level suppliers such as Lockheed Martin, Indra, Thales, Ingiteam and Ferri. On Thursday, June 23, the CDR closed with the executive session, in which officials from the General Directorate of Armament and Material (DGAM), the Headquarters of Logistics Support of the Navy (JAL) and the General Staff of the Navy (EMA) participated.

HUNTER UPLIFTING SUPPLY CHAIN

28 June 2022

BAE Systems Australia has contracted Adelaide-based businesses Novafast International and Century Engineering to manufacture parts to support the Hunter Class Frigate Program’s prototyping phase, which continues to make strong progress and build Australian industry capability.

During prototyping, BAE Systems’ workforce at the Osborne Naval Shipyard in South Australia is building representative ship blocks in order to test and refine the processes, systems, tools, facilities and workforce competencies prior to constructing the first of nine submarine-hunting warships.

Composite product and material manufacturer, Novafast International, has been awarded a contract to manufacture 331 composite pipe spools that will be used for water systems and drains, each one ranging from 9m to nearly 12m long.

Novafast has also been certified by Lloyd’s Register to manufacture composite pipe spool – the only company in Australia to be fully accredited to manufacture this product.

Century Engineering has been contracted to manufacture more than 340 steel handrails for the prototype blocks and more than 2000 steel parts of varying sizes that will be used to support block outfitting.

BAE Systems Australia has contracted 45 Australian companies to support Hunter’s prototyping phase, and will progressively engage more local businesses as the program approaches cut steel on the first frigate.

BAE Systems Australia Managing Director – Maritime, Craig Lockhart, said:

“Block manufacture is a critical part of the prototyping phase that provides our employees the chance to test the full productive capacity of the yard, as well as the build process.

“It's important our supply chain is invested in our success and to that end I'm pleased Novafast International and Century Engineering are working with us – both companies have a strong track record in delivering for defence.

“By engaging local businesses we are not only creating local jobs, but building an enduring sovereign capability that supports Australia’s continuous naval shipbuilding strategy for future generations.”

Novafast International Business Manager, David Figallo, said:

“We are pleased to partner with BAE Systems Australia to deliver world-class defence manufacturing capabilities in South Australia.

“Our world-leading robotic technique manufactures advanced and automated composite piping and fittings.
to support the representative ship blocks that are being constructed as part of the Hunter program's prototyping phase.

“We have already created 15 highly-skilled roles and are projected to create more than 25 roles by late 2023 as the first batch of ships go into production.”

Century Engineering Managing Director, David Heaslip, said:

“Our participation in the Hunter Class Frigate Program prototyping phase has provided the chance for many people in Adelaide to join this exciting program through Century Engineering.

“With BAE Systems Australia, we continue to develop Australian industry supply initiatives leading to a more capable supply ecosystem and giving many individuals the opportunity to develop their skills and provide them with long-term careers.”

KEEPING THE WEDGETAIL OPERATIONALLY EFFECTIVE IN A 5TH GEN BATTLESPACE

28 June 2022

DEWC Services, a South Australian based company of Information Warfare (IW) specialists passionate about solving complex Electronic Warfare (EW) related problems for the Australian Defence Force, is laser focused on the future.

What started as an EW consulting company 10 years ago, DEWC Services grew from strength to strength by providing the Australian Defence Force, Department of Defence, and their allies, with “above the line” consultancy services including operational support, acquisition and research consultancy services.

Delivering specialist capabilities for the F-35 Joint Strike Fighter, Joint EW sub-program, Army Counter IED, Airborne Countermeasures Development and Validation, and the Naval MH-60R helicopter, DEWC Services has built a reputation of trust, expertise and professionalism.

While these projects gained noteworthy acclaim, DEWC Services CEO Allan Dundas maintains a clear focus on the growing the depth and breadth of critical expertise to ensure DEWC Services continues to provide the ADF with contemporary and timely electronic warfare, intelligence, surveillance and reconnaissance capability support.

“DEWC Services is the leader in the provision of electronic warfare services to the Department of Defence. That’s our vision, it’s that simple,’ Allan said.

“We’ve doubled year on year for the past few years and there’s really no limit to where we can go…aiming to guard against future geopolitical uncertainty and solve the growing set of complex challenges Defence is throwing our way.”

One of those challenges is reflected in DEWC Services’ support to the Wedgetail Project AIR5077 Phase 6 mid-life upgrade, providing enhancements to mission systems and sensors.

‘DEWC Services is providing expertise with a team of ADF veterans, engineers and systems experts in the signals intelligence, survivability and mission data capabilities to deliver this upgrade.’

“We’re taking advantage of advancements in technology … working on aspects such as system requirements and design, system evaluation, concept of operations development, testing and acceptance support of the new capabilities.”

Since its introduction into service, the Wedgetail has distinguished itself as a high performing capability on operations and exercises, flying over 350 missions and 4400 hours in support of Australia and coalition partners.

The AIR5077 Phase 6 upgrade is designed to keep the Wedgetail Airborne Early Warning & Control (AEW&C) capability operationally effective through to the conclusion of its service.

“This project ensures the Wedgetail can operate effectively and efficiently within the 5th generation battlespace while maintaining continued interoperability with Australian allies.”

“DEWC Services’ goal is to ensure timely delivery of a significantly enhanced AEW&C capability to the ADF, allowing it to operate effectively in the emerging threat environment.’

Established over a decade ago, Allan credits DEWC Services continued success to an unwavering passion for EW and values driven leadership with a team of high performing people including many ADF veterans striving to deliver effective Defence outcomes in the nation’s best interests.

“We’ve got a very strong culture and great team of people with a shared sense of purpose, who want to contribute to Australia’s success in the electromagnetic battle space and ensure our Defence Force members come home safely to their families.”

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DEFENCE AND RAN IGNORING INTERIM SUBMARINE CAPABILITY

It is becoming increasingly clear that the Department of Defence and the RAN have absolutely no intention of working on an interim submarine acquisition to address a looming critical capability gap before nuclear vessels eventually arrive. The evidence for this is in the negative: despite new Defence Minister and Deputy Prime Minister Richard Marles saying for months that this issue is his top priority, no one has reached out to Saab Kockums or the Royal Swedish Navy or anyone else about starting work – actually a case of resuming work that stopped in 2014 – on a Next Generation Collins class.

Someone – hopefully Richard Marles – needs to explain to the Navy that it is the government that sets strategic direction, and it is the Department and the services that need to follow that, not the other way round. Understanding this institutional torpor is way beyond the scope of this article but it looks like the RAN simply does not have the willpower to manage a major undertaking in the form of an Australian-built diesel electric submarine because it will all be just too difficult.

True, there is a level of excitement about nuclear powered submarines with the task force growing in numbers daily, but that’s because this is a new shiny idea and the timescale is so vast that it provides officials with the excuse of doing as little as possible in a practical sense until someone – probably the US – delivers a solution to us. It seems to fit a pattern going back to at least 2009 of having people looking busy doing things without ever achieving a tangible result.

All of this was put in sharp relief by a media visit to Sweden that had submarine capabilities as an important part of the program. If any cynical readers think it was a sales pitch for Swedish technology – it was not. The occasion was the 500th birthday of the Royal Swedish Navy (RSwN), which occurred on June 7, 1522. The first 10 ships of the fleet were built in Germany and delivered to King Gustav Vasa on that date to fight the Danes, marking the official start of Swedish naval power, which went on to dominate the Baltic Sea for the next two centuries.

Sweden is in the process of a major defence build-up, of which submarines will form a vital part. The Chief of Navy, RADM Ewa Skoog Haslum explained that Swedish defence spending had been in gradual decline until 2015, but the year before Russia occupied Crimea. Increases in expenditure have been picking up pace ever since with a 40% boost expected to take place during the period 2020 – 2025 until it reaches 2% of GDP.

Swedish membership of NATO looks certain now that Turkey has withdrawn its opposition. RADM Haslum indicated that when Sweden is part of the organisation it is likely that it will take the lead for submarine operations in the Baltic Sea. This is because it is in the county’s maritime backyard, and she indicated that the RSwN had good domain awareness of what is taking place under the waves. She described the role of the submarine force:

“Information gathering and situational awareness – these are our key attributes. We are operating fixed and mobile sensors constantly – 24 hours per day. Also, the Navy has a very high level of readiness, so when something is happening in our area we are able to respond quickly.”

She is confident that the next Swedish Parliamentary Defence Act, due in the next few months, will authorise funding for a third A26 submarine. Asked by APDR how many submarines she would like if money was no object, she replied in a light-hearted way that 12 would be a suitable number – though that is a long-term proposition.

Later in the tour we were briefed by the Commander of the First Submarine Flotilla, Captain Fredrick

This follows on from a long history of RAN submarine inactivity. After the 2009 Defence White Paper said Australia would acquire 12 new, highly capable, conventional submarines one would have assumed that the RAN would have been abuzz with activity. After that, the contract with Naval Group of France showed major warning signs of delays and cost overruns – and in this case it was once again the government of Scott Morrison that had to address the problem by imposing the solution of a nuclear-powered fleet on the RAN. This was done without any detailed consultation with Navy, or CASG – which was kept totally in the dark - and was another top-down decision.
Linden, who was kind enough to spare quite a lot of his time even though the day was his wedding anniversary, and he was meant to be at home. He described the technology that would go in the A26 class as a generational leap. To prepare for that transition, the three current Gotland class – the baby brother of Collins – are being upgraded, with the first two out of three completed. About 30 major A26 technologies – such as optronic masts – are also being fitted to the Gotlands to increase commonality.

Swedish submarines operate at a high tempo. Each one has two full crews and a changeover – including refuelling and rearming – takes just 6 hours. He pointed out that the Baltic is not only shallow but also at any one time there are more than 3,000 ship movements taking place. He described the environments as C4, standing for Cluttered, Congested, Confused and Contested.

He mentioned several innovative features of the A26, including a 120cm tube in the bow that could be used to deploy and recover large Uncrewed Underwater Vessels (UUV) and Remotely Operated Vehicles (ROV) that would contribute to a massive increase in capability. He said that early trials indicated that younger sailors very quickly adapted to ROVs and within hours were able to expertly operate them using X-Box type controllers.

Both he and RADM Haslum predicted that submarine operations will change radically in the future with crewed platforms operating as mother ships for a variety of autonomous systems using artificial intelligence to enhance their performance. Captain Linden also echoed the sentiments of his boss, saying that it was feasible for Sweden to build up submarine numbers to seven in the early 2030s, ten later in the decade and ultimately a dozen. In turn, these could be operating thousands of UUVs and ROVs.

Concluding with the situation in Australia, Richard Marles says that he expects to outline the way forward for the RAN’s submarine fleet in March 2023. How this will be possible when the Department refuses point blank to address the issue of an interim submarine acquisition is anyone’s guess.

(Kym Bergmann travelled to Sweden as a guest of Saab-Kockums on the occasion of the 500th anniversary of the RSwN. He would particularly like to thank Conal Walker and Charlotte Nilsson for their professionalism and hard work)
**ANDURIL GEARING UP FOR LARGE SCALE PRODUCTION OF AUTONOMOUS UNDERWATER VEHICLES IN AUSTRALIA**

While the crewed submarine part of the RAN capability equation has stumbled from disaster to disaster, culminating in the cancellation of the Attack program, developments concerning uninhabited systems is far more encouraging. Many analysts believe that in the near future these emerging technologies will dominate all aspects of underwater warfare.

Nuclear powered aircraft carriers are the most expensive and complex military platforms in existence – but not far behind are nuclear ballistic missile firing submarines. After these come a variety of attack submarines. All of them are at least two orders of magnitude more expensive than combat aircraft. If some, or all, submarines could be replaced by intelligent, autonomous underwater uncrewed systems (UUVs) it would revolutionise warfare and also deliver massive cost savings. As with aerial platforms, once humans are removed then the cost of the platform plummets – and it can be considered expendable.

There is a particular imperative for Australia to be interested in this technology because of the looming submarine capability gap of only having six Collins class in service, which will drop to five once their Life Of Type Extension Program begins. Starting from 2026 each submarine will be withdrawn for at least two years. Nuclear submarines will not be available until the 2040s – so the big question is: what to do until then? A new class of conventional submarines is a solution, but so is the embrace of asymmetric, disruptive technologies in the form of large numbers of UUVs – or both.

One of the noteworthy features of the Indo-Pacific International Maritime Exposition in Sydney in mid-May was the number of companies investing heavily in underwater autonomous systems incorporating AI for enhanced functionality. Just days before the event, out of nowhere, the US technology start-up Anduril announced it was in negotiations for a $140 million deal with the RAN to co-fund the design and local manufacture of extra-large autonomous undersea vehicles (XL-AUV).

The company described their project:

*The XL-AUV will be an affordable, autonomous, long endurance, multi-mission capable AUV. It is modular, customisable and can be optimised with a variety of payloads for a wide range of military missions such as advanced intelligence, surveillance, reconnaissance and targeting. Anduril’s approach to development of the XL-AUV will deliver the vehicle at a fraction of the cost of existing undersea capabilities in radically lower timeframes.*

*The three-year XL-AUV development program has an incredibly ambitious delivery schedule which will involve capability assessment and prototyping in record time using Anduril’s agile capability development systems. There will be three prototypes delivered to the Royal Australian Navy over the three-year life of the program.*

*The company’s Australian CEO, David Goodrich, explained that the founders of Anduril – which was created only five years ago – came mainly out of the consumer electronics industry. One of the key personalities is Palmer Luckey, something of a youthful tech genius who developed the Oculus.*
World leading naval robotics and autonomous defence systems
Anduril’s view is that if you were to create a Defence technology company today that is focused on winning the war of tomorrow, you wouldn’t build it to look like a traditional operation – you would build it to look more like Amazon, or Google or SpaceX.

up with solutions – and then co-invest in product development. This seems to be the opposite of the traditional approach that favours the evolution of known hardware solutions already in a product catalogue for any given requirement. Mr Goodrich continued:

“Anduril’s view is that if you were to create a Defence technology company today that is focused on winning the war of tomorrow, you wouldn’t build it to look like a traditional operation – you would build it to look more like Amazon, or Google or SpaceX. It would be a software-first approach, rather than coming up with a beautiful and expensive piece of hardware and trying to figure out how to make it more effective by adding software to it.

“The analogy that I use is that Anduril’s approach is like an iPhone – the software is being constantly updated and it is becoming more functional daily, even though the hardware isn’t changing.”

Australia is an attractive place to invest because we are a close ally of the US – and also because Anduril believes that product development can take place here without some of the bureaucracy that typically accompany large projects when the Pentagon is involved. As evidence of this, David Goodrich says the company has been able to negotiate an agreement with the RAN and the Defence Technology Group to develop the XL-UAS in just 152 days from first phone call to contract signature. This is probably a Defence record for negotiating anything – let alone an activity of this size.

Anduril emphasise that they are investing $70 million of their investor’s money to develop a globally significant capability that they say is desperately needed in the Indo-Pacific. Many details of the capabilities of the XL-UAS are classified – and because Australia cannot outproduce nations such as China, we need to develop smarter systems in large numbers.

The business model of the company is to move swiftly, and it is doing just that. It will have facilities at Garden Island, White Bay and Barangaroo – all in Sydney – up and running in the very near future and anticipates that the demand will be so great that production will take place on sites all around Australia. The company has already started to engage with local industry with a business model to make maximum use of local talent.

Mr Goodrich continued:

“To deploy things at significant scale, you have to remove the most expensive thing – which is the human being that sits inside it. By having an autonomous, uncrewed system we can deliver it at less cost than other UUVs – and hundreds of times less than the cost of a crewed submarine. The concept is to use these to supplement crewed platforms and enhance their capabilities.”

Asked for their perspective, Defence replied:

“Government announced the intent for Defence and Anduril Australia to co-fund a program to design, develop, and manufacture Extra Large Autonomous Undersea Vehicles (XLAUV) in Australia for capability assessment and prototyping on 6 May 2022. Defence subsequently announced it had entered into the co-funded arrangement with Anduril Australia on 1 June 22.

“Defence has engaged with Anduril Australia through a research collaboration agreement, not a procurement contract. This is a co-funded and co-development activity between Defence and Anduril Australia.

“The ambitious XLAUV development program will establish the foundations of an Australian sovereign XLAUV capability while strengthening Defence’s understanding of the technology associated with operating these platforms. Defence’s innovative approach has the potential to deliver capability to Australia far more quickly than would be possible through traditional capability development processes; an important factor in the current geo-strategic environment.

“Through the co-funded arrangement, the Royal Australian Navy, Defence Science and Technology Group and Anduril will produce three prototype XLAUVs over the next three years resulting in a manufacture-ready XLAUV.”

It is believed that the first test vehicle – an Anduril commercial system - will be delivered early next year. Defence also plans to undertake a major process of Australian industry engagement to maximise the opportunities for local companies – and the commercial benefits if the project delivers will be vast. Manufacturing “at scale” means dozens or even hundreds of XLAUVs.

As exciting as this sounds, it should be remembered that the USN is already deploying large UUVs in the form of the ‘Orca’ produced by Boeing. This is a 26m, 8 tonne uncrewed diesel electric submarine capable of highly autonomous operations and great endurance. It is able to operate for several months, travelling slowly and very stealthily for more than 10,500km. It has a 10m payload bay and the USN describes its possible missions very broadly, including combat and surveillance. Five have been ordered.

On the local front, a small Australian company called C2 Robotics is developing an 8 metre uncrewed autonomous underwater vehicle called the ‘Speartooth’ that sounds similar to the one described by Anduril with a prototype currently being trialled by the RAN. It also boasts a modular design, large payload bay and electric drive.

How the RAN makes decisions about funding priorities for uncrewed systems is opaque. By any measure, $140 million for an R&D activity is a huge commitment. Coincidentally, in the air domain the RAAF-Boeing Loyal Wingman / Ghost Bat project also started with a co-investment of $70 million from each party – and that project seems to be going well.

With all of the investment taking place in UUVs one wonders for how much longer crewed submarines will continue to play a role, especially for dangerous combat operations. Rather than put a submarine with a large crew and costing billions of dollars into a contested area to gather intelligence, the job could be done safer and far cheaper by a swarm of uncrewed systems.
LCA offers a highly compliant, future ready Littoral Manoeuvre Vessel - Medium (LMV-M) designed specifically for the Australian Army to provide it with the versatile capability it requires, backed by the combined strengths of two highly capable Australian companies.

Navantia Australia and UGL’s combined strengths bring both design and shipbuilding control under one collaborative team as Landing Craft Australia (LCA). Our low risk solution is optimised at all elements of its design and construction, generating new sovereign industrial capacity for Australia.
Australian defence industry plays a vital role in national security for the obvious reason that without it all solutions would have to be imported – and maintaining them would be a nightmare. If this message needed to be re-enforced, the Covid pandemic has done that with massive disruptions to supply chains taking place. This has been followed by sanctions on Russia, which does not supply Australia with military hardware but some raw materials can find their way into a variety of products.

For anyone interested in the details of the methodology, the questions and requested detail were:
1. Professional / personal background – a quick summary;
2. How do you see the future of the company in the next two years – growth, static, or decline – and what are the factors forming your view;
3. Covid has been enormously disruptive – how has it affected your business? As the crisis appears to be easing, will the situation return to what we previously considered normal? What are the lessons for Defence and industry from the pandemic;
4. On the related subject of sovereign capability, do you have a view on how this can best be achieved and what priorities need to be pursued;
5. To develop everything in Australia would take time and money. Do you have a view on what a healthy balance would look like between local and imported solutions? Do you have a view on what mechanisms could be used to make sure taxpayers continue to receive value for money;
6. Does a focus on Australian sovereign capability make it more difficult for local companies to export their solutions;
7. A number of priorities have been identified for sovereign capability, including guided weapons, satellites and naval shipbuilding. Is there anything you feel should be added to the list;
8. Anything else that you would like to add.

There was unanimous agreement that the business outlook for the Defence sector is one of growth. This is not a surprise given record expenditure due to reach 2.11% of GDP this year and a deteriorating security situation. There were occasional criticisms of process and a lack of urgency, but these things are unfortunately part of a very large, clunky, procurement system that is not designed for swift decision making.

A substantial unknown is the effect that AUKUS will have on the procurement system. Within Defence there seems to be a growing feeling that it represents some sort of universal panacea for all acquisitions – though why that should be the case, or how it will work in practise, remain unclear. It is worth reminding ourselves that AUKUS could either unravel or be made moribund by political events, especially in the US, such as if there were to be a combination of both a Republican President and Congress with some sort of inward-looking America-first mentality.

What we can be far more certain of is that Australian Defence expenditure will either remain the same or increase with both the new Labor government and the outgoing Coalition committed to fully fund the portfolio. The only circumstances in which this might change would be for a total shift in the international outlook with China in particular changing strategic direction. There are no signs of that happening anytime soon.
Regarding the outlook for the business, growth is very much on the horizon and it’s something that will be reflected right across the sector. Within our business we are seeing organic growth as the Hunter program ramps up, the shipbuilding workforce is now around 1500 and growing strongly as we continue to expand. We’ve seen growth through the JORN upgrade and we are doing some exciting work with Boeing on the future of uncrewed and autonomous systems on the Ghost Bat program.

Beyond the organic growth in the business, we are working to take the skills and experience we have here in Australia and working to partner with our customers and make investments that will underpin the growth of our business into the future, not just here but in export market as well.

COVID has been a challenge right across the nation and it remains an issue globally, however the critical nature of the work we do in the Defence sector required us to continue to deliver for the ADF throughout the pandemic. It is with this in mind that I really need to praise CASG, our own team and our partners for having the resilience and adaptability required of us since 2020.

The key lessons for me from the pandemic would include:

• The critical nature of the work we do. We just didn’t stop at the peak of the pandemic and we have continued to focus on delivering for our customers.
• The importance of Australian industry capability. Being able to do things here in Australia and do them well is critical to our resilience in times of crisis.
• Adaptability and flexibility. COVID really challenged us to be more innovative and to look at the better use of technologies as an enabler. We support hybrid working where possible and have set policies to support the flexibility of our workforce.

Having spent a significant portion of my career working in Switzerland, I naturally think about the pragmatic approach taken to developing sovereign capability there and in places like Norway and Sweden. These nations have partnered with their local industry to deliver vital capabilities, while at the same time building competitive products that can be exported to broaden the business base and deliver economic benefits for their nation. This approach has built globally competitive companies driven by intellectual property and products such as Kongsberg in Norway, SAAB in Sweden and General Dynamics MOWAG in Switzerland.

There is a very interesting model of Government and industry partnership underway in the UK on the Future Combat Air System (FCAS) program. FCAS aims to deliver a 6th generation combat air capability to help underpin the security of the UK and partner nations. Arguably there isn’t a more technically demanding activity being undertaken in the European Defence sector, the foundation of this program though is Government and industry partnership with a sharing of risk and reward. The program started with industry being embedded with the Government to develop the combat air strategy, followed with industry and Government co-investing in the concept phase and the partnership is as strong today as when the program was envisaged.

Importantly, using more local companies and helping them develop new capabilities supports the case for great supply chain resilience. When it comes to looking for a new supplier, we look to Australian companies first. A good case in point is JORN. We have reached a point on this program where more than 98 percent of the products, parts and supplies are sourced from Australian companies.

What’s especially important is that when new products and technologies are developed here, then there is also the added benefit of potential exports, supporting our economic contribution to the nation. Delivering affordable capability is vital for a company like ours. If we don’t remain focussed on efficient delivery of some of the most technically demanding activates in the country, our efforts will be supplanted by offshore capabilities.

We have a robust contracting process here in Australia that provide a solid basis for the selection and delivery of Defence capability. However, we need to acknowledge the inherent complexity and risk of what we do when delivering cutting edge Defence capabilities.

A strong partnership between Defence and industry is vital for the efficient delivery of capability and therefore value for money. Great partnerships are built on trust, transparency and respect, hence the foundation of this collaboration with our customers is open communication, acknowledgement and sharing of risk, exploration of novel delivery approaches, quick decisions and the balance of external, non-contracted reviews, versus getting on with delivery for the ADF.

I would also mention that there are significant inherent benefits that are not always publicly visible, such as our current national workforce of around 5500 highly skilled people. According to Oxford Economics, every job in BAE Systems Australia generates 2.3 across the economy or around 12,560 people.

But the real lasting benefits to the nation will be seen through programs such as the Hunter Class Frigates. A program that will be a foundation for continuous naval shipbuilding in Australia and deliver Australian jobs for generations. Real value for money and I think you would agree.

When we look to the future of warfare, it is widely acknowledged that capability needs are changing. Conflict will occur in the cyber domain before escalation into the physical domains, machine speed warfare enabled by data and AI will become increasingly common place. The battlefield will be multi-domain and those that build cross domain capabilities will create advantage; autonomous and uncrewed systems will become more prevalent, hypersonic weapons will create asymmetry for those that possess them, and space will remain the ultimate high ground.

I suggest we add: autonomous systems, AI, cyber capabilities, long range high speed strike, long range surveillance and data enabled cross domain solutions as priority capabilities.
I was born and raised in Lithgow where both my Father and brother worked at the Small Arms Factory. They were both Electrical Engineers. There was pressure to follow suit, but I elected to pursue a career in mining, the other big employer in town. I completed my Engineering degree and Master of Applied Science whilst working in mine operations but realised that I enjoyed the business side as much as the operations. I completed an MBA and this opened a lot more doors and provided a lot more opportunities. As a result, I have had the pleasure and fun of working at a diverse range of businesses that have given me a breadth and diversity of experience both domestically and internationally.

I have only been with Bisalloy for a relatively short period so I am still learning, but what I do know is that we have very skilled people offering very high quality products. Bisalloy is the only manufacturer of quench and tempered steel plate in Australia. We compete with global manufacturers and we provide products of equal or better standards. Our products are used primarily in wear and structural applications, and our highest-grade materials utilised in defence applications. Bisalloy has been diligently working with Australian defence primes with an expected higher demand for armour plate over the next 4-5 years within Australia. Additionally, we see potential growth in the export market as defence spending increases through our global agency network.

Like most businesses in Australia, Bisalloy has suffered as a result of Covid. We maintained capabilities in manufacturing during the pandemic, though at times with reduced labour. We experienced problems with supply chains for both raw material inputs and for deliveries, primarily to export destinations. Customers and suppliers have had a shortage of labour (with employees having to quarantine either through close contact or from contracting the virus). From a logistics perspective we had seen many vessels taken into dry dock or berthed during the virus’ early days, so availability of shipping when demand switched back on has had an impact. We have seen our raw material suppliers having constraints in supply, so had to be quite careful in planning our raw material needs to ensure we maintain a successful and profitable business operation. The key to maintaining continuity was acting quickly and scenario planning. The team did a great job in managing a very fluid situation.

Australia has seen a significant loss of capability in the manufacturing industry as many organisations “off-shored” over the last 20-30 years. This has occurred in an extended period of minimal conflicts, so a period of minimal sovereign risk. That said, this degree of complacency is certainly now becoming much more obvious. Government and private business policy needs to consider trade and investment needs so that Australia remains skilled and innovative and where practical, self-sufficient. Business needs to be focused on exporting to supplement our relatively lower domestic demand compared to other international markets. Priorities should be focused on how Australian industry can use highly skilled workers doing high skilled work.

Importation of products, services and solutions needs to be practical and practicable, but we certainly need to insure we continue to invest in education. Although our country has some very talented individuals, my view is that our standard of education and skills development requires a lot more focus, attention and investment.

Bisalloy makes products of global standards, and as such, allows us to play on a global stage. Having these capabilities allows us to compete both domestically and globally. Our country has an incredibly healthy supply of iron ore, coal and alloys used for manufacturing armoured steel right here in Australia. We have the technology, capability and business partners which enable us to supply armoured steel to both the domestic and export markets. We should be doing more value adding and exporting of our protection systems, parts and vehicles.
For some background, I started my career as an Australian Army officer working in Intelligence and Electronic Warfare roles before joining Boeing in the early 2000's. Since then, I have worked across a number of Defence capabilities, but my main focus has been autonomous systems. As the Managing Director of Insitu Pacific, a wholly owned subsidiary of The Boeing Company based in Brisbane, I have spent the last decade leading a dedicated team undertaking uncrewed aircraft system (UAS) technology development and program execution work for Defence customers across the Asia Pacific and Middle East.

We’re laser focused on delivering the new Tactical UAS to the Australian Army under LAND129 Phase 3. The contract includes delivery and initial support of the Integrator UAS as well as associated Ground Systems and Prime Systems Integrator services, with the majority of manufacture and all assembly to be completed in Australia. We’re growing the team to support this contract alongside our Australian suppliers. More broadly, without doubt autonomous systems and Remotely Piloted Aircraft Systems (RPAS) are going through a period of significant growth globally – and that growth is only going to accelerate in an increasingly uncertain world.

The global threat environment is being closely studied by all Western militaries with a focus around the innovative and widespread use of RPAS on the modern battlefield. I believe this will drive a significant shift in thinking on the utility of RPAS and the speed with which they should be adopted. This is likely to drive an increased requirement for RPAS equipped with cutting-edge sensors and software as Defence forces look to increase autonomy and do more with less by leveraging artificial intelligence (AI) and deep learning.

COVID-19 has certainly been challenging but we have been fortunate in having a workforce that can at least partially work from home. This approach minimised exposure and risk for those who did need to be in the workplace for hands-on tasks, and made managing the situation possible. In the long-term, this has also driven a more flexible view of working from home which we are happy to support for our workforce and I think the lessons that both Defence and Industry have been forced to learn from this period will enable a better work-life balance moving forward.

The current focus on sovereign capability is the strongest it has been in years, and I think that is starting to pay significant dividends. By weighting Australian Industry Capability highly in tender responses, focusing on small and medium enterprises and supporting them through various grant schemes, and encouraging local technology development through mechanisms like the Innovation Hub, I think Defence is broadly heading in the right direction. There are always improvements that could be made of course, but Defence has shown a willingness to adapt and modify these efforts as lessons are learned so those improvements will come over time.

Undoubtedly, we will always be a nation that needs to import a significant element of our Defence capability and in fact doing so is a positive thing because it strengthens alliances. As I noted above, I think Defence has the right types of mechanisms broadly in place to develop sovereign capability – the key is consistency in their application to ensure local companies can invest over time in fielding increasingly advanced systems and products. Local companies are also willing to accept that some capabilities will not fall under this approach and need to be imported.

Regarding the issue of whether focussing on Australian sovereign capabilities hinders export opportunities, I don’t believe it does. Companies that have truly globally competitive capabilities will always find a path to export. A focus on sovereign capability development just means that more of those truly leading technologies and products are likely to emerge in Australia.

I would like to see a greater focus on advanced software, AI/deep learning and advanced sensing being developed in Australia.
I joined CAE in January 2019 after extensive experience in the military and aerospace fields and became the Managing Director, CAE Defence & Security for the Indo-Pacific region in 2020. Before CAE, I served as a General Manager across a number of Australia’s major defence industry primes following a thirteen year career in the Royal Australian Air Force as a military pilot. In my role as Managing Director across Indo-Pac, I am most excited by leading a fantastic diverse team. They have delivered across the last 25 years, built sovereign capability when none existed and provided training solutions that have kept our Forces, safe, efficient and mission ready. In any organisation that is growing as broadly and quickly as we intend to do over the next 12 months, it is going to be an exciting time to lead this team.

We foresee steady growth over the next two years as we delve into adaptive learning to align curriculum and pace to the student’s optimal uptake, tailoring the content, scenario, and skills development to elicit peak performance. The force structure review conducted by the Commonwealth last year highlighted that the 10-year warning window – where we have the ability to shape Australia’s strategic environment, deter actions against Australia’s interests and respond with credible military force when required – has closed. The challenge facing the ADF, and forces around the globe is optimising the training they have in place now to increase throughput – attracting people to a career, no matter how short, and ensuring that people who go through the various training pipelines graduate with the highest of competencies in the shortest space of time.

Our growth will be driven by our ability to achieve operational outcomes faster, smarter, and more efficiently, with data analytics and the introduction of biometrics, tailoring the curriculum to individuals, wherever they are, to get more capability through the door.

COVID was the ultimate business disruptor that taught us we had to be agile and adaptive further reinforced by the Ukraine war subsequently affecting supply chains. With international and domestic border closures, COVID challenged how we conduct business, moving us more quickly into the virtual workspace. It accelerated the need for trust, up and down the workforce, due to remote work, illness, and Occupational Health and Safety risks, etc. CAE rose to the challenge and put safety first, for customers, employees and suppliers. Our training centre protocols were world-class and adopted by some of our customers. Travel was replaced by innovative customer solutions such as the RNZAF NH90 simulator we delivered at the onset of COVID being successfully installed by people already in-country with CAE supporting virtually.

Training forms the foundation of many sovereign capabilities but rarely receives the prioritisation, resources and funding required. With limited resources to train as completely as needed we have to change our culture to one of collaboration, continuous improvement and innovation. Building sovereign capability in and training across all five domains – air, sea, land, space and cyber – whilst optimising ADF resources and strategically designing training via learning sciences and digital immersion will ensure the war fighters of today and tomorrow are as safe and ready as they can be. Collective training in an integrated capability can be done securely and cost-effectively in a virtual battlefield. We can build in excess capacity when designing training systems providing an opportunity to bring in regional and coalition partners like AUKUS and Quad for integrated exercises, strengthening relationships. Working with trusted defence industry partners to outsource areas of expertise frees up key defence personnel for critical tasks as CAE does, serving the ADF under the Aerospace Simulator Integrated Support and Training (ASIST) contract.

The Commonwealth’s focus on supporting Australian Industry Capability is key to building and retaining a knowledgeable workforce at home. Although sourcing everything locally is not possible, we can ensure that importing solutions transfers knowledge to upskill and employ Australians. Too many times we see a default to Foreign Military Sale acquisition strategies to save schedule or reduce technical risk. The procurement agency often forgets that it can still purchase elements of the solution via a Direct Commercial Sale. Training systems and solutions is a classic example that if separated from an FMS may result in a tailored, more optimised solution for the Australian end-user. Also, industry partnering with complementary Australian SME businesses to meet requirements of larger contracts keeps jobs, knowledge and growth in-country.

If you can sell to the ADF you can sell to any defence force. Local companies with great solutions and services will excel, as never has the environment been more supportive of innovation, research and development, and supporting defence exports. The defence market isn’t for everyone – it has high standards and requires significant investment to bid. For defence subject matter experts, my advice would be to offer your services to a large prime and learn your lessons with them. They will do it incredibly well, expose you to best-of-class processes and you’ll come out of it a better, more established organisation.

We believe skilling the workforce and increasing throughput with the highest level of competency to be a top priority for defence. Training efficiently to engage and retain military personnel, then retaining capability by employing ex-military in industry to benefit from knowledge and expertise gained whilst in service would provide continuity. Strategically designing training programs to maximise expertise, resources and budgets, and optimise coalition mission training exercises such as the recent Virtual Guardian exercise, would increase capability and mission readiness.

With defence and security budgets tightening it is absolutely essential that CAE and our customers clearly understand what is required for their training and mission support programs. Everything else follows. As a high-tech company at the forefront of digital immersion, CAE embraces these challenges and we’re excited to engage with our customers to explore innovative deliberate solutions to current and future training efforts.
My family escaped Putin’s grip and left Russia 25 years ago, just as he became the President. I was a 15-year-old then, with no English to speak of, and barely able to point to New Zealand on a map – which is where we headed.

After a maths degree at Canterbury University in NZ, I got a graduate job as a trader for an Auckland-based hedge fund, writing trading programs and eventually running the night desk.

Following another 10 years at various large global banks and fund managers (ABN Amro, Deutsche Bank, Brookfield), I came across DroneShield when it was a tiny, two-founder business. We listed the company on the ASX in mid-2016 and started scaling the business. Today, it’s a 60-person company with active business in about 100 countries.

Concerning growth, DroneShield has doubled or tripled in size every year of its existence, and I believe the best is still in front of us.

The counter-drone market is continuing to rapidly grow as a result of fast-expanding use of drones; the war in Ukraine is seeing both sides use drones extensively. We also do a lot of Artificial Intelligence (AI) work, across counter-drone, Electronic Warfare (EW), and surveillance (ISR) markets, and those are all booming as well.

We have designed our supply chain to be resilient and our products are high value, meaning an increase in shipping costs hasn’t affected us hugely.

The largest impact on the product side has been a substantial increase in lead time for chips – we started building a significant inventory of those last year, to ensure no interruptions.

On the sales side, defence is a face-to-face, trust-based sort of business. We were lucky that a lot of customer relationships (and also key team members) were already in place at the onset of the COVID-19 pandemic. We are, however, glad to be at defence events again, and meet with industry and our customers in person.

A lot of government money is being wasted on “advisers”, “consultants” and the like – we need less people pushing paper around on government panels, and more people working on hard science problems and creating unique technologies. What we have achieved with our 40 engineers at DroneShield is staggering – world class capabilities in products across FPGA, waveform design, multiple AI domain fields including computer vision, smart product design and more.

The best way for the Australian Government to nurture this capability is to give work directly to local defence SMEs. Defence primes should be engaged on large projects but granting other initiatives to SMEs will generate much better value for money, support local industry, and bolster the nation’s sovereign capability.

The work should also be useful. Funding must go to the development of real products that will be in demand and purchased by Department of Defence end users and exported to allied nations at the end of the project.

Australia is the 12th largest defence spender in the world. But we are not the US, in that we can’t do everything. I believe the areas the Australian Government has set up – such as focus on robotics, sensors, EW and the like – are good choices, however this needs to be further reinforced by government contracts.

To understand where local capabilities lie, the US does an amazing job in “technology shoot-offs”, where there are open days at ranges like the Yuma Proving Ground, where a number of vendors are invited to demonstrate their technology, with all major government agencies present to establish direct engagement between defence and industry.

We need more of that down under, as currently the industry doesn’t really know what defence needs, and defence doesn’t know where pockets of capability within the industry are.

There is also a broader question of what items (whether made here or imported) Australia needs at all, and whether we are better off investing heavily in less areas, rather than spreading thin by putting our eggs into too many baskets.

Regarding the issue of whether a focus on sovereign capability comes at the expense of exports, that’s not my experience – DEC, the Australian defence export regulator, is very reasonable and easy to work with.
For some background, I served in the Australian Army – primarily in infantry and special forces – for around 25 years. On leaving the ADF, I wanted to apply the skillsets I’d built there to a second career I’d be just as passionate about. After leaving Defence for industry, it didn’t take me long to figure out I wanted to do jobs that would gain me more management experience while making a meaningful contribution to the advancement of Australia’s high technology defence industry base.

I got my start in industry at Thales, leading major programs associated with the defence side of their business – including initiating the development cycle for the Hawkei PMV – before moving to Elbit Systems (Australia), where I was Head of Strategy and Business Development for almost five years.

I established my own consulting business in 2015 and started contracting for various companies, including EOS. After helping design the growth strategy for the company’s expansion into the US and Middle East, I was asked to take the reins at EOS Defence Systems in 2018.

Since then, Defence Systems’ revenue has increased roughly tenfold, and EOS has transformed from a largely Australia-based operation – albeit one with an export focus – into a fully multinational business with offices, factories, and sustainment facilities around the world.

Regarding the outlook for the next couple of years - growth. We’re confident in our portfolio of existing and emerging product lines and our positioning in relation to technological and geopolitical currents. Our push into counter drone capabilities, including tactical directed energy and the autonomous lethality areas, has been well timed, as defence organisations across the globe are now rapidly transitioning to these new applications of technology.

We’ve faced the same challenges as a lot of businesses that operate globally, and the easing of international travel restrictions – and the related normalisation of several of our major overseas contracts – is a welcome development.

That said, our defence business has remained highly profitable through the pandemic. COVID hasn’t stopped us from fulfilling our contracts, adding to our customer base or bringing new products to market.

What it has done is create an impetus for us to strengthen certain areas of the business. We’ve made our supply chains more robust, added to our overseas manufacturing and sustainment infrastructure, and beefed up our domestic production capacity. As a result, the company is more resilient now than it was pre-COVID.

I’ve always cared deeply about our ability to look after ourselves as a nation, and my broad view on our sovereign capabilities is a pretty uncomplicated one: critical national capabilities must rest solely on the nation’s ability to control the development and application of these assets without the need to refer to second or third non-Australian entities for permission. In short, if we can do it here, we should do it here.

Anyone who knows me won’t be surprised when I say the most important thing we can do to help with this is to support the development of internationally competitive domestic defence companies that can build great technology onshore – as well as export it to the world. Over time, some of those businesses should be supported to grow into primes in their own right.

That kind of rebalance in the domestic ecosystem would create benefits shared by the Commonwealth, hundreds if not thousands of Australian SMEs, and the nation in general. It’d help to improve national security, create onshore jobs, develop a strong skills base and build an enduring facilities infrastructure that the Commonwealth could call on as and when needed – without reference to any overseas entity.

I’d argue there’s a happy medium between doing absolutely everything here and relying too much on overseas primes and allies to do things for us.

Historically, we’ve tended to be fairly risk-averse in our defence planning and procurement, and the international primes have often been seen as the “safe” choice. But a certain amount of risk is needed to get rewards – including for the Australian taxpayer.

Our high technology resourcing base largely sits within the defence domain. The international primes will always have a place, but it’s local companies that can build the infrastructure – technical, physical, intellectual – that’ll lead to lasting sovereign capabilities. That applies even if we have to import the odd component that’s unavailable, or unavailable to the required specifications, locally.

In this model, the Commonwealth and the Australian taxpayer become beneficiaries rather than benefactors, as industry starts to rely less on grants and other leg-ups.

Regarding the issue of whether focussing too much on Australian capabilities restricts export opportunities, the answer is no. “The world” will always be there – and there’ll always be a demand for great technology.

EOS has a real business need to stay ahead of the curve and protect the technological lead we’ve established. Doing that requires a significant, ongoing R&D spend. We’re 100 per cent committed to Australia, but our overseas business plays a major role in financing all that homegrown R&D – which is ultimately good for the ADF and the country more broadly.

Looking at the list of desired sovereign capabilities, for starters, I’d add tactical and cyber communications, including cryptography; munitions, small arms and, obviously, stabilisation systems to enhance their range and precision lethality; plus autonomous systems for sea, air and land as well as land mobility platforms. Australian companies are already global leaders in these technical realms.

There’s no question that government support for our defence ecosystem is stronger now than it was when I started in the industry and that today, there’s a clearer understanding of the specific policy levers that’ll be good for the industry’s health. Industry has responded by building a number of world-class defence businesses that are making world-class products. In that sense, I can say that even though we’re not there yet, we’ve come a long way.
since 2015 I have led General Atomics Aeronautical System Inc. (GA-ASI) initiatives in Australia and New Zealand and supported company campaigns in Southeast Asia. In early 2015, I worked for a short period as a consultant to what was then Rockwell Collins Australia and, prior to that, I spent 35 years in flying, command, staff, capability management and acquisition roles with the Royal Australian Air Force, with service in the Middle East, Southeast Asia and the U.S.

In the broader INDOPAC region, GA-ASI’s medium-term business growth is expected to be strong with a significant focus on multi-domain, uncrewed and autonomous systems. For Australia, in the wake of the cancellation of Project Air 7003 to acquire the still-needed SkyGuardian armed remotely piloted aircraft system (RPAS), we will work with Defence to define a follow-on medium-altitude, long-endurance (MALE) RPAS and compete for future Australian Defence Force and other regional intelligence, surveillance and reconnaissance projects. And with Cobham, our primary industry partner in Australia, GA-ASI will pursue an opportunity to provide a MALE RPAS to the Australian Border Force. Having formed a strong network of Australian industry partners for Project Air 7003, GA-ASI is keen to capitalise on those relationships for future Australian sovereign industry capability.

The most significant detriment from COVID to GA-ASI’s business in Australia and the region has been the lack of face-to-face contact from U.S.-based subject matter experts with key Defence stakeholders and our industry partners. As a relatively small Prime without an extensive footprint throughout the region, these impacts were probably more acute for GA-ASI than for large Primes. While much was achieved through virtual means, nothing can replace face-to-face contact and a handshake to establish and build relationships and instil confidence.

The increasing focus on sovereign capability over the past few years has seen Defence and industry make meaningful gains. Policy surrounding sovereign industry capability is developing well, but implementation still has some way to go. The work to establish an Office of Defence Industry Support (ODIS) is a very welcome initiative to ensure sovereign industry capabilities are addressed on a cradle-to-grave basis and, in particular, Australian Industry Capability (AIC) expertise is extended to CASG’s project teams for meaningful and close interface with industry.

However, the reducing strategic warning time and threat horizon is likely to have opposing influences on sovereign capability development. This forces a closer look at must-have sovereign capabilities while, at the same time, encouraging a greater reliance on buying off-the-shelf from overseas suppliers where short acquisition times, advanced technologies and close interoperability requirements are important. Defence and industry must embrace this dilemma.

Defence must also continue to focus on supply chains and stockholdings when considering capability. While not all lessons from the Ukraine are relevant in Australia’s context, it is instructive how stockholdings for certain systems and munitions are being laid bare. In this context, the focus on sovereign support capabilities becomes even more important and Australia must strive for a far greater piece of the total sovereign capability pie for sustainment. There are still too many items where it is commercially impossible to support in Australia, not because it is technically difficult but because U.S. export restrictions prevent such support. The AUSMIN Defence Acquisition Committee (ADAC) and National Technology and Industrial Base (NTIB) processes need to be matured and exercised across a range of potential support arrangements to help increase the number and range of regional service centres in Australia for U.S. manufactured systems.

Value for taxpayer investment will be satisfied when Defence has capability commensurate with strategic risk and warning times. This might not result in systems that are always built in Australia and, in some cases, not supported here. However, this equation is changing and requires greater effort from Defence in the way it acquires and supports capabilities. To this end, it may be helpful if the Government declared Australia to be in Phase 0 of a strategic INDOPAC campaign and mandated urgent operational status for select systems. While significantly shortening acquisition times, such a mandate should avoid the temptation to source support arrangements solely from overseas suppliers. It should, instead, encourage and incentivise a more rapidly developed local industry Research & Development, manufacturing and support capability.

Providing the cost of developing the sovereign capability and the quantity/scale of items/services involved are affordable on the international market, local companies could well export their solutions. In aiming to export to other nations, companies will have to navigate the increasing foreign sovereign industry capability requirements. This might be challenging and costly, but it is the price of developing a mature, credible and recognised export industry. The continued financial support from government and advocacy from Defence will remain very important to fostering local industry innovation and export successes.

While sovereign industrial capability priorities are important, I believe an area where more focus is required is for regional support networks: working closely with key allies such as those in the QUAD to share support capabilities and responsibilities. While the focus on shared support capabilities has normally focussed on arrangements with the U.S., multi-party agreements between countries such as the U.S., Japan and Australia appear relevant and timely. INDOPAC support networks have the potential to offer considerable operational capability and synergy.

Thank you to APDR for continuing to support and advocate for the Australian Defence Industry.
Richard Cho | Managing Director, Hanwha Defense Australia

I joined Hanwha Defence International in 2014 and have been a key part in the company’s market development in Europe with successful contract awards in Poland, Norway, Finland and Estonia. With Hanwha Defense Australia (HDA) established in 2019, I became responsible for development of the industrial capacity to support and service defence requirements within the region and to establish defence network focused on the Five-Eyes nations.

Prior to joining Hanwha, I worked with various defence acquisition programs and have been instrumental in the success of South Korea’s provision of defence related products to Australia and New Zealand.

I’m an Australian citizen and graduated with a degree in Commerce from Newcastle University.

HDA will grow over the next two years. Given our aspirations in Australia and our desire to create an industrial base to support both Korean and Australian defence industries, growth is essential. We will become a substantial defence contractor, leveraging relationships with the Australian industry base to sustain ourselves within Australia and beyond.

The geostrategic circumstances of both Korea and Australia mean that we must invest in capability. This is why we have invested in H-ACE, our vehicle centre of excellence to underpin our work on the Huntsman self-propelled howitzer and beyond. This facility means that Korea has Plant 3 (Changwon is home to Plant 1 and 2 for sovereign Korean capability) outside their nation and Australia has access to high technology manufacturing into the future.

There is no doubt that COVID placed stress on our company and people like so many others. But we saw it as a challenge, an opportunity, to rise to. We were able to meet the Commonwealth’s expectation during this period which encompassed the Risk Mitigation Activity for Land 400. We are proud of that achievement. Our Industry Development Unit was challenged but we have created a first-rate supplier base for both Huntsman and Redbacks vehicles, both in Australia and internationally.

The hybrid workplace is a risk management strategy that we need to embrace long term as well as making sure we’re addressing the needs of our people.

The unique value proposition that Korea brings in the context of Australian sovereignty is in the strategic alignment. It comes down to what Korea is doing in order to enhance their security and what Australia wants to do by the creation of a more durable supply chain arrangement and the creation of a sovereign industrial capability.

It’s regional sovereign capability rather than a national sovereign capability in my mind. If you’re looking at a regional sovereign capability, you’re relying on a number of countries to supplement or to support engagement between and across the nations.

Sovereignty is about the ability to manufacture or ensure continued supply under demanding operational conditions; the Ukraine has been an excellent example. The usage rate in this context is well beyond initial expectations.

Going back to my point around regional sovereignty, a collective regional approach rather than single nations each trying to work it out is something we need to move towards.

It’s not necessarily duplication as such but having that element of industrial partnership between foreign nations, foreign industry and us is going to provide an overlapping security that provides long term viability for all players.

We need to have a balance between platforms and effectors where we get the most bang for our buck.

On the relationship between sovereign capability and export opportunities, it depends on how you approach it in my opinion. Export success is supported by having a successful home market first; it is easier to export when your own government supports your product. And it is even easier to export when you produce something the world wants and needs. Our expertise and innovation in niche areas is an excellent selling point.

I do acknowledge that the Australian market has relatively high labour costs compared to our region, but these can be offset in other ways. The key here is for us to become part of a regional supply chain that leverages off other supply chains that rely on your components to enhance their product.

This is the collaboration and cooperation activity that we are developing at HDA; utilizing both South Korean and Australian industries to come to a collaborative ecosystem. This allows for continued participation in programs that are not just specific to Australia, but within the region, and where possible, extending out into other areas of the world.
Scott Reeman | Managing Director, Hensoldt Australia

I have recently taken the Managing Director position at HENSOLDT Australia after a two-year tenure as the Vice President, Strategy and Government Relations for Australia and New Zealand. I have a long history in Defence and Defence Industry having joined the RAAF in 1987. After operational flying tours on the F/A-18 “classic” I graduated as an experimental test pilot from the Empire Test Pilots School in 1994. Since completing my full-time career in the RAAF in 2001 as part of the team that delivered the Hawk Lead in Fighter Training System into RAAF operations, I have been in multiple senior Australian and International defence industry roles prior to taking up the role of Managing Director.

HENSOLDT has 150 years of history in technology and capability on which we can draw, and we are excited to build on that in Australia. For HENSOLDT Australia, our growth is through an ever evolving and changing market. In our case, much of it is non-traditional in Defence Industry terms. HENSOLDT Australia’s long held core competency is complex RF and radar systems. We are using the breadth of expertise in the Company to creatively adapt, partner and implement sovereign solutions in four emerging fields: space, cyber security, analytics/intelligence and energy security.

Our business in the Australian Defence sector is delivered through our fantastic people who are recognised leaders in radar, multi-domain solutions and services. This allows us to blend cutting-edge technologies whilst managing and delivering complex programs and sovereign expertise.

We are well positioned for growth through our organic capabilities and those of our partners, such as the University of Tasmania (UTAS) and the Tasmanian Government, to deliver critical national capabilities. A great example is our Southern Guardian partnership with UTAS to develop a national Space Domain Awareness network, which brings to life our guiding principle “Capability through Cooperation”.

The Covid pandemic and subsequent actions by the State Governments didn’t impact our business greatly because of the nature and criticality of the services we are delivering. Our established work force is already dispersed around Australia and the world, supporting critical infrastructure so the ‘work-from-home’ model was already in place. COVID did impact on our people through both illness and isolation, and it also changed the way we work with other businesses and supply chains. We learnt to deal more effectively with disruption and to be adaptable in a very uncertain world.

Like everyone else, the pressures on IT and digital communication channels were increased. To onboard new staff we needed more creative thinking; sometimes getting technology to new starters was a challenge, but we learnt to deal with this quickly and have now adapted our own processes to create better connections with our staff.

The impact of isolation periods was overcome through regular weekly catchups, games and quiz nights were played over Zoom or Teams calls. Like many others, we found that there were now more chances to digitally connect to colleagues which were not available previously.

Today, our new normal is more focused on overall mental health and how can we keep that connection going. We have also adjusted our policies around leave for instances other than being ‘sick’. COVID has ended the previous Australian mentality of ‘just soldiering on’; staff can now work from home when feeling ‘under the weather’ or have family members who are sick, thereby minimising the spread of future viruses in the workplace.

COVID has taught us all that it is better to work with Australian-owned businesses, relying on sovereign sources and building strength in our own manufacturing power. For HENSOLDT Australia, we have a renewed focus on working with clever, small Australian-owned businesses that might have been previously overlooked. These relationships are paying dividends for both sides as we are able to take these into our global supply chain as they assist us in developing and exporting capability developed here.

It is important to understand that in any rapidly changing circumstances there needs to be an understanding and flexibility in the government policies to form applicability for future challenges for defence. We need to learn to pivot quickly. This is vital in a fast-paced, challenging world and situational awareness in the international context is critical. The changed geopolitical situation, not only in Europe but also in the Indo-Pacific region, requires visibility of what is going on. Space Domain Awareness forms an important part of that capability. Australia is in a strong position to be a significant contributor for Space Domain Awareness in the Southern Hemisphere. Protecting our current and future satellite communication capability, providing our nation with high quality sovereign space domain awareness information and sharing this information with our key allies is an area that has not received the same focus as other capabilities.

For a technology company, the most important thing to take from this pandemic is to learn to do business more creatively and effectively. Restrictive elements, such as years-old policies, need to be reviewed to enhance, not hinder, work. Collaboration and changes in our behaviours are of fundamental importance to enhance our combined national power and sovereign capabilities and become, as a nation, an even more valued partner.

There also needs to be a shift in the approach adopted to recruit and onboard people in companies. New solutions need to be pursued, like looking at non-traditional sources and channels for recruitment, and inventive ways (like more digital channels) of making people feel part of team, regardless of location. At HENSOLDT Australia, the traditional defence market can be very rigid, so we shall continue to be focused on building national capabilities that will help break down these boundaries.
joined Kongsberg Defence Australia as the inaugural General Manager in 2019. Before taking up this role, I had worked closely with Kongsberg Defence and Aerospace during my 9 years at Raytheon Australia. I worked primarily on Integrated Air and Missile Defence (IAMD) and weapon programs, including as the Capture Lead for Project LAND 19 Phase 7B with the National Advanced Surface to Air Missile System (NASAMS). My previous industry background has largely been in Business Development, Capture Management and Program Management. Prior to joining Defence Industry in 2004, I served for 13 years in the Army specialising in Ground Based Air Defence, Capability Development, and Defence Acquisition. I also completed long term schooling gaining a masters degree in Guided Weapon Systems.

The company is experiencing an exciting period of growth as we continue to bring on new programs. Our NASAMS production and integration activities are progressing very well, and we have recently received the first shipment of Mk2 canister launchers from Norway. Our C4 activities for the LAND 8116 Protected Mobile Fires Program are underway, and we have quickly ramped up for the accelerated acquisition of the Naval Strike Missile under Project SEA 1300. The strategic similarities between Australia and Norway mean that the Kongsberg product portfolio has significant alignment with the current and future capability needs of the ADF, providing a great opportunity for us to further work with Defence and Industry partners on crucial programs. We also see Kongsberg Defence Australia as being well placed to support Kongsberg products and programs in the Asia-Pacific region. I believe the future for Kongsberg in Australia over the next couple of years, and beyond, is strong and bright.

COVID has been disruptive for everyone’s business, and Kongsberg has been no exception especially as it started early in the NASAMS program. Core to our NASAMS activities was establishing a local supply chain for in-country manufacture and transferring technology and expertise to Kongsberg Defence Australia such that it can perform in-country assembly, test, and integration of key sub-systems. COVID has challenged all of these activities. State border closures significantly complicated supplier engagement and management, especially as suppliers were located all around the country. For our activities, we had to adjust how we set up our production and we needed to establish local capability earlier with less Norwegian support that was originally envisaged. However, being adaptive and flexible, and with great support from our parent company, we have made it work and we remain on schedule. The benefit is that we are now an approved supplier within Kongsberg’s global supply chain, we have generated real and lasting expertise in Australia, and we are being trusted to take on more complex production and integration tasks. So, on balance, despite the difficulties, there has been a great upside from COVID for Kongsberg Defence Australia.

The priority for sovereign capability should be about ensuring that there is an ability to operate, maintain (with a high level of availability) and upgrade a capability from an in-country support base to the maximum extent practicable. If you work backwards from that point then you can normally determine what sovereign capability should be established as part of the manufacture, assembly, test and integration of a system. We should do as much as practicable in country, and we should ask the question ‘If not, why not?’, but it should not be a case of ‘at any cost and schedule’. What Kongsberg Defence Australia is doing with our NASAMS scope is a great example of a practical and cost-effective approach to generate sovereign capability to support our GBAD capability.

There is a healthy balance to be struck between local and imported solutions. The Australian Government must maximise its investment in Defence and put the best equipment into the hands of our ADF personnel. To take advantage of export opportunities, capability solutions made in Australia by sustainable businesses must be internationally competitive. Australia could learn a lot from Norway – pick the best capability solutions available internationally, but if nothing meets your specific requirements, then focus your investment on that to fill the national capability and international market gap. There are a number of areas where Australia is a world leader in Defence technology. We should look to reinforce them with further investment and create exports. There are also a number of opportunities to ‘localise’ imported solutions to further develop them and create new or evolved products with Australian content.

I don’t believe the focus on sovereign capability makes it more difficult for local companies to export their solutions. I think it comes down to having internationally competitive defence products. The Australian Defence Industry has demonstrated that when they do, and when they are cost and quality competitive, they can export their products quite successfully.

The current Sovereign Industrial Capability Priorities (SICP) that have been identified as critical provide plenty for Australian Industry and Defence to focus on. I don’t believe more priorities should be added to the already extensive list. KONGSBERG definitely welcomed the decision to include both Guided Weapons and IAMD as strategic industry priorities. These are also areas of priority for Norway and they have been incredibly successful with NASAMS and its precision strike weapons.

KONGSBERG has already demonstrated significant technology transfer of IAMD capability to Australian Industry through its local NASAMS production activities. We have also demonstrated significant technology transfer relating to Guided Weapons, where we have worked with local Defence companies, such as Thales Australia, for components of our Penguin Anti-Ship Missile and BAE Systems Australia for our Joint Strike Missile. The recent decision to acquire the Naval Strike Missile may also open up future Guided Weapons opportunities for Australian Industry.
I joined Leidos in 2016 as part of the merger with Lockheed Martin’s Information Systems & Global Solutions division, where I was General Manager of Australian operations. I ended up leading what was then Leidos’ IT Projects and Intelligence division (we’ve subsequently spun Intelligence out into its own line of business) and then became CEO in early 2020. Before Lockheed, I was an engineer with RLM Systems, and before that I served in the RAAF for over 14 years.

We’re in a period of strong growth that, barring any unanticipated challenges, we expect to continue for the foreseeable future. Our business has 25 years’ experience of developing uniquely Australian technical solutions in-country, and as part of a global organisation, we’re able to bridge the gap between sovereign and global capability.

Given the geopolitical situation Australia is in, and will be for decades to come, the need for the solutions that Leidos is uniquely placed to provide, particularly around information warfare and situational awareness, is only going to increase.

We’re fortunate that COVID didn’t impact our bottom line. It turbo-charged the transition to hybrid working, which caused us to stop and really focus on how best we can work side by side with our customers in a virtual setting. We’ve come up with novel and innovative solutions, and in many cases have become more efficient.

I don’t think we’ll ever return to pre-COVID normal, but we do have a very deliberate strategy to get our people together regularly, in large and small groups, for business and social purposes, to ensure we retain and grow our team bonds and culture.

The big lesson for all of us is that the ability to build, adapt and support systems locally is absolutely key. We need to invest in both manufacturing capability and our workforce. We have to consider the attractiveness of defence as a career.

The size of the Australian market means that we’re never going to have the most, so we need to have the best. We need to be doing activities – at scale – that drive significant change and impact. We need to aggregate and harness the skills of our SMEs and create clusters of activity around defence needs to develop communities that will deliver real, meaningful, capability. And not just around sustainment – we have to have in-country design as well.

We must focus on the local solutions that are most strategically important to defend Australia. Certainly, we need to generate the capacity to manufacture consumable items that are required to defence Australia. We can all see how Ukraine had to scramble to import weapons to defend itself. We also need domestic manufacturing capability in areas such as ICT, cyber security and software development and integration.

I think there is currently good public support for the Defence budget. But that will run out if we don’t move our focus to actual delivered capabilities rather than announcing future capabilities. In recent years we’ve heard a lot of announcements about what we plan to have, but very few about what we’re actually delivering. If all our focus is on delivery, and we get judged by that, it will drive the best return on investment.

The defence industry is globally competitive. No organisation, or partnership, builds world class solutions on the first attempt. It takes long term commitment. Leidos has built a world class C4ISR business, but it’s taken us many many years. For example, we’ve now delivered over a dozen geospatial projects. The first few were good, but now they are excellent. Because we are so immersed in this domain, these days we often know the answer before we even look at the problem.

Australia has too many stop-start projects. We have to focus on developing long term partnerships, aggregative the innovation of SMEs with the experience and scale of prime contractors, so we create a continuous virtuous circle of capability creation.
My career began in the Royal Australian Air Force as an enlisted technical apprentice. In 1989, I was commissioned and later graduated as a pilot, logging over 5,000 hours in the P-3 Orion. Rotational assignments included Squadron, Wing and Group appointments, numerous deployed commands, the Deputy Chief of the Royal Australian Air Force, and the Chief of Joint Capabilities. I joined the leadership team of Lockheed Martin Australia and New Zealand as Chief Executive in 2021.

The next 2 years will see substantial growth. Lockheed Martin is supporting or seeks to support the combat capability of the Australian Defence Force across all domains. The 2020 Force Structure Plan laid clear markers for the capabilities that the ADF needs to both evolve and acquire. It is also backed by intent and funding. Recent announcements such as the Guided Weapon and Explosive Ordnance Enterprise, in which Lockheed Martin and Raytheon are the two Strategic Industry Partners, is but one factor informing my view on growth.

Partnerships and robust supply chains are the key to developing sovereign capability. Between the intellect we have in this country - the Commonwealth, States and Territories, primes, Australian industry and academia - we can achieve the necessary technological and industrial advancements to support a wide variety of sovereign capability requirements. As mentioned earlier, we are on the cusp of a recalibration of supply chains, and as an industry we must respond to ensure their ongoing sustainability and integrity.

There will always be the need to procure leading edge capability that cannot be manufactured in Australia. However, Australia has a broad choice of where it could choose to develop capabilities due to the intellect and skills of our population and the resources we have. The balance on what we choose to develop and produce in Australia will be centred in the triangle of skills, market and funding. On funding, as a country should invest more in R&D and the commercialisation of that IP as, with a considerable amount of focus and patience, it can lead to so many opportunities. When it comes to innovation, value for money and return on investment is sometimes difficult to determine. Hard outcomes are not always the best measure, as ideas to solve issues can come from the most unlikely pursuits. For example, David Warren’s interest in the possibility of personally recording music led to the invention of the world’s first flight recorder or ‘black box’.

We have to acknowledge that Australia is still a relatively small market and, as we know, companies really only achieve their full potential when they have a diversified and global customer base. Exports are vital. If you have a world class capability, Lockheed Martin Australia wants to talk to you and help you identify both local and global opportunities. We have a dedicated team and programs to help and support you on that journey. Lockheed Martin has had numerous successes exporting Australian capability to the world under our Global Supply Chain Program.

What I think would be useful is having attention placed on a sovereign minerals processing capability in Australia. It could support our manufacturing industry deliver close to 100% Australian Contract Expenditure. Currently our manufacturing partners import a vast majority of their processed metals. Having an in-country capability would be a good step forward.
I’ve had more than 40 years working in and then running our family businesses, the past 20 as CEO. My early working life moved from retail fuel and automotive to satellite communications. For the past 25 years the focus has been firearms, weapons, and munitions. In 1996, I led the company’s push to diversify into the supply of weapons and munitions to government agencies including the Australian Department of Defence.

Nioa is on a solid growth trajectory – we’re set to double our workforce - with a focus not only on Australia but international expansion plans. We will remain focussed on our core business of weapons and munitions. The Australian Defence Force is undertaking a once in a generation refresh of weapons and munitions with an increased focus on sovereign manufacturing capability. As the only Australian owned prime contractor delivering weapons and munitions to the ADF as well as managing a significant portion of the Government-owned munitions plant in Benalla, Victoria, we are well placed to deliver on the ADF’s priorities.

We have a proven track record in establishing complex manufacturing facilities, including our work at Benalla, and also our joint venture in Maryborough, Queensland with Rheinmetall where in two years we transformed a greenfield site into the most advanced manufacturing plant of its type in the world. Our subsidiary, the Australian Missile Corporation, is well placed as a trusted partner to the CoA to help establish a viable and robust sovereign domestic guided weapons manufacturing enterprise.

Fortunately, we handled some very complex projects without significant disruption during COVID, including the construction of the world’s most advanced artillery shell forging facility through Rheinmetall NIOA Munitions and the delivery of Stage 1 of Tranche 1 of the LAND 159 Lethality Systems Program which involved running more than 29 separate tenders for Defence. Those projects were huge undertakings on demanding timelines, and it is a credit to the commitment of our whole team that we did not miss a beat.

It’s almost inconceivable that many people appear surprised that a supply chain which is entirely reliant on foreign production can be interrupted during international crisis. It shouldn’t be a lesson learnt at all because it should already have been obvious.

Clearly our defence Industrial base should always be designed to operate in a global crisis with disrupted external supply chains. That is precisely the time you need the domestic industrial base to operate at peak capacity.

If we are serious about national security and self-reliance, defence spending must be directed to Australian companies for industry to then invest in building robust sovereign capability. Collectively we need to understand the massive opportunity cost of continually being dependent upon foreign governments through programs such as the US FMS program. While we continue to do that, we remove the ability to build an Australian industrial base. If we target spending to local companies, profits will be re-invested in Australia, and we will be able to run our equivalent of the US FMS system where we export products to allies around the world. We are spending billions of dollars internationally that could support the establishment of significant sovereign capability, ensuring the jobs, technology and knowhow stay right here.

It’s more a case of a “transition” rather than a “balance” between local and imported solutions. Initially, we need to decide whether we are committed to building a large defence industrial base…and we begin by awarding contracts to Australian companies, even if the goods are imported. We then transition to domestic assembly, then manufacture as and when we reach a scale sufficient to justify it or we determine there is a critical supply chain issue, regardless of commercial viability.

For example, we received an order for LAND 400 Phase 2 (Boxer CRV medium calibre munitions). We ordered the ammunition from Rheinmetall in Switzerland, but the order was through an Australian company importing the product. Now that we have the contract, we said “let’s transition that to domestic manufacture” and we started to invest in a medium-cal production line at Benalla. Because we invested in that production line we have now secured export orders from the plant. Eventually we will make the products at Benalla and create a sovereign capability.

Value for money under the Commonwealth procurement rules has been updated to include total economic benefit to the community: Jobs, taxes, technology development, adjacent market benefits and growth of regional towns. A robust Australian defence industrial base should be able to export at least as much as it sells to the ADF. That means getting double the economic benefit of 100 per cent Australian production. According to the latest SIPRI Military Expenditure Data (2021), Australia ranks 12th in the world for military spending (USD $31.8b), we are the fourth biggest importer of arms and the 16th largest exporter. Therein lies the opportunity: we have huge potential to make more defence products in Australia. If we don’t have sovereign capability, how can we export? Australian companies need to develop their own IP, produce things in Australia and export to the world.

I’m largely comfortable with the SICPs, so long as we also consider the required supply chains for each of the priorities. For example, computer semiconductors that go into guided missiles, and other critical components, also need to be identified as strategic priorities.

Australia needs to be able to look after itself and we need to act now. The deteriorating global strategic environment calls for significant urgency in the re-establishment of Australia’s defence industrial base. We cannot follow the current slow, peace time pace of long-winded considerations and analysis.
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ince joining Northrop Grumman Australia in July 2020 as General Manager Asia Pacific, the geo-strategic circumstances of our Indo-Pacific have and continue to present complex and uncertain challenges for our national security. The shift in power dynamics in Europe and closer to home has created a sense of urgency for Governments globally, and as a leading aerospace prime, we feel that sense of urgency. We know our customers face existential threats today; and that emerging threats will make tomorrow even more challenging. Customers are demanding faster cycle times and more affordable solutions.

In response to these challenges, I have seen our industry evolve, particularly as it has become a recognised fundamental input to capability. Our stronger partnership with Defence better positions Australia’s national security eco-system to navigate these circumstances. This relationship and renewed Government leadership, allows us to work together with our allies to solve Defence’s toughest challenges by leveraging cutting edge technology developed globally to better support operations in the future battlespace.

From a Northrop Grumman Australia perspective, our new Australian business model under a single integrated P&L is making us more agile and responsive to our customers. Importantly, our strategic plans are strengthened by real investment, evidenced by our $20 million investment to establish Parallax Labs in Canberra and demonstrated by our position as one of the top three aircraft sustainment organisations in Australia. We have made significant progress establishing in-country sustainment of core subsystems AN/AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) for RAAF’s fleet of C-130J tactical transport aircraft, and the AN/ASQ-242 Communications, Navigation and Identification (CNI) avionics suite integrated with the F-35, so they don’t need to be sent back to the US for repair.

These investments demonstrate our long-term commitment to the Australian defence sector and will fast-track our ability to build sovereign capability in Integrated Air and Missile Defence, Space, Complex Guided Weapons and Autonomous Mission Systems, augmenting our already strong aviation sustainment offering.

The COVID-19 pandemic demonstrated yet again how impressive our Australian defence sector is at rapidly responding to evolving challenges. We found innovative ways to continue delivering on our collective commitment to provide world class capabilities to our ADF, but it did highlight the fragility of global supply chains and further enhanced the case for investment in sovereign Australian capabilities. We recalibrated our business practices, embraced technology and trialled new ways of working together remotely, both within Australia and internationally. This allowed us to implement flexible work practices, attract and retain top talent and deliver greater value to our customers.

Ongoing investment in the development of sovereign capability is critical if we are to meet the challenges of a deteriorating security environment in our region. The scale of the challenge is such that no one company or entity has the capacity to deliver capability alone; we must collaborate if we are to successfully accelerate development of truly sovereign capability in Australia.

Collaboration across sectors, including between Primes, SMEs and academia, enhanced by investments such as in our Parallax Labs, will allow our partners to develop capability in sophisticated modelling environments. This will accelerate our sovereign capability growth in critical technology areas, like IAMD, hypersonics and other complex guided weapons.

Government-to-government collaboration, like AUKUS, provides unprecedented opportunities to share technology, work collaboratively and accelerate our national sovereign capability growth. As we leverage these alliances to gain access to and collaborate on advanced technology, industrial cooperation and R&D, we must have a broader perspective about sovereignty. It is critical that whatever capability we are talking about, be it indigenous or US based, we have a sovereign capability to adopt, sustain and evolve these capabilities to best meet the Australian needs today and in the decades to come. This needs to be balanced with the urgency of ensuring the ADF has the capability it needs to meet the emergent threat environment, but I don’t think these two priorities are mutually exclusive. Sovereignty does not mean doing everything in country as this is not practicable. It is about making sure that we are clear on those capability and technology areas we need to build domestically to enhance our ability to operate with sovereignty. We should also look to invest in areas where Australia has a natural advantage or where we can establish ourselves as thought leaders in emerging technology areas that must have a strong sovereign focus. Australian industry must be at the centre of this.

Having an export focus is a critical component to sovereign capability development and must form part of our thinking from the outset. Exports support local industry to achieve scale; this translates into value for money for taxpayers, delivers more reliable solutions to customers and supports the growth of a sovereign industrial defence base. We’re really proud to be partnering with Northrop Grumman in the US to bring decades of expertise and technology development to Australia, and to provide opportunities for Australian SMEs to support our international programs and strengthen our global supply chain. We’re actively working with these SMEs, like AME Systems in Ararat, Victoria, now leveraged into the Triton program’s global supply chain, to support the export of their solutions to the US.
With more than 25 years in the global aerospace and defence industry I have now clocked over 5 years with Quickstep. Pound-for-pound the best performing aerospace business I have worked with or for in my career. A true Australian national champion.

As experienced by most everyone, the last 2 years have presented many challenges. Through that period we have grown revenue, profitability and cash. We also completed our first ever acquisition (Australia’s leading aerospace component MRO capability in Melbourne), launched a drone business and took equity stakes in some promising Australian companies. We are primed for significant growth in Australia, APAC and the USA; we did not stand still. I just wish our share price reflected our current and future value!

Quickstep weathered the pandemic very well during 2020 and 2021. However, the effects of the pandemic are far from over and we have experienced extraordinary absenteeism and supply chain impacts over the last few months – the worst of the pandemic so far. This is likely to continue for some time and, sadly, risks being compounded by skills shortages, high cost of living and inflationary pressures. There are many lessons to take from the last 2+ years, but my main takeaways are that people and teams are everything, partners show their true colours in times of crisis and capabilities. Those you can truly rely on matter inordinately.

Sovereign capability is currently a buzzword with little tangible meaning. Government and Defence need to be much more transparent in what sovereignty means to them and what sovereign capability means in reality – the private sector needs clear demand signals and a more certain/stable investment environment. Acquisition and sustainment capabilities need to be developed for the worst of times and challenge the assumption that trans-Pacific supply lines will always remain open. Australia needs to invest in capability within the domestic supply chain and acknowledge this is expensive but vital. Large offshore acquisition programs from pre-existing supply chains, with token local content, do not build resilience or sovereignty.

Large foreign prime contractors and international supply chains are, and always will be, fundamental to the defence and national security of Australia. But if you do not know, or do not care, what capability exists within your own borders, or how that capability contributes to resilience, war fighting and independence, then you are destined to rely excessively on the goodwill of others for your security. Developing meaningful and cost-effective capability, within the context of a ‘global’ supply chain takes time, determination and investment.

Some key areas of focus: more domestic R&D contracts within collaborative programs, invest in specialisms that already exists, bolster domestic sustainment capabilities (or simply use those that exist already). Importantly, there needs to be a shift away from grants toward contracts: rapid development and acquisition programs with defined deliverables from Australian, or Australian-based, commercial entities.

The advent of AUKUS is important and resonates in both the UK and the US in ways that we have not seen before. Industry has a very significant responsibility to operationalise this political construct by increasing bilateral FDI, expansion in each other’s markets and a step change in collaborative R&D and development programs – the industrial base of one is the industrial base of all.
Andy Keough | Managing Director, Saab Australia

My pathway to Saab can be traced back to a conversation that my mother had with our neighbour in Sydney when I was 17 and thinking of joining the Army. Our neighbour, a Navy officer and he very quickly organised a tour of the Navy base for me. I was then hooked for the next 22 years during which I commanded two Collins Class submarines, completed an exchange with the US Navy Submarine Force in Pearl Harbor, Hawaii, and was awarded the 2006 Conspicuous Service Cross Award (CSC) for leadership in a recent deployment, while establishing long-term relationships with people around the world.

I joined Saab after stints in both private and public sectors. At Saab, my submarine, defence, and commercial experiences have come together into a very rewarding role within a dynamic and complex industry where teamwork, communication and excellence are everything.

Since we opened our doors in Australia in the mid-1980s, Saab Australia has maintained a constant trajectory of growth. However, over the last 18 months and for the foreseeable future, our growth will be significant. We’re aiming to double our workforce by 2030 as we develop new products and system integrations for new needs and markets.

It is critical that we understand our nation’s strengths and play to them including our democracy and freedoms to ensure that our children and children’s children can honour the sacrifices made to ensure our Australian way of life. Similarly, we need to support our neighbours in having strong democratic processes in place.

Life’s experiences are never wasted and what we learn in one chapter can be transferred and applied to another. My experience as a submariner and Commander had unwittingly prepared me for the COVID crisis. Our culture at Saab, which predates and will outlast me, is one of collaboration, communication, and cooperation. These were critical skills during deployment too. When COVID revealed itself, our team very quickly found ways to work around lockdowns as they rolled across Australia while maintaining our critical high security standards.

Life won’t return to what we knew in 2019; I see more compassion and communication than before, more family stories are being shared, and perhaps we’re not as isolated as individuals as we’re talking more and understanding more about different ways of living and working. All of this has led to greater teamwork and some exciting developments with our products and for our customers. We have also increased our corporate social responsibility activities, focusing on supporting two groups that support our Veterans to translate their skills and experiences into new careers, and another focussed on promoting STEM career pathways.

In Australia, we need to develop and retain the skills that underpin our ability to maintain and expand our sovereign capability as the mechanisms of conflict diversify from the traditional into cyber and the economy. In thinking about the future, we need to think about managing economic, security and technological challenges that may arise.

Again, collaboration is key: forging project partnerships with other Australian primes, SMEs, and allied organisations like the Defence Teaming Centre and the Naval Shipbuilding College; managing IP; and learning from our achievements across products.

Importantly, we need to be developing successive generations of engineers, technicians, and thought leaders through igniting excellence in science and the skills of communication and self-reflection at school, university and beyond.

Very soon, we will be running our second short course in Combat Systems engineering based on the Saab CMS through our new Combat Systems School. Internal and external providers deliver training, ensuring that our staff remain relevant to our business and the defence sector, and will eventually be open for all people who are thinking of a career in the Combat System domain.

We’re very good at strategic foresight and finding solutions and at Saab, we have demonstrated that we excel at managing complex projects with multiple stakeholders. A healthy balance is achieved by focusing on our areas of excellence and retaining the IP. This is something we have achieved with our strategic partners and as the AUKUS relationship continues to develop, I expect that we will see a lot more value for money and collaboration to build a safer world. And this in itself, is a priceless outcome.

Building Australia’s sovereign capability through collaborations between primes and SMEs will benefit both parties. At Saab, our new Sovereign Combat System Collaboration Centre (scheduled to start construction this year) is all about giving SMEs the opportunity to experience a formal integration and prototyping environment, and collaborating with Maritime or Land divisions, which will help with product development and optimising the understanding of a customer’s needs.

We are here to fully support the Government in devising and delivering solutions to help keep people safe – in combat and in humanitarian crises. Of course, Saab started in Australia with submarines, and we will continue to work with Government and our stakeholders to develop our sovereign capability. We need to be working together so that we have very clear sight of future challenges. Submarines are our eyes and ears that go a long way undetected in our backyard but we’re also contributing to land, air, space and civil security domains because it’s the whole package that will continue to ensure that we are not surprised in a time of crisis, so that we can continue to offer protection to our society.
I was appointed Serco Asia Pacific’s Managing Director for Defence in 2017 following a 40-year career in the Australian Defence Force (ADF) and the Royal Australian Navy. I began my career as a Maritime Logistics Officer and was privileged to serve in a number of senior positions, including Commander, Joint Logistics and Rear Admiral for the Navy. A strong background in Defence procurements and contracting has been an essential ingredient in successfully transitioning into Defence Industry. In my personal life, I’m a husband, a father of two adult children and a big fan of all sports but particularly AFL and NRL.

Currently, our Defence contracts span across Maritime, Training and Professional Services, Base Services, and Logistics and Weapons Systems categories where we provide critical support services to defence organisations, operating both in-country and embedded within deployed forces around the world. Growth is certainly a strong focus for Serco.

Over the past two years, we have made great strides in building our industry partner network and supplier base, with a direct focus on expanding operations for future ADF and export programs. We have been successful in retaining our ongoing contracts in support of the ADF, and are now actively supporting bids in our UK, Middle East and US divisions, deliberately opening strategic supply chain opportunities for our partners under our ‘Global Maritime Community’ (GMC) banner. A key example is our pursuit of the LAND 8710 bid. We are leveraging Serco’s global capability to deliver locally, through a fantastic local network.

Likewise, we are reinvigorating the delivery of our Facilities Management capabilities following the acquisition of Facilities First Australia 18 months ago, looking positively towards the Defence Base Services Transformation Program tender, building on our successes supporting the ADF at Al Minhad Air Base, and leveraging Serco’s delivery of Base Services to the UK and Canadian militaries.

It’s safe to say that no-one was ready for the global implications of COVID. That said, the pandemic exposed our younger program managers to the myriad of supply chain challenges caused by Australian and overseas suppliers shutting or slowing down, and it’s all credit to these high-quality Australians who proved their mettle with our successful delivery of RSV Nuyina in the face of these challenges. Nuyina’s first Antarctic season was a wonderful success and was accomplished with strict COVID protocols in place. Equally, Serco’s instructors at HMAS Watson and HMNZS Philomel demonstrated enormous tenacity and agility in reshaping delivery profiles to allow critical training to continue, while our waterfront services teams supporting Navy continued unabated. We are thankful the crisis is easing, but there are certainly innovations and enhancements that we’ll continue to incorporate into our service delivery into the future.

Noting that ‘capability’ most definitely includes ‘human’ capital and defining Serco as a ‘non-OEM’ Prime, we employ Australians supporting both State and Federal Governments. So, I feel confident in arguing that we are punching well above our weight in supporting the development of sovereign ‘human’ capabilities and therefore beneficial sovereign economic outcomes. Today, Serco operates out of 109 locations around Australia, with an average annual spend of $275 million into our Australian supply chain. Over the last three years, the defence business unit has engaged with more than 750 local vendors, with that number growing to 3,500+ across all business units, highlighting that Serco Australia is very much an Australian enterprise delivering economic benefits on a national basis. The ‘sovereign capability’ discussion needs to widen and balance against what the Government is trying to achieve in developing Australian industry. In my experience, people are the single most essential capability element, so I think the discussion should include how businesses support investment in professional development and education of their workforces.

Selecting the right technologies and the right suppliers that can achieve the capability outcomes for the ADF is always the best way to ensure value for money over the long term, but of course where there are ‘home grown technologies’ that are capable of doing the job, we are most certainly a great supporter. Serco is largely technology agnostic and therefore feel that a healthy balance must reflect the importance of ‘sovereign sustainability’ on a wider national basis. As the supply chain ramifications of COVID demonstrated, selecting military capabilities based on factory location isn’t a successful strategy for delivering an assured, competent, and proficient military. It’s also important to understand that as a core member of the Five Eyes community, Australia needs to ensure its military hardware and operational doctrines are fully interoperable with those of our Allies. We must ensure Australia benefits from the best defence capabilities, regardless of origin.

I am a great supporter of the more recent Government policy settings which mandate greater Australian Industry Capability requirements, to not just participate in Australian programs but to uplift and grow Australian SMEs. I do believe that over time this philosophy and policy in action will allow key Australian SMEs to grow into export markets and also make domestic markets more sustainable. I believe we are an industry on a good path to deliver meaningful national outcomes and build sovereign resilience in a sustainable and pragmatic fashion.

I believe that the designated Sovereign Industry Capabilities should be those that Australia needs to support its strategic circumstances. There does need to be a very robust ‘policy-led’ process which matches domain organic robustness rather than a single company or entity. If that overall capability is supported, then it should have ‘full’ support of government to enable sustainability given ADF operations simply don’t have the operational volumes to support self-sustainable domestic industries across all capability segments. Support to those domains to broaden into other markets should be a priority as scale does bring a higher level of domestic robustness and sustainability.
I am a proud Worimi man from the Newcastle area, however I grew up near Broken Hill - originally named Willyama – hence the name and inspiration for the company. I spent 13 years as an Army Officer working with military tech, from communications to satellite systems and classified system design. After the military, I spent more than a decade in IT and cyber security working for leading companies such as Telstra, Fujitsu, IBM and Dell. In 2016, I launched Willyama Services fulfilling a lifelong dream to create a business focused on supporting Indigenous Australians but also veterans who typically find it difficult to find work after transition.

As for the future, I see significant growth. We have a critical contract with Defence providing cyber services to the Defence Industry Security Program (DISP). This contract is growing rapidly as Defence responds to external threats and seeks to harden more of their supply chain. We have also built a strong client model with Federal and State Government Departments and some commercial organisations. We are experiencing demand from all clients.

We have conducted cyber assessments for over 1200 businesses for membership in DISP. This is the largest cyber review of Australian industry, out of approximately seven thousand businesses estimated to be part of the Defence supply chain. This number of businesses does not take into account those that now fall under the Critical Infrastructure bill.

Since the start of COVID, we have tripled in size, doubled our client base and signed our largest contracts. COVID has escalated significantly the broader cyber threat environment with an increase in ransomware and state-based actor activities. From the cyber perspective, the new normal is in an increasingly hostile environment businesses now have to consider ‘business as usual’. These lessons for Defence and industry are significant.

The main lesson from the pandemic is that almost every business function requires technology (IT and/or OT and/or IoT) that exposes an organisation to risk. In general, industry leaders have limited understanding of the cyber environment and significantly under-invest in maintaining their environment. For example, out of date hardware and software, poor threat training or investing in the wrong things such as unsupported on-prem solutions and shiny software that needs staff.

The Essential 8 should be the minimum for all Australian businesses and Government Departments, no matter the industry sector.

In my experience, there is a tendency for the Federal Government to engage foreign owned entities to deliver on sovereign activities. The primes account for the majority of the program management budget, leaving a small percentage for engaging the sovereign SME.

The catch 22 is that there are very few sovereign Primes so the Government needs to re-evaluate a model that engages SMEs directly (individually or in a consortium) and works to scale up the SMEs. The Government could consider public/private partnerships with SMEs, specifically for sovereign projects.

The key consideration for the development of Australian solutions should be national interest. Federal Government contracts should include an assessment for a capability and whether it is of national interest and then weight the importance.

If a capability is critical to the national interest, an assessment should be made as to how this capability could be nationalised through the procurement process. We could achieve this through local licensing, purchasing the IP outright, or building a transition plan in the contract.

Assessing value for money, as per the Commonwealth Procurement Rules, should include consideration to the economic benefit of the procurement to the Australian economy. As we have seen with Covid, local production is required to maintain the economy.

| Kieran Hynes | CEO, Willyama Services and Willyama Cyber |

I don’t think developing sovereign capabilities comes at the expense of export opportunities - the easiest example to counter this argument would be the success of the Israeli cyber industry. If you create high quality solutions that solve Australian problems, then they should have demand in other markets.

The current conflict in the Ukraine is highlighting the success of unconventional solutions to conventional warfare problems. There appears to be a heavy use of UAVs that are capable of either acting as sensors or platforms for standoff weapons. Relatively cheap platforms that can launch relatively cheap missiles from a distance, such as drones/UAVs and Iranian gunboats are examples of platforms we should invest in.

Sovereign cyber security is also imperative. AustCyber was instrumental in the growth of the sovereign cyber Industry yet there are still many foreign owned companies providing major services to the Commonwealth, disinflectivising the development of sovereign cyber capability.

COVID has been the biggest wakeup call to Australia in terms of what we actually rely on from overseas to live our lifestyle. When the supply chains are compromised, living standards, and to an extent national security are compromised. There has to be a national assessment of what should be sovereign and then a plan to create that sovereignty.
As readers of Asia Pacific Defence Reporter are well aware, the Australian Defence Force has made a major commitment to a future force populated by uncrewed air, surface and subsurface systems. To be clear, the ADF does not view these uncrewed systems as completely replacing their manned counterparts. Rather, they are viewed as complementing these systems and performing some of the "dull, dirty and dangerous" work that would put Australian personnel in hazardous environments or situations.

This commitment has been reported in many professional journals, and especially in these pages. Most recently, there were several articles in the May issue of Asia-Pacific Defence Reporter that reported on uncrewed systems, including a comprehensive article entitled: "Remote and Uncrewed Naval Systems."

Most recognise that the Australian Defence Force is a smart buyer, and that it wants to see how uncrewed systems in all domains actually perform before making any major acquisition decisions. That is why the ADF made the decision to conduct a comprehensive demonstration earlier this year to evaluate a significant number of uncrewed systems.

This event, dubbed Autonomous Warrior 2022 (AW22), was conducted over the course of two weeks (May 16 – May 27, 2022) in Jervis Bay and in surrounding waters. Understanding more about this significant event can help shed light on the Australian Defence Force goals and objectives for the future use of uncrewed systems, as well as how they can contribute to the security and prosperity of the Australian nation.

By way of background – and to emphasise the Australian Defence Force’s commitment to evaluating uncrewed systems – AW22 is the latest iteration in a series of similar exercises, experiments and demonstrations aimed at facilitating the ADF’s ongoing collaboration with allies, partners and industry to develop, evaluate and acquire uncrewed, robotic and autonomous capabilities.

It is important to understand that these exercises, experiments and demonstrations are part of a larger, overarching plan to thoughtfully insert uncrewed systems into the Australian Defence Force. This plan is embodied in two capstone documents: Robotics, Autonomous Systems and Artificial Intelligence (RAS-AI) Strategy 2040 and the Robotics, Autonomous Systems and Artificial Intelligence (RAS-AI) Campaign Plan 2025. While it is beyond the scope of this article to explain all of the details contained in these two publications, a paragraph from the Foreword of the Robotics, Autonomous Systems and Artificial Intelligence Strategy 2040, penned by the Australian Chief of Navy, sheds lights on Australia’s goals for autonomous systems:

RAS-AI Strategy 2040 sets out the challenges and opportunities that these technologies present and explains to Navy, our Joint Force colleagues, the broader Defence Organisation, our allies and industry the benefits we seek from RAS-AI, and how we aim to realise them. To fulfill our potential, we need to engage in constant experimentation, and encourage collaboration and innovation at all levels. This will enable us to leverage RAS-AI to enhance Navy’s capability by strengthening our Force Protection, increasing our Force Projection in the maritime approaches of our near region, improving our Joint Integration through Partnership, maximising our Force Potential, and ensuring Australian Control.

There was substantial anticipation and pent-up-demand in the run-up to Autonomous Warrior 2022. The event was last held on this scale at
Creswell in 2018, with smaller demonstration exercises conducted in other locations during the COVID-19 pandemic. This is one of the reasons that the ADF decided to “go big” with AW22 and invite such a wide array of industry participants. This Royal Australian Navy (RAN)-led exercise tested and evaluated uncrewed, robotic and autonomous systems not only in Jervis Bay, but also in the nearby East Australian Exercise Area as well as in the skies above.

The scope of AW22, gives some indication of how important this demonstration was to the ADF. It involved approximately 300 personnel from over forty organizations across four countries – Australia, New Zealand, the United Kingdom and the US – and tested leading-edge uncrewed technologies designed to deal with emerging maritime security challenges.

The two-week exercise featured over three dozen autonomous systems and technologies. The ADF organized a series of well-designed and carefully planned simulations involving maritime, littoral, air and land operations. The simulated missions featured were those that are clearly of importance to the ADF. These included mine countermeasures; intelligence, surveillance, reconnaissance (ISR); undersea warfare; intelligence gathering; survey; strike; and force protection.

The ISR missions were ones that the ADF and RAN were especially keen to evaluate, and these were key features of AW22. During one event, an airborne asset tentatively identified two boats entering territorial waters, and the T38 Devil Ray was vectored to find, intercept and conclusively identify these craft with positive results.

In addition to testing the capabilities of uncrewed vessels, aircraft and vehicles, the exercise also tested Command and Control (C2) technologies that enabled these craft to communicate with operators in real-time. These were used to receive, process and present data inputs from multiple systems in order to inform command decisions and direct uncrewed systems’ actions.

One of the best ways to understand the importance of Autonomous Warrior 2022 to the Australian Defence Force is to hear what the ADF’s Director General of Warfare Innovation – Navy, Commodore Darron Kavanagh – shared in the run-up to AW22:

Throughout the Indo-Pacific, Australia is facing evolving maritime security challenges. Autonomous Warrior 2022 comes at a crucial time for Australia and is an important industry collaboration activity. This international maritime robotics and autonomous system operational experimentation activity will evaluate leading-edge technologies to help us respond to those challenges.

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AW22 is an exciting opportunity to showcase the utility and advantages of uncrewed systems in a variety of warfare domains in collaboration with our allies, partners and industry. It demonstrates our commitment to ongoing collaboration, transformation and adaptation to meet strategic requirements.

As noted earlier, given the pressures on the Australian defence budget, the Australian Defence Force must be a smart buyer of the platforms, systems, sensors and weapons it procures. While Autonomous Warrior 2022 was an important event that enabled many industry partners to bring their emergent uncrewed systems to Jervis Bay for two weeks in May, the event was not cost-free to the ADF, and care was given to be mindful to test-drive those uncrewed systems that had already been wrung out in other venues, both in Australia and in other nations.

Perhaps the best way to explain this is to understand why the Australian Defence Force was keen to have Maritime Tactical Systems Inc. (MARTAC), a US-based company that manufactures unmanned surface systems, participate in this demonstration in a substantial way. Autonomous Warrior 2022 featured one MARTAC T38, 38-foot Devil Ray uncrewed vessel, and two MARTAC T-12, 12-foot uncrewed vessels.

The ADF, in its smart buyer mode, knew that these MARTAC USVs had performed in a wide-array of US national and international exercises for almost a decade. The ADF was exposed to the MARTAC USVs during a Rim of the Pacific (RIMPAC) exercise several years ago, and most recently during International Maritime Exercise 2022 (IMX-22) in the Arabian Gulf.

But confidence does not come from performance in just two exercises. Australian Defence officials were aware of the performance of the MANTAS and Devil Ray craft in a wide-range of exercises, experiments and demonstrations. Among the most prominent were: Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2) Advanced Naval Technology Exercise (ANTX), Rim of the Pacific, Trident Warrior, Bold Alligator, Battlespace Preparation in a Contested Environment, Surface Warfare Distributed Lethality in the Littoral demonstration, Valiant Shield, Steel Knight, U.S. Army Military Ocean Terminal Concept Demonstration (MOTS CD), Port of Los Angeles and Port of Tampa harbor security demonstrations, IDP-21, IMX-22, and others.

These events, collectively, featured thousands of hours of operations of the MARTAC family of high-speed catamaran style USVs performing a wide array of missions including ISR, intelligence preparation of the battlefield (IPB), mine-countermeasures (MCM), logistics, high-value unit protection, port and harbor security, survey operations and others. These were all conducted in both the littoral areas as well as the harsh ocean environment, and operated not by an array of technicians, but by U.S. military uniformed personnel.

As many observers have noted, Australia does not have the funding or the time to develop all of its own small and medium-sized uncrewed platforms. Therefore, it can take advantage of uncrewed systems not only from Australian industry, but also from overseas. Long-term, their deployment and

The MARTAC T38 Devil Ray unmanned vessel conducts high speed handling tests. Credit: CoA / Justin Brown
maintenance support will be provided by the ADF and the Australian defence industry. However, at the outset, it is important to survey the widest number of candidate uncrewed systems in an effort to pick best-of-breed.

It is probably not lost on Asia Pacific Defence Reporter readers that the missions that the MANTAS and Devil Ray performed in these earlier exercises, experiments and demonstrations matched up quite nicely with the missions that were to be examined in Autonomous Warrior 2022. The organisers of AW22 were well aware of the elements of speed and survivability of these craft. The twin-hulled T38 Devil Ray has a cruise speed of 25 knots, a burst speed of 80 knots, and can survive sea state 7.

There were other attributes of these USVs that caused the ADF to be keen to have them evaluated during Autonomous Warrior 2022. The T38 Devil Ray is powered by twin 300 horsepower diesel outboards, has a payload capability of over 2,000 kg, and has a range of more than 500 nautical miles. The T38 is capable of fully-autonomous, semi-autonomous and full operator control modes, and can be fitted with a wide range of sensors.

But perhaps the most attractive feature of the MARTAC family of unmanned surface vessels is their common hull, mechanical and electrical (HME) attributes. This commonality enables the MARTAC USVs to “nest,” by allowing the smaller T12 to be released from, and drive onto, the larger T38. The faster T38 can then transport the smaller T12 to another area for additional missions. Several of these “nesting” evolutions were demonstrated during Autonomous Warrior 2022. This is an important attribute for USVs that is likely to be evaluated in future events similar to Autonomous Warrior 2022.

One way of explaining why MANTAS and Devil Ray were featured so prominently in Autonomous Warrior 2022 is to go back to what Geoff Slocombe had to share in the aforementioned article: “Remote and Uncrewed Naval Systems:”

The MARTAC MANTAS performs in environments and conditions where other USV’s cannot because of its core capabilities. These include flexible length configurations; high lithium battery capacity; electric or diesel/electric motors for larger twin screw systems; high speed operation with bursts up to 80 knots; excellent range at cruise speeds; high precision loitering and station keeping operations; fully autonomous, semi-autonomous and full operator control modes; sensor and communications agnostic; and solar panels for extended endurance and persistence for open ocean operation. The MANTAS has highly reliable systems with waterproof components within its hull and an optional “stealth” mode with a positively buoyant hull to minimise detection and perform “decks awash” operations.

The Australian Defence Force has indicated that, coming out of AW22, platforms such as MANTAS and Devil Ray will serve as technology demonstration platforms to support further development of operating concepts and future capability requirements for Australian Defence. This comports well with the ADF’s ambitious plans – laid out in a number of high-level documents such as those described above – to make a major commitment to uncrewed systems in the years ahead.

As the ADF – and especially the Royal Australian Navy – operate farther away from Australian littoral waters, the hazards to Australia’s soldiers and sailors will likely multiply, and uncrewed systems will be in even higher demand to conduct many of the dull, dirty and dangerous missions ideally suited to unmanned maritime systems, as well as to undertake missions that are only now beginning to emerge.

For this observer, Geoff Slocombe’s article is a strong call to action for the Australian Defence Force, as he notes: “The ADF needs to get a move on in selecting and deploying uncrewed systems, as potential adversaries are rapidly developing challenging capabilities in this field, often capable of delivering munitions on target.”

Autonomous Warrior 2022 shouldn’t be thought of as the end of a process, but as an important step along a purposeful journey to ensure that the Australian Defence Force can take full advantage of uncrewed technologies in order to ensure the security and prosperity of the Australian nation.
Choosing a path between the two opposing blocs has tested Indian diplomacy to the core. So far, it has walked cautiously, taking a somewhat neutral stand on the ongoing war. What explains India's independent stand on the West-Russian growing geopolitical divide and how does it impact New Delhi's great power relations going forward?

INDIA'S POSITION IN THE UN

Since the Russian invasion began on February 24, 2022, India has abstained on all the UN resolutions sponsored either by the West and its supporters or Russia. India's abstention has been construed by some in the West as New Delhi's tacit support to Moscow, even though India has been critical of Russia in several instances. In the UN Security Council (UNSC) meeting on Ukraine held on April 05, 2022, India's condemnation of the brutal killings of civilians in Bucha and demand for an independent investigation was contrary to Moscow's position that killings were part of a “cynical false flag operation, perpetrated by Kiev itself.”

On April 7, 2022, India along with 57 other countries abstained on the UN General Assembly resolution that led to the suspension of Russia from the UN Human Rights Council – the second state after Libya to be expelled from the 47-member Geneva based body. India's abstention was as good as voting against Russia, as its absence worked in favour of those who voted for the resolution. Russia had earlier issued a warning that an affirmative vote or abstention would be viewed as an "unfriendly gesture" with implications on bilateral ties.

Since the very beginning of the war, India has voiced its displeasure over the Russian territorial aggression and has repeatedly underlined the "need to respect the UN Charter, international law and sovereignty and territorial integrity of states.” India's critical stand on Russia notwithstanding, it is undeniable that the Indian government has not yet explicitly condemned Putin for invading Ukraine. Rather, New Delhi has repeatedly called for ‘dialogue and diplomacy’ to end the conflict, with the Prime Minister Narendra Modi urging President Putin to engage "in a direct conversation" with his Ukrainian counterpart to end the hostilities.

India has also not joined the US and its European and Asian allies in imposing economic sanctions on Russia. On the contrary, it has increased oil imports from Russia which, in an attempt to compensate for the loss of oil flows to the West, has offered a discounted price to other buyers. As per a Reuters report, India's Russian oil purchases in the first few months after invasion was more than its total Russian oil imports of entire 2021.

India's reluctance to explicitly condemn Russian aggression has, however, not gone down well in some quarters in the West which finds a strong resonance with India's past muted support to the Soviet Union's military aggressions such as in Hungary (1956), Czechoslovakia (1968) and Afghanistan (1979). The US President Joe Biden, prior to his April 11 virtual meeting with Modi termed India's position on Russia-Ukraine war as "somewhat shaky." In response to India's decision to double down on oil purchases from Russia, Biden's Deputy National Security Advisor, Daleep Singh, issued a veiled threat of “consequences.” India has though defended its oil purchases on the ground of its energy security, with India’s Foreign Minister, S Jaishankar, bluntly saying that "our total purchases [of oil] for the month would be less than
what Europe does in an afternoon."

So, what explains India's apparent nuanced yet independent stand on the current Russia-Ukraine crisis?

**EXPLAINING INDIA’S STAND**

India’s neutrality can only be explained by what New Delhi perceives as its national interest. For India, antagonising Putin through a public condemnation is not in its national interest, as Moscow continues to remain important for India’s defence, security and geopolitical interests.

Russia's importance to India is, in fact, rooted in historical ties, dating back to the Cold War. During the early years of India's independence - when it was particularly vulnerable to the West's interference on the Kashmir issue - the Soviet Union's support in the UNSC was a great help. That the Soviet Union wielded its veto as many as six times in support of India is not forgotten by New Delhi. Given Russia’s past support, mandarins in New Delhi would naturally be inclined to expect the same from Moscow if the situation so demands in the future. This is big leverage that India would not like to surrender for Ukraine, which is of little significance to India's strategic interests.

It is also not forgotten in New Delhi that the Indo-Soviet Treaty of 1971 acted as a counterbalance to the then evolving US-China-Pakistan nexus on the eve of the third India-Pakistan war, that gave birth to Bangladesh and propelled India’s emergence as a preponderant power in South Asia.

On the matter of defence, the relationship runs even deeper. Following the 1962 border war with China, Soviet arms, some of which were offered on “friendship prices,” went a great deal towards India’s military modernisation that proved decisive in its victories in both the 1965 and 1971 wars with Pakistan.

It is true that in the post-Cold War era, India has diversified its arms procurement and stepped-up indigenous production. Nonetheless, Russia still accounts for the bulk of India's arms inventory. According to the Stockholm International Peace Research Institute (SIPRI), India was the biggest recipient of Russian Arms during 2017-21, accounting for about 28 per cent of total Russian arms exports. During the same period, Russia accounted for 46 per cent of India's total arms import, distantly followed by France (27 per cent) and the US (12 per cent).

Almost all frontline arms in India's inventory are of Soviet or Russian origin. These include tanks (T-90 and T-72), fighter aircraft (Su-30 MKI, Mig-27, Mig-29), aircraft carrier (Gorshkov), submarines, missile systems (S-400) and anti-ship cruise missiles (Brahmos). While some of them are directly imported, many are licensed produced by local industry, with critical parts, components and raw materials still being sourced from Russia. Furthermore, some major defence equipment - particularly the nuclear submarine and aircraft carrier acquired from Russia - were not available from other sources.

With India facing a collusive two-front war threat (from Pakistan and China), and the ongoing two-year military stand-off with China along the northern Himalayan border showing no sign of disengagement in the near future, India could hardly afford to derail its robust defence partnership with Russia. To do so would jeopardise its own security interests which has been further complicated by India’s two principal rivals – Pakistan and China - getting close to Moscow.

Between Islamabad and Beijing, the latter has forged a much stronger strategic partnership with Moscow, with some arguing that Russia, given its increasing isolation from the West, has become too dependent on Beijing for economic and geostrategic support. On the eve of the Russian attack on Ukraine, Putin visited China where both countries declared a partnership with “no limits” against the West. Pakistan, which is increasingly finding itself isolated by the West in the aftermath of the US withdrawal from Afghanistan, has tried to woo Moscow to further its regional ambitions. Considering that China and its “ironclad” ally, Pakistan, constitute India’s biggest security concerns, India’s interest lies in balancing its...

Since the very beginning of the war, India has voiced its displeasure over the Russian territorial aggression and has repeatedly underlined the “need to respect the UN Charter, international law and sovereignty and territorial integrity of states.”

![The Prime Minister, Shri Narendra Modi with the President of Russian Federation, Mr. Vladimir Putin, at Hyderabad House, in New Delhi on December 06, 2021. (No credit available)](image_url)
Responding to questions from visiting European Dialogue held in New Delhi on April 25-27, 2022. Jaishankar in the recently concluded Raisina succinctly pointed out by the foreign minister geopolitical challenges facing Asia. This was conducively to its own rise to great power.

It is this inherent strategic autonomy that has led India to avoid getting sucked into the current Ukrainian crisis that some in the West view as a conflict between democracy and autocracy with a profound impact on the global order. India does not see the current geopolitical tussle in Europe as one to reshape the current international order. As Shivshankar Menon, India’s former National Security Advisor (NSA), observes, the current conflict is a “war between Europeans over the European security order.” He further argues that “Geopolitical disputes and security dilemmas that could affect the global order are concentrated in maritime Asia.” With Beijing’s increasing military and economic assertiveness in the South and East China seas and along the Himalayan border, “The future of global order”, Menon argues, “will be decided not by wars in Europe but by the contest in Asia.”

In other words, India sees very little geopolitical significance in siding with the West on the Ukrainian issue. New Delhi, on the contrary, has tried to draw the attention of the West to the geopolitical challenges facing Asia. This was succinctly pointed out by the foreign minister Jaishankar in the recently concluded Raisina Dialogue held in New Delhi on April 25-27, 2022. Responding to questions from visiting European leaders, he noted that the current crisis in Europe is a “wake-up call for Europe to also look at Asia” which has witnessed several attacks on the rules-based order for a long time. The Indian minister was referring to the chaos inflicted upon Afghanistan after the US withdrawal, the continued cross-border terrorism emanating from Pakistan and China’s military assertiveness in the region – all of which have largely been ignored by the West.

For sure, the war in Ukraine has created economic and other difficulties for India. After the war broke out in late February, the immediate concern for New Delhi was to evacuate thousands of Indian students stranded in various parts of Ukraine. That India ensured the safe return of about 22,500 of its citizens (along with nationals of 18 other countries) by deploying 90 flights speaks volume for its HADR (Humanitarian and Disaster Relief) capacity that it has developed over the years.

On the economic front, the war has put the Indian government in a bind, especially at time when it wassmarting from the Covid-19 pandemic-induced economic slowdown. The increase in crude oil, fertiliser, edible oil and food grain prices and their cascading effect on inflation is a big concern for the government which will face a general election in two years’ time. The magnitude of the crude oil impact could be seen from the increase in the average price of Indian basket crude oil from $94.07 per barrel in February 2022 to $113.40 barrel in March 2022.

India has to also manage the fallout of the economic sanctions imposed by the West on Russia. The exclusion of the Russian banks from the SWIFT message services has created a particular problem for India in making payments for Russian purchases. Given that India has been at the receiving end of Western-imposed economic sanctions in the past, and that it is currently a potential target of the CAATSA (Countering America’s Adversaries Through Sanctions Act) for its decision to purchase the Russian S-400 missile system, it doesn’t view such coercive measures favorably. Voicing her displeasure during a visit to the US in late April 2022, India’s Finance Minister, Nirmala Sitharaman cautioned the West to factor in the “unintended consequences” of the sanctions on other countries before imposing them.

**FUTURE OF INDIA’S GREAT POWER RELATIONS**

There is no doubt that Putin’s decision to invade Ukraine has upset India’s strategic calculations, at a time when New Delhi is rapidly expanding its economic and security partnership with the West to counter China. As C. Raja Mohan, an expert on India’s foreign policy notes, India would have preferred a “normal relationship between Russia and the West.” That possibility is now being shattered with Russian forces creating mayhem in Ukraine. India has to find a new equilibrium in its relationship with the great powers.

India is aware that Russia is not the mirror image of the Soviet Union and Moscow’s economic strength and international standing have taken a big hit because of Putin’s Ukrainian folly. Going forward, India’s relations with Russia will be guided by its own success in the defence indigenisation process and its geopolitical interest in minimising Moscow’s closeness with China and, to some extent, Pakistan.

Compared to Russia, India’s relations with the US and its European and Asian allies are on a much stronger footing with a much deeper economic partnership and a shared concern on China. India would not like to sacrifice this relationship for the sake of Moscow. India’s enthusiastic adoption of the Quad and its increasing defence and security ties with the US, the UK, Australia and Japan are of greater significance in containing China, India’s biggest strategic rival. However, in dealing with the US and its allies, India does not like to be dictated to. As foreign minister Jaishankar recently said, India will act on the “basis of who we are rather than try to please the world as a pale imitation of who they are.”
The eye watering commitments of billions of dollars to date and into the future seem rarely to cause much public or media comment, but this situation is changing rapidly.

Kym Bergmann, in APDR’s May 2022 Editorial Letter, gives an excellent summary of the changes he sees occurring. (This is available in a back issue from APDR’s website.)

The invasion of Ukraine by Russian forces, where a brave defence has been offered by Ukrainian Army personnel and civilians against Russian tanks, other vehicles and aircraft has shown effective alternatives to the current and planned future ADF land platforms.

Specifically, the Ukrainians have made use of large numbers of armed drones like the Turkish Bayraktar TB2, which is a medium-altitude long-endurance unmanned combat aerial vehicle capable of remotely controlled or autonomous flight operations before dropping its munition load, and the US supplied Switchblade ‘kamikaze’ drone which lands directly on a target, then explodes its munitions.

However, we need to be careful in wanting the ADF just to look like the Ukrainian defence forces! For a start, the Ukrainians are really only operating in the land domain. Australia also has to have trained and equipped forces operating in the maritime, air, cyber and space domains. Also, it is heavily dependent on the compatibility of its personnel training, equipment and systems, with its close defence partners.

This year’s Portfolio Budget Statement for Defence clearly identifies the dependence of the 2022-23 Budget process on the 2020 Defence Strategic Update, released on 1 July 2020, which directs Defence to achieve three strategic objectives: shape Australia’s strategic environment, deter actions against our interests and, when required, respond with credible force.

In their own words Defence is funded to enable • prioritising our immediate region for the Australian Defence Force’s geographical focus;
• growing the Australian Defence Force’s self-reliance in delivering deterrent effects;
• expanding Defence’s capability to respond to grey-zone activities, working closely with other arms of Government;
• enhancing the lethality of the Australian Defence Force for high-intensity operations that are the most likely and highest priority in relation to Australia’s security;
• maintaining the Australian Defence Force’s ability to deploy forces globally where the Government chooses to do so; and
• enhancing Defence’s capacity to support civil authorities in response to natural disasters and crises.

At the time of tabling the latest Budget at the end of March 2022, then Defence Minister the Hon Peter Dutton made the point strongly that ‘the Government remained committed to building a strong, sustainable and secure Australia through Defence’s 10 year funding model.

After the change of government following the April General Election with the new Minister, the Hon Richard Marles, taking over the role, APDR has seen nothing yet to see a change in direction in terms of Defence commitment and spending.

THE 2022-23 DEFENCE BUDGET BY NUMBERS

The overall Defence budget is targeted to be at least 2% of Gross Domestic Product for each year into the future. In 2021-22 it was on target, while for 2022-23 this is now forecast to rise to 2.11%.

That is because this financial year the total Defence budget is $A48.6 billion or ($US36 billion). Some of the main items which are included in this total are given below.

Departmental expenses are expected to be $196.1 million. Capital acquisitions will total $16.264 billion, while Sustainment measures will be $14.976 billion. The Chief Information Officer’s budget is $1.635 billion, Defence Science and Technology Group are forecast to receive $0.680 billion, and Defence Intelligence will have up to $1.240 billion to spend.

Within the ADF, the Budget funding for each Service is provided in detail, but now summarised below.

Navy’s total budget is $9.259 billion, of which $2.5 billion is for employees, $3.3 billion for
suppliers and 6.8 million for other expenses. The overall total includes minor items and capital expenditures of $3.4 billion.

Army’s planned expenditure includes $4.5 billion for employees, $2.3 billion for suppliers, $4.3 billion in capital expenditure, with one or two small items taking the total Army expenditure budget to $11.1 billion.

The Royal Australian’s Air Force budget for this financial year is a total of $10.7 billion which includes $2.5 billion for employees, $3.5 billion for suppliers, $2.8 billion for other items and $4.7 billion for capital expenditures.

Included in the overall Defence budget total is $1.6 billion for the Australian Signals Directorate (ASD).

**DEPARTMENT OF VETERANS’ AFFAIRS (DVA)**

The Veterans’ Affairs Portfolio is responsible for carrying out government policy and implementing programs to fulfil Australia’s obligations to veterans, war widow/ers, families, serving and former members of the ADF, certain Australian Federal Police officers with overseas service and Australian participants in British nuclear tests in Australia and their families/dependants.

From an estimated population of 622,500 eligible veterans, DVA is currently delivering support to approximately 240,000 veterans and around 100,000 dependants.

The DVA and several statutory commissions and boards that are administered by the Minister for Veterans’ Affairs are part of the Defence Portfolio. DVA includes running:

- the Repatriation Commission
- the Military Rehabilitation and Compensation Commission
- the Veterans’ Review Board
- the Office of Australian War Graves
- the Repatriation Medical Authority
- the Specialist Medical Review Council
- Defence Service Homes Insurance

A number of different amounts are budgeted depending on the requirement for funding and the source of those funds. Departmental expenses are budgeted at $534 million, while special appropriations are $12.1 billion. There are also multiple payments on behalf of third parties.

**THE ASD BUDGET**

The ASD is part of the Defence portfolio and as such ultimately reports to the Minister of Defence through its own Director General.

Speaking at the Budget announcement, then Minister for Defence Peter Dutton said “The 2022-23 Budget continues this Government’s strong investment in Defence and the Australian Signals Directorate. This includes a $9.9 billion investment over the next decade in new national cyber and intelligence capabilities.

“Project REDSPICE – Resilience, Effects, Defence, Space, Intelligence, Cyber, and Enablers – is the largest ever investment in the capabilities of the ASD. REDSPICE will substantially increase ASD’s offensive cyber capabilities, its ability to detect and respond to cyber-attacks, and introduce new intelligence capabilities. It will also create over 1,900 new jobs, almost doubling the ASD’s size.

“This investment in ASD recognises the deteriorating strategic circumstances in our region, characterised by rapid military expansion, growing coercive behaviour and increased cyber-attacks. It acknowledges the nature of conflict has changed, with cyber-attacks now commonly preceding other forms of military intervention – most recently demonstrated by offensive cyber activity against Ukraine.

“REDSPICE ensures Australia keeps pace with the rapid growth of cyber capabilities of potential adversaries. It provides new intelligence capabilities, new cyber defences to protect our most critical systems, and is a real increase in the potency of ASD’s ability to strike back in cyberspace.”

ASD’s expense budget is rising rapidly with staff numbers, together with the scope and intensity of military platforms and munitions, at end-of-life or the need to accommodate new capabilities, large projects are funded and staffed to make the best possible choice, while still affordable, of solutions.

Defence does receive a lot of criticism because its bureaucratic processes usually mean glacial progress with such major items.

Because obsolescence is a significant issue with
spent to 30 June 2022, with budget estimates of $7.2 billion for acquiring military equipment and $0.9 billion for other project inputs in the financial year 2022-23.

Clearly these amounts do not reflect the huge future expenses expected to be incurred by acquiring nine Hunter Class frigates and eight AUKUS nuclear submarines. Nor will it cover the purchase of stop-gap submarines as the Collins Class reach the end of their lives before sufficient replacement capability is in place.

It must be remembered that there are a host of other acquisition projects outside the Top 30 discussed above which add into the total of $16.264 billion capital acquisitions across the whole Defence budget.

Sustainment of equipment and other capabilities in service, costing $15 billion overall, is budgeted on an annual basis. The most expensive items are maintaining the Collins Class fleet of six submarines, military aircraft and Navy frigates.

Apart from purchase of aircraft and specialised military weapons, successive Governments try to ensure that a high proportion of Defence project expenditure is spent in Australia. There are a small number of large international defence contractors, mainly based in the United States, UK or Europe, who nearly always form project teams which include Australian small to medium enterprises to work within the projects they win.

The names of these large multinational defence firms will be well known to APDR’s readership. They include Airbus, BAE Systems, Boeing, CAE, Cubic, Hanwha, Israel Aerospace Industries, Kongsberg, L3Harris, Leonardo, Lockheed Martin, Navantia, Northrop Grumman, QinetiQ, Raytheon, Rheinmetall, Rohde & Schwarz, Saab, Sonartech Atlas and Thales. Apologies to any firms accidentally left out. Australian based companies taking leadership roles in projects include CEA, EOS, NIOA and Nova Systems.

Space for this article permits only one example of a project team based around a single major contractor. BAE Systems Maritime Australia have formed a team with SMEs from New South Wales, Victoria and South Australia to deliver products for the prototyping phase of the Hunter Class Frigate Program at the Osborne Naval Shipyards in Adelaide.

WHERE COULD IT ALL GO WRONG?

Here are four hypothetical scenarios which could occur during the 2022-23 financial year. What capabilities does the ADF have readily available to respond to these situations, either on its own or with coalition partners?

An RAAF aircraft flying in international air space over the South China Sea is shot down by a shore-based anti-aircraft battery, with the loss of all aboard.

Fact: On 6 June 2022 an RAAF P-8A Poseidon was involved in an incident with a Chinese fighter aircraft which released flares and chaff in front of the Poseidon, fortunately not causing it to crash.

A Chinese hypersonic rocket, containing live munitions, is fired in error in a direction which causes the rocket to land on the Australian mainland with a massive explosion, but fortunately no local casualties.

Fact: The ADF does not have effective anti-hypersonic missile defences as yet.

Hundred of thousands, possibly millions of mines could be required.

A Chinese hypersonic rocket, containing live munitions, is fired in error in a direction which causes the rocket to land on the Australian mainland with a massive explosion, but fortunately no local casualties.

Fact: The ADF does not have effective anti-hypersonic missile defences as yet.

Yes, these are hypothetical scenarios, but they do indicate the challenges facing the ADF to plan how to defeat these and many other situations. Funding the right mix of trained personnel, platforms and armaments is obviously key.

The question to ask is how far does the 2022-23 Defence Budget go in equipping the ADF to counter these types of new situations, not merely repeats of what has happened in the past?

(APDR acknowledges access to Dr Marcus Hellyer’s 108 page PDF document ‘The cost of Defence: ASPI defence budget brief 2022–2023’)

An Australian Army M1A1 Abrams Main Battle Tank from the 2nd Cavalry Regiment, conducts a live-fire demonstration for soldiers from the 3rd Battalion, Royal Australian Regiment, during a live-fire field exercise at Townsville Field Training Area, Queensland. Credit: CoA / Daniel Sallai
INTEGRATED DETERRENCE: WINNING THE WAR NOT FOUGHT


In this unipolar world, the DoD’s steadfast objective was that it “will be prepared to defend the homeland, remain the preeminent military power in the world, ensure the balances of power remain in our favor, and advance an international order that is most conducive to our security and prosperity.” Among its principal priorities were long-term strategic competition with China and Russia and concurrently, deterrence and countering efforts would be sustained against rogue regimes such as North Korea and Iran, while defeating terrorist threats to the United States. Ambitious but necessary.

The strategic approach to achieve its objectives would be attained through the expansion of the competitive space while pursuing three distinct lines of effort: 1) rebuilding military readiness as a more lethal Joint Force is built 2) strengthening alliances as new partners are attracted and 3) reforming the DoD’s business practices for greater performance and affordability.

The NDS admitted that the U.S. was “emerging from a period of strategic atrophy, aware that our competitive military advantage has been eroding” and facing what it termed “increased global disorder, characterised by decline in the long-standing rules-based international order.” It defined China as a strategic competitor believed to be using predatory economics to intimidate its neighbors while militarising features in the South China Sea.

WARFARE BY OTHER MEANS

That individual would be amiss as we now live in a world where China may be on the threshold of its own hypersonic Sputnik moment... a world engulfed in reigned Cold War where Washington is seen to be actively fighting a proxy war with Moscow on Ukrainian soil. Allied in their opposition to the West’s ideals, China and Russia have increased military and technological cooperation between each other, because as their leaders’ joint statement said prior to Russia’s invasion, “Friendship between the two States has no limits, there are no “forbidden” areas of cooperation.” It is a dark and chaotic world where even international institutions founded on preserving peace among nations have become redundant as global aggressors retain veto powers over any decisions.

However, the most critical public-military consideration would be the increased use of hybrid warfare activities in the grey zone. Such activities are defined as asymmetric warfare, with the grey zone being just below the threshold of armed conflict. These attempts at extending influence or undermining order include political warfare and electoral interference, sowing divisions through mis- and mal-information campaigns, construction and militarization of rocks in volatile areas like the South China Sea, use of mercenaries and special...
The increasing dominance of hybrid warfare requires reassessing and adjusting the national defense strategy towards integrating various means of traditional and nonmilitary soft power to deter adversaries. And this concept of “integrated deterrence” is one of the primary methods outlined in the 2022 NDS intended to ensure U.S. priorities. The NDS Factsheet defines integrated deterrence as, “developing and combining strengths to maximum effect, by working seamlessly across warfighting domains, theaters, the spectrum of conflict, other instruments of U.S. national power, and network of Alliances and partnerships.

It is enabled by combat-credible forces, backstopped by a safe, secure, and effective nuclear deterrent.” Aka: A whole-of-government approach in the application of conventional (even nuclear) with the non-traditional (cyber, space) and nonmilitary soft power (sanctions, diplomacy, economic, financial). Basically, use all instruments of national power you have in your toolbox. Some will find this concept familiar when recalling the famed U.S. diplomat George Kennan who promoted the use of political warfare for countering adversary activities at the outset of the Cold War in 1948, which he defined as “the employment of all the means at a nation’s command, short of war, to achieve its national objectives. Such operations are both overt and covert.”

The other two methods include campaigning, and actions that build enduring advantages: “Campaigning is intended to strengthen deterrence while gaining advantages against the full range of competitors’ coercive actions. It will be achieved through operating of forces, synchronizing broader DoD efforts, and aligning its activities with other instruments of national power, to undermine acute forms of competitor coercion, complicate competitors’ military preparations, and develop warfighting capabilities together with Allies and partners.

Finally, building enduring advantages for the future Joint Force involves undertaking reforms to accelerate force development, obtaining needed technology faster, and making investments in DoD personnel. The DoD will develop, design, and manage its forces – linking operational concepts and capabilities to achieve strategic objectives.”

Given the multifaceted security landscape facing the U.S. and its allies, any successful defense methods (tactics) and strategy, require clear and achievable goals. In a recent article, Emma Ashford from the prestigious Atlantic Council think tank, stated the NDS is “an overhyped bowl of word salad that would give any decent op-ed editor a heart attack.” Defense Secretary Austin also was questioned about the concept of integrated deterrence during his Congressional hearing by Senator Tom Cotton (R-AR). The Senator remarked this term was used twenty-nine times in Sec. Austin’s opening statement and yet the term “win” was not used at all in regard to Ukraine.

WINNING… OR AT LEAST NOT LOSING

In this regard, we must ask the age-old war strategy question: What does winning look like? The NDS Factsheet outlines U.S. defense priorities (whose achievement should inevitably constitute “winning”) as: 1. Defending the homeland, paced to the growing multi-domain threat posed by the PRC (People's Republic of China) 2. Deterring strategic attacks against the United States, allies, and partners 3. Deterring aggression, while being prepared to prevail in conflict when necessary, prioritizing the People’s Republic of China challenge in the Indo-Pacific, then the Russia challenge in Europe and 4. Building a resilient Joint Force and defense ecosystem.

The authors are also clear in their prioritisation of threats when they write the “Department will act urgently to sustain and strengthen deterrence, with the People’s Republic of China as our most consequential strategic competitor and the pacing challenge for the Department” and that “Russia poses acute threats, as illustrated by its brutal and unprovoked invasion of Ukraine.”

While for some countries winning constitutes retaining the status quo, for competitors and adversaries it means redistributing the world’s power and demonstrating dominance over others. As The Atlantic Council’s Lt. Col. Tyson Wetzel writes, “The United States must be willing to not only halt competitors’ momentum, but also create offensive momentum for the United States and its closest allies and partners. DoD must create units tasked with conducting offensive and defensive operations in the grey zone, using information as a weapon while conforming to U.S. laws and norms.”

The guidance shaping the next four years of the U.S.’s political-military behavior, may inevitably raise many questions. In this environment of “strategic simultaneity” is the Pentagon’s commitment to the concept of integrated deterrence the best solution to maintaining its comparative military advantage? As the recent conventional military invasion of a European country showed, is deterrence a futile effort? Is the reliance on soft power versus hard power unevenly distributed due to a disinclination for conflict? In the worst-case scenario, does the strategy adequately prepare the U.S. to handle dual conflicts and can associated increased spending (almost $800 billion) compensate for any insufficiency?

PERCEPTION IS REALITY

The NDS’s success will be determined not by its methods, but by the accuracy of threat perceptions of those who formed them. Few perceived the Taliban was capable of overrunning Afghanistan days after U.S. forces withdrew. Few anticipated Russia’s blatant invasion of Ukraine despite a surrounding military buildup. And while Russia appears weak relative to China, it will remain a significant threat as long as its President may be willing to use any and all weapons in his arsenal. Too often, misplaced confidence of powerful and insecure despots often leads to dangerously miscalculated behavior – even if their military is less capable.

The next four years will be critical. Few can forecast where the Russia-Ukraine war is headed and if a NATO country will be its next target, igniting WWIII. China has the centennial goal of developing a military capable of taking Taiwan by 2027. But despite this looming threat of conventional warfare, analysts from the Chinese People’s Liberation Army (PLA) have claimed that future wars will be marked by the “three non” warfares: non-contact (fei jierong), non-linear (fei xianshi), and non-symmetric (fei duicheng). This makes the stakes even higher for “integrated deterrence’s” success in preventing war. And as Sun Tzu also stated, “The greatest victory is that which requires no battle.”

(Luiza Carter is a Congressional Affairs Specialist for the U.S. Department of Defense, previously serving as a Foreign Affairs Specialist and deployed as a Political-Military Advisor in East Afghanistan during 2015-2016.)
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NEW ZEALAND DEFENCE BUDGET 2022-23

The Minister of Defence is responsible for Defence Force appropriations in Vote Defence Force, totalling $NZ 4.817 billion ($US 3.038 billion) for the 2022/23 financial year. This is 3.8% more than the 2021-22 actual spend of $NZ 4.640 billion. This includes $NZ3,253 million for Departmental Output Expenses covering the following:

- a total of $2,676 million on Air ($941 million), Army ($1,068 million) and Navy ($667 million) capabilities prepared for joint operations to provide the Government with a range of military forces to protect and advance the security and interests of New Zealand. These are held at appropriate levels of capability and preparedness to protect New Zealand’s territorial sovereignty and to contribute to regional and global security efforts. Most of these forces will also contribute to a range of services to other government departments and the New Zealand community when not committed to operations overseas, and
- a total of $577 million on Multi-Category Appropriations (MCA) for Advice to the Government, Operations Contributing to New Zealand’s Security, Stability and Interests, and the Protection of New Zealand and New Zealanders.

Of the total output expenses, $66 million is expected to be funded from third-party revenue (Revenue Department and Revenue Other) in 2022/23. The remainder is funded by Revenue Crown.

There is a capital expenditure appropriation of $1,564 million for the purchase of assets. The Minister of Defence is also responsible for a capital injection of $915 million to the New Zealand Defence Force.

The Minister for Veterans Affairs is responsible for Veterans’ Affairs appropriations in Vote Defence Force totalling $NZ 81 million for the 2022/23 financial year. This includes $11 million for a Multi-Category Appropriation (MCA) for Policy Advice and Other Services for Veterans, and $70 million of Non Departmental Expenditure for the provision of entitlements and services that support veterans and their families.

SEARCHING THE SEA BED

HMNZS Manawanui is the Royal New Zealand Navy’s (RNZN’s) multi-role offshore support vessel, which replaced two decommissioned vessels in 2019, the hydrographic survey ship HMNZS Resolution and the diving support vessel HMNZS Manawanui.

During this year, personnel from the RNZN’s diving team, HMNZS Matataua, have been training on one of HMNZS Manawanui’s capabilities – the Saab Seaeye Cougar XT, the vessel’s remotely operated vehicle (ROV). This capability, permanently housed within Manawanui and launched from its own side door in the hull, is a vehicle equipped with high-definition cameras, sonar, high precision acoustic positioning (HiPAP) beacons and a tooling skid with manipulator arms.

The ROV’s underwater operations include surveying shipwrecks and the seabed, placing beacons as reference points for Manawanui’s Dynamic Position (DP) and interacting with the crane to lift objects off the seabed. All of the footage and data captured by the ROV is analysed real-time and recorded by a suite of computers and screens located in the mission processing room (MPR) aboard Manawanui.

Sailors are taught basic positioning awareness and how that relates to ROV operations, operator-level ROV maintenance, the operation of the launch and recovery system (LARS), navigating shipwrecks and risks involved, use of the tooling skid, and how to pilot/co-pilot an ROV as part of a team. It means long hours sitting in the pilot seat, and fine motor skills are needed. Slowly bringing power to the vehicle’s thrusters and waiting for the right response is key to smooth flying.

A highlight in May was the opportunity to ‘fly’ the ROV around the RMS Niagara, sunk by a German mine in 1940 and lying at a depth of 110 metres near Northland’s Bream Head. She had eight tonnes of gold on board when she sunk, and five bars of gold are reputed to have never been recovered. The Manawanui team was able to provide the Whangarei harbour master and Maritime New Zealand with an updated survey of the condition of the wreck, which may still hold a decent amount of heavy fuel oil.

A modern wreck – MV Rena – was used to work the skills of Military Hydrographic Group Team 1, embarked on board HMNZS Manawanui to train on the ship’s Multi-beam Echo Sounder (MBES) and rapidCAST computer system. Rena, a container ship, grounded and broke apart on Astrolabe Reef near Tauranga in 2011. MBES uses sound waves to scan and survey the seabed, producing a picture that can be used to identify objects on the seabed. It is also used to record the depths of the seabed and the data can then be processed to produce navigational charts.

RapidCAST is used in conjunction with the MBES by recording how the speed of sound and water temperature changes throughout the water column from the surface to the sea bed. But there’s at least one capability that is only used by ship’s company - Manawanui’s 100-tonne offshore crane - with the ship growing a pool of operators trained to use it.

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