Enhancing the Lethality and Survivability of the Integrated Force

SIR RICHARD WILLIAMS FOUNDATION

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Williams Foundation Seminar #2 2022: 28 September 2022

With the looming defence strategic review launched by the new Labour government, the Williams Foundation seminar looked at the challenges facing the ADF and the nation in shaping a defence policy shaped not by a peacetime mindset but one attuned to a global order in conflict.

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THE SCENE SETTING FOR THE NEXT PHASE OF ADF DEVELOPMENT

The most recent Williams Foundation Seminar was held in Canberra, Australia on September 28, 2022. The seminar was entitled, "Enhancing the Lethality and Survivability of the Integrated Force."

The seminar in effect provided a scene setting for discussing the next evolution of the ADF generated by the evolving strategic environment and the much wider demand side of dealing with security and defence that really requires a whole of nation approach.

Since 2018, the Williams Foundation seminars have turned towards the major transition facing Australia and its partners and allies namely, the global confrontation between the 21st century authoritarian states and the liberal democracies. Rather than simply maintaining a "rules-based order," the ADF and its allies and partners are now contesting the clear efforts of the major authoritarian powers to displace this order and replace it for a world safe for the authoritarians.

And we have seen the Russians move from "hybrid warfare" to open industrial age warfare with some new aspects of the conduct of war introduced into the war as well.

We have entered a new historical epoch, and determining how to deter, defect, contest and defeat major powers becomes part of the new context facing the ADF and the Australian nation.

There are obviously no quick fixes for such challenges, but a major re-orientation for the ADF and Australia is required.

As has been noted by a sage former senior U.S. defence official: "We have 80% of our force now which we will have in 20 years." This means that reworking and reorienting the force you have but introducing new elements to make your force more lethal and survivable is a major part of the challenge from a force building perspective.

The seminar speakers highlighted various aspects of what needs to be done to provide for rethinking the way ahead for the force but in the context of what is realistic to do as well as what needs to change to get the job of deterrence done effectively.

At the heart of the shift is focusing on the direct defence of Australia and working Australian geography to advantage.

This means that the joint force needs to focus on how to work together to defend the continent and project relevant power into the region.

This means as well that the new power projection instruments – those represented by cyber and space – neither of which is geographically limited are now part of the deterrence and warfighting efforts.

If we can consider there is a return to a core focus on the direct defence of Australia and shaping an understanding of the strategic space defining Australia's defence perimeter, how might the current ADF force be restructured in a template which allows for the kind of innovation going forward that will enhance ADF direct defence capabilities?

How might new capabilities be added over the near to mid to longer term that enhance this defence restructuring to extend Australia's direct defence capabilities?

In other words, if one focuses on the priority of the direct defence to Australia, what kinds of force restructuring might be necessary for the current ADF?

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And then ask what new capabilities are coming into the force or could be integrated into the force in the near to midterm, what would that ADF look like as an integrated combat grid over the extended area of operations?

If one re-shifts the focus of your force, one has to ask what is most relevant and what is not in such a strategic shift; and then determine what one needs to form the relevant concepts of operations for that force,

It is crucial as well to find cost effective ways to enhance that forces capabilities and train appropriately to shape the most lethal and survivable force possible within the various constraints facing the nation.

But that raises another key point. If indeed the priority of the defence of Australia is from the continent to the first island chain, then the resources necessary to do so are much greater than the ADF will possess.

What kinds of infrastructure can be built in the relevant areas of sustained operations?

How to enhance force mobility throughout the region?

How to shape mobile basing options and capabilities?

These challenges obviously require key innovative efforts for reshaping the joint force and requires government to consider investments and approaches beyond that which would be considered narrowly considered for a defence budget.

The September 28, 2022 seminar provided a significant look at the reframing challenges and to how to think about the way ahead.

FIGURE 1 THE AUSTRALIAN SERVICE CHIEFS ATTENDING THE WILLIAMS FOUNDATION SEMINAR.

This is how the Foundation invitation highlighted the seminar:

Aim

The aim of the September 2022 seminar is to examine specific measures which enhance both the lethality and survivability of an integrated Australian Defence Force. It will examine gaps and opportunities in the 5th

generation force and identify priorities which accelerate preparedness for complex, sustained, high intensity operations.

Background

Since 2013 the Sir Richard Williams Foundation seminars have focused on building an integrated 5th generation force. Recent seminars have evolved from the acquisition of new platforms to the process of shaping and better understanding the environment in which the integrated force will prepare and operate. Moreover, they have highlighted the challenges of acting independently at an accelerated tempo and in sustained, high intensity, complex operations across all domains.

Almost a decade later, the 2022 seminars reflect on the journey towards a 5th generation force and identify gaps, opportunities, and priorities for the development of next generation capability in the face of new threats and new risks, paving the way for the 2023 seminars.

Despite the operational challenges, the framework and apparatus of the 5th generation force is substantially in place. And while there is still plenty of work to be done, the shift from a focus on platforms to a broader appreciation of an integrated 5th generation system of systems represents an important milestone.

As identified in the March 2022 seminar, there is a shared understanding of the scale of the challenges ahead for both defence and industry, and across coalition partners, too. However, the strategic circumstances continue to deteriorate at an alarming rate, driving the need for prioritisation in both what and how we acquire new capabilities.

On top of that, there is the challenge of progressing integration with the force-in-being as well as the future force. The need to balance the requirement to 'fight tonight' with the ability to meet future threats is vitally important, noting that the force we will have in 20 years' time will contain 80% of what we have today based upon a series of major systems with an upgradeable software core.

Towards a Lethal, Survivable, and Affordable Force

The September seminar will develop the ideas identified in March and expand on the theme of an increasingly sophisticated and time-sensitive 'lethality-survivability-affordability' trade-off necessary to build a balanced and relevant force. A trade-off which is set within the context of a need for increased deterrence, decision-making advantage, and a commercial reality that we no longer have the time to establish the competitive tension the acquisition system has traditionally demanded to demonstrate best value for money.

The seminar will focus on the gaps and opportunities as they relate to the broader requirements of the Australian Defence Force, notably in terms of enablers and integration priorities. Above all, it will focus on preparedness and the need to focus on outcomes which improve training throughput and performance at the force level, backed up by enhanced fuel, infrastructure, weapons, basing, and supply chain resilience.

A core consideration will be the need for an increasingly integrated relationship between Defence and system providers to develop the industrial depth and responsiveness necessary for future operations. A relationship which works towards a better understanding of our industrial production capability needs, while recognising that competition in some areas has the unintended consequence of reducing overall sovereign production capability and capacity.

Another area of interest is the need for greater exploitation of technology to enhance human performance and decision making at the force level to complement training systems associated with individual platforms and weapon systems. Improving training system effectiveness and efficiency, described in terms of 'Mission

Rehearsal' at the March seminar, not only increases throughput but also ensures the enterprise is ready to operate across the spectrum of conflict while being disrupted, deceived, and degraded.

To introduce different perspectives from elite, high performance sport, the Seminar also includes former Australian test umpire Mr. Simon Taufel. For five years he was formally recognised as the world's best cricket umpire based upon his consistent ability to make accurate decisions under pressure and his ability to integrate technology into real time decision-making.

In the final session, Service chiefs will provide insight into their thoughts about the future operating environment and key observations and lessons from the transition to a networked integrated force.

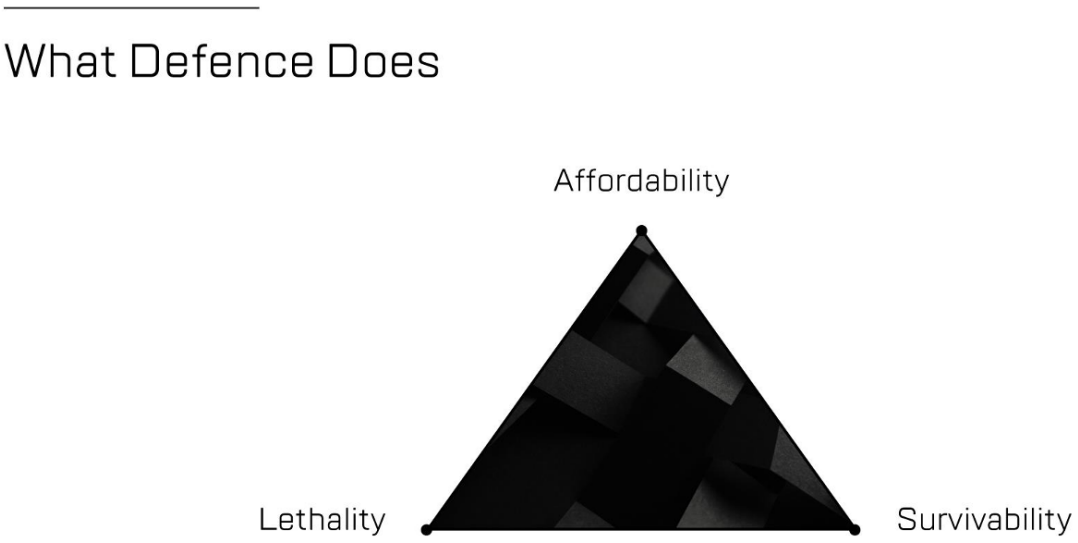

FIGURE 2 SLIDE FROM PRESENTATION BY CHRIS MCINNES TO THE WILLIAMS FOUNDAITON SEMINAR

KEY BUILDING BLOCKS FOR SHAPING A WAY AHEAD FOR THE ADF

The Williams Foundation Seminar speakers provided a comprehensive set of questions as well as key building blocks for shaping the way ahead for the ADF in the evolving strategic situation. In this report, I am focusing on how the speakers interactively defined some of the key questions and building blocks for shaping a way ahead.

Rather than highlighting the individual presentations, I am focusing on the underlying thinking about key elements in the evolving strategic environment and how that interacts with the challenges facing Australia as a nation and the re-set of the Australian military on a primary focus on the direct defence of Australia.

A number of civilian analysts participated in the seminar and provided their perspectives on the challenges facing Australia as a nation as well as in shaping the way ahead for the ADF.

Dr. Alan Dupont, CEO of The Cognoscenti Group, provided an overview to kick off the seminar which focused on the nature of the global dynamics of change and their implications for Australia. Chris McInnes of Felix Defence and The Williams Foundation highlighted key tradeoffs facing force structure development for the ADF going forward. And Simon Taufel, an expert on Cricket, provided insights from his experience with the

umpiring process with regard to lessons learned with regard to decision-making. Dr. Andrew Dowse, Director, RAND Australia, discussed the defence industrial base and provided important insights with regard to the way ahead for the weapons enterprise in Australia.

Two defence industrial presentations were given one by General (Ret) John William Nicholson Jr. from Lockheed Martin and another by Bill Lamb, Director of the Multi-Domain Mission Command Operating Unit, Northrop Grumman Defence Systems. Both provided insights with regard to options for the ADF going forward.

The majority of the day were presentations by serving officers in the ADF, the RAF and the USAF. Collectively, these presentations provided insights with regard to the concrete ways ahead being pursued by the ADF and allied militaries as they shift from the legacy of the Middle East wars to competition with the major 21st century authoritarian powers. As the war in Ukraine is ongoing, the war provided a backdrop to these presentations as well.

Allied military presentations were given by General Kenneth Wilsbach, Commander, Pacific Air Forces and by AVM Ian Duguid, Air Officer Commanding No 1 Group, Royal Air Force. Wilsbach's presentation was pre-recorded video presentation which highlighted how PACAF is focusing on shaping a more effective way ahead for its forces, namely working force distribution and integration and the enhanced role for mission rehearsal with allies and partners to shape more effective concepts of operations going forward. AVM Duguld focused on the building blocks for the kind of decision superiority required to compete effectively in the high-end fight.

A key element of the seminar were the presentations from the three service chiefs. AIRMSHL Robert Chipman, RAAF, VADM Mark Hammond, RAN, and Lt Gen Simon Stuart, Army, provided overviews of the way ahead for their services and the joint force. Many of the elements of shaping the way ahead have been discussed throughout the Williams Foundation Seminar series, but how to reset the force using the capabilities already in the extant force was a key focus of attention.

Additional military speakers provided insights with regard to key elements to shaping a way ahead for the ADF seen from their roles within the ADF.

MAJGEN Anthony Rawlins, head of force design, provided insights with regard to shaping a way ahead for the force in the context of the evolving strategic environment. AIRCDRE Jason Begley, Director General Joint C4, Joint Capabilities Group, focused on the challenge of C2 in contested operations and how to integrate a distributed force. RADM Stephen Hughes, Head of Intelligence Capability, highlighted the importance of the efforts underway to shape a more integrated defence intelligence enterprise for the ADF. And AVM Darren Goldie, Air Commander Australia underscored ways ahead for the RAAF as it focuses on the direct defence of Australia as a key priority for its operations.

SQNLDR Sally Knox was the moderator for the day and throughout the day she provided questions driving more integrated responses to shaping answers to the core questions posed by the seminar. And the Chairman of The Williams Foundation, Air Marshal (Retired) Geoff Brown wrapped up the seminar and posed a series of questions with regard to the way ahead for the ADF.

THE EVOLVING STRATEGIC ENVIRONMENT AND ITS IMPACT ON THE ADF

The launch point for the Williams Foundation Seminar held on September 28, 2022, was the presentation of Dr. Alan Dupont. Dupont provided a comprehensive examination of how fluid and dynamic that environment was for Australia and the liberal democracies. He underscored that several crises were happening at the

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same time, and that the demand side on nations of having to deal with multiple crises at the same time presented an overload situation.

For Australia, this meant that its economy was challenged by several developments at the same time. The pandemic exposed the supply chain vulnerabilities of an island continent. The globalization disruption and re-direction meant that the core relationship between China and Australia which has been part of Australia's prosperity was significantly undercut. The war in Ukraine posed both supply chain disruptions, economic downturns and brought back dramatically the threat of global conflict.

FIGURE 3 SLIDE FROM DR. ALAN DUPONT'S PRESENTATION TO THE SEMINAR

For the nation, Dupont underscored that defence and security were clearly not simply an ADF challenge or to be funded simply by defence budgetary requirements. How to build more secure supply chains? How would doing so disrupt the trade order and the global WTO rules? How to deal with the energy crisis? How to ensure energy supply? How will Australia deal with coal and nuclear energy issues?

The broader point was simply that defence was no longer the province of the professional ADF; the global crises posed challenges beyond the remit of a professional force like the ADF could deal with.

And what is required was shifting from a peacetime mindset to one which understood the cascading challenges to Australian sovereignty and to the nation.

The Chinese challenge to the region is broad based. It is military, it is commercial, it is political, and it is about comprehensive security challenges, such as cyber intrusion and actions like its security pact with the Solomon Islands. Just deal with this challenge alone provided the need for a comprehensive rethink concerning how Australia dealt with its security and defence challenges.

This requires a geographic shift for the ADF.

This is how Dupont put it on a piece published in ***The Australian*** shortly after the seminar:

"Our posture is far from ideal. There is an imbalance between where our forces are and where they need to be. Most of the ADF is comfortably located in our major southern cities, along with their equipment and supporting infrastructure and enablers. But the main threats are to our north. Northern Australia is poorly defended and doesn't have sufficient capacity to support enhanced ADF and allied deployments into the western Pacific, the most likely conflict arena.

"None of the navy's major fleet units are based in the north. People's Liberation Army intelligence collection and war-fighting ships patrolling the Timor, Arafura and Coral seas know our frigates and destroyers will take days to reach them from their bases in Perth and Sydney. The only significant naval ships in Darwin are patrol boats, which are used primarily for constabulary tasks. There is no air-defence system in northern Australia able to protect vital oil, gas and military installations from missile attack."

In other words, the more specific military challenges require Australia to focus on how to use its geography to its and to allied advantage. This means finding ways to work in Western to Northern Australia to Australia's first island chain. Dupont both in his presentation and in the interview he had with John Blackburn and me a few days after the seminar, highlighted the importance of leveraging the Northern Territory.

But to do so he argued that innovative new ways to raise capital for infrastructure development was required. Notably, he highlighted the importance of public and private partnerships to do so.

Dupont also underscored that shaping new defence and security infrastructure and training facilities was an important opportunity to involve core allies of Australia, notably the United States, Japan and South Korea, in involvement in building out the defence infrastructure in the Australian continent and find ways to shape more effective integrated training at the same time.

It should be noted that building 21st century basing involves force mobility, so the question of how one builds defence infrastructure in this area involves as well significant innovation regarding basing mobility and shaping both Australian and allied capabilities for what has come to be called agile combat employment. Former PACAF chief Hawk Carlisle referred to this dynamic as "places not bases."

During the day, other presenters weighed in with regard to how the evolving environment changed the defence dynamic. For many of the speakers, the focus on defence from the continent to the first island chain required a major focus on how to reset the force for this primary mission set. This meant force mobility and working tradeoffs between enhanced hardening of bases and base mobility.

With regard to base protection, what would be the role of active and passive defence? How might the Air Force and Army work more closely to deliver more survivable distributed force basing? What kind of mobile basing was feasible? What role for seabasing in relationship to the force mobility dynamic? What role might civilian assets, such as merchant marine assets might play in such an effort?

Longer range strike has been identified a key element of the building out of Australian defence capabilities. In 2018, the Williams Foundation held a seminar which directly dealt with the need for shaping longer range

strike for the force. Air Marshal (Retired) Brown had summarized a key aspect of that seminar as follows: "I think we need a serious look within our focus on shaping industry that both meets Australia's needs as well as those of key allies in the missile or strike areas.

"We build ammunition and general-purpose bombs in Australia, but we have never taken that forward into a 21st century approach to missiles and related systems. We should rethink this aspect of our approach. There are plenty examples of success in arms exports; there is no reason we cannot do so in the weapons area, for example."

Since that time, the Australian government has committed itself to do so, but given the threat envelope and the affordability challenges, how best to build out long range strike for the ADF? How to manage targeting tradeoffs? At what range does the ADF need to be able to strike an adversary? How does the ADF manage risks in the targeting areas in terms of getting a crisis management impact without leaving the Australian strike inventory at perilously low levels?

How does Australia build a capability with allies in which a range of strike weapons could be built, stockpiled and used in a crisis? How to get a more affordable inventory of weapons?

FIGURE 4 BILL LAMB FROM NORTHROP GRUMMAN EXPLAINING HOW IBCS WORKS

It was not mentioned in the seminar, but the coming of directed energy weapons to capital ships could have a significant impact on the deployed distributed force and deliver enhanced integrated lethality and survivability at the same time. For example, the new Hunter class frigates could deliver such a capability if so configured.

And longer-range strike is not simply kinetic. What role can cyber offensive operations play in disrupting Chinese military operations, supply chains and Chinese domestic control and manufacturing capabilities?

In other words, the evolving strategic environment and the impact of multiple crises is setting in motion in Australia the biggest change in defence seen in recent years.

And in dealing with this challenge, the ADF re-set will not be defined by the acquisition of big new weapons programs, but by taking the current force, re-setting it, re-deploying it and building out from this effort to force design modernization defined by the gaps identified and the needs which can be met within the short-to-midterm rather than envisaging a force in 2030 or 2040 in abstract war-gaming terms.

And if it is only left to the ADF and what the defence budget can fund, the defence and security re-set will fall far short.

THE WHOLE OF NATION CHALLENGE

With the shift from a primary focus on the away game to the direct defence of Australia, the broader focus on defence and security needs to move from warfighting to war. Or put in other words, the ADF has been focused on the evolution of capabilities for warfighting while working with allies in the Middle East land wars, but now is focused on building defence in depth for Australia in its region.

Both efforts entail working effectively with allies; but in the land wars case, the ADF is part of a broader allied logistics and sustainment effort with just in time logistics being sufficient. In the direct defence of Australia case, how to work with allies and with whom in what specific circumstances and to be able to ensure that Australia's priorities have more than a seat at the table is a work in progress.

Because the challenge posed by the 21st century authoritarians, notably China, has a direct impact on the entire paradigm in which Australia has thrived economically and globally, the entire gamut of economic, political, cultural, informational and global trade relationships are involved now in the broader whole of government and whole of nation effort to ensure the survival of Australia as a liberal democratic nation in a congenial global order.

The most direct statement of the intersection between the ADF and the nation was made by the new Chief of Navy, Vice Admiral Mark Hammond. This is how he put it in his presentation to the Williams Foundation seminar on September 28, 2022:

"I believe it's important to raise our eyes above the tactical level for a moment to reflect on why we build and employ an integrated force. And I say this because what we build and what we do with it matters only in so much as it enhances our national well-being.

"Our national well-being like all nations is derived from sustained economic prosperity, and peaceful coexistence with nations. And as a trading island nation connected to the global trading system by seabed cables, and maritime commerce, our economic well-being is almost exclusively enabled by the sea and by the seabed.

"Enablement though is not enough. Sustained economic prosperity has only been possible because these systems — freedom of navigation for commerce, and seabed infrastructure which enables our financial and strategic connectivity with the global trading system — have flourished in an environment of acceptance and adherence to the complex array of treaties, laws and conventions that for almost 80 years have been iterated, improved and almost universally supported.

"We call this the rules-based order, and we credit it with providing it with good order at sea in the collective interest of peace for all nations. Those of us who understand Australia derives its well-being from this system are alarmed that such norms are being challenged.

"We are concerned that the right to peaceful coexistence with other nations can no longer be assumed. As former minister for defence the honorable Kim Beazley stated in Perth last month, and I paraphrase, what right do we have to exist as a sovereign nation of only 25 million people occupying an island continent with room and natural resources the envy of the world?

"The answer is the rights conferred by adherence to the rules-based order. The very rights we have assumed to be enduring and beyond contest for decades. But that is no longer the case. This system is now being Second Line of Defence

challenged and our government has commissioned the defence strategic review in response to these challenges.

"It is reasonable to conclude that that which cannot be assumed, must be guaranteed. And that is why the lethality and survivability of our defence forces is being re-examined. In this context, there is a direct and distinct nexus between the lethality and survivability of the integrated force and the survivability of our nation.

FIGURE 5 CHIEF OF NAVY SPEAKING TO THE WILLIAMS FOUNDATION SEMINAR

"And this relationship is recognized by our prime minister in the last month. The Honorable Anthony Albanese has stated that he sees the three key principles of our current security policy are to defend our territorial integrity, to protect our political sovereignty from external pressure and to promote Australia's economic prosperity through a strong economy and resilient supply chains….

"Australia is a paradox. The geography which makes it difficult to invade and conquer Australia also makes Australia dependent upon seaborne trade. In other words, Australia might not be vulnerable to invasion, but the hostile power does not need to invade Australia to defeat Australia."

Unpacking an understanding of the evolving relationship between the nation and the ADF is at the heart of reworking the defence of the nation in the years to come. The defence capabilities which have enabled the ADF to deliver significant but targeted warfighting capability will now be adapted and refocused on Australia's direct defence and role in its region.

But how will this intersect with how national efforts unfold?

How will the necessary ADF mobilization potential intersect with the mobilization of the nation?

How will the ADF build out its workforce and be supported by the enhanced capability of domestic defence industry to support the ADF in a crisis or sustained conflict?

The pandemic as a prologue to the kind of macro crisis which faces Australia highlighted the need for more secure and stable supply chains.

How can Australia build resilient supply chains and with whom?

How to build the knowledge base with regard to what needs to be protected by such an effort and what can be left to the forces of globalization?

The fuel challenge is notably significant as the geopolitics of fuel and setting climate change standards without regard to geopolitical reality will only leave Australia and the liberal democracies vulnerable to energy supply extortion. It is difficult to miss what is going on in Europe and its relationship with Russia as a basic lesson in the relationship between geopolitics and energy.

And the question of Australia's geography is a foundational point for understanding how the ADF will re-deploy and re-calibrate as the nation prioritizes infrastructure in the regions in Australia central to the projection of power from the continent to the first island chain of Australia and beyond. The importance of shaping enhanced capabilities for operations from the North of Australia was a frequent point made in various presentations to the seminar.

For example, AVM Darren Goldie, Air Commander Australia, underscored the following: "Australia's North is key economic, geographic and cultural terrain in the Indo-Pacific. Our sovereign control over the north increases Australia's role and influence in the region, and with our key ally like never before."

FIGURE 6 AIR MARSHAL CHIPMAN ADDRESSING THE WILLIAMS FOUNDATION SEMINAR

His boss, Air Marshal Robert Chipman, reinforced Goldie's point as follows:

"As we consider strategies to deter conflict in the Indo-Pacific region, we should consider how we might contain conflict geographically and/or within specific domains. And what actions might lead to runaway escalation?"

With the return to a priority on the direct defence of Australia, albeit in a broader alliance context, "geography should shape our approach to national security. The ability to deliver effects at a distance from, and in the approaches to Australian sovereign territory will be a critical feature of our future security strategy. Air power will make a vital contribution to our joint force structure and posture in this context."

But he warned that the traditional view of the strategic geography has been modified by technological and warfighting advances. "Our traditional view of a contest in the physical domains is obsolete. Operations in and through the space and cyber domains have extended Australia's strategic geography. They don't displace the maritime, land and air domains, but rather demand a lift in our capacity to contest them all, and importantly, integrate our warfighting effects between them in order to conduct joint all-domain operations." Second Line of Defence

This point highlights another key aspect of how to understand the intersection between ADF development and the shift in focus for the nation for a peace time mindset. The digital enterprises which underlie modern liberal democratic service economies are battlegrounds for cyber warriors. This is clearly not simply the province of the ADF nor primarily the responsibility of the ADF short of total war.

And that returns us to the key question of mobilization: what then does mobilization of the nation mean when the liberal democracies have become service economies rather than industrial ones? By outsourcing industry to its main competitor – China – Australia and its allies have outsourced the industrial production central to having an arsenal of democracy in times of conflict.

How then might Australia and its allies and partners build or rebuild an arsenal of democracy?

And let me highlight a final point with regard to Australian geography and shaping a way ahead for the ADF. In my own view, the kind of integrated distributed force which can evolve from the joint force already created by the ADF is very symmetrical with the blending of a kill web force with Australian geography conceived in archipelagic terms.

In an interview I did prior to the seminar, Dr. Andrew Carr provided an insightful way to look at Austral's geography. This is how he put it: "There is an underlying paradox of is Australia an island or a continent? Determining your focus has important implications for the kinds of defence forces you want to build and the way you think about your relationship with others and the role of the state.

"We go back to Athens and Sparta, a land power, and a sea power, fight in different ways, they create different kinds of empires. In the 1980s, when Australia was thinking seriously about home defence and how you would build a force structure for that, the implicit idea was that Australia was an island.

"We focused on the SE gap to our north, on long-range understanding of traffic that might come down through the first island chain, developing JORN, the Jindalee Operational Radar Network and other systems like that for understanding that environment.

"Our maritime focus drove a lot of our defence policies. There was actually very little conception about how do you use Australia's own geography for your advantage in a way that the Chinese or the Russians as classic continental powers have done so. And that was appropriate for the time and circumstances.

"There are examples of Australians in a crisis thinking about how to leverage our continental advantages.

"The classic example is the Second World War, where in desperation we suddenly considered whether Australia needed develop an insurgent or gorilla strategy with the public volunteering to fight the Japanese if they landed in Australia.

"Could we trade space for time? But the Australian continent isn't very useful for such an approach because all of our key population and industrial centers are along the coast often with a mountain range very close to the coast with the result that we are clustered near the sea in de facto "island chains."

He then argued that there was a third approach to conceptualizing Australia's strategic geography which suggests a way in turn to conceptualize the way ahead for Australian direct defence. "If you look at where people have lived since British invasion in 1788 on this continent, it's closer to being an archipelagic nation. You have the island of Sydney, the island of Melbourne, the island of Tasmania, the island of Brisbane and Darwin, with vast gaps in between.

"Our early patterns of settlement were all about supporting these distinct islands. The Australians didn't run railways across the continent and have an expanding frontier as the Americans had. Everything ran to the sea because economically it made more sense to send goods to the nearest port, and then send it by ship from city to city, island to island effectively, or off to America or to Europe for trade.

"In other words, we have an archipelagic country that has very distinct cultures that are also connected and for a defence perspective, that leads to a different way of operating or thinking about your ability to move across and between settlements, rather than being tied to the direct defence of every specific inch of territory.

"How do we extract benefit from such an approach?

"How you can we move force between sea and lands seamlessly and recognizing that it's not simply the defence of your territory but having the ability to move move out into the region in cooperation with partners and allies, where Indonesia is the largest traditional archipelago in the world?

"There's many significant archipelagic nations in the South Pacific, and we are going to need an ADF that is able to operate seamlessly across those environments as well."

This means working mobile basing, force mobility, agile combat employment, leveraging land, sea and air bases to concentrate force against key threats in the region. And with the autonomous revolution at hand finding ways to get enhanced mass of payloads in support of the missions from a diversity of uncrewed as well as crewed platforms.

Conceptualizing of Australia's geography in archipelago terms raises the question of rethinking the ADF as an archipelago defence force and as such can help both in restructuring the ADF in the near to midterm but also providing a sense of priorities for defence modernization and what mobilization of the nation might need to look like going forward.

And Carr commented on the intersection of geography conceived of archipelago terms with the evolving force structure of the ADF as follows: "There are clearly many overlaps between the archipelagic concept I've put forward and an ADF which is integrated with the U.S. and our allies in a kill web logic across our northern shores and into the Pacific."

RE-SETTING THE CURRENT FORCE

As noted in the Williams Foundation seminar, 80% of the force which the ADF or its allies will have in 20 years, they have today.

With the refocus on the direct defence of Australia, the initial focus is upon re-setting the current force, re-directing it and find ways to ramp up capabilities in three to five years without the benefit of a significant launch of new platform programs.

In part, this is focusing on ways to operate within Australia to project power from Australia.

Earlier Williams Foundation seminars have highlighted the importance of working ways for the integrated force to operate more effectively as a maneouver force operating within and from Australian territory and being able to operate more effectively in terms of power projection operations from the continent.

For example, at the Williams Foundation conference held on October 24, 2019, and entitled "fifth generation manoeuvre," a key focus was on the shift in C2 required for a manoeuvre force to operate more effectively projected from Australia into the region.

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This is what I wrote after that seminar with regard to this aspect of shaping the way ahead:

"To achieve the kind of agility and decisive effect which 5th generation maneouver can achieve requires a significant re-focus on the nature of the C2 and ISR infrastructure. Such an evolved infrastructure enables the legacy and new platforms which are re-shaping capabilities for the combat force to be much more capable of operating across the full spectrum of crisis management.

"In today's world, full spectrum crisis management is not simply about escalation ladders; it is about the capability to operate tailored task forces within a crisis setting to dominate and prevail within that crisis. If that stops the level of escalation that is one way of looking at it.

FIGURE 7 GEN. NICHOLSON JR., LOCKHEED MARTIN, ADDRESSING THE SEMINAR

"But in today's world, it is not just about that, but it is about the ability to operate and prevail within a diversity of crises which might not be located on what one might consider an escalation ladder. They are very likely to be diffuse within which the authoritarian powers are using surrogates and we and our allies are trying to prevail in a more open setting which we are required to do as liberal democracies.

"This means that a core legacy from the land wars and COIN efforts needs to be jettisoned if we are to succeed – namely, the OODLA loop. This is how the OODA loop has worked in the land wars, with the lawyers in the loop, and hence the OODLA loop.

"The OODA loop is changing with the new technologies which allow distributed operators to become empowered to decide in the tactical decision-making situation. But the legalistic approach to hierarchical approval to distributed decisions simply will take away the advantages of the new distributed approach and give the advantage to our authoritarian adversaries.

"But what changes with the integrated distributed ops approach is what a presence force can now mean.

"Historically, what a presence force is about what organically included within that presence force; now we are looking at reach or scalability of force. We are looking at economy of force whereby what is operating directly in the area of interest is part of distributed force. The presence force however small needs to be well integrated but not just in terms of itself but its ability to operate via C2 or ISR connectors to an enhanced capability.

"But that enhanced capability needs to be deployed in order to be tailorable to the presence force and to provide enhanced lethality and effectiveness appropriate to the political action needed to be taken. This rests really on a significant rework of C2 in order for a distributed force to have the flexibility to operate not just within a limited geographical area but to expand its ability to operate by reaching beyond the geographical boundaries of what the organic presence force is capable of doing by itself.

"This requires multi-domain SA – this is not about the intelligence community running its precious space- based assets and hoarding material. This is about looking for the coming confrontation which could trigger a crisis and the SA capabilities airborne, at sea and on the ground would provide the most usable SA monitoring.

"This is not "actionable intelligence." This is about shaping force domain knowledge about anticipation of events.This requires tailored force packaging and takes advantage of what the new military technologies and platforms can provide in terms of multi-domain delivery by a small force rather than a large air-sea-ground enterprise which can only fully function if unleashed in sequential waves."

There was much discussion at the September 28, 2022, seminar along these lines.

How to enable the distributed force to work effectively for force distribution but to be able to aggregate to a sufficient extant to deliver the kinetic or non-kinetic effects required for operational success?

For example, AIRCDRE Jason Begley, Director General Joint C4, Joint Capabilities Group, underscored the following: "Resilience in communications is critical to war fighting of any form. But for every new effort we make to work the cyber domain to our advantage, the adversary is looking for ways to disrupt or deny that to us….

"In that conflict, speed will be defined primarily by the pace at which data flows from sensor to decider to effector. This has given rise to a range of concepts.

"You've obviously heard of things like Mosaic Warfare, Joint All-Domain Command and Control, overmatch, convergence, and Kill Webs. The actual differences between those are fairly minor because from a design perspective, they all come from the same DNA, mesh networking to assure maximum survivable connectivity from sensor to decider to effector. Their end goal being every sensor, any shooter."

FIGURE 8 AIRCDRE JASON BEGLEY ADDRESSING THE WILLIAMS FOUNDATION SEMINAR
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He argued that working data within a distributed network was a key focus of attention in getting the kind of lethality/survivability mix which was desirable for combat effectiveness in denied combat environments. This is how he put it: "The future is one in which data is actually now the center of things. Need to share has replaced need to know as the driving force. And for anyone, and that would be many in this room who's enjoyed the NOFORN experience, sharing can be both technically and culturally quite difficult to achieve.

"But the machine speed of the conflict we'll face in the future means we have to achieve that same speed of information maneuver. If we don't, we will fail. And the answer to that is to pivot from network-centric designs to ones that are data-centric."

Several of the speakers highlighted the key role which manoeuvre warfare would increasingly play as the integrated force is reworked with the Australian continent as a launch point.

For example, Air Marshal Chipman noted in an interview held the day after his presentation to the conference: "We need to focus on ways to enhance dispersion, agility, movement, and manoeuvre as a force. We need to understand how we will manoeuvre as an air force and that encompasses the ground and air infrastructure that's required to do that. And we need to manoeuvre as a joint force. We need to have a joint scheme of manoeuvre that involves both ground and air elements.

"And in building out the ADF as a joint force, the challenge is to enhance the readiness and capabilities of the current joint force to deliver enhanced capabilities for the direct defence of Australia but at the same time position the ADF for force modernization and capability enhancements."

Air Marshal Chipman underscored: "We will fight with what we've got today. And for the next 20 years, possibly up to 80% of our future order of battle will have already been fielded today.

"But If you look at the quality of our platforms and the quality of the training and the quality of our people, then we're as well placed for a nation of our size as we could be with our air power, with what we've got today.

But the challenge can be put this way. He noted: "It's how we use air power to achieve that agility, how we use it to make sure that we are survivable and that we can get mass to the right point when we need it to influence the battle space. It's that approach that we are changing with our focus on force agility.

"We are focused on agile combat employment and thinking about dispersal, moving quickly, moving lightly, even with F-35, taking small numbers of maintainers and less support equipment than we would typically require at a major base.

"Our approach will take us to a kill web environment, but we will be looking for ways to accelerate our mission threads in such an environment and we'll be looking for ways to make sure any new capabilities are integrated and operational as quickly as possible.

"And the two areas that are of greatest focus to me are integrated air missile defence and space. With the integrated air and missile defence piece, there's a lot of opportunity to work with Army.

"With regard to the space domain, we are focused on the evolving interfaces between air and space. With effective integration, we can have joint fire systems so that I can achieve effects throughout the joint force from common systems.

"I believe that the integrated air missile defence project is a genuine step along our pathway to fielding a kill web."

The way Chipman put it was clearly reworking the current force to provide a proper template for any force modernization or enhancements to follow. And doing so meant that Australia was looking to do so in ways that could intersect like a Venn Diagram with its allies to get the most effective feasible integrability possible without compromising the survival of the combat force in critical combat conditions.

Take the case of Agile Combat Employment or put another way, working ways to operate the RAAF throughout Australian territory in ways that would allow for its survival but to intersect beyond the continent in ways that mesh with the USAF's approach to ACE as well.

As AVM Darren Goldie, Air Commander Australia put it: "I've tasked the Air Warfare Centre with developing agile concepts with attendant risk consideration. We need to complicate an adversary's targeting process and create operational and political dilemmas for those that seek to disrupt our operations. There must be congruence with the USAF's agile combat employment or ACE… But this is specific Australian planning in recognition of our strategic geography."

The USAF and the RAAF approaches can be complimentary but have differences as well. Reworking force dispersal as well as the C2 to allow for Australian strategic depth have elements very different from a USAF trying work globally. Notably, the USAF is working a global concept of Joint all-domain command and control. "Joint All-Domain Command and Control "(JADC2) is the Department of Defence's (DOD's) concept to connect sensors from all of the military services—Air Force, Army, Marine Corps, Navy, and Space Force—into a single network."

FIGURE 9 AVM GOLDIE ADDRESSING THE WILLIAMS FOUNDATION SEMINAR

But network sharing across a global system would be very complicated and frankly distributed force operations really are about how the modular task force at the tactical edge integrates effectively for combat or crisis effects more than it is about how such an ACE force needs to reach back to a CAOC in Hawaii.

With regard to the USAF approach to ACE, the CO of the Pacific Air Force, General Wilsbach, has been a key participant in Williams Foundation seminars to lay out how he sees the way ahead. This is what he argued at the seminar: "One way the U.S. is responding to the challenges of PRC technological advancement is through continued refinement of the ACE concept. ACE insures we are ready for potential contingencies by enabling our forces to effectively operate from numerous locations with varying levels of capacity and support.

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"Its heartbeat is a network of well-established and austere air bases, prepositioned equipment and airlift to rapidly deploy, disperse and maneuver combat capability throughout the region. As a coalition force, we must continue to expand our access, airspace, basing and resources west of the international dateline to better posture our sales to conduct distributed operations both during training and real-world missions."

What Wilsbach means was given more detail in an interview which I conducted at PACAF headquarters in Honolulu last August. Brigadier General Michael Winkler, then Director of Strategic Plans, Requirements and Programs at the Pacific Air Force, provided this explanation of ACE:

"PACAF has taken a realistic approach that is fiscally informed because it would be very difficult for us to try to build multiple bases with 10,000-foot runways, and dorms, and ammunition storage all over the Pacific. What we've done instead is concentrated on a hub and spoke mentality, where you build a base cluster. That cluster has got a hub that provides quite a bit of logistic support to these different spoke airfields.

"The spokes are more expeditionary than most folks in the Air Force are used to. The expeditionary airfield is a spoke or a place that we operate from. It's not 10,000 feet of runway; it's maybe 7,000 feet. We're probably not going to have big munitions storage areas, there's probably going to be weapons carts that have missiles on them inside of sandbag bunkers. And we're going to look a lot more like a Marine Expeditionary base than your traditional big Air Force base. It'll be fairly expeditionary."

FIGURE 10 GENERAL WILSBACH ADDRESSING THE WILLIAMS FOUNDATION SEMINAR VIA A PRE-RECORDED MESSAGE

It is not obvious that this is how the RAAF will address force distribution within the Australian continent. But here it is very clear that how the Australian Army and the RAAF find ways to work together to provide for base mobility is at the heart of the way ahead for both the passive and active defence of Australian air bases.

In his presentation to the Williams Foundation seminar as well as in his interview with me, LTGEN Simon Stuart, Chief of Army, underscored this one of the missions for Army going forward. And as Air Marshal Chipman noted the integrated air and missile defence piece of evolving capabilities was a key part of the way ahead, essentially when conjoined with force distribution as a core operational capability.

Dr. Andrew Dowse AO, Director, RAND Australia, in his remarks to the seminar underscored the importance of the intersection between the effort to reset the current force while shaping a template for future force

modernization. He noted: "The potential for conflict this decade not only means that investment in defence is a high priority, it creates a shift in the balance of investment from modernization to preparedness.

"This means that a lot more of our focus should be on enablement of current platforms than on preparing to acquire new platforms. It makes us think about filling in the hollowness of our capabilities, achieving preparedness directives and mitigating supply chain vulnerabilities. It also means that we need to think carefully about the timing of platform upgrades that may reduce availability and whether such activities or take our systems offline should be brought forward or deferred.

"The short-term prospect of conflict means that we need to think about capability a little differently. We need to think more about the here and now and whether it is best to enhance the force through short term activities such as updates, and increasing the basis of provision, or longer-term activities to define and acquire new systems."

Another aspect of re-setting the force involves the question of the integrated force and maritime operations.

FIGURE 11 DR. DOWSE ADDRESSING THE WILLIAMS FOUNDAITON SEMINAR

What is often overlooked in debates about the future submarine is that Australia has already or is acquiring several capabilities of the team sport which anti-submarine warfare requires. The acquisition of P-8, and Triton and the coming of UUVs and USVs are elements of shaping a kill web approach to such operations within which a future submarine will fit into, but which already the Collins Class submarine has seen ongoing modernization to benefit from.

And as the Royal Australian Navy focuses on its way ahead within the joint force, leveraging what they have and are in the process of acquiring such as the new OPV class vessels, raises the question of what is the ADF focus in terms of maritime defence and security.

With this in mind, here are some of the questions which the Chief of Navy posed in his presentation at the seminar:

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"What we will defend and where, what force we must project and where, for how long, and who we must integrate with for common purpose and shared interest to allow us to generate military force in the national interest?

"This begs a number of questions. I think we all need to answer the following: what is the vital terrain that requires defence? Is it the rules-based system? Is it physical infrastructure or people? Is it information? Or is it all of the above?

"If it is seabed infrastructure then Is that infrastructure in deep water or shallow water? Is it the above water terminations? Is it in international sovereign domains or is it privately owned? If it underpins our economic well-being, how important is it?

"What about merchant shipping? Whose flag what cargo? Where, when? For how long? Do we need an Australian merchant fleet? And what about the ports and their maritime approaches? Which ports? Ours? overseas ports? All of them or just some of them for how long from what? And if we do protect them ashore, these things, will we actually assure our economic well-being?

"Only then can we ask, what do we need to hold at risk? Or to undermine in order to defeat an adversary? Do we focus on our approaches? Or theirs? Or both? Is this a man systems thing? Or is it a robot problem?

"Do we need to project and protect a land force or a swarm of things? Or both? If so, in what phase of the conflict and what with what risk appetite? And how will we do this? Will it tip the balance in our nation's favor? These are all of the questions that are at play with the defence strategic review."

EVOLVING THE ADF: FORCE DESIGN FOR THE JOINT FORCE IN THE DIRECT DEFENCE OF AUSTRALIA

With the reshaping of the ADF as a manoeuvre force operating from the continent and projecting out to Australia's first island chain and beyond (where desired, needed or appropriate), how then to build out that force going forward?

What kind of lethality is needed at what range and with what effect?

How to distribute the force effectively and integrate the force to provide the desired lethal effects?

How to build out the force within the limits of what manpower, budgets and society can enable?

Put in other terms, it is not about coming up with a platform shopping list and then going on a shopping spree and simply adding the new stuff to the force.

The ADF cannot afford significant disruption to the force as it needs to be able to fight tonight, but does need creative innovation driving forward a more lethal and sustainable force going forward.

In my interview with Commodore Darron Kavanagh who is in charge of the Royal Australian Navy's maritime autonomous systems, he underscored that his focus was on constructive disruption. As he underscored: "if you actually want to deliver something different, if you want to actually get what I'd call asymmetric war fighting effects, then you must be prepared to experiment.

"Because those concepts of operations are not going to come from replacing what you have. Or indeed, an incremental improvement of what you have.

"You actually have to leverage what the technology will give you. It is because less and less, it's about a platform. It's more and more about your intent. So, that's command-and-control, and the payloads that deliver that intent."

Commodore Darron Kavanagh underscored that the ADF is evolving and building out an ADF capable of effective distributed operations. And maritime autonomous systems will be a key enabler for such operations.

To do so, the systems need to be operating in the force as part of the overall operational capability for the force. As the ADF gains experience with these systems, these systems will face ongoing development and experimentation, both in terms of the payloads they carry as well as the operating systems on the platforms, as well as seeing platform development to better enable payload performance and targeted relevance to the operating force.

As he put it: "The challenge is being able to field them at the speed of relevance. That is the difficulty in a bureaucracy such as any military.

"And so, one of the reasons it's important to spend that time to work out how do we constructively disrupt? We are not building a one-off system. The focus is upon delivering asymmetric warfighting effects again and again."

During the seminar, several speakers highlighted the importance of relying on robotic systems such as Kavanagh was working with as a key way to ramp up ADF combat capability going forward.

This is necessary for manpower reasons (the operational size limits of the ADF), rapid upgrading reasons (software enabled things can be upgraded much more rapidly), cost factors, and the need to ramp up the effects of mass with a relatively small combat force.

This is certainly a key part of shaping a way ahead in terms of force design.

FIGURE 12 MAJGEN RAWLINS ADDRESSING THE WILLIAMS FOUNDAITON SEMINAR

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MAJGEN Anthony Rawlins, Head of Force Design, put the challenge of building out from the force in being to a more lethal and survivable force precisely in terms of looking beyond major platform buys.

He started with a core emphasis on ramping up the capability of the force that has to fight tonight. As he underscored: “fighting tonight means going with what you have, and what you can feasibly obtain and field in the short term. We need to as a first imperative immediately and maximally lethal and survivable against a very different potential adversary in the short-term."

He then turned to the development of robotic and autonomous systems as a force multiplier in the short and medium turn as well as laying a foundation for a shift in the nature of the mission-payload mix in the combat force.

This is how he posed the transition: “Has the hardening of expensive, exquisite, arguably irreplaceable platforms now reached its logical zenith? This is manifest in the arguments for the cheap or the expendable as a supplement or potentially a replacement for expensive crewed platforms going forward.

“Defence is not just investing in exponential developments in autonomy, artificial intelligence, remote sensing, etc, etc as an R and D line of effort. But defence is doing so with a view to fielding capability in the immediate short term. And It hardly meets the definition of survivability to be investing in platforms and capabilities that are designed to be expendable.”

In this sense the line between autonomous systems and weapons is a very thin one – the line between a loitering weapon and an autonomous air system when that system is not an expensive UAV but is designed as part of rapid upturn in ISR and C2 capabilities is not very deep.

There is no area where the debate about how to shape force design going forward is more significant to the future of the ADF than the focus on lethality. Although there is a clear commitment to add long range strike weapons like Tomahawk to the force, what role do non-lethal tools play in enhanced lethality against an adversary?

Rawlins put this point very clearly as follows: “What does it mean for a capability to be lethal in a gray zone or a competition environment? Can we describe a capability that is lethal or at least has effects akin to the definition of lethality in the competition or the phase zero environment? Can cyber or other non-kinetic effects be described, and therefore designed going forward through a lithology lens?

“There's no doubt that traditionally, we would argue and we have argued that they contribute to the efficacy or the impact of other lethal effects.

"But the question now is should we consider them in the same way we have traditionally done with our explosive penetrative weapons sets. I can assure you that this isn't just sophistry for a presentation purpose; it's truly a force design consideration in the contemporary geo-strategic environment. And this is because many now contend that the cyber domain should be treated as another warfighting domain. In fact, this view is gaining increasing traction in other militaries as well as their own.

“Many now contend that it's no longer just an enabling domain. Lethal and destructive effects of great significance can be delivered through this domain. And it might be the chosen domain, the first domain through which we seek to do so.

“But if we look beyond a mortality definition to lethality, into the harmful destructive realm, we're into designing non kinetic capabilities to achieve lethal or highly destructive effects. We already use a very similar targeting methodology in this domain as well as our traditional domains….

"And it's argued by many that greater deterrence at a lesser cost is achieved through investment in these types of capabilities."

If we continue with the discussion of weapons and lethality, how to best design a way ahead from a force design perspective with regard to kinetic weapons? Long range strike weapons are costly and are imported from the United States even with a ramping up in the short to midterm of Australian capabilities to participate in a broader arsenal of democracy with allies.

What mix of weapons can be built going forward?

What targeting options does Australia need?

If there is no desire or need to strike Chinese territory directly (as China is a nuclear power), how best to strike Chinese forces to get the kind of crisis management and combat effect desired?

Can Australia build a more cost-effective mix of weapons than the United States currently possesses?

How to develop partnerships with other allies to do so?

How to manage the inevitable conflicts among allies when priorities are dictated by national survival rather than working together an exercise regime?

The weapons cost and availability issue was put to me very clearly during a visit to NAWDC in 2020 where I met with Captain Edward Hill, the oldest Captain in the U.S. Navy but who was also the most respected officer on weapons technologies as well.

We discussed how the fleet will be empowered by new ways to build out weapons arsenals and provide for adequate stockpiles for the force. Because he goes back to the Cold War operating Navy, he can bring forward that experience to the return to the contested environment challenges facing the weapons enterprise.

Clearly, building adequate stockpiles of weapons is crucial. But also important is working a new weapons mix to ensure that one is not forced by necessity to rely on the most expensive weapons, and the ones that will almost always have a stockpiling issue, but to have a much more cost-effective weapons set of options. As Captain Hill put it: "We need to get beyond golden bee-bee solution. We need to have a weapons barge come with the battle group that has an affordable weapons mix. We need $50,000 weapons: not just million-dollar weapons.

"We should have weapons to overwhelm an adversary with Joe's garage weapons and not having to use the golden bee-bees as the only option."

"To get to this point raises a second aspect, namely, working out where one engages an adversary and what weapons mix one might need in that engagement area. With regard to the Pacific, as we address sea denial and sea control reaching out into the Sea Lines of Communications or SLOCs, what weapons mix do we need in which particular engagement zone? It is not going to be all about hypersonic weapons."

At the seminar, the most comprehensive discussion of the challenges facing Australia in shaping a way ahead for the weapons enterprise was provided by Dr. Andrew Dowse, Director, RAND Australia.

This is what he argued: "weapon demands might be assessed in terms of conflict intensity and conflict duration. In any substantial conflict, it's likely that our stocks of exquisite weapons would be quickly consumed.

"Even if supply routes remain open, we should not be too confident of resupply for two reasons.

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"First, high intensity conflict will also most likely involve our U.S. allies the source of most of our weapons. This raises the prospect of divergent allied priorities.

"Second, weapons manufacturing over the years has been rationalized to peacetime efficiencies, with limitations on the global ability to surge production. So typically, the high-end weapons that we need to fight need to be held in inventory."

He then went on to argue that targeting tradeoffs on high end weapons underscored the need to shape a broader weapons arsenal. "In any conflict, there will be tension in targeting processes between the use of such weapons early in conflict, and ensuring some capabilities are held in reserve. It will be important that the replenishment of weapons during protracted conflict keeps pace with demand.

"Thus, it may be reasonable to prioritize domestic production of explosive ordnance and low end weapons that can be supplied in operationally relevant timelines. In developing priorities for inventory and domestic production, which might be somewhat aligned to demands of initial and protracted conflict, respectively, we should consider the value of affordable mass weapons, especially if they might be replenished at a rate that matches demand.

"This quality through quantity approach is increasingly being facilitated through technological development, which provides greater precision for less cost. It is a concept that can be applied to employment of multiple weapons against high value targets, including use of asymmetry to simultaneously use dissimilar weapons.

"It is also a concept that is relevant to our platforms with dispersion and integration of force elements, enhancing collective lethality and survivability, at the same time, reducing the impact of the attrition of our own force.

"Hence, it may be opportune for the ADF to pursue smaller platforms and greater use of network uncrewed systems. And such a concept of reducing the concentration of our force is one that can be extended to passive defence as a significant risk for Australia is that of a pre-emptive attack.

"Thus, measures of hardening redundancy, dispersion and disaggregation are critical to ensure that we don't suffer attrition at the beginning of conflict. And this is not only about the physical domains, but also about protecting systems in the cyber domain."

In short, force design considerations build out from the reworking of how best to deploy, operate and sustain the current force and in so doing identify critical gaps that can be filled in the short to mid-term.

Enhancing lethality through working an integrated lethal and non-lethal offensive strike force is a high priority.

Leveraging automated systems for appropriate mission sets is a key part of enhancing both mass and reducing the challenge of survivability; when designed to be attributable, survivability is not the dominant consideration for that part of the force.

MANAGING TRADEOFFS IN A FLUID AND DYNAMIC STRATEGIC ENVIRONMENT

A key theme throughout many of the presentations at the Williams Foundation September 28, 2022 seminar was how to meet the challenges associated with risk management and tradeoffs in both operations of the force and in the evolving future design of the force.

And with the shift from the away game to defence of Australia itself, there are tradeoffs as well between ADF development and the role of the society and the nation in providing for defence in depth in crisis conditions.

Chris McInnes provided a way to look at the strategic context for the emergence of the ongoing tradeoff challenge with the ADF and the nation facing the direct defence of Australia set of challenges.

This is how he put that strategic context: "The ADF was for making contributions to major allies to gain influence and support in case of emergency. Utility was in showing up and upholding the ANZAC legacy, with emphasis on high-profile battle contributions. Australia's control of its liability and benign local environment negated the need to think much about sustainability. This isn't a criticism. This was a superb model and Australia reaped enormous rewards on investment. But it is no longer applicable, and it has had some unhelpful effects on how we think about capability today."

But the shift to what the ADF is for specifically in the direct defence of Australia changes the risk calculus and opens up significant questions with regard to what are the operational capabilities which have priority, and the role of good enough in ensuring a more robust and sustainable defence in depth strategy for Australia itself.

FIGURE 13 CHRIS MCINNES ADDRESSING THE WILLIAMS FOUNDATION SEMINAR

This is how McInnes characterized the way ahead. "The late Brendan Sargeant identified this problem in his 2006 analysis of an Australian military document. His words remain relevant today. The complex and infinitely threatening imaginary worlds that populate so many documents mean every 'option' is needed and the 'war fighter' surely needs every drop of lethality and survivability.

"But the lack of grounding in the real world of politics and geography means there is no sense of relative priority, utility, or sustainability. These problems were tolerable when the utility of Australian defence capabilities was 'contributing', and high levels of discretion meant sustainability was not an issue. But that is no longer the world we live in."

McInnes went on to argue that the mental models shaped to support the away game do not apply well to the new strategic situation.

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This is how he put it: "We face circumstances for which our mental models are not well suited. We are playing away, and we have not seen this pitcher before – our chances of getting bat on ball are not high. Our way of thinking about what Defence is for – and the relationship between utility, sustainability, and affordability – must adapt to new realities.

"These realities include a much-reduced degree of discretion in our application of Defence capabilities. There will be a much sharper priority on maximising utility in some geographical and functional areas, potentially at the expense of others. Sustainability will become a much more prominent factor. Warfighting, particularly away from home, may not be a high priority for national resources.

"Reorienting this mental model will impact how we think about what Defence does, imposing tighter real-world discipline and a focus on good enough over perfection. We must ask Tedder's question far more frequently and probe deeper than 'providing options' and 'making a contribution.'

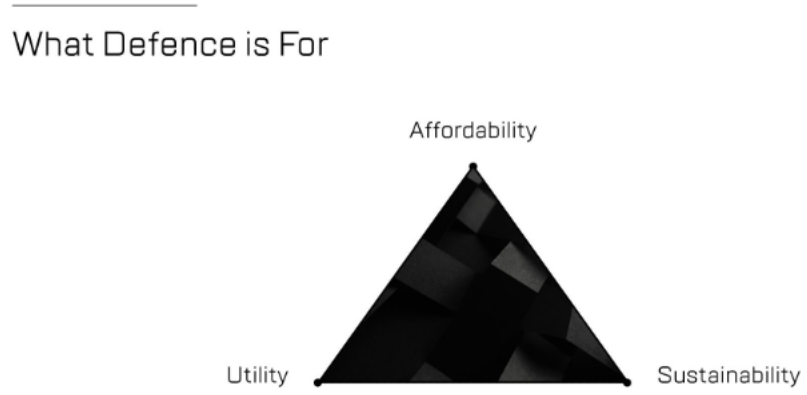

FIGURE 14 SLIDE FROM PRESENTATION BY CHRIS MCCINNES TO THE SEMINAR

A number of tradeoffs were discussed during the seminar.

What is the tradeoff between manned platform acquisition and autonomous systems?

How to reshape training to drive operational innovation versus new platform acquisition?

How to build sufficient supply chain depth versus other defence expenditures?

How to build up a defence force in the face of manpower challenges?

How to mobilize the society to build intellectual and manpower depth rather than simply building up the size of the ADF itself?

How to better protect Australia and at the same time expand abilities to work with allies?

At the heart of working with allies are key tradeoffs in crises whereby national survival trumps extended ally considerations. How to manage such risk calculus?

How to trade-off between active defence and passive defence?

How to trade-off in the combat space between lethal and non-lethal strike?

How to determine where to strike and with what effect?

How to understand the nature of Australia's adversaries and to be able to get in the mind of the aggressor to know how to deter?

How to shape training regimes that can drive operational innovations that can in turn be translated into actual force structure development?

How to add civilian capabilities to the expanded defence of Australia, such as a build out of a merchant marine?

How to shape an intelligence enterprise which supports not only the ADF but enables Australian society to prevail in the information war which is part of gray zone conflict?

How to combine a porcupine strategy with ability to influence threats approaching Australia?

These were some issues introduced into the seminar; there were others.

But the broader point was well expressed by AVM Ian Duguid, Royal Air Force: "there is no silver bullet to counter all the challenges we will face."

It is about a reworking of the ADF, finding ways to expand its lethality and survivability and at the same finding ways to mobilize the Australian society and build out a more resilient Australian society.

As Air Vice-Marshal (Retired) John Blackburn put in an interview which I did with him in 2019: "Imagine you are protecting your house. You reinforce the front door. You have a powerful rifle to deter anyone from attacking your house. Unfortunately, while you are focused on the front of your house, you have left the back door open and your adversary is already inside your house and also has control of parts of your critical infrastructure and supply chains."

"With regard to the cyber threat, some adversaries have clearly already been inside our house. Some may now control significant parts of our gas and electrical supply chains. They may also have control over parts of our medicine supply chain.

"It does not matter how many bars you have on your windows, or how powerful your weapons are if an adversary has already out maneuvered you because of our Government's faith in market forces to provide security for critical supply chains such as fuels."

"In Australia, the Government relies on market forces to deliver critical supplies such as fuels. As a result of this approach we are, in my view, in danger of losing without fighting.

"We need a policy and regulatory framework that recognizes that with 21st century authoritarian capitalist powers molding the global trade system and with the ability to direct disruptions for tactical and strategic benefit, the game has changed.

"We may be outmaneuvered before we ever get a chance to fight, because we will not be able to use those fighting elements without assured supply chains."

His perspective infused much of the discussion at the seminar.

And the concern expressed throughout was clearly how to shape defence that could keep Australia's supply chains open but at the same time build greater depth to protect Australia's sovereignty by enhanced domestic supplies and capabilities as well.

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WRAPPING UP AND LOOKING AHEAD

The ADF faces a double challenge.

First, there is the transition away from land wars to preparing forces for higher intensity operations against global authoritarian powers. I have written several books which address how challenging this shift is for a whole generation of warriors and policy makers who have only known the land wars as a core focus for their defence forces and efforts.

But Australia faces a second challenge affecting the future of the ADF as well: where is the ADF going to operate primarily in the direct defence of Australia? What exactly is the defence perimeter for Australia? How best to operate within that defence perimeter? And how to sustain the force for the time needed to prevail in conflict or crisis management?

After the seminar, I had a chance to talk with the Chairman of the Williams Foundation, Air Marshal (Retired) Geoff Brown, to get his perspectives on the seminar and the way ahead for the ADF to deal with these challenges. He also provided a preview of the next seminar to be held in the first quarter of 2023.

Having written the reports on the seminars since 2014, it was clear to me that the ADF was changing focus from 2018 on with regard to how to deal with the high-end fight. Seminars dealing with long range strike and on shaping a fifth-generation manoeuvre force especially underscored the nature of the shift.

According to Brown, "it is becoming apparent that the timeframe for getting it right has shortened up significantly. This means that the normal pace of acquisition to shape the way ahead for the ADF is too slow. Accelerating acquisition for major platforms is very difficult, so we need to look at other elements of the force to do so.

"We need to focus on the low hanging fruit to increase more rapidly our defence capabilities. At the seminar, several aspects of such an approach were highlighted, such as rapidly closing the gaps in the communications infrastructure. We need to do the tasks which we can more rapidly bulk up the force. Increasing crewing ratios by looking for ways to shorten the training process. You bulk up the force by leveraging commercial solutions that are available now.

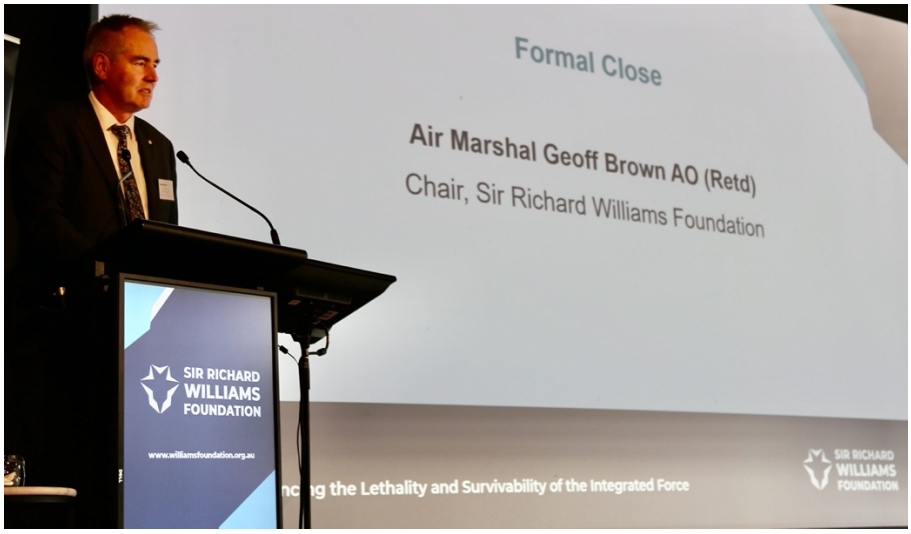

FIGURE 15 AIR MARSHAL (RETIRED) GEOFF BROWN PROVIDES HIS CONCLUDING OBSERVATIONS AT THE SEMINAR

"Accelerating the procurement of unmanned systems that can be developed quickly is one way we can get a much better deterrent posture than we have now."

I noted that the entire shift to building out a kill web force provided a solid foundation for doing so as the focus in building out the kill web is focusing payloads to missions, not platforms to missions. And in the robotic areas AI areas there are a number of low hanging fruit, there a number of missions to payload capabilities which can bulk up the force.

Brown noted; "We are seeing in the Ukraine conflict a number of examples of the Ukrainians using Western weapons and various gap fillers to do in a month what Western forces will need three to four years to do if we stay in the business-as-usual approach.

"We can no longer afford two and a half years of staring at our navels while we decide which path we're going to go on; we've actually got to make procurement to operations decisions in a much timelier manner."

He then highlighted the example which came from a presentation of how umpires made decisions at cricket matches. The core point of that presentation was simply that the initial umpire decisions have a high probability of getting it right; an extended review process added greater accuracy but delays as well. As the presenter put it: "The gut feelings if the umpires were almost always right."

Brown underscored that we need more rapid procurement to operations decision making and lengthy reviews on procurement choices really impeded combat innovation rather than enabling it.

And given the compressed timeline of dealing with the threats facing Australia meant that time was of the essence in accelerating the ADF's combat capability.

What comes next in terms of the Williams seminar series?

Brown: "That is a good question, and we are in preliminary stages of sorting that out. I think we will revisit, maybe reinforce, what our priorities need to be going forward. In this seminar, we've looked at the challenge of enhancing the lethality and survivability of the force.

"I'd like to focus the next one on how to speed up our processes to get enhanced capabilities for that twin challenge in the next three to five years."

Second Line of Defence

THE PROGRAM

SIR RICHARD WILLIAMS FOUNDATION

Conference: Enhancing the Lethality and Survivability of the Integrated Force

28 September 2022, National Gallery of Australia

Program (updated 20/9/22)

Time	Topic	Speakers
0800-0830	Registration and light breakfast	
0830-0835	Welcoming Remarks	AIRMSHL Geoff Brown AO (Retd), Sir Richard Williams Foundation
0835-0840	Introduction and MC	SQNLDR Sally Knox, Sir Richard Williams Foundation
0840-0900	Geostrategic Context	Dr Alan Dupont AO, CEO, The Cognoscenti Group
0900-0920	Thinking Through Tradeoffs	Chris McInnes, Sir Richard Williams Foundation
0920-0940	ACAUST Priorities	AVM Darren Goldie AM, CSC, Air Commander Australia
0940-1000	Mission Rehearsal (Pre-recorded video)	Gen. Kenneth S. Wilsbach, Commander, Pacific Air Forces
1000-1020	Research and Analytic Support to the Integrated Force	Dr Andrew Dowse AO, Director, RAND Australia
1020-1050	Break – Morning Tea	
1050-1110	Title TBA	Gen. (Ret) John William "Mick" Nicholson Jr, Lockheed Martin
1110-1130	Resilient Communications in Contested Environments	AIRCDRE Jason Begley CSM, Director General Joint C4, Joint Capabilities Group
1130-1150	Delivering on the Promise of Joint All Domain Command and Control	Bill Lamb, Director of the Multi-Domain Mission Command Operating Unit, Northrop Grumman Defense Systems
1150-1215	RAF - Decision Superiority	AVM Ian Duguid CB OBE MA RAF, Air Officer Commanding No 1 Group, Royal Air Force
1215-1240	Decision Making – You and Technology	Simon Taufel, Integrity Values Leadership
1240-1340	Lunch	
1340-1400	Defence Intelligence Enterprise	RADM Stephen Hughes CSC, RAN, Head Intelligence Capability
1400-1420	Chief of Army Perspective	LTGEN Simon Stuart AO, DSC, Chief of Army
1420-1440	Force Design Considerations	MAJGEN Anthony Rawlins DSC, AM, Head of Force Design
1440-1500	Chief of Navy Perspective	VADM Mark Hammond AM, RAN Chief of Navy
1500-1520	Chief of Air Force Perspective	AIRMSHL Robert Chipman AM, CSC, Chief of Air Force
1520-1530	Formal Close	AIRMSHL Geoff Brown AO (Retd), Sir Richard Williams Foundation

ADDITIONAL INTERVIEWS AND ARTICLES

Facing the Challenge of Shaping a Way Ahead for Australian Defence: A Conversation with Marcus Hellyer

9/13/22

I have recently arrived back in Australia after my last visit in March 2020. The pandemic gap years are now over and I have come to Australia as the new Labour government has launched a comprehensive defence review.

Shortly after my arrival in Canberra, I had a chance to discuss the challenges facing the defence reset with Marcus Hellyer a well-known defence analyst who works at the Australian Strategic Policy Institute. When last in Australia, I was working on a study of the new Offshore Patrol Vessel, the first platform to be built by the new continuous shipbuilding program. Marcus was also focusing on the OPV program and we both published studies in 202, which I will highlight at the end of this piece.

Hellyer started with a very fundamental question: "What is the Australian Defence Force (ADF) purpose-built for?" And here he posed what is becoming a clear choice, is the ADF for the away game or for primary defence of the Australian continent?

This is how he put it: "Is the purpose for the ADF essentially to defend the Australian continent, or is it about going wherever in the world we need to go with our allies and addressing threats and the issues of the day, wherever that may be around the world?"

He argued that the existing force structure clearly is designed for the latter. "I would argue that the ADF is essentially designed to essentially plug into a coalition, obviously led by the U.S., and go wherever in the world we think we need to address a threat or the issue of the day. And that's the only way I can really make any sense of our existing force structure."

But with the United States facing its own domestic and foreign policy challenges, the U.S. is facing "capacity constraints. "It can't be everywhere at the same time. We recognize that the U.S. is essentially telling its allies that and telling them to step up. Ultimately, I think that's what AUKUS is about. We actually need to do some hard thinking and be a little less complacent about our defence. And that means prioritizing the things that ADF absolutely has to do."

If Australia is to focus on its own defence and defence in depth, that raises the question of the nature of the defence perimeter for Australia which the ADF and the nation need to address. And that would mean as well that Australia would be less focused on the away game in the Pacific and by shaping defence in depth, they could offer a defence sanctuary for allies like Japan or the United States, but at the expense of what at least some U.S. decision makers wish to see Quad forces operating much closer to Chinese territory.

Hellyer argued that with the forces already in being and the forces that can be built out, a reasonable objective for Australian defence is to operate more effectively out to Australia's first island chain or an arc from the Solomon Islands across the north coat of New Guinea and the Indonesian archipelago. He underscored: "I think we need to be able to indicate to a potential adversary that this area would be a very dangerous space for them to be operating in. And that's where I would be conceptually prioritizing effort, as opposed to say the South China Sea."

Second Line of Defence

Rather than building and supporting a balanced force structure, given financial and manpower constraints, a priority might be placed on the ADF forces which have the greatest combat or crisis management effect within the defence arc highlighted by Hellyer. It is a question of investing in the force that makes the biggest difference in the shortest period of time.

Hellyer agreed and underscored: "We need to do more with the force we have or with things that you can do quickly."

We turned to the discussion of autonomous systems as a force extender for the manned platforms operating in an extended battlespace. He argued: "if you focus on unmanned or autonomous systems doing roles such as ISR and flooding the battle space with sensors, it allows the expensive exquisite platforms that we have in very small numbers, to be more effective. And also raises the question over time of the correct balance between rapid build systems like Unmanned Surface Vessels (USVs) and the actual size of the fleet necessary for more expensive capital ships, for example."

My own research has been focusing on how capital ships can be reimagined as mother ships and to leverage unmanned or automatous systems in new ways to extend the reach of those capital ships and making them more survivable and lethal.

Hellyer highlighted one way ahead along these lines. "When the new OPV enters service next year, I wouldn't start using it as a large patrol boat. I would simply hand it over immediately for experimentation in that mothership role that we've both spoken about. Just say, "Here, we've got this great tool with a lot of potential to be that mothership for unmanned underwater vessels, unmanned surface vessel, unmanned aerial vessels," and get it out there and give it to the smart men and women who are going to use it and let them invent new ways to use this capability."

We focused on the opportunity to rework the force Australia has and to leverage it in new ways. For example, Hellyer mentioned the case of the Naval Strike Missile which is currently envisaged to be put only the destroyers and frigates. He argued that "I would put on every ship that makes sense, land base it, move like the USMC is envisaging to mobile bases, put it on trucks to launch for shore, etc."

I did point out that the Poles have been doing land-based operations with their NSMs throughout their defence space to hold Russian maritime assets at risk.

We concluded by discussing the build out of balanced force or a threat-based force. Hellyer argued: "I think you'll find that countries that are facing a very clear threat don't do capability-based planning, they do threat-based planning to counter that threat. And I think the time has come to get back to your initial point about what's the key thinking we need to change here? Do we actually need to move to more of a threat-based planning, because there is a clear threat?

"What are the capabilities you need that can defeat that threat, or certainly complicate how that threat is going to approach us?

"That gets to the big debate here at the moment is about armor. The army is kicking off a process of recapitalizing its armored fleets at a cost of potentially $30 to $40 billion. And one of the big arguments, is should we get 450 infantry fighting vehicles instead? So large 40-ton infantry fighting vehicles that allow the infantry to storm the objective.

"And I can certainly in that capability-based planning model, think of scenarios where that would be useful, but if we're in a threat-based kind of planning model and we know what the threat is, what role do they play in countering that threat?

"We may want to seize hold an island as a forward operating base in the archipelago to our north. Well, okay, we can do that, but the threat will simply go around it. And that's why I think, unless you have lethality and long-range lethality, it doesn't matter which bits of territory you hold there, the bad guys will just go around it. And we need to build forces that are relevant to the threat we face and our efforts to build out our direct defence of Australia."

John Blaxland on the Re-Focus on Australia's Direct Defence

9/24/22

Recently, my colleague John Blackburn and I met John Blaxland who is currently Professor of International Security and Intelligence Studies at the Australian National University. Blaxland has had a distinguished career in the ADF and in government, and his resume can be read at the end of this article.

We discussed a number of issues affecting the way ahead for the ADF, but none more important than the question of determining what the defence perimeter for Australian direct defence **is** and how best for the ADF to operate in that strategic space.

We focused on what we agreed most logically defined the defence perimeter: Operations from the continent to Australia's first island chain, which is outward from the continent to the Solomon Islands and across to Papua New Guinea, Timor L'este and Indonesia.

This is how Blaxland defined how to shape an approach for this strategic space with the ADF operating an appropriate maneuver force supported by appropriate infrastructure in Northern and Western Australia which could support such a force.

"We need to be mindful of our history and our geography and our neighborhood is a neighborhood with a history of violence. When we faced existential challenges in the past, we have had to forward deploy into the island chain to Australia's north."

He argued that the initial efforts to project such a force did not work out all that well in the early years of World War II but by 1944, Australia had sorted out a more effective capability to operate outward into the first island chain. He noted: "when we faced an existential crisis in 1942, it came through the archipelago, through Indonesia, through Papua New Guinea and the Solomon Islands.

"That is increasingly contested space today, and it's all the more important that we invest in a strategy that capitalizes on the relationships with those countries in the archipelago. From a force structure point of view, that means actually thinking about how we structure our forces to enable deployment in that space and to operate alongside the neighbours, but in a contested environment."

As a former Army officer, he discussed how he saw the future of the Army working with the joint force in the strategic space defined by operating form the continent to the first island chain.

He argued that defence diplomacy coupled with an enhanced ability of the Army to operate forward in support of the air and sea forces was critical.

To project air power at range likely would require maintenance of lilly pad-like forward operating bases for which a ground force has an important defensive role – including capabilities that would ensure overmatch against a would-be adversary – including mobile, protected armored platforms with the ability to reach out and touch someone at range.

Second Line of Defence

With regard to defence diplomacy, this is what he underscored: "We have for the last two decades basically been distracted by operations in the Middle East, what I call our niche wars in Afghanistan and Iraq.

"We've dropped the ball in terms of building relationships, understanding the culture, the language, the people, the networks in our neighborhood. We are starting to reinvest in that space, but we've got a long way to go.

"Very few of our seniors and our middle level commanders and managers speak the relevant languages, for example."

He underscored that "we have designed a force to plug and play with the Americans, but that is not what we need for the future.

"Interoperability with the Americans remains important for sure, but Australia needs to be able to conduct its own operations in the neighborhood in a self-reliant manner, as well as alongside neighbours."

What this also means is that Northern and Western Australia need to see significant infrastructure development to sustain and operate such a force. And frankly, this is a whole of government issue, and not just about what the Department of Defence can fund.

Such a shift towards enhanced capabilities for direct defence of Australia clearly has implications for core allies like Japan and the United States.

Blaxland argued that "the best thing we can do is make Australia more self-reliant, more resilient, more able to defend its own turf, and collaborate with neighbors to defend our common strategic space."

"If Australia provides a firm base, and if we have a leavening effect on our own neighborhood, then that takes away the stress of planning for others who might be thinking about other contingencies, and a key point to my mind is this is all about deterring war, deterring the prospects of war.

"We need to dissuade adventures from competitors and would-be adversaries while being reared to fight and win when deterrence fails."

Shaping a Way Ahead for the RAAF: The Perspective of Air Marshal Robert Chipman

10/3/22

At the Williams Foundation seminar held on September 28, 2022, the newly appointed head of the RAAF Air Marshal Robert Chipman along with the Chiefs of Navy and the Army provided their perspectives on the way ahead for the evolving joint force.

He entitled his remarks as follows: "Preparing air and space power for the joint force in a complex and uncertain environment."

He focused on a key consideration "As we consider strategies to deter conflict in the Indo-Pacific region, we should consider how we might contain conflict geographically and/or within specific domains. And what actions might lead to runaway escalation?"

With the return to a priority on the direct defence of Australia, albeit in a broader alliance context, "geography should shape our approach to national security. The ability to deliver effects at a distance from,

and in the approaches to Australian sovereign territory will be a critical feature of our future security strategy. Air power will make a vital contribution to our joint force structure and posture in this context."

But he warned that the traditional view of the strategic geography has been modified by technological and warfighting advances.

"Our traditional view of a contest in the physical domains is obsolete. Operations in and through the space and cyber domains have extended Australia's strategic geography. They don't displace the maritime, land and air domains, but rather demand a lift in our capacity to contest them all, and importantly, integrate our warfighting effects between them in order to conduct joint all-domain operations."

There is an inherent tension between tradeoffs for enhancing the readiness of the force in being and the need to reshape the force with new capabilities.

The challenge is to manage this tradeoff in what is a rapidly changing strategic environment for Australia.

Air Marshal Chipman underscored: "Let me share with you a recent conversation I had with AIRMSHL McCormack and Brown who, alongside AIRMSHL Davies and Hupfeld continue to provide wise counsel. Asked what I've found most challenging in my tenure as CAF to date, I responded managing strategic risk over time.

"There is sometimes a tension between building the readiness of our force in being and investing our resources in preparing the future force.

"Experimentation can help us guide our choices, but there is still need for judgement in the determining the ends, ways and means of a national security strategy.

"We know our strategic warning time has eroded.

"The corollary is that we must field ready and resilient forces across the five domains sooner than expected."

He highlighted the importance of enhancing both the lethality of the force with longer-range strike capabilities as well as the resilience or survivability of the force with enhanced force mobility.

This is how he put the longer-range strike dynamic. "The Air Warfare Centre will play a vital role too in bringing new capabilities into service. This includes the strike capabilities Australia needs to hold adversaries at risk in our immediate region.

"The Long-Range Anti-Ship Missile (LRASM), a modern fifth-generation weapon will soon enhance the lethality of our Super Hornet and P-8A's maritime strike capabilities. It is an investment that will help Australia avoid coercion, protect our sea lines of communication and assure maritime security in our region.

"It will be complemented by the Joint Air-to-Surface Standoff Missile – Extended Range (JASSM-ER), another variant of the AGM-158 family of missiles that will enable our Super Hornets, and in future, our F-35As to engage targets at ranges exceeding 900km.

"These weapons will be supported by a joint ISR and targeting enterprise, integrated with our allies and partners, to enable precision long range fires. As we introduce this capability into service, we will continually revisit the robustness of this enterprise, the sufficiency of our war stock and the resilience of our logistics arrangements to sustain the capability."

At the same time, the survivability of the force needs to be enhanced as well through an emphasis on mobility and resilience.

Second Line of Defence

Air Marshal Chipman underscored that in order to project power from Australia, "we must address the resilience of our air bases, supporting infrastructure, ICT, and of course our fuel and Explosive Ordnance to sustain air and space operations. To force generate the resilience we need to fight with degraded systems in contested environments."

The resilience piece needs to be driven by innovations that derive from an effort to "imagine how we will sustain and project air and space power against an adversary capable of exploiting our vulnerabilities in all domains.

"However, if the present monopolises our thinking, we simply stay the execution. There is a future of hypersonic missiles, directed energy weapons, artificial intelligence and swarming unmanned systems that is also racing towards us. We must deal with both realities and manage strategic risk over time.

"We must ensure our strategy, capability and resources are harmonised and deliver an air and space force with the right balance of protection, agility, lethality and survivability."

Shaping a Way Ahead for the Australian Army: The Perspective of Lt. General Simon Stuart

10/6/22

At the Williams Foundation Seminar on September 28, 2022, the new chief of Army, Lt. General Simon Stuart, provided his perspective on shaping a way ahead for the lethal and survivable within the context of affordable, ADF joint force which the nation needed in the evolving strategic environment.

He started his presentation by reminding the audience that war was a national endeavour and required a whole of nation approach. He warned that the duration and brutality of armed conflict often was of a character that those who forecast short and clean conflicts tend to overlook or minimize.

Lt. General Stuart warned: "There is a prevailing commentary today that speaks with undue precision and certainty about the 'next war'. It generally comes from a perspective that focuses exclusively on the changing character of war, which either dismisses or ignores its enduring nature.

"It discounts the effects of fog, friction, chaos and individual agency on the course of a war. It describes a symmetrical response in a single modality of warfare. It supposes will can be imposed and can be resisted at ever increasing distance and without having to close with an adversary.

"It focuses on the outcome of the first battle or battles rather than the war. It imagines that the next war will be short, decisive and clean. And it confuses targeting and tactics for operational art and strategy.

"Unfortunately, history, including Australia's history, does not support these hypotheses."

The way ahead for the ADF needed to be placed in such a context. He argued that "the unpredictability of war demands an ADF that is relevant and credible in all domains, and integrated – as a system of systems – that has the best probability of mission success whether deterring war or prevailing in its contest."

His comments clearly implied that the shift from the land wars in the Middle East to the direct defence of Australia would form the framework within which Army and joint force modernization would proceed.

He identified the way ahead in the following terms for the Australian Army: "to prevail in the 21st century, Army must be protected, connected, lethal and enabled. Army will make a greater contribution at the operational and strategic levels through new and transformed capabilities such as networked long-range

fires, littoral manoeuvre, cyber, space, information warfare, and functionally aligned special operations forces.

"We are modernising our scalable, world-class combined arms fighting system – which is a system of systems in and of itself. It is the only part of the ADF capable of fighting and persisting in the most lethal of land environments to give our soldiers the best probability of mission success, and the best chance of surviving and coming home.

"We are enhancing and expanding our health, logistics, engineering and aviation capabilities, as well as our command and management laydown in order to be better positioned to modernise, scale, and contribute to mobilisation.

"We are equally active in modernising the ways in which people can serve to help us generate the flexibility and capacity we need.

"We are transforming the way we train, build partnerships, and embrace contemporary learning approaches to thinking and education – to leverage the incredible potential of our people.

"Underpinning all this is the application of new and emerging technologies. We are focused on four areas: Robotics and Autonomous Systems, Artificial Intelligence and machine learning, Quantum and human performance optimisation through an applied, 'learn by doing' approach with industry and academia.

"We are also adjusting our posture by leveraging the potential of our Total Workforce System (full-time, part-time and everything in between), investing capability and seeking to leverage joint basing opportunities and the dispersal and resilience of our estate across the 157 Army locations that span the breadth and depth of our nation."

He concluded by identifying what he sees as two key challenges to delivering the right kind of Australian Army force appropriate to the challenges facing Australia.

"The first is what might be described as conventional wisdom that describes with great certitude how the next war will unfold. It is a perspective that does not contemplate an ADF that will need to be able to fight on land, in complex and urban terrain and among populations – either in support of Joint Force air and maritime manoeuvre, fires, or indeed to prosecute Joint land combat.

"The second is how this thinking intersects with the necessary prioritisation of resources. The land domain is the least modernised and Army the least capitalised service.

"This in itself is not the issue – but reapportioning resources beyond the point where the ADF is relevant and credible in the land domain most certainly is the point. These two contemporary challenges are consequential for the future of our Army, for a relevant and credible Australian Joint Force. Our quest for an integrated force is built on the assumption that we are more than the sum of our constituent parts – but equally each of the parts must be viable in the first instance. "

He pointedly ended his presentation by arguing that "With a 60-year-old Armoured Personnel Carrier at the core of our Joint Land Combat system and a sustained campaign by some to scuttle it's planned and long overdue replacement."

It should be noted that Air Marshal (Retired) Geoff Brown, Chairman of the Williams Foundation, specifically commented to the Army Chief that a 60-year-old weapon system should be in a museum, not on the battlefield.

Second Line of Defence

Mission Rehearsal and the Integrated Distributed Force: The Perspective of General Kenneth Wilsbach, Commander, Pacific Air Forces

10/08/22

The September 28, 2022 Williams Foundation Seminar held on September 28, 2022 focused on "enhancing the lethality and survivability of the integrated force." Although he could not physically attend the seminar held in Canberra, Australia, he provided a comprehensive pre-recorded video discussion of the topic.

General Kenneth Wilsbach, Commander, Pacific Air Forces, is no stranger to the Williams Foundation.

When the seminars held by the foundation began in 2018 focusing directly on the strategic shift from the land wars to building the resilient and longer range force for deterrence in the 21st century, General Wilsbach, then Commander of the 11th Air Force, provided his assessment of the challenges facing the U.S. and the allies in the Pacific region moving forward.

At that seminar, he highlighted a key element for the way ahead, namely, force distribution of airpower, and he introduced what he would later call agile combat employment.

"From a USAF standpoint, we are organized for efficiency, and in the high intensity conflict that we might find ourselves in, in the Pacific, that efficiency might be actually our Achilles heel, because it requires us to put massive amounts of equipment on a few bases. Those bases, as we most know, are within the weapons engagement zone of potential adversaries.

"So, the United States Air Force, along with the Australian Air Force, has been working on a concept called, Agile Combat Employment, which seeks to disperse the force, and make it difficult for the enemy to know where you are at, when are you going to be there, and how long are you are going to be there.

"We're at the very preliminary stages of being able to do this but the organization is part of the problem for us, because we are very used to, over the last several decades, of being in very large bases, very large organizations, and we stove pipe the various career fields, and one commander is not in charge of the force that you need to disperse. We're taking a look at this, of how we might reorganize, to be able to employ this concept in the Pacific, and other places."

Then at the first seminar of 2022, General Wilsbach attended once again a Williams Foundation seminar.

At that seminar, the General described how his command is reshaping the force from a legacy sequential strike and defence force to becoming a kill web force, able to operate at the point of interest and to be able to reach back to joint or coalition assets to create the desired combat or crisis management effect.

This is how General Wilsbach put it at the March 24, 2022 seminar:

"How do we intend to create such a capability?

"First of all, the U.S. intends to create a more networked force by reinvesting funding from legacy retirements, to into advanced military technologies through continued development of a robust and resilient command and control system and by ensuring joint and coalition interoperability across all domains….

"Additionally, we shouldn't be flying fit generation platforms with third or fourth generation weapons. I believe we should be investing in directed energy as well as fifth generation munitions and beyond.

"And I've not been quiet about my advocacy of the E7, I believe this is essential for us. And as the original customer for the E7, Australia fully understands the long-range surveillance communications and C2 capability E7 provides.

"Adding this additional platform to the U.S. fleet would increase our interoperability with the Royal Australian Air Force and we know the Australian teammates will be able to accelerate our learning curve on the E7….

"Our air force must focus on using information and technologies such as advanced computing and technologies, as well as artificial intelligence, integrating these into future military capabilities. Our next generation air dominance program is applying this methodology to the development of six generation aircraft that will possess the ability to survive, persist, and deliver lethal effects within the most challenging threat environments."

At the September 28, 2022 seminar he expanded on the theme of agile combat employment and underscored the importance of mission rehearsal as a way ahead to shape the operational innovation necessary to deliver force distribution and integrated combat lethality.

At the outset of his remarks, he underscored the importance of information sharing across generations of aircraft in the USAF as well as across the airpower coalition.

This is how he put the necessity for doing so:

"To gain and maintain air superiority, we must be able to freely share information across multiple generations of aircraft. We need to develop coalition data link networks within architecture such as Link-16 and F-35 multifunction advanced data link that maximize information sharing at the highest classification levels, and we need to operate daily within these networks to ensure we remedy crypto and design issues in the training environment instead of night one of combat operations.

"Intelligence sharing is a critical piece of the process, ensuring that we employ synchronized and accurate common electronic order of battle database files. If we cannot share intelligence and rapidly reprogram our platforms during a conflict, we will not be able to safely distinguish between friendly and hostile targets.

"This leads to a highly unfavorable situation, but one that can be avoided if each of us works to solve the bureaucratic issues our governments face with information classification and releasability. As a personal example here at PACAF, I receive an operations and intelligence briefing from my staff multiple times a week. Until recently, near the end of the brief, we cleared the room of any non-U.S. personnel to discuss our communication statuses across the theater because policy stated the information could not be shared.

"I thought it was absurd for our team to expect our allies and partners to go to war alongside the U.S. while at the same time conveying our inability to share critical information with the very people we invited to work on our staff. In turn, I directed my team to get the briefing to a releasable level without limiting the information presented, and they did. My point here is that we as leaders must look for every possible opportunity to enhance our interoperability through data sharing, whether that's in the air via data links or in a briefing.

"We've been entrusted to inform policy and are charged to manage risk, relationships, and information. If policies and bureaucracies are getting in the way of valuable information sharing, it's our job to eliminate the barrier and flatten the information curve."

Second Line of Defence

He returned in his remarks to the importance of shaping a distributed scheme of maneuver to enhance the survivability of the force but working ways to integrate the force to provide for the desired lethal effects which the force needs to deliver.

"We need to be able to work with our broad constellation of allies and partners to expand access basing and over-flight in support of dispersed operations across the Indo-Pacific. A changing modern operational environment requires us to adjust our schemes of maneuver. The PRC's asymmetric arsenal includes missiles capable of striking the first and second island chains, and the tyranny of distance along with China's geographic advantage provide additional challenges that we must overcome. Gone are the days of relying solely on our own permanent airfields."

This then requires flexible and mobile basing which is what is meant by agile combat employment.

"One way the U.S. is responding to the challenges of PRC technological advancement is through continued refinement of the ACE concept. ACE insures we are ready for potential contingencies by enabling our forces to effectively operate from numerous locations with varying levels of capacity and support. Its heartbeat is a network of well-established and austere air bases, prepositioned equipment, and airlift to rapidly deploy, disperse and maneuver combat capability throughout the region. As a coalition force, we must continue to expand our access, airspace, basing and resources west of the international dateline to better posture our sales to conduct distributed operations both during training and real-world missions."

And this then led to really the core point of his presentation, the enhanced importance of training to enable the operations of an integrated distributed force.

This is how he put it: "Enhancing the lethality and survivability of our integrated force is a team effort, and it will take a collective approach to expand our footprint to support effective dispersal operations. History shows our crews are more lethal when they train alongside allies and partners against representative threats and environments they will encounter during combat."

This means that "mission rehearsal" is a key part of building out such a force capability and further developing it in the years ahead.

"The U.S. understands the criticality of mission rehearsals and is committed to advancing our capabilities and modernizing our live and simulated programs to provide relevant training for tomorrow's force. While live training will always be the cornerstone of airpower capability, the live environment is often constrained by the geographic limitations and technological improvements of the adversary capabilities. These limitations require us to shift portions of our training to simulate the environments, allowing crews to fully test our capabilities and practice the tactics, techniques and procedures they will employ against at the service.

"There are times when the simulated environment will be the only arena where Air Force, joint and coalition units can rehearse together in realistic scenarios. And the U.S. is focused on making improvements to these systems to provide crews the opportunity to train against the full complement of current and future weapons systems… Ensuring the availability of real, relevant and dynamic mission rehearsal opportunities is all of our responsibility. We must challenge ourselves through realistic training scenarios. And should the turns fail, our coalition force must possess the interoperability, training platforms and systems required to win as a combat credible force.

"Working with our constellation of allies and partners to expand access, basing and overflight across the Indo-Pacific should be a high priority on all of our lists as integration, lethality and command and control do not exist without it."

Dr. Andrew Carr on Defence and Australia's Strategic Geography

10/07/2022

Given the enhanced focus on the direct defence of Australia being generated with the evolving strategic environment, I had a chance to talk with Dr. Carr during my September 2022 visit to Australia about his assessments of this shift and how it fit into the longer-term perspective of threats, challenges and Australian defence policy seen in the longer term.

According to Carr: Australians actually have quite a long history of thinking about how to defend our country, obviously in very different circumstances, but certainly weighing how to balance what we need to do here on the continent versus what we need to do with partners.

"We've always had a tension between the two. And I think it's underappreciated how much Australians actually have been concerned about direct defence. For example, in 1903, when our first defence act was passed, it actually forbade the professional force from going overseas because the defence forces were for coastal and port defences. That's why we had these giant volunteer forces engaged in the First World War.

"I think the public image of Australia is always racing overseas to fight with allies and other people's wars is a mistaken view. I think there is a longer history of Australians thinking seriously about our direct defence. And often that thinking isn't done in public due to alliance sensitivities, but we are now seeing more willingness to do so."

What Carr was underscoring was the need to balance support for allies, notably a primary ally. Initially the UK and then the United States, with the needs for Australian direct defence. Clearly, allies are important for a credible direct defence of Australia, but what one might call a necessary but not sufficient condition for ensuring credible direct defence of the continent.

Carr characterized this question of balance as "transactional if not even Machiavellian in the way that they've tried to manage those alliance relationships and balancing between what we thought was essential for our own security and what we thought we needed to do or wanted to do with our partners."

He then drew an example from the Second World War: Robert Menzies, at the start of the Second World War, stated that as a consequence of Britain being at war, we're at war. But then spent the first three months of the conflict telling the British we're not sending forces, we're not going overseas because we are worried about the Japanese, and we are worried about your commitment to our region, and we are clearly worried about our own Homeland security. And once he gets a better sense of what the Japanese might do, then he's willing to commit to significant overseas cooperation."

The Indonesian conflict from 1963 to 1966 was also a clear element of understanding the nature of the challenges involved the nature of direct defence of Australia.

Carr underscored that the nature of the threats in the region rapidly dominated the Australian defence focus and re-oriented the calculus for force structure development.

"Suddenly the Australian government changes completely what it's spending its money on, what kind of forces it' was buying, it's willingness to spend money, with our defence becoming nearly 17% of the national budget.

"And we bought equipment such as the Oberon submarines and ultimately the F-111s and a made a number of procurement decisions that really are at the heart of what the ADF is today because of that concern for the continent.

Second Line of Defence

"In other words, the Indonesian conflict had much more of an impact on Australian force structure and military thinking than Vietnam did, even though that was much more publicly controversial and historically seen as the key moments in the Cold War."

We then discussed a key concept in Dr. Carr's work, namely, how to think about Australia's strategic geography in relationship to its defence focus.

This is how he put it: "There is an underlying paradox of is Australia an island or a continent? Determining your focus has important implications for the kinds of defence forces you want to build and the way you think about your relationship with others and the role of the state.

"We go back to Athens and Sparta, a land power, and a sea power, fight in different ways, they create different kinds of empires. In the 1980s, when Australia was thinking seriously about home defence and how you would build a force structure for that, the implicit idea was that Australia was an island.

"We focused on the SE gap to our north, on long-range understanding of traffic that might come down through the first island chain, developing JORN, the Jindalee Operational Radar Network and other systems like that for understanding that environment.

"Our maritime focus drove a lot of our defence policies. There was actually very little conception about how do you use Australia's own geography for your advantage in a way that the Chinese or the Russians as classic continental powers have done so. And that was appropriate for the time and circumstances.

"There are examples of Australians in a crisis thinking about how to leverage our continental advantages. "The classic examples is the Second World War, where in desperation we suddenly considered whether Australia needed develop an insurgent or gorilla strategy with the public volunteering to fight the Japanese if they landed in Australia.

"Could we trade space for time? But the Australian continent isn't very useful for such an approach because all of our key population and industrial centers are along the coast often with a mountain range very close to the coast with the result that we are clustered near the sea in de facto "island chains."

He then argued that there was a third approach to conceptualizing Australia's strategic geography which suggests a way to conceptualize the way ahead for Australian direct defence. "If you look at where people have lived since British invasion in 1788 on this continent, it's closer to being an archipelagic nation. You have the island of Sydney, the island of Melbourne, the island of Tasmania, the island of Brisbane and Darwin, with vast gaps in between.

"Our early patterns of settlement were all about supporting these distinct islands. The Australians didn't run railways across the continent and have an expanding frontier as the Americans had. Everything ran to the sea because economically it made more sense to send goods to the nearest port, and then send it by ship from city to city, island to island effectively, or off to America or to Europe for trade.

"In other words, we have an archipelagic country that has very distinct cultures that are also connected and for a defence perspective, that leads to a different way of operating or thinking about your ability to move across and between settlements. Rather than being tied to the direct defence of every specific inch of territory.

"How do we extract benefit from such an approach?

"How you can we move force between sea and lands seamlessly and recognizing that it's not simply the defence of your territory but having the ability to move out into the region in cooperation with partners and allies, where Indonesia is the largest traditional archipelago in the world?

"There's many significant archipelagic nations in the South Pacific, and we are going to need an ADF that is able to operate seamlessly across those environments as well."

This means working mobile basing, force mobility, agile combat employment, leveraging land, sea and air bases to concentrate force against key threats in the region. And with the autonomous revolution at hand finding ways to get enhanced mass of payloads in support of the missions from a diversity of uncrewed as well as crewed platforms.

Conceptualizing of Australia in archipelago terms raises the question of rethinking the ADF as an archipelago defence capable ADF and as such can help both in restructuring the ADF in the near to midterm but also providing a sense of priorities for defence modernization and what mobilization of the nation might need to look like going forward.

COVID-19 Disrupts but Does Not Block CIVMEC From Supporting Australia's OPV Project

09/28/2022

When I was last in Australia in March 2020, I was working on a report on the new Australian OPV program which was the initial effort to shape a continuous shipbuilding approach.

That report can be found in Chapter Eight ("Building a New Offshore Patrol Vessel: A Case Study in Strategic Change") in my book, *Joint by Design: The Evolution of Australian Defence Strategy*.

I was in Western Australia visiting the Henderson shipyard and discussing the launch of the program with Jim Fitzgerald and Mark Clay of CIVMEC, the engineering company whose role in the program is to build the 27 key modules (blocks) that make up the hull and superstructure of the OPV's.

This is what I wrote in my case study about the role of CIVMEC in the program:

Civmec's Henderson facility, is the physical site of the vessels from the third OPV build onward. It is clear from visiting the yard, and looking at the build-out since they started the effort in 2008, that the company made a significant investment in shipbuilding prior to being awarded the OPV contract. But the build of the first two Arafura Class OPVs at the BAE/ASC yard in Adelaide does not take away from the effort of Civmec for the overall program or its preparation to build the remaining ships in the program at Henderson.

The material cutting for the ship is being done at one facility, not two, the one that I visited in Henderson. The material is shipped from Henderson to Adelaide by road and rail, and given that the cost of transport from West to East is significantly less than the other way around, the cost factor of having the initial assembly in Adelaide rather than in Henderson is very manageable.

This also allows the Henderson yard to have a two-ship run-through prior to launching full production at Henderson. This is a digital production facility, which is clearly evident when you visit the cutting facilities at the yard, where precision is the name of the game and where the production workers and staff manage a digital production process.

Second Line of Defence

This includes having a control room for monitoring the parts flow into the yard and working schedules that are designed such that production materials arrive just in time for the production process. When visiting the yard, and walking into the large main assembly and sustainment hall, it is clear that it can accommodate accommodates the Royal Australian Navy's ship up to the size of the Air Warfare destroyer.

Having to flee Western Australia to get to Sydney to get to back to the United States just before the pandemic lockdown happened meant that I did not get a chance to watch the program evolve over the past nearly three years.

It felt like I have just come back on the 3rd fleet (not quite as long as it took the first and second fleets but felt a bit like that). I felt a bit like the folks who came from the old country by ship but did not have direct communications for several years. Not quite the First Fleet experience but from a communications point of view, it was a bit like it.

Upon my return to Australia in September 2022, I had a chance to talk with both Jim Fitzgerald, Executive Chairman of Civmec, and with Mark Clay, Project Manager, to get an update on the progress in their side of the program.

Although not a heritage shipbuilder, they had relevant experience which they leveraged for the program and made significant investments to launch the program prior to full on construction.

This is what I wrote at the time of my March 2020 visit: "It is clear that in my initial read of the Civmec choice, I had missed one major area in which they work which is central to shipbuilding; they are players in the oil and gas offshore platform business. These are certainly sea bases and of relevance more generally to managing a shipbuilding enterprise."

My expectation prior to my discussion with Fitzgerald and Clay was to hear a narrative explaining how the lockdown in Western Australia which cut WA from the rest of an Australia which itself was cut off from the world had slowed the program significantly.

But that was not what I heard.

Obviously, the pandemic created chaos and key disruptions to the workforce and supply chain.

Because the company had stockpiled enough material prior to the pandemic in anticipation of starting the program, they could continue the program. But clearly, resource constraints have been a key challenge to overcome.

As Clay noted: "We had already set up our core supply chain in 2018, so we did have a good start prior to the pandemic. We had ordered enough material to get us through that difficult time.

"And a number of our suppliers had ramped up supplies in anticipation of the program start and had done that prior to the Covid pandemic."

Fitzgerald reinforced this point.

They also leveraged what they could find in Western Australia to fit in workforce pieces to the effort.

And it must be remembered that this is a digital production process which meant that they could leverage non-Australian expertise in building the program through "remote working" as well.

Obviously, they worked methods for ensuring worker safety required for curb COVID risks as well.

For example, they had to organize lunch breaks for the work force, by groups and would sanitize the area as lunch groups would come in a staggered schedule.

According to Fitzgerald: "We actually found that doing so increased productivity."

According to Clay, "there are four ships on the go in WA at the moment. In Adelaide Ship 1 is in the water and due to commence builder trials, Ship 2 is progressing to launch and in WA Ships 3, 4 , 5 and 6 are in various stages of construction."

Vessel consolidation is done in Civmec's state of the art Assembly Hall by the prime contractor Luerssen and their various subcontractors. They work with their subcontractors to achieve a finishing process as part of the consolidation, outfit, and commissioning process.

Given that conflict in crises with adversaries will certainly disrupt, perhaps the pandemic provided a real-world preparation for the future.

In any case, at least this part of the continuous shipbuilding approach seems "battle tested" so to speak.

And they had to find more innovative ways to find ways to deal with shortfalls as well. This in turn provides a benefit going forward with the program.

As Fitzgerald proudly underscored: "If you look at the completed facility now, at what we have achieved, and when you explain that to people, most people struggle to believe what we achieved through the height of the Covid pandemic."

Shaping a Way Ahead for the ADF's Logistics Enterprise with the Return on the Priority for the Direct Defence of Australia.

09/27/2022

The ADF faces a double challenge.

First, there is the transition from the away game land wars to preparing forces for higher intensity operations against global authoritarian powers. I have written several books which address how challenging this shift is for a whole generation of warriors and policy makers who have only known the land wars as a core focus for their defence forces and efforts.

But Australia faces a second challenge affecting the future of the ADF as well: where is the ADF going to operate primarily in the direct defence of Australia?

What exactly is the defence perimeter for Australia?

How best to operate within that defence perimeter?

And how to sustain the force for the time needed to prevail in conflict or crisis management?

In a recent meeting held with Colonel David Beaumont, an Australian Army officer, and both a practitioner and analyst of logistics for the joint force, he underscored the importance of the ability to persist in conflict situations.

This is how he put it: "The belligerent who can respond quickest and can return to support the combat force will be the one that emerges and the greatest chance for success."

Second Line of Defence

Added to the strategic calculus for the ADF has been living through the pandemic. What the pandemic has underscored is how vulnerable global supply chains are and the need for Australia to build more reliable supply chains in the face of dealing with global disruptions (and in war these will be deliberate efforts) as well as more national production capability and stockpiling for greater resilience where appropriate.

This may also include working with coalition or alliance partners, in a broader conception of what is known in Australia as a 'national support base.'

Or put another way, the next phase of ADF development will be built around the direct defence of Australia and its ability to operate within its core defence perimeter with an integrated but distributed force, and able to mobilize a sustainment system for operations, but that will only occur with the broader capability of the Australian nation to mobilize as well. Mobilization is not simply an ADF concept; but it is a whole of nation one.

This is how Beaumont put it in our conversation: "We need to go beyond simply discussing ADF mobilization in a crisis. We need to understand what the limits and constraints are on what the ADF can do for itself and what might it need from the nation. This will help us understand exactly what capabilities or support mechanisms need to be built within the ADF, or what policies and plans may be required to help govern national responses to a crisis."

In a recent article by Beaumont and published by ASPI on September 8, 2022, Beaumont provided his understanding of how to understand the challenges associated with enhanced ADF mobilization with that of the broader society or nation.

"Access to supply chains and civilian resources also influences where forces are based and prepared. It's timely to remember lessons from the 1999 peacekeeping mission to Timor-Leste, Operation Warden, when the unplanned deployment of 10,000 coalition forces put a tremendous strain on the Darwin infrastructure. If the defence strategic review orients force posture to Australia's north, an in-depth conversation about what infrastructure is required for military forces must follow. When civilian infrastructure is unavailable, the ADF must be structured to support itself. Expeditionary logistics capability may be in order.

"Civilian and military logistics and infrastructure, working together, ensure that military power is in the best position to be used. It is, however, virtually certain that infrastructure capability won't be met by a comprehensive list of defence projects that's been 'optimised' to treat all logistics and infrastructure needs. The defence budget is far too small to create the national economic infrastructure necessary for the types of scenarios that Australia should be prepared for, especially as step-change military capabilities are being introduced to offset the efforts of other nations.

"A range of civil–military measures to coordinate the development of infrastructure, if not other logistics and supply-chain issues, will be required. The needs will always outweigh the resources available to treat them, and the art of logistics and infrastructure development will come in the way that those involved in decision-making qualify, quantify and manage risks. What is needed, at the very least, is a conversation about the strategic concepts that underpin the making of decisions as envisaged in the defence strategic review.

"The community of discourse on this issue already knows that the only viable solution is a collective one. There are three broad perspectives relevant to this outcome. First, the military perspective looks to the potential circumstances of operations and produces concepts that reflect strategic guidance and enable logistics requirements to be determined. The question for the military planner is not necessarily whether the requirements can be met now, but whether the infrastructure can be made ready when it is needed.

"The second perspective is civilian (government and industry) in nature, and reflects an adaptive culture that allows their organisations to react to new situations and to meet new demands. They need to know what it is the military wants so that they can get on with providing it. Governments and their agencies, and local communities, have their own challenges to overcome, as do industry and infrastructure leaders. Routine consultation as well as sharing of concepts and plans will be required to enable these groups to contribute to overcoming logistics and infrastructure hurdles. Providing incentives for results might also be a consideration, if not a necessary step.

"The third group of views comes from the defence analysts and commentators who often observe the occasional non-communication between the other two groups and are not necessarily beholden to balancing a perception of need against the availability of resources. It goes without saying that a range of views on Australia's strategic infrastructure is important given Australia's strategic circumstances. Such views may offer valuable alternatives to conventional planning. Naturally, self-discipline is required so that conversations don't become 'all care with little responsibility'.

"What all can agree on is that an investment in military capability must come with an investment in strategic infrastructure and logistics support. It doesn't matter whether logistics come from a military or a civilian origin, but it does matter that all involved know what resources are coming from which source and what infrastructure is available to maximise their use.

"A national-level conversation on civil–military cooperation, strategic support arrangements for contingencies, and whole-of-nation preparedness is warranted after the defence strategic review. Without such analysis, it's reasonable to expect that logistics and infrastructure will launch from the back of our minds to the front of them—at a time we can ill afford."

Shaping a Way Ahead for Maritime Autonomous Systems in the ADF: A Discussion with Commodore Darron Kavanagh

09/23/2022

At first blush, some readers would expect a title that focused on maritime autonomous systems to focus primarily upon their role within the Royal Australian Navy, rather than looking at the role within the overall ADF.

But because these systems are entering the force as it works its next phase of shaping joint operations, maritime autonomous systems can be viewed as enablers for and beneficiaries of the transition.

In my recently published book with Ed Timperlake, we focus on the reshaping of concepts of operations for the joint force upon kill web operational concepts.

It is about a distributed force where payloads to missions is a key element of building the modular task forces at the tactical edge which form the combat nodes from which force integration can be built in a fluid combat situation.

Maritime autonomous systems are defined by the payloads and the software which enables those payloads to support the missions in the distributed battlespace, rather than by the platforms which hold them.

This is a very different way around from the legacy approach to platform prioritisation and platform development. While certainly, core air, sea and ground platforms built under evolving systems engineering models will remain a key element of force design and development, the path for maritime autonomous systems is significantly different.
Second Line of Defence

As Commodore Darron Kavanagh put it in our meeting at his office in September 2022: "As soon as I say I've got requirements for a combat system, I immediately go into a classical systems engineering approach. But that approach doesn't actually allow for the agility necessary rapidly to change that combat system.

"If I look at classical primes, they are often hardware first companies, software second. And there's a lot of legacy in the design.

"One of the things we've been looking at is how would you take a software first approach to accelerate our maritime autonomous systems capabilities. This is one of the reasons that the sovereign industry players that we've selected recently to work with in the autonomous systems areas are software driven in their development rather than platform focused."

The ADF has been looking for some time to work rapid software development and insertion into combat forces. This is much harder to do with core platforms than with software driven, payload defined, maritime autonomous systems.

This is why a key contribution to the ADF as a joint force can be provided by the kind of acquisition and operational models being shaped around maritime autonomous systems.

A key way ahead for these systems is to also shift from a classical understanding of product development.

While the approach does develop prototypes: this is not the primary focus.

It is about focusing on operational effects: as both contributions to the force in being and continuous and ongoing experimentation for force development under actual operational conditions.

The Commodore has his own MEGA hat – Make Experimentation Great Again. Maritime autonomous systems are purpose built to deliver the desired combat effects from the payloads onboard.

And working ways to cross-integrate data from payloads below the sea, on the sea and in the air will provide a key capability for building out a kill web enabled force, that can shape combat clusters able to operate in contested combat operations as well as throughout the full spectrum of warfare.

As he underscored: "if you actually want to deliver something different, if you want to actually get what I'd call asymmetric war fighting effects, then you must be prepared to experiment.

"Because those concepts of operations are not going to come from replacing what you have. Or indeed, an incremental improvement of what you have.

"You actually have to leverage what the technology will give you. It is because less and less it's about a platform. It's more and more about your intent. So, that's command-and-control, and the payloads that deliver that intent."

Commodore Darron Kavanagh underscored that the ADF is evolving and building out an ADF capable of effective distributed operations. And maritime autonomous systems will be a key enabler for such operations.

To do so, the systems need to be operating in the force as part of the overall operational capability for the force. As the ADF gains experience with these systems, these systems will face ongoing development and experimentation, both in terms of the payloads they carry as well as the operating systems on the platforms, as well as seeing platform development to better enable payload performance and targeted relevance to the operating force.

As he put it: "The challenge is being able to field them at the speed of relevance. That is the difficulty in a bureaucracy such as any military.

"And so, one of the reasons it's important to spend that time to work out how do we constructively disrupt? We are not building a one off system. The focus is upon delivering asymmetric warfighting effects again and again."

I have found that one challenge facing the way ahead for acceptance of maritime systems into the operating force is not just the question of ensuring that one is deploying a trusted autonomous system: it is equally about the challenge of understanding the con-ops of a kill web force.

As we argued in the book: "when thinking through a kill web force, payloads are key building blocks for the distributed integrated capability which gives the force the necessary combat power. Those payloads can be found on a variety of sources, from air combat platforms, ships as sea bases, islands, land bases, mobile or expeditionary bases. The kill web mosaic is about having the launch point for key payloads which are appropriate to combat and escalation dominance,"

And we argued in the book that with a variety of ways to deliver payloads to missions, this also opened up the need to rethink what operational task forces might look like. We highlighted what we called "modular task forces" which can be formed within an operational context; rather than be defined with regard to what was initially deployed for an operation in terms of platforms making up that task force.

And this allows for mission command to guide a distributed force able to achieve integrated effects. As we argued: "Mission command guides a diversity of modular task forces, which deploy into the areas of interest, and provide engagement density. Sensor networks and C2 at the tactical edge enable modular task forces to execute their assigned missions and to do assessments and with their inherent ISR capabilities are able to ensure that the mission effect is being achieved."

What this means for maritime autonomous systems is twofold. Either the USV or UUV can contribute to a modular task force as either individual or wolfpack capabilities or USVs, UAVs, and USVs can themselves operate as a modular task force.

One mistake in much analysis of this area of work is to focus on how various maritime autonomous systems are hermetically sealed or stove piped options: USVs compete with each other; UUV compete with USVs, and UAVs, compete with both.

That is old style platform think; what we are looking for here is complimentary in payloads for a variety of launch platforms. Shaping wolfpack operations for diverse maritime autonomous systems in a modular task force is a key way ahead for both operations and force development.

Recently, I looked at the Eager Lion 2022 exercise and highlighted the importance of such an approach:

"Recently, Iran temporarily capture a Saildrone Explorer in the Red Sea. It would make sense to operate it with the Devil Ray which can provide some protection against adversaries trying to seize the saildrone.

"But the U.S. Navy to recapture the Iranian seized saildrone had to deploy manned assets to recover the UAS. According to the U.S. Navy: "While transiting international waters around 11 p.m. (local time), Aug. 29, U.S. 5th Fleet observed IRGCN support ship Shahid Baziar towing a Saildrone Explorer unmanned surface vessel (USV) in an attempt to detain it.

Second Line of Defence

"U.S. Navy patrol coastal ship USS Thunderbolt (PC 12) was operating nearby and immediately responded. U.S. 5th Fleet also launched an MH-60S Sea Hawk from Helicopter Sea Combat Squadron 26, based in Bahrain," 5th Fleet said in an Aug. 30 statement about the first incident."

"It makes sense to find better ways to defend a UAS such as the saildrone by working with a wolfpack UAS "task force" such as the Devil Ray or Mantas UAS."

Commodore Kavanagh emphasized that the terminology is important in understanding what maritime autonomous systems are and how their role within the operational force will grow over time.

"I refer to these systems as uncrewed systems. And the reason I use that term is that it is less and less about the vehicle that actually delivers the effect.

"The payload is really important as it could be on all sorts of different vehicles, whether it's in the air, below, in certain circumstances, or on the surface. This requires you thinking in a different way about how do you plug and fight different elements into the combat force."

Shaping a Way Ahead for Remotely Piloted Air Systems: The Perspective of Wing Commander Keirin Joyce

09/22/2022

I have known Wing Commander Keirin Joyce for a number of years, and last spoke with him at length after he chaired last year's Williams Foundation Seminar on Next Generation Autonomous Systems.

During the seminar, he highlighted an example of how current forces can use new uncrewed technologies to support the evolving kill web, in which a small team with ISR and C2 capability can inform a firing solution by a virtual task force firing solution provider.

WGCDR Joyce noted that in an Exercise Hamel held in 2018, a two-man Army team using a Black Hornet Nano UAV was able to identify a tank formation, and then with their radio able to pass that information on to the Royal Australian Air Force (RAAF) for a strike opportunity against that tank formation.

This example highlights certainly one role which uncrewed systems can play in providing ISR better labeled as information than intelligence surveillance reconnaissance because in this case you have the two-man team inside the Weapons Engagement Zone providing inputs to an external provider for a firing solution.

Now back in Australia for the next Williams Foundation Seminar, I had a chance to meet with the Wing Commander in person on a beautiful Spring Day. I asked him to provide an update since we last talked on shaping a way ahead for the RAAF in the UAS area.

According to WGCDR Joyce: "From an Air Force perspective, we have had some wins. The Loyal Wingman Ghost Bat program has been approved for expansion, that's genuinely exciting. It's an opportunity for us to get a highly automated system into the hands of our combat force, and experiment with, and find out what it can be good for and what perhaps it isn't good for. And that will help us in defining the future air teaming system program, which is Air 6015.

"We need to enable learning by doing. And while we may make some clunky decisions about how we proceed, actual physical experience will contribute to enabling us to use these systems much faster than trying to design an elegant solution that's going to be perfect, to be platinum plated. Because it probably won't be

perfect, this tech field moves so fast that the best aim point is gold plated, because there's so much unknown about how to best use autonomy in Australian air power.

"From a Triton perspective, the Triton production line did not close as feared, so our first of three aircraft has rolled out of Northrup Grumman now. And our crews will commence training with the U.S. Navy soon. So that is exciting, as a bespoke niche capability in contributing to a piece of the maritime patrol and response capability set. The first aircraft should arrive in Australia in two years' time, with crews fully calibrated, and then we'll start our test and evaluation period."

In 2017, I visited the base where both the P-8 and the Triton will be managed from.

This was what I wrote after that visit: "The P-8 and Triton integrated facility being built at RAAF Edinburgh, near Adelaide in South Australia. At the heart of the enterprise is a large facility where Triton and P-8 operators have separate spaces, but they are joined by a unified operations centre.

"It is a walk-through area, which means that cross learning between the two platforms will be highlighted. This is especially important as the two platforms are software upgradeable and the Aussies might well wish to modify the mission systems of both platforms to meet evolving Australian requirements."

WGCDR Joyce noted that like the U.S. Navy, "we're using the same crews – P-8 and Triton — at least to establish our initial operating capability. All the Triton operators will be qualified maritime patrol response officers, so the sharing of TTPs and forging the path forward for how we use this incredible increase in data and endurance should be maximized."

He noted that "Right next to the P-8 building will be the Triton squadron headquarters, as well as building a new facility for our Distributed Ground Station Australia. Air 3503, which is where we'll undertake level two processing, exploitation, and dissemination (PED), and beyond. Level two, three, four for the joint force. We will learn how to use Triton first and then work ways to support the joint force as well as civilian agencies with Triton-generated data."

We then discussed how Triton fits into the overall evolution of ISR platforms in the ADF.

According to WGCDR Joyce: "In effect, Triton is a very low Earth orbiting satellite, and it helps monitor a wide area of interest from the sensors because it operates at such a high altitude. We can move this sensor rich aircraft to a specific area of interest. And that is a huge advantage of Triton, but it is an expensive airplane, and we'll only ever have so many, so we will have to closely manage those airplanes."

We then discussed the cancelled Sky Guardian program.

As Joyce underscored: "The other thing that's changed since the last conference, which was the cancellation of 7003, that project was buying an airplane that was a fraction of the cost of Triton, and subsequently we were scoping to buy many more of them."

He did argue there was a need for a complimentary UAV capability to Triton. "Airplanes like a Triton are excellent in phase zero, but once the shooting starts, you need mass quickly, and you need airplanes that are not soaking up your entire budget quickly to fill those gaps.

"And that's what we don't have a plan for at the moment, which creates an operational capability gap. You need an airplane that's got long endurance, the ability to carry the sensors for you, the ability to conduct strike, contributing to the kill chain at a minimum, but potentially with strike options itself.

Second Line of Defence

"The ability to carry even cheaper, more expendable airplanes into combat and operating as a mother ship – also known as Air Launched Effects."

"And you need to have them running at a level of automation that you can simply direct them to do missions. You don't want a one-to-one pilot in the loop to conduct those operations, and that's something we truly do need to scope into defence strategic review, or into projects that are already approved under FSP20, perhaps like AIR7555.

"We need additional aerial ISR, because once you transition from phase zero to phase one, when the shooting starts, you need platforms to be able to contribute to that, matching the con ops of your threat forces. Threat forces that will just keep shooting missiles until they hit. And I think that is a huge area of opportunity for Australia."

We then discussed the importance of getting systems into operation to generate more rapid innovation as a means to build forward an expanded role for automated systems.

Joyce came from the Australian Army and returned to that experience to argue for a way ahead for the RAAF as well.

"I think Army learnt that lesson 15 years ago. At that time, Army decided it wanted to get a tactical UAS into service, and they went for a platinum solution but that didn't work out. They then partnered with the U.S. Army, they lowered some of the capability requirements, but they got something in service fast – a gold plated solution – and started learning.

"And that's been a really excellent model for the last decade, they learnt those lessons, they learnt what they wanted, what they didn't want, what they wanted improvements in, and when they've gone to replace that project recently under LAND 129 Phase 3, they're contracted now for a platinum solution.

"And what that means is that they've got a good chance of getting it, because they got something in the hands of 200 operators over the last decade, and they learnt the lessons, and they know what they want and how that will work.

"Perhaps something that Air Force is missing at the moment is we just don't have a UAS squadron that's got something off the shelf that we can partner with allies to learn lessons on and get our foot in the door so that we can expand when we need to.

"When somebody understands how to operate a UAV, how the controlling works, how the sensor links work, and perhaps how the kinetic links work, that enables you to have the ability to advance more quickly in the autonomous vehicle and systems area."

Shaping a Way Ahead for the ADF: The Key Role of C2

09/21/2022

Enhancing C^2 capabilities for the ADF in the near to midterm is a critical part of being able to deliver the kind of defence capabilities which Australia needs for its renewed focus on direct defence of Australia.

During my current visit to Australia, I had a chance to discuss this challenge with David Horton, Vice President at Systematic Australia. His service background is in the Australian Army and still serves part-time at the Australian War College (see his bio at the end of the article).

We started by discussing the dramatic reduction in warning time for Australia for crises in the Pacific. What this means is that long range planning for force development has its place, but the need to enhance the force we have in the short to mid-term is increasingly the priority.

As Horton put it: "the problem is that we're facing a crisis that could happen at any point. It could be next week, or it could be even the next three years or maybe five years, but we need enhanced capability in the short to mid-term for the ADF and for the nation."

In my view, with the shift to the direct defence of Australia, one needs to focus on how to restructure the ADF which Australia has now and to build a template then for force building concurrently with that shift. With a focus on the strategic space in the region, then the question of distributing and integrating the ADF requires a C^2 capability which can do so.

Horton underscored that this required an appropriate C^2system. On the one hand, securing key information for national use is of course important. But on the other hand, for extended regional security, it is important to share information and to shape a common operational picture with partners in the region, and security barrios cannot be allowed to block this from happening.

He used an example which was reminiscent of my conversations when last in Australia with the Maritime Border Commander, Rear Admiral Lee Goddard. "Imagine two patrol boats operating from Fiji and patrolling their waters. We do not have a platform there, but we have an ability to generate and share information for their enhanced situational awareness, that would allow for a joint operational picture. And that means as well, we could make deployment decisions based on what Fiji is doing and sees the need to do as well."

What Horton was highlighting was a way to build networks of relationships which do not fit into the legacy notion of alliances but does capture the reality of what 21st century alliances really are becoming – communities of interest, with national determination of what actions to take in times of crisis.

He noted progress on the Australian side with shaping joint C^2 as well. He highlighted that in the most recent Talisman Sabre, "for the first time, we had a joint common operating picture. This meant that the joint force commander was able to get the information he needed. And based on this experience, we can consider ways to share information with whole of government and then more broadly with allies and partners."

In an August 25, 2021 ***Defence Connect*** article about Talisman Sabre 2021, the contribution of Systematic to resolving the challenge highlighted by Horton was described as follows:

During the exercise, SitaWare Headquarters provided commanders at the Deployed Joint Force Headquarters with a rich Joint Common Operating Picture. Although primarily an Army asset, the software incorporated air and maritime pictures, and was used by both Naval and Air Force staff offices in both headquarters.

"SitaWare gave commanders a detailed understanding of the battlespace and demonstrated its ability to operate across domains," explained Alastair George, senior business architect at Systematic.

"The software's architecture enables it to ingest multiple data sources and feeds from across a coalition."

"SitaWare doesn't limit users to information from within their own force structure alone. Its ability to interoperate with other C2 and track management systems, and act as an enabler for Joint operations is a real force multiplier," George said.

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"SitaWare was trialled at the Headquarters Joint Operations Centre to fuse multiple COP source feeds into a single view of the strategic domain.

"At Talisman Sabre, SitaWare Headquarters provided chat capabilities horizontally and vertically and was used extensively as a planning and briefing tool and the software integrated effectively with role-specific C2 systems.

At the heart of the C^2 challenge is recognizing that the use of military forces in crisis management requires not just shaping effective joint modular task forces appropriate to a crisis management situation, but the ability of the civilians to shape overall political responses with allies, partners, and adversaries in that situation.

There is no point in simply having the most exquisite combat information available but not translating that into information enabling crisis management resolutions as well.

The information sharing aspect a key element for reshaping the way Australia can work with allies and partners in the region in crisis management situations.

And perhaps forming joint operational capabilities in the region. For example, Indonesia and Australia could buy Ospreys to come up with a joint squadron would be one way to work HADR plus operations. By operating and sustaining a joint capability and building a C^2system into the concept of operations for that joint capability, crisis management capabilities could be built out more rapidly.

And with the right kind of C^2 system, each nation could use their aircraft for specific national purposes as well.

Horton underscored that need to drive C^2 integration much more rapidly for the ADF, and its ability to work with partners and allies. And I would add, there is one need we often forget – the key element of how to communicate with adversaries in complex crisis management situations.

Referring back to the TS21 experience, he noted: "we've put together the interim battle management system in a year, and it works. And we can continue to build off this off-the-shelf solution set to move forward."

We then discussed one aspect not widely considered that also affects a way ahead with regard to ISR.

That is the contribution of civilians in a society to ISR via their smart phone inputs. I saw this in Norway during Joint Warrior 2018 and we are seeing in Ukraine right now – significant inputs to Ukrainian ISR from the Ukrainian civilians. How to tap into this? How to weave this into the ultimate ISR in crisis management, which is information war?

Put in other words, working C^2 and ISR for 21st century operations is not simply about building the most exquisite classified system possible; it is about building a system which allows for crisis management dominance, an ability to shape integratable forces in the battlespace for the ADF forces alone; but in a way that can allow for alliance and partner capabilities.

The ADF needs a C2 and ISR system to build the relevant coalitions on the fly in an actual combat or crisis management system, rather than just being built to plug and play into a specific ally.

The Australian Defence Strategic Review: Lessons from the Past

By Kim Beazley

The independent leads of Australia's defence strategic review, Stephen Smith and Angus Houston, have a tough task on their hands. It's the first such review since Paul Dibb's in 1986, which largely governed the 1987 white paper—and the first since consensus sees us 'out of warning time'.

The then government accepted Dibb's thesis that we planned against capability challenges in the region amounting to an 'escalated low level' threat. The facilities, personnel, industry, and weapons systems he recommended could deal with that from 'the force in being' emanating from the paper. It also assessed that an 'expansion base' would be developed from it should a serious threat develop—and such a threat would take 15 years to emerge.

That threat has taken 30 years.

Looking back to look forward, we confronted in 1939 an existential threat, particularly after Japan entered the war in 1941.

How did we handle that?

What was required of us and how did we meet it?

We assumed our allies would struggle, and then we would. Prime Minister John Curtin had said as opposition leader: 'The dependence of Australia upon the competence, let alone the readiness, of British statesmen to send forces to our aid is too dangerous a hazard upon which to found Australia's defence policy.' The response was handicapped by the Great Depression. Defence expenditure as a percentage of GDP was about where it has been for the past 25 years.

We saw ourselves as hapless and helpless, but that was not so, partly because our American ally would carry the Pacific War, and partly because our 'expansion base' then was our potential wartime industry.

That was enhanced by BHP head Essington Lewis's stockpiling of iron ore and steel to feed industries we'd created since federation and accelerated after 1919. As Andrew Ross wrote recently in The Strategist and in his 1994 book Armed and ready, we put in place a major scientific, technological and industrial base.

By 1941 we'd been in a full war economy for 18 months and had created the capacity to equip six divisions on our way to more. Equipped to fight the Germans, ours were superior to Japanese divisions. Our field artillery outranged theirs, and our anti-tank guns outranged Japanese tanks and could penetrate their armour.

Americans, including General Douglas MacArthur, weren't familiar with the effective performance of Australian forces in the Middle East. Some had noted their fighting performance in Malaya. Curtin was anxious to persuade the U.S. it had a capable ally that could carry its weight. It's worth quoting Curtin's address to America on 20 January 1942, six weeks after Pearl Harbour, outlining the potential effectiveness maintained for the rest of the war. It should enhance our understanding of what we were capable of then and could aspire to now.

Curtin said four out of every 10 Australian men were wholly engaged in the fighting forces or making munitions and equipment. The other six, aside from feeding and clothing the whole 10 and their families, produced the food, wool and metals Britain needed. 'We are not, of course, stopping at four out of 10,' he said. 'We had over three when Japan challenged our life and liberty. The proportion is now growing every day. On the one hand we are ruthlessly cutting out unessential expenditure so as to free men and women for war work, and on the other, mobilising woman-power to the utmost to supplement the men.'

Second Line of Defence

With single women civilly conscripted and married women pressured to work, we were the most mobilised belligerent of World War II.

Spending on defence hit 34% of GDP in 1942–43. The percentage of all federal spending to GDP is currently 27%. Seventy percent of our federal budget was devoted to defence. It is now around 5.56%. US President Harry Truman in his report to Congress on the Lend-Lease program in 1946 spoke of his surprise to find Australian and American participation about equal. He was wrong. Australian contributions were superior, producing a debt we forgave at war's end.

In February 1942, Japan's army and navy debated invading Australia—army opposed, navy supported. Distance, the commitment in China and the fighting capabilities of Australian forces were cited as reasons they didn't. The navy was asked to concentrate on movement through the South Pacific islands to cut Australia off from America. A largely Australian effort in Papua and American in Guadalcanal put an end to that. I have put to Chinese interlocuters that their diplomatic endeavours resemble a ghost of Japanese strategy.

That's what self-reliance looked like then.

What chance now of 20% of GDP devoted to defence? We have settled at around 2%. That was a figure the U.S. administration, when I was ambassador, pressed on me. I responded that we both devoted roughly the same percentage of GDP to spending at the federal level.

In America's case, as well as defence, spending concentrates on social security, Medicare and Medicaid. In most other areas, U.S. federal spending leverages the states and private sector. That includes the states on unemployment benefits and that only for 12 months.

Australia funds pensions, universal health care, full unemployment benefits, supporting parent benefits, the bulk of funding of 35% of school children in the private sector, and a substantial contribution to state schools and universities. The federal government also contributes to infrastructure, childcare and an array of social spending including the national disability insurance program. When a defence minister sits in a cabinet spending review, he or she doesn't see an array of friendly faces. In the US, they largely do.

Herein lies the review team's problem.

During World War II, Australia was still in the umbra of a united defence as a major factor in the decision to federate. Many major programs that are federal now were handled then by the states. World War II and post-war exigencies with taxation changed that, and its impact on the distribution of functions has changed the 1939 picture dramatically. With an end to warning time, that anxiety should motivate us. Lifting defence spending to 3% or the American level of 3.5% should be doable, but one suspects not. Hopefully, the review might encourage some movement.

Curtin's spirit might encourage sympathy for the reviewers' desire not to see a defence dollar wasted. We can't afford expensive propositions where cancellation is likely. The services' professionalism leaves them conscious of allies' capabilities, but we need to look at what's effective for us. Focusing on missiles and mines; on many areas of surveillance technologies; and on the use of artificial intelligence, advanced computing, cyber and unmanned systems needs to be priority. Australia has many inventive scientists and businesses, though enhancing legacy platforms may throw up products and requirements outside our normal deployments. Aspects of them are not necessarily popular with our force's planners.

The burden shouldn't fall on the defence portfolio alone.

Resources, transport and industry must be engaged in national resilience. States, local governments and the private sector have roles.

All levels have an interest in massively enhancing our fuel reserves.

Roads in the north might contain stretches aircraft could fly from.

Ports might be made navy capable.

Submarines could go deep more quickly and with more channels to exit Albany and Exmouth than from Stirling.

They did that in World War II.

We and our allies can mine and process most of the critical minerals on U.S. President Joe Biden's list of 50. Rare earths are used in 3,400 American weapon systems, but 90% comes from China.

Our capacity to mine and process rare earths should be a major AUKUS program.

Our readiness before World War II was industrial. We are nowhere near that now.

Weapons systems are more sophisticated and expensive.

But our military is in much better shape. So is our ally, which has a superb force. It is desperate to focus on the Indo-Pacific.

But as a global power, the U.S. is being taken in directions it would prefer not to go because of the Ukraine war. The situation has become very dangerous.

Curtin used to portray us to the Americans as their last bastion, certainly in the Southwest Pacific. Some of that quietly slips into the American consciousness now. They're responding to the perception that developments could affect communications with us.

We need to put back at the forefront of our thinking what we did in World War II.

It's a challenge to contemplate the price we might have to pay.

The review's reception will be put into proper perspective as we contemplate challenges we once met.

Kim Beazley is a distinguished senior fellow at ASPI. He served as defence minister from 1984 to 1990 and was Australia's ambassador to the United States from 2010 to 2016.

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Re-Thinking Australia's National Security Strategy – Lessons from the 1930s for the 2030s

12/04/2019

By Anne Borzycki

With the 2030s firmly within the defence planning horizon in Australia, and in the absence of a national security strategy, perhaps it's time to look back to the 1920s and 1930s for guidance and inspiration about how to manage the total security of the nation.

Second Line of Defence

During the 1920s the rise of Japan was preoccupying the national security discussions within the Australian Government.

There were concerns about what this rise could ultimately mean for Australia.

Should a pre-WW1 alliance arrangement be reinvigorated in light of Australian and Japanese tensions over racial discrimination policy?

Did Australia need to view Japan's expansionist aspirations as an actual 'threat'?

Should preparations be made to ready the nation to counter any Japanese 'expansionism'?

How should the trade relationship be balanced in the context of strategic tensions?

What role would Britain play in the Asia-Pacific region?

Interestingly, these same issues and challenges are being discussed today in Australia: simply replace China for Japan, and the U.S. for Britain.

By the 1930s the situation in Europe, and events unfolding in Asia (particularly Japan's seizure of Manchuria), triggered a step-up in the rhetoric and policy considerations about Australia's national security.

The public debate involved not only the political leadership of the time, but intellectuals and businessmen.

A notable businessman of the era who contributed significantly to Australia's capacity to prepare for the coming conflict was Essington Lewis, the managing director of BHP.

Lewis believed in the importance of learning the latest techniques and developments in the iron and steel industry and regularly travelled overseas in his quest for business excellence.

On his way to Europe and the USA in 1934, he passed through Japan with a view to inspecting their steelworks.

When the Japanese were reluctant to share information with him or show him their steel-making facilities, Lewis became concerned and concluded that war with Japan could be imminent.

On his return to Australia, he urged the government and industry to prepare for war.

And he also took action himself: establishing large stockpiles of raw materials, co-founding the Commonwealth Aircraft Corporation and establishing munitions annexes at the steelworks.

When war eventually began, Essington Lewis served first as business consultant to the Department of Defence and from May 1940, as Director-General of Munitions.

He therefore had the same access to the War Cabinet as did the Armed Forces heads.

As a businessman, and civilian, he wielded enormous power over many industrial elements essential to the war effort.

The BHP website notes that during the war, and regardless of the challenging roles filled by Essington Lewis in support of the Government, he refused to be paid for his work.

How many business leaders today would have the foresight of Lewis and then take the lead in driving a national security agenda?

Naturally BHP would have benefitted from Lewis's decisions, but in my view that does not diminish the significance of the actions he took.

The wartime environment inevitably enabled government and industry to work together collaboratively and cooperatively.

National survival was at stake, and it was understood by all Australians that a whole-of-nation effort was the only option.

At the political level, the War Cabinet and War Advisory Council comprised such diverse government and civilian entities as defence, treasury, trade, customs, foreign affairs, labour, social services, health, home security and the postal service.

Is this cross-government cooperation and collaboration, the government and industry relationship and a whole-of-nation effort regarding national security and the national interest simply an artifact of war?

Is it outdated and perhaps unnecessary in a globally connected world that is essentially 'at peace', despite the pockets of unrest and rebellion?

Many argue that what we are experiencing globally in 2019 is indeed a kind of 'war' – cyber-attacks on infrastructure and democratic political systems; trade tensions; vulnerable supply chains; fracturing societies; insecurity and inequality; a climate crisis.

If we accept that we are 'at war' right here, right now (and I support this proposition), what is needed to make Australia resilient and secure?

At a lecture in October 2019 commemorating the legacy of Essington Lewis, Rear Admiral (Retired) Kevin Scarce observed that the strategic challenges facing Australia were more than military in nature: cyber threats, super power rivalry, terrorism to name a few.

RADM Scarce further observed that Australia lacks 'an integrated, holistic approach to these real threats' and that 'the time has come for the nation to bring together its separate Defence, Home Security and Foreign Affairs Planning approaches into a single, integrated, national security strategy'. He added that what is needed is a fundamental review of national objectives.

Simply put, a review of what Australia actually wants for itself as a nation, and for its citizens, is the first step towards understanding the component elements of a national security strategy.

To be secure and resilient means that government, business, and civil society can withstand shocks to the systems that support the Australian way of life.

The Australian Minister for Defence, Senator the Honorable Linda Reynolds CSC, spoke to the Hudson Institute in Washington DC on 1 November 2019.

During the Q&A section of her presentation, Minister Reynolds noted that in supporting regional stability and security, Australia had taken a whole-of-government approach, because the challenges in the region could not be addressed by the Department of Defence alone.

She makes a very good point with this observation.

The world ***has*** become more challenging, and the threats to security and sovereignty ***have***become more pervasive and pernicious.

Second Line of Defence

The interconnected global economy is delivering prosperity, but it also makes nations more vulnerable.

Australia, at the end of a very long global supply chain, is perhaps even more vulnerable than most.

It is therefore unfortunate that the whole-of-government approach taken today to assist Australia's regional allies as they navigate future challenges, and as was so effectively employed during the Second World War, is not a feature of Australian government planning in 2019.

How can the Australian government understand and manage the interconnected elements of national security (for example the economy, infrastructure, industry, maritime trade, energy, environment, defence) without a whole-of-government approach?

This whole-of-government approach should be integrated under a national security strategy.

A crucial consideration in the development of the national security strategy, and one that would be dear to the heart of Essington Lewis, relates to sovereign capability.

Australia was able to respond quickly to the changes in the strategic environment in the 1930s because an indigenous industrial capability existed which was supported by a skilled workforce.

The globalised, just-in-time, interconnected economy of 2019 has eroded the resilience Australia had in the 1930s.

The strategic and economic challenges facing Australia heading towards the 2020s and 2030s are not dissimilar to those facing the nation almost 100 years ago.

And while parallels can be seen, the global political and economic systems have changed dramatically.

Australia has prospered by the changes to these systems, but the price has been a loss of sovereignty.

What would Essington Lewis do today to respond to the challenges that Australia now faces?

A realistic assessment of the minimum sovereign capability needed to ensure resilience and security, within the framework established by a national security strategy, would give him a good starting point for action