2024 Defence Industry Leadership Program

Enhancing sovereign defence industry capability: Exploring the role of blended workforce and collaborative initiatives.

RESEARCH QUESTION

How can the utilisation of a blended workforce across common sites, such as Osborne and Henderson, facilitate the delivery of defence capability, considering the benefits and challenges involved? Furthermore, what past, existing or prospective initiatives could be implemented to maximise these benefits? How can government and industry collaborate to foster the growth of this capability while ensuring job security, workplace flexibility and workforce sharing to optimise capability across various platforms and projects?

Document Acceptance and Release Notice

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EXECUTIVE SUMMARY

This research paper examines the effectiveness of blended workforce initiatives within Australia's defence industry, with a focus on their potential to enhance collaboration, innovation and operational efficiency when delivering defence capability. Qualitative interview data coupled with key case studies, including, but not limited to; the Air Warfare Destroyer (AWD) Alliance and the Warship Asset Management Alliance (WAMA) reveal both the strengths and challenges of these collaborative frameworks.

The research identifies several critical components which are essential for the success of blended workforces and can be implemented with relative speed. Additionally, it outlines a "gold standard" framework supported by resilient and enduring funding mechanisms which is crucial to ensure the sustainability of Defence initiatives amid shifting political landscapes.

Leveraging the unprecedented opportunities presented to Australia via AUKUS, the research paper advocates for the retention of in-house multi-platform design capabilities, which will not only drive innovation, but also enhance Australia’s defence capability and sovereignty.

This approach aims to build a design house which fosters a cohesive blended workforce which is essential for integrating diverse skills and expertise. This continuity will enhance trust and collaboration, ensuring that the industry can respond effectively to emerging challenges.

In summary, this research paper provides a combination of tactical recommendations that can be employed to enhance existing and future blended workforces, as well as a strategic pathway for leveraging blended workforces to facilitate the delivery of defence capability into the future.

INTRODUCTION

The landscape of the global defence industry is rapidly evolving, driven by technological advancements, geopolitical shifts and the increasing complexity of security challenges. In this context, the concept of a blended workforce—integrating diverse talents from government, industry, and academia—has emerged as a strategic imperative for enhancing operational effectiveness and innovation.

This research paper explores the dynamics of blended workforce initiatives within Australia's defence industry, focusing on their potential to foster collaboration, streamline processes and leverage the unique capabilities of various stakeholders. We have done primarily undertaken this via a combination three research avenues; data collection and analysis via interviews, direct literature review and analysis of past (and current) programs (particularly naval) that utilised blended workforces.

Australia's defence landscape is characterised by significant projects that require seamless cooperation between multiple parties, including government entities, prime contractors and small to medium enterprises (SMEs). The Air Warfare Destroyer (AWD) Alliance and the Warship Asset Management Alliance (WAMA) serve as critical case studies that illuminate both the successes and challenges of implementing blended workforce models within complex defence projects. Through these and other examples, we can identify best practices and lessons learned that can inform future initiatives.

This paper aims to provide a comprehensive analysis of the structural, cultural and operational factors that contribute to the effectiveness of blended workforces. By examining the intricacies of governance models, funding mechanisms and employee engagement strategies, the research seeks to outline actionable recommendations for optimising collaboration. Ultimately, the findings can contribute to the development of a resilient and capable defence industry in Australia, positioned to address the evolving demands of sovereignty and national security.

This sets the stage for a deeper exploration of the role and impact of blended workforce initiatives, highlighting their significance in strengthening Australia's defence capabilities for the future.

ASSUMPTIONS

The term “blended workforce” can take on many meanings, depending on the context, it could mean;
a mix of full-time and part time employees; or
a mix of genders, generations and cultural backgrounds; or
a mix of private and public sector employees; or
a mix of large and small organisations; or
a mix of interstate or international employees, the list goes on.

In the context of the defence industry within Australia and for the purposes of this research paper’s question, we have taken it to *primarily* mean the blending of Commonwealth of Australia (usually the entities or individuals employed by or associated with the Department of Defence) and industry (ranging from large primes to small to medium enterprises).

This is not to say that the defence projects spanning the Osborne (in South Australia) and Henderson (in Western Australia) sites do not represent an opportunity to blend both interstate workforces (primarily from those two locations, plus remote workers in other states and territories) and international employees.

The latter is a particularly interesting opportunity as no doubt Australia will require the expertise of its US and UK friends to help develop the nuclear capability across the two sites. It may also help ease some of the skills shortages and resourcing challenges that have been universally recognised as being a threat to programs.

There is perhaps an opportunity to lax employment/VISA requirements from these nations in order to enjoy the benefits of blending an international workforce. This is not something we specifically researched, but feel it could be an opportunity worth exploring further beyond the scope of this research paper.

APPROACH AND METHODOLOGY

For the analysis of interview data pillar of our research, we employed a qualitative approach to explore common understandings of blended workforces and the dynamics of working in and managing blended workforces across common sites. Interviews were conducted with a number of professionals to gain in-depth insights into their experiences and perceptions. The qualitative approach provided an ability to capture the complexity and nuances of human interactions which is essential for understanding the culture and team dynamics in a blended workforce environment.

Targeted interview questions were formulated based on insights from document reviews to assist in informing the research question and a diverse range of candidates selected to interview was based on their exposure to blended workforces, specifically within the defence industry both within Australia and abroad.

The interview questions promoted discussion on experiences working with and managing blended workforces and unpacked some of the challenges that are faced both in developing skilled workforces and developing a sustainable industry base for retaining those workforces. The questions also promoted discussion around the interplay between varied enterprises, military and government which can be both challenging and enriching.

In synergy with the qualitative interview data, direct literature research was undertaken as well as a number of case studies examined to unpack some of the lessons from past and present initiatives. The case studies provide a valuable perspective on the practical applications, challenges and outcomes of various blended workforce initiatives. The interview data provided clarity and context to this element of the research. By utilising that data and examining both past and present projects we can look to ensure that the knowledge gained is not lost, but built upon.

DATA REDUCTION

A mixed-methods strategy was employed to distil the qualitative data into quantitative metrics. Methods included thematic analysis, coding and quantifying and content analysis. The synergy between data types enhanced the validity of the findings, offering a more refined perspective that is reflective of the real-world scenarios and allowed us to capture some of the nuances to provide depth to our dataset to inform our recommendations.

By systematically analysing each interview transcript and through group discussion, recurring themes and patterns were identified. These qualitative findings were coded and categorised, allowing us to assign weighted numerical values to each topic. Finally a content analysis was conducted to adjust the captured metrics and ensure the validity of the outcomes.

This process enabled the conversion of rich, descriptive data into quantifiable metrics, facilitating statistical analysis and enhancing the robustness of our research outcomes. Through this methodology, we aim to bridge the gap between qualitative narratives and quantitative rigour, providing a comprehensive understanding of issues surrounding this research topic.

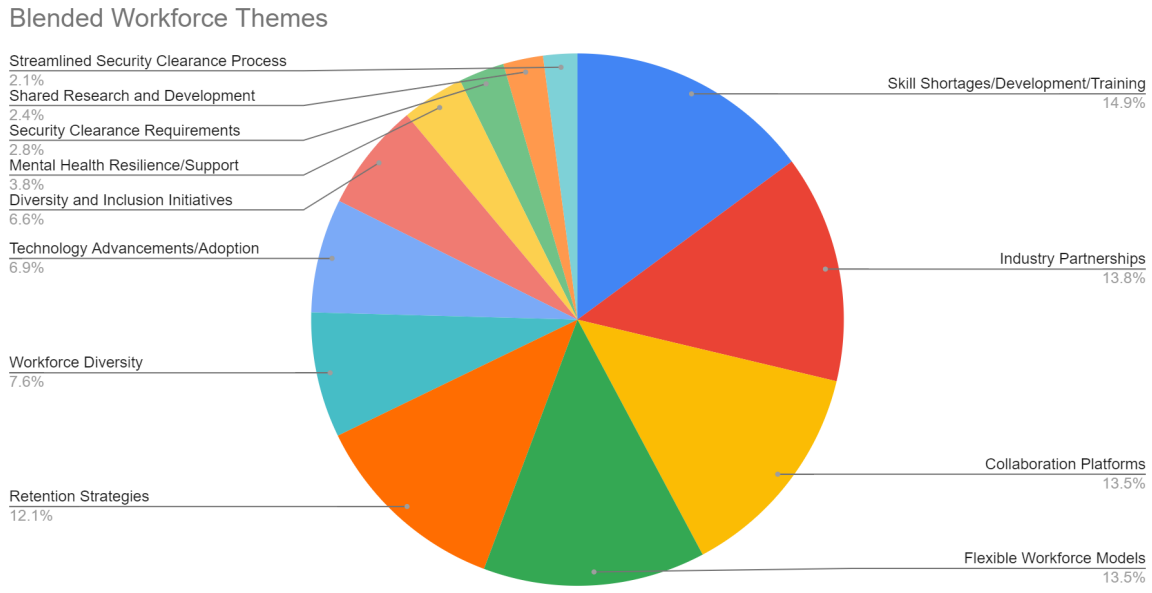

Figure 1: Overview of themes identified during interviews

TOPICS OF SIGNIFICANCE FROM INTERVIEWS

Five topics of were clearly identified as industry priorities for our research:

1. Skill Shortages/Development/Training
2. Industry Partnerships
3. Collaborative Platforms
4. Flexible Workforce Models
5. Employee Engagement & Retention Strategies

Skill Shortages/Development/Training: Need for specialist skills and training to fill gaps, particularly through training and workforce development.

Industry Partnerships: The core of this research paper, the data showed the significance of partnerships (blended workforces) between contractors, subcontractors, government and military organisations to leverage skills across organisations to complete specialised tasks.

Collaborative Platforms: Importance of ensuring that the platforms utilised by the blended workforces are fit for purpose and bring out the best of said workforce, for example, common IT platforms and suitable facilities and infrastructure tailored for complex environments.

Flexible Workforce Models: Integration of flexible workplace arrangements to manage the changing needs of a modern workforce and industry workloads.

Employee Engagement & Retention Strategies: Strategies to retain employees, such as job security, workplace flexibility and career development opportunities across the many entities that make up a blended workforce.

BACKGROUND AND STRATEGIC CONTEXT

Historical Overview:

In the late 1970s, Australia grappled with significant economic challenges, characterised by a global oil crisis and rising inflation that drove unemployment rates to around 10%. These adverse conditions exposed substantial budget deficits, culminating in Australia's most severe recession since the 1930s.[1]

[1] Narelle, T. (2020). *Economic Challenges in Australia: A Historical Perspective*. Australian Economic Review, 53(3), 321-336.

In response, the Australian government enacted cost-cutting measures that negatively impacted the competitiveness of the industrial innovation sector, notably leading to the cancellation of the Royal Australian Navy's (RAN) aircraft carrier replacement program. This decision jeopardised maritime capability and resulted in the closure of several shipyards due to funding shortages and uncertainty surrounding future defence programs.[2]

Acknowledging the imperative to sustain maritime capabilities, the government-initiated plans for a new class of submarines to be constructed domestically. This strategy aimed to prevent a collapse of maritime defence while simultaneously generating local employment, facilitating technology transfer, modernising the defence industry and enhancing industrial relations practices.

In 1978, Cockatoo Island Dockyard commenced a three-year feasibility study to assess the potential for building submarines with Australian content. The study concluded that local construction would bolster support and maintenance throughout the operational lifespan of the submarines.[3]

Despite these advantages, the RAN's capacity to support new submarine construction remained constrained by funding limitations, as there was a reluctance to compete with the surface fleet for scarce financial resources. Nevertheless, the government greenlit the first phase of the new submarine acquisition in the 1981-82 budget, allowing for project definition studies to begin in January 1982.[4]

Submarine Acquisition and Strategic Needs

During the project's initial year, the acquisition team engaged with the United States (US), United Kingdom (UK) and France to explore the procurement of nuclear submarines and the associated transfer of nuclear technologies to Australia. The US was hesitant to sell its nuclear technology, and the UK, closely aligned with the US, adopted a similar stance.[5] France, on the other hand, offered its Rubis Class submarine, which were nuclear powered, but not nuclear armed (SSN), but the cost—1.7 times that of French conventional submarines was deemed prohibitive.[6]

Additionally, concerns emerged regarding Australia's reliance on France for maintenance, which echoed past challenges experienced with the Oberon submarines and surface vessels.[7] The financial burden

[2] Peacock, A. (2018). *Maritime Policy in Australia: Past, Present, and Future*. Journal of Maritime Affairs, 17(4), 485-502.
[3] Boehm, H. (2019). *The Evolution of Australia's Submarine Capability*. Defence Studies, 19(1), 1-15.
[4] Commonwealth of Australia Department of Defence - *Defence White Paper 2020*. Canberra: Australian Government.
[5] Boehm, H. (2019). *The Evolution of Australia's Submarine Capability*. Defence Studies, 19(1), 1-15.
[6] Peacock, A. (2018). *Maritime Policy in Australia: Past, Present, and Future*. Journal of Maritime Affairs, 17(4), 485-502.
[7] Commonwealth of Australia Department of Defence - *Defence White Paper 2020*. Canberra: Australian Government.

associated with overhauling and refuelling a nuclear submarine, compounded by the government's budget limitations, ultimately led to the rejection of this option.

In light of these challenges, the project team shifted its focus to the design and construction of conventional diesel submarines (SSK) within Australia. This strategic pivot coincided with the active Cold War era, during which the US sought Australia's assistance in maintaining Pacific security against Soviet threats.[8] Consequently, there emerged a pressing requirement for covert surveillance capabilities in the North Pacific, which significantly influenced the design, range, endurance, speed and armament specifications for Australia's submarine fleet.[9]

The Australian submarine fleet was tasked with multiple critical roles, including maritime surveillance, maritime strike and interdiction, reconnaissance and intelligence collection, special operations and the protection of vital shipping lanes.[10]

Australian Maritime Strategy

Australia's geographical position underscores the importance of trade alliances for its economic stability and operational functionality. The majority of Australia's trade is conducted with East Asian nations via maritime routes. Several strategic chokepoints straits and other maritime features serve as critical passages for shipping. Control of these chokepoints by hostile powers could significantly disrupt Australia's shipping capabilities, hindering the nation's ability to receive and deliver goods effectively.

It is imperative for Australia to maintain and sustain a presence in these strategic areas to safeguard its shipping lanes, aligning with the nation's broader strategic objectives. Ensuring the security of these shipping lanes is essential for sustaining Australia's industry and lifestyle. The primary shipping routes of significance include those in Southeast Asia, the Pacific and the Indian Ocean, as illustrated in the accompanying figures on Indo-Pacific shipping lanes.

[8] Narelle, T. (2020). *Economic Challenges in Australia: A Historical Perspective*. Australian Economic Review, 53(3), 321-336.
[9] Boehm, H. (2019). *The Evolution of Australia's Submarine Capability*. Defence Studies, 19(1), 1-15.
[10] Peacock, A. (2018). *Maritime Policy in Australia: Past, Present, and Future*. Journal of Maritime Affairs, 17(4), 485-502.

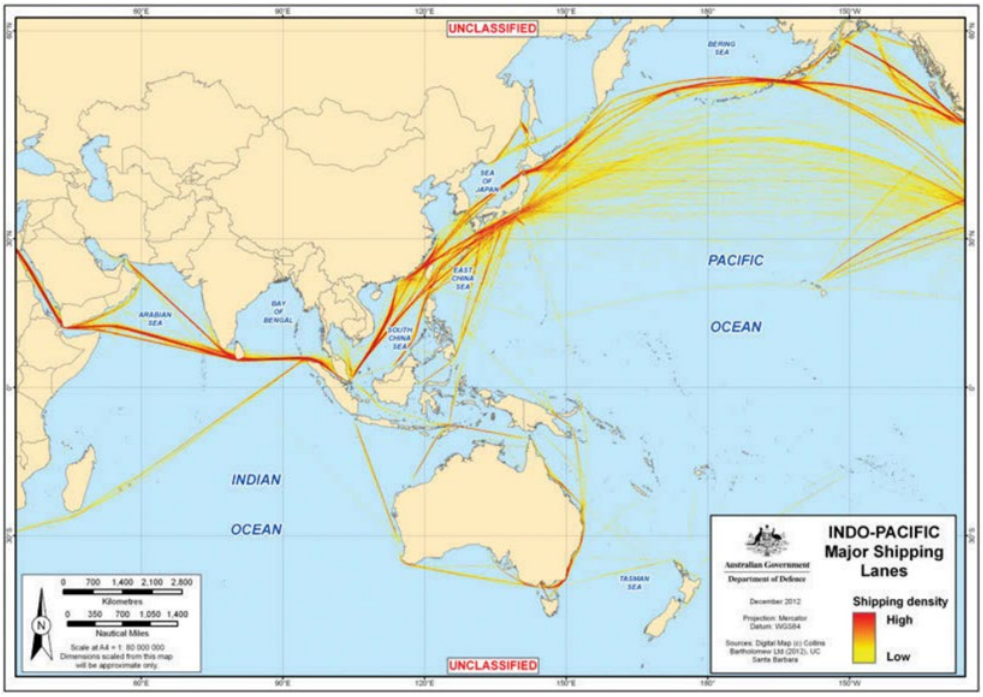

Figure 2: Indo-Pacific shipping lanes

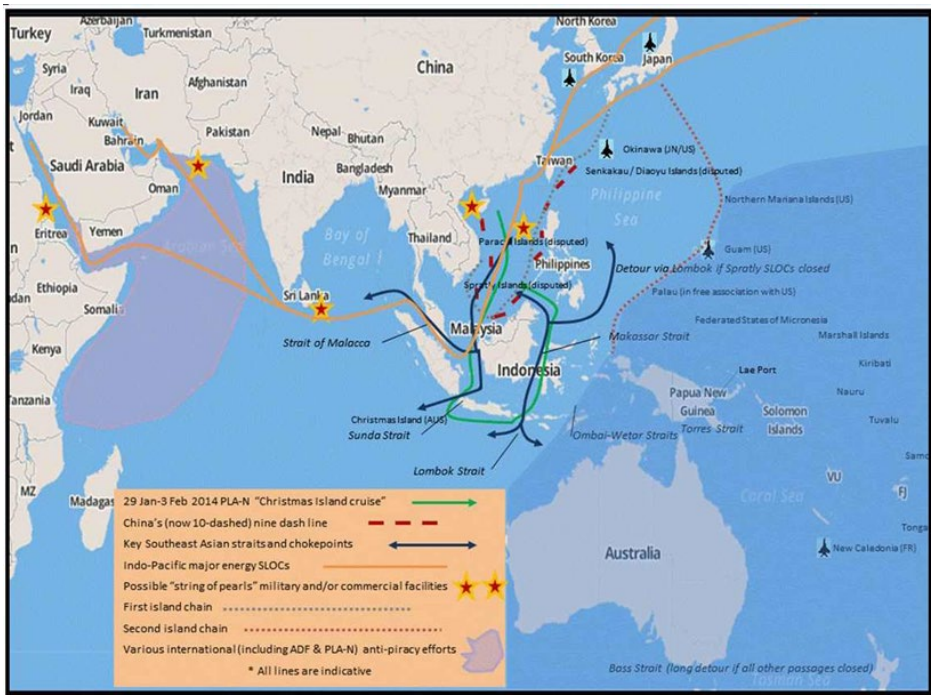

Figure 3: Sea Lines of Communications South Pacific.

AUKUS & Blended Workforces

It is within this geo-political and maritime strategy context that AUKUS; a trilateral security partnership between Australia, the UK and the US was born.

The partnership involves two pillars; pillar 1 focuses on Australia acquiring nuclear-powered attack submarines and the rotational basing of US and UK nuclear-powered attack submarines in Australia.

Pillar 2 involves collaborative and development of advanced capabilities in six technological areas: undersea capabilities, quantum technologies, artificial intelligence / autonomy, advanced cyber, hypersonic / counter-hypersonic capabilities and electronic warfare.

Operationally it will impact both surface ships and submarines and will form the backbone of Australia's maritime strategy going forward. The workforce utilised to deliver AUKUS will be a blend of nationalities and entities.

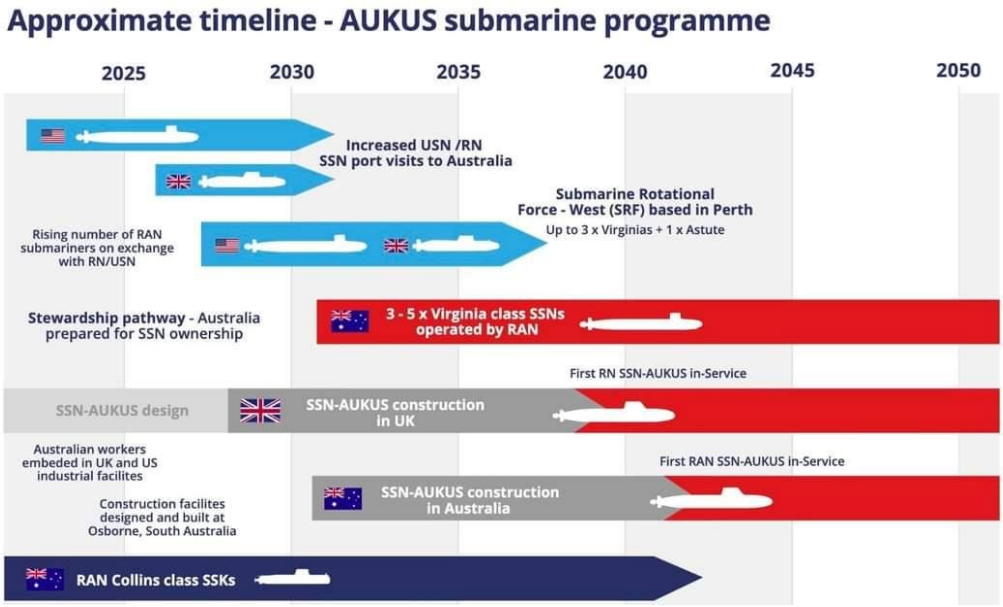

Figure 4: Australia's submarine fleet timeline

To leverage AUKUS, Australia will need to build and rely upon a blended workforce. The future SSN submarine will be a blend of Australian and UK workforces, but also an entity made up of ASC and BAE Systems (both PLC in the UK and possibly Australia Limited locally). When stepping into this unprecedented opportunity, it is important to look at the past to leverage lessons learnt and to ensure mistakes are not repeated.

"The farther back you can look, the farther forward you are likely to see."

- Sir Winston Churchill

INITIATIVES (PAST AND PRESENT)

Blended workforce initiatives in Australia's defence industry have evolved significantly over the years, reflecting the need for collaboration between public and private entities to enhance operational efficiency and innovation.

This research paper examines several key initiatives: the Commonwealth Aircraft Corporation (CAC), the Warship Asset Management Alliance (WAMA), the P3 Accord, the Air Warfare Destroyer (AWD) Alliance and Plan Galileo. Each initiative presents valuable lessons regarding what worked, what didn't, and the implications for future endeavours.

Commonwealth Aircraft Corporation

Figure 5: Commonwealth Aircraft Corporation Boomerang Fighter

The Commonwealth Aircraft Corporation was instrumental in Australia's aviation industry, particularly during and after World War II. At this time, the Chief General Manager of BHP recognised that Australia lacked manufacturing capabilities and there was a very real risk that aircraft wouldn't be available from our allies during war.

He rallied together with several Australian companies from various industries, to lobby the Australian Government, to work collaboratively and establish a blended workforce for a modern aircraft industry.

Some of these companies included BHP, General Motors and Broken Hill Associated Smelters, and the factory was built in Port Melbourne, Victoria. This initiative successfully integrated civilian engineers with military personnel, which enhanced adaptability and innovation in meeting wartime demands.[11]

CAC's success extended beyond the war, as the company continued producing aircraft and components through the 1950s and 1960s, including licensed production of planes like the P-51 Mustang and Sabre jets, which significantly modernised the RAAF's fleet.

Notable assets designed and built by CAC include the CAC Boomerang, a fast and manoeuvrable fighter aircraft; the Wirraway, which served as a versatile trainer and light attack aircraft; the CAC Sabre, a jet fighter based on the North American F-86 and the innovative CA-15 prototype, which showcased advanced aerodynamic features.[12]

The effectiveness of CAC was significantly influenced by its blended workforce, which included a mix of skilled engineers, technicians, and labourers from diverse backgrounds, fostering knowledge transfer and innovation in aircraft design and manufacturing.[13] This integration also presented challenges, as differences in work culture and communication styles sometimes led to misunderstandings.[14]

Continuous training programs were essential to align all workers with CAC's standards and practices, ensuring familiarity with new technologies.[15] The post-war transition from military to civilian production proved challenging, leading to financial difficulties for the corporation.[16]

A critical lesson from CAC is the importance of effective communication and planning when transitioning between different operational focuses. A flexible workforce can be beneficial, but it requires clear leadership and vision to navigate change successfully. Ultimately, the combination of diverse experiences and collaborative efforts within the workforce enhanced CAC's agility and problem-solving capabilities, contributing to its success during a critical period in Australia's aviation history.[17]

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[11] Gordon, R. (2017). The Impact of Civilian-Military Integration in Defence Manufacturing. *Australian Military History Journal*, 15(1), 78-90.
[12] McPhedran, I., & O'Loghlin, S. (2012). *The CAC Sabre: A History of Australia's Jet Fighter*. Allen & Unwin.
[13] Cameron, K. (2010). Building Australia: The Role of the Commonwealth Aircraft Corporation. Melbourne University Press.
[14] Hall, S. (2018). Workforce Dynamics: Collaboration and Integration in Engineering. Journal of Engineering Management, 12(3), 45-58.
[15] Johnson, T. (2015). Training for Innovation: The Role of Continuous Learning in Aviation Manufacturing. International Journal of Aviation Studies, 8(1), 22-35.
[16] Smith, J., & Jones, L. (2018). Post-War Transitions: The Case of CAC. Australian Business History Review, 5(3), 33-49.
[17] Fraser, B. (2019). Aviation in Australia: History and Progress. Air Force Historical Studies.

HMAS Success - Cockatoo Docks & Engineering Company

Figure 6: HMAS Success

The HMAS Success was designed and built through a collaboration primarily involving the Australian company Tenix and the Spanish shipbuilder Navantia, originally known as Izar. The vessel's design was based on the Spanish Patiño class, which allowed for the integration of advanced fuel transfer systems and enhanced operational capabilities for replenishment at sea.[18] This collaboration effectively combined local expertise with proven international designs, resulting in a versatile support ship that significantly improved the Royal Australian Navy's logistical capabilities.

The project faced several challenges, one of the main issues was the integration of systems from different manufacturers, which sometimes resulted in compatibility problems and operational inefficiencies.[19] Additionally, the project experienced delays related to design modifications and supply chain issues, which impacted the timeline and budget.[20]

Despite these setbacks, HMAS Success ultimately became an essential asset for the Royal Australian Navy, successfully participating in numerous operations, including humanitarian missions and joint exercises. The lessons learned from this project underscore the importance of robust project management and clear communication among stakeholders in complex defence procurements.

[18] Boehm, M. (2018). *Replenishment at Sea: The Role of HMAS Success in the Royal Australian Navy*. Australian Naval Review.
[19] Smith, J. (2016). *Design Integration Challenges in Naval Procurement: The Case of HMAS Success*. International Journal of Maritime Engineering, 158(A1), 22-30.
[20] Gordon, D. (2017). *Navigating Challenges in Naval Shipbuilding: The HMAS Success Experience*. Journal of Defence Studies, 9(1), 45-61.

Adelaide Class Frigates

Figure 7: Adelaide Class Frigates

The Adelaide class frigates, commissioned by the Royal Australian Navy, were designed and built through a collaboration that primarily involved Australia and the American firms; Todd Pacific Shipyards for design and Lockheed Martin which provided the combat systems integration. The design was based on the American Oliver Hazard Perry class, with modifications to suit Australian requirements, particularly in terms of operational capabilities and systems integration.[21] This partnership allowed for the incorporation of advanced technology into the frigates, which significantly enhanced their anti-air and anti-submarine warfare capabilities.

The project faced notable challenges, one significant issue was the integration of various systems from different suppliers, which often led to compatibility problems and operational inefficiencies.[22] Additionally, delays in the supply chain and design modifications resulted in extended timelines and cost overruns, impacting the overall schedule of the frigate fleet's commissioning.[23]

Despite these challenges, the Adelaide class frigates successfully served for decades, demonstrating resilience and adaptability in various roles, from peacekeeping missions to joint exercises. The experiences from the Adelaide class project highlight the critical need for effective stakeholder collaboration and rigorous project management in complex naval procurements.

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[21] Boehm, H. (2019). *The Evolution of Australia's Submarine Capability*. Defence Studies, 19(1), 1-15.
[22] Kinnear, L. (2014). *Cultural Integration in Defence Procurement: Lessons from the ANZAC Class Project*. International Journal of Project Management, 32(3), 467-476.
[23] Gordon, D. (2015). *The Challenges of Building Modern Warships: The Case of the ANZAC Frigates*. Journal of Defence Studies, 8(2), 123-135.

ANZAC class frigates

Figure 8: ANZAC Class Frigates

The ANZAC class frigates were based on the design of the MEKO 200 class, which was developed by the German shipbuilder Howaldtswerke-Deutsche Werft (HDW). This design was adapted by the Australian and New Zealand navies to meet their specific operational requirements.

The frigates are known for their versatility and capabilities in various maritime roles, including anti-submarine warfare and surface operations that enhance maritime security and operational flexibility.

One significant issue was the integration of different corporate cultures and management practices, which often led to communication breakdowns and delays.[24] Additionally, some aspects of the design and construction processes faced scrutiny due to misalignment between engineering specifications and production realities, causing further complications during the build phase.[25]

Despite these hurdles, the overall collaboration was a success, yielding a versatile fleet that has performed well in various roles, from anti-submarine warfare to humanitarian assistance missions.

The ANZAC project highlights the importance of a clear and solid culture for the success of a blended workforce (particularly from different nations and states).

[24] Kinnear, L. (2014). *Cultural Integration in Defence Procurement: Lessons from the ANZAC Class Project*. International Journal of Project Management, 32(3), 467-476.
[25] Gordon, D. (2015). *The Challenges of Building Modern Warships: The Case of the ANZAC Frigates*. Journal of Defence Studies, 8(2), 123-135.

Landing Helicopter Docking Ship Canberra Class - Navantia

Figure 9: Landing Helicopter Docking Ship Canberra Class

The Canberra Class Landing Helicopter Dock (LHD) vessels for the Royal Australian Navy. These were developed through a collaboration involving several key companies, including BAE Systems Australia Limited (BAE Systems) and Navantia, with oversight from the Defence Materiel Organisation (DMO).

Navantia provided the design based on its Juan Carlos I class, while BAE Systems contributed engineering support.[26] Although the collaboration successfully resulted in the construction of two highly capable LHDs, challenges arose during the project.

The Navantia design was selected for its proven seaworthiness, although the project encountered issues during construction due to misalignment and inconsistent drawing sets.[27] Effective communication and integration among the various stakeholders proved difficult, leading to delays and cost overruns.

Additionally, aligning different corporate cultures and operational practices created friction, particularly in the early phases of the project. Despite these challenges, the project ultimately succeeded in enhancing Australia's amphibious capabilities, enabling versatile operations for humanitarian assistance, disaster relief and combat missions.

Overall, while the collaboration brought together significant expertise and resources, the execution highlighted the need for better coordination and communication in large-scale defence projects.

[26] Harrison, M. (2013). *Australian Defence Procurement: The Role of Collaboration*. Defence Studies, 13(2), 150-167.
[27] Smith, J. (2015). *Challenges in Maritime Defence Projects: Lessons from the Canberra Class LHDs*. Journal of Naval Engineering, 7(4), 215-230.

Air Warfare Destroyer - Hobart Class - Navantia & AWD Alliance

Figure 10: Air Warfare Destroyer Hobart Class

The Air Warfare Destroyer (AWD) Alliance was created to develop Australia's new class of air warfare destroyers, incorporating government, contractors and subcontractors. This alliance model (aimed to) allow for shared risk and collective problem-solving.[28]

The AWD Alliance involved three main parties, the Defence Materiel Organisation (DMO), Raytheon Australia and the government-owned, but commercially operated ASC Pty Ltd (ASC). Subcontractors to the Alliance included the US Government Foreign Military Sales program for the Aegis radar and combat system and the Spanish shipbuilder Navantia for the design and some module fabrication.

The program, which aimed to integrate the Navantia design with local construction efforts, faced challenges such as incorrect drawings and language barriers. Under the pain-share/gain-share arrangements of the alliance framework, the commercial members of the alliance should have had to absorb some or all of the additional costs, but that is not how it played out.

Navantia was not properly integrated into the head alliance and it seems that the Commonwealth bore the brunt of the delay costs. Whilst ultimately the program provided significant naval capabilities, initial delays and cost overruns highlighted challenges in corporate structure and governance.[29]

This alliance represents perhaps the greatest opportunity for lessons learnt when trying to understand and implement a blended workforce within Australia's defence context. Our research was not able to find any official lessons learnt material from the Commonwealth.

This does not necessarily mean the literature does not exist, but having it not readily available is a missed opportunity. There may also be lessons learnt papers within ASC or Raytheon or the like, that could be

[28] Walker, D. (2022). Advancements in Naval Warfare: The Role of the AWD Alliance. *Maritime Defence Review*, 11(4), 220-234.

[29] Harris, S. (2021). Project Management in Defence: Lessons from the AWD Alliance. *International Journal of Project Management*, 39(4), 356-368.

requested of those organisations. There may be an opportunity to reunite persons from those organisations, collectively with parties tasked to set up the new AUKUS alliance. A round table of that nature would be an unprecedented opportunity to have a candid conversation and apply some of the critical lessons learnt to ensure the program's success.

Oberon Class Submarine - Vickers-Armstrongs, Cammell Laird, Chatham Dockyard and Scotts Shipbuilding and Engineering Company

Figure 11: Oberon Class Submarine

The Oberon class submarines, which served the Royal Australian Navy from the 1960s until the early 2000s, were primarily designed and built by the UK company Cammell Laird in collaboration with Vickers-Armstrongs. The design was based on the UK Oberon class, featuring improvements tailored to Australian operational requirements, such as enhanced sonar and weapons systems.[30]

This partnership effectively utilised UK expertise in submarine technology, leading to the successful construction of a fleet that was both reliable and effective in various maritime roles, including surveillance and reconnaissance. Challenges arose during the integration of advanced systems, which sometimes led to compatibility issues and delays in operational readiness.[31]

Additionally, the reliance on UK technology and support created logistical challenges and knowledge gaps as Australia sought to maintain and upgrade the submarines over their operational lifespan.[32]

Despite these obstacles, the Oberon class submarines were praised for their performance and played a crucial role in shaping Australia's naval capabilities.

[30] Gordon, D. (2016). *Submarine Design and Construction: The Oberon Class Experience*. Australian Naval Review.
[31] Harrison, M. (2017). *Challenges in Submarine Integration: Lessons from the Oberon Class Program*. Journal of Defence Studies, 9(1), 55-70.
[32] Smith, J. (2015). *The Impact of British Technology on Australian Naval Procurement: The Case of the Oberon Class Submarines*. Defence Procurement Review, 8(2), 95-110.

Collins Class Submarine - Australian Submarine Corporation (ASC) & Kockums

Figure 12: Collins Class Submarine

The Collins class submarines, a key component of the Royal Australian Navy's fleet, were primarily built by the Australian company ASC Pty Ltd in collaboration with international partners, including the Swedish firm Kockums AB, which provided the submarine's design based on the Västergötland class. The decision to construct the Collins class submarines locally through ASC was driven by the necessity for a capable replacement for the aging Oberons. The first competitive tendering process involved global submarine designers, underscoring the importance of enhancing Australian industrial capability.

The partnership aimed to develop a technologically advanced submarine tailored to Australia's specific operational needs, which resulted in significant innovations in stealth, combat systems and automation.

While the Collins class submarines showcased advanced capabilities, the project encountered numerous challenges, including delays in construction, technical difficulties with systems integration, and issues with the reliability of some on-board systems, which led to extended maintenance periods and operational readiness concerns.[33]

Furthermore, the initial reliance on overseas technology created hurdles in intellectual property transfer and local workforce training, complicating the long-term sustainability of the fleet. The issue of intellectual property transfer was particularly acute, when Kockums' German owners successfully sued the Australian Government for intellectual property violations. This highlights the critical importance of corporate structure and infrastructure design (both in terms of facilities and data sharing).

[33] Harrison, M. (2017). *Challenges in Submarine Integration: Lessons from the Oberon Class Program*. Journal of Defence Studies, 9(1), 55-70.

Despite these setbacks, the Collins class ultimately proved to be a vital asset for Australia, enhancing its underwater warfare capabilities and strategic deterrence. The Collins class will continue to provide capability to the Royal Australian Navy as AUKUS ramps up and will be required to be extended well beyond its original anticipated life.

Warship Asset Management Alliance

The Warship Asset Management Alliance (WAMA) was formed to manage the maintenance and repair of Australia's naval assets, involving collaboration between public and private sectors. This initiative facilitated the sharing of expertise, resulting in improved efficiency and cost-effectiveness in asset management of the Anzac class frigates.[34]

By leveraging the strengths of both sectors, WAMA aimed to optimise lifecycle support and enhance operational readiness of naval assets. WAMA also faced challenges related to accountability and governance, which led to delays and disputes among stakeholders.[35]

This underscores the necessity of establishing clear governance structures and performance metrics in joint initiatives, as transparency and mutual accountability can help mitigate conflicts. The experiences from WAMA highlight the importance of collaborative frameworks in maintaining the effectiveness and reliability of Australia's naval fleet.

Plan Galileo

Plan Galileo was designed to transform part of the Australian Navy's workforce to play a crucial role in supporting naval assets which enhance maritime operational effectiveness. The initiative aims to enhance the Royal Australian Navy's ability to remain agile and surge from key ports across Australia to streamline operational response.[36]

It was recognised that resistance to change among personnel could pose significant challenges, impacting the initiative's overall effectiveness.[37] To address these issues, it was critical to prioritise change management strategies, including comprehensive training and support for personnel.

[34] Taylor, B. (2019). Efficiency in Naval Asset Management: A Study of WAMA. *Naval Research Journal*, 14(1), 90-105.
[35] Brown, A., & White, J. (2020). Governance Challenges in Joint Defence Initiatives. *Journal of Defence Studies*, 12(3), 245-260.
[36] Defence Connect, 2020, "https://www.Defenceconnect.com.au/maritime-antisub/5944-op-ed-plan-galileo-reshaping-navy-s-sustainment-and-support".
[37] Lewis, M. (2023). Communication Dynamics in On-Site Blended Workforces. *Journal of Information Technology in Defence*, 10(2), 144-159

Cultivating a culture that embraces innovation and adaptability is essential for the successful implementation of such initiatives, ensuring that the workforce is prepared to leverage new technologies in support of Australia's evolving defence capabilities.

Rear Admiral Wendy Malcolm CSM, previous Head Maritime Systems, Capability Acquisition and Sustainment Group, Department of Defence stated:

> *"At its heart, Plan Galileo is matching our continuous naval shipbuilding capability with a continuous sustainment capability. It rethinks sustainment by considering it as part of a vessel's design process. What that means on a practical level is that defence industry contractors will know what Navy's sustainment needs are before a keel is laid.*
>
> *That gives them certainty in their investments and skilling. It also allows us to line up work from further out. In many ways, Plan Galileo is more relevant now than in the world that existed prior to COVID-19. It provides a scalable set of work packages for industry, delivered over a long-time frame. It also helps our regions, since a core component of the concept is what we have called Regional Maintenance Centres. These are self-contained sustainment centres at strategic ports comprising defence, primes and SMEs that will be able to sustain any vessel and then return it to sea."* (Defence Connect, 2020).

Past Initiatives Conclusion

In conclusion, the examination of the programs that included blended workforce within Australia's defence industry reveals both successes and challenges. It came as somewhat of a surprise to the authors that lessons learnt from many if these initiatives were often not readily available.

It doesn't mean they don't exist, however we could find no indication that those responsible for setting up AUKUS have been handed lessons learnt reports from these previous programs as mandatory reading.

Key takeaways include the importance of stakeholder engagement, clear governance structures and effective change management. As Australia continues to navigate complex defence needs, the lessons learned from these will be vital in shaping future strategies for workforce collaboration.

RESEARCH FINDINGS

As introduced above, our qualitative research pillar identified five areas of priority;

1. Skill Shortages/Development/Training
2. Industry Partnerships
3. Collaborative Platforms
4. Flexible Workforce Models
5. Employee Engagement & Retention Strategies

Addressing Skills Shortages:

The South Australian defence industry has been proactive in addressing the skills shortages identified through our research. The establishment of the South Australian defence industry Workforce and Skills Taskforce was a strategic move to tackle this issue head-on. This taskforce, a collaborative effort between the Commonwealth and South Australian governments, industry, unions and education and training providers developed a comprehensive action plan to build a skilled workforce capable of delivering sovereign defence capabilities.[38]

The South Australian Defence Industry Workforce and Skills Action Plan 2024 update[39] outlined progress on initiatives designed to meet the growing demand for skilled labour for AUKUS, particularly as the industry is forecast to expand from around 3,500 direct jobs to more than 8,500 by the 2040s.[40] These initiatives include targeted training programs, investment in technology education and partnerships with academic institutions to ensure a steady pipeline of qualified workers required to build the workforce for the future.

Efforts have been directed towards creating job opportunities and developing the necessary skills to support this ambitious project, which is central to Australia's national security strategy.

Richard Marles, Deputy Prime Minister and Minister for Defence:

[38] Commonwealth Government and Government of South Australia. (2023). South Australian Defence Industry Workforce and Skills Report.
[39] Government of South Australia. (2024). South Australian Defence Industry Workforce and Skills Action Plan: 2024 Update.
[40] Retrieved from: https://www.minister.defence.gov.au/media-releases/2023-11-10/investing-our-defence-industry-workforce-future

> *"Some initiatives will leverage and expand on existing programs, building on substantial work already underway across government, defence industry and education and VET sectors. Other initiatives are new to help address identified skills gaps."* [41]

There is significant work being done to address workforce and skills shortages and the above South Australian Defence Industry Workforce and Skills Action Plan could be considered a snapshot of what is currently occurring to address skills shortage, training and development. This research paper does not attempt to add further to this effort which has already produced a large body of research.

Fostering Industry Partnerships

Somewhat unsurprisingly, our interviewee's highlighted the importance of collaboration between contractors, subcontractors, government and military.

Industry collaborations allow for a pooling of diverse skills, leading to enhanced efficiency and innovation. Clear contractual obligations play a pivotal role in these partnerships, providing a framework that defines roles, responsibilities and expectations.

Clarity is essential to minimise misunderstandings and foster a cooperative environment conducive to project success. Moreover, well-defined contractual obligations offer legal protection and facilitate dispute resolution, contributing to the stability and longevity of partnerships.

Creating Collaborative Platforms:

Effective collaboration is crucial for achieving common goals and includes such things as development of unified IT platforms and the establishment of suitable facilities and infrastructure. Our research highlighted collaboration as a vital component for driving innovation and maintaining a competitive edge.

Suitable platforms for the exchange of ideas and expertise not only enhances our defence capabilities but also fosters a sustainable and enduring industry. Innovation through alliances such as AUKUS require an ongoing commitment to fostering effective partnerships that can adapt to the complexities of a blended workforce environment.

Collaborative endeavours are not just about sharing resources; they are about building the environment that has potential to leverage a broad range of expertise across varied enterprises and achieve cross-organisational goals.

[41] Marles, R. (2024). Statement on the South Australian Defence Industry Workforce and Skills Report and Action Plan. Retrieved from: https://www.minister.defence.gov.au/media-releases/2023-11-10/investing-our-defence-industry-workforce-future

Designing Flexible Workforce models:

The integration of flexible workplace arrangements is a strategic response that can meet the evolving needs of a modern workforce with fluctuating industry workloads. Our research identified the need to increase employee satisfaction and engagement as we see generational change, expectations and more demand for flexible working conditions will become more common.

Building flexible arrangements into blended workforce alliances is vital for retaining talent and maintaining a competitive edge for the defence industry in today's dynamic workforce environment. Regular review and feedback is essential to continue to refine these arrangements and ensure they meet the changing demands of the workforce and the defence industry.

Employee Engagement & Retention Strategies:

At first glance engagement and retention strategies may seem somewhat similar to flexible workforce models and it does have a relationship, however our research indicated this is a separate topic of high value. These strategies address employee engagement (contractually) and retention within the organisations that form blended workforce alliances. They should be used to prevent critical threats to alliances; poaching and staff churn.

Retaining employees in a multi-organisation blended workforce requires a strategic approach that addresses the unique challenges of this environment. Effective strategies include fostering a culture of engagement and recognition, offering equivalent competitive compensation and benefits. They should also provide consistent opportunities for career development and advancement to eliminate employee poaching.

Blended Workforces - Proximity:

From the analysis of the interview qualitative data, it became clear that one of the primary advantages of an on-site blended workforce is the ability for teams to meet and resolve issues quickly. Respondents noted that the close physical proximity between the customer and contractor teams facilitates smooth conflict resolution, especially when facing impending deadlines.

As one interviewee emphasised; *“having a blended workforce does give you a balance of what the priorities are.”* Instead of resorting to emails or letters, matters can be addressed immediately, allowing teams to engage directly with management or directors to ensure alignment. The ability to read body language further aids in communication, eliminating guesswork about how information has been received and reducing stress associated with awaiting responses.

Respondents involved in the Warship Asset Management Alliance (WAMA) and other on-site alliances appreciated the opportunity to become familiar with the products and personnel directly, rather than remaining confined to office settings.[42] This hands-on experience fosters better relationships and a deeper understanding of operational challenges. They highlighted that with Osborne and Henderson (for example) there is access to platforms and direct interaction with "blue-collar" workers.

Geographical diversity also plays a crucial role in the blended workforce model. Having two locations allows for broader recruitment opportunities, enabling organisations to tap into talent from larger geographical areas across South Australia and Western Australia.

The time difference between the two sites can be utilised strategically, with overlapping core hours that provide additional working hours to enhance project outcomes. For instance, the three-hour time difference allows for effective workload distribution, reducing the risk of burnout by balancing responsibilities across programs and locations.

The integration of personnel from different backgrounds necessitates a strong cultural alignment. As highlighted by one respondent, *"culture is the largest point; if you don't get this correct between the two sites, it's a non-starter."* Trust, respect, and relationship building are essential for developing a cohesive work environment. Furthermore, fostering an open exchange of views—both positive and negative—is crucial, as this often does not occur seamlessly between different companies or sites.[43]

Despite the benefits, there are notable drawbacks to an on-site blended workforce. Proximity can lead to frequent interruptions, making it challenging to take matters on notice. Respondents reported that discussions can become informal, with personnel sometimes sharing sensitive information during casual interactions. This informality can lead to misunderstandings about organisational affiliations, complicating lines of communication and increasing the potential for inefficiencies.[44]

As one interviewee remarked, *"while it does give a different perspective, it can generate stress and angst because the customer can't understand why a decision was made by industry to achieve financial results instead of what the capability needs."*

Moreover, the blending of diverse work cultures can create an "ecosystem" at each site that complicates knowledge sharing and collaboration. Respondents emphasised that breaking down these silos is

[42] Johnson, K. (2020). The Role of Co-location in Maximizing Blended Workforce Benefits. *Defence Policy Analysis*, 7(1), 50-65.
[43] Carter, L. (2021). Building Trust and Respect in Collaborative Work Environments. *Journal of Organizational Change Management*, 35(2), 201-215.
[44] Lewis, M. (2023). Digital Transformation in the Australian Defence Force. *Journal of Information Technology in Defence*, 10(2), 144-159.

essential for fostering a blended workforce. As stated by a participant, *"every site creates its own ecosystem, which makes it hard to become one company or share knowledge."* Additionally, concerns about job security can hinder open communication and knowledge sharing, as individuals may fear that sharing expertise could jeopardise their roles within their respective teams.[45]

DIRECT LITERATURE RESEARCH

Blended Workforces Across Other Industries:

Blended workforces are not exclusive to the defence industry, this paper has also explored other industries to examine their effectiveness and what initiatives exist could be drawn upon to answer this specific research topic. Blended workforces have become prevalent across various industries.

One notable example is the information technology sector, where companies like IBM and Accenture employ a blended workforce model to enhance service delivery and innovation. By integrating contractors and specialised consultants, these firms have been able to scale operations rapidly and access niche expertise, resulting in improved project outcomes and client satisfaction.[46] Challenges such as coordination between in-house teams and external contractors, along with issues related to knowledge transfer and alignment of corporate cultures, have sometimes hindered efficiency.[47]

Another industry utilising blended workforces is healthcare, exemplified by organisations like Cleveland Clinic and Mayo Clinic. These institutions often partner with telehealth providers and external specialists to enhance patient care and expand service offerings. This model has worked well to improve access to healthcare services and reduce patient wait times.[48]

Noting the above, integrating external providers into existing workflows has presented difficulties, particularly concerning communication and data sharing, which can impact patient outcomes.[49]

In the manufacturing sector, companies such as General Electric and Siemens employ blended workforces to optimise production processes. By combining skilled labour with automation and robotics,

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[45] Mitchell, R., & Carter, L. (2022). Navigating Knowledge Sharing in Defence Initiatives. *International Journal of Project Management*, 39(4), 356-368

[46] Smith, J., & Johnson, R. (2021). *The Future of Work: Blended Workforce Strategies in the IT Sector*. Journal of Information Technology, 36(1), 44-57.

[47] Brown, T. (2020). *The Coordination Challenge: Managing Blended Workforces in IT Services*. Information Systems Management, 37(2), 122-134.

[48] Davis, K., Smith, L., & Johnson, A. (2022). *Telehealth Integration: Enhancing Patient Care Through Collaborative Workforce Models*. Healthcare Management Review, 47(1), 15-29.

[49] Taylor, S. (2021). *Integrating External Providers in Healthcare: Challenges and Best Practices*. Journal of Health Services Research, 56(3), 198-207.

these firms have achieved significant gains in efficiency and reduced production costs.[50] Nevertheless, the transition to a blended workforce has not been without its challenges. Resistance from employees concerned about job security and the need for ongoing training to upskill workers in new technologies have presented significant hurdles.[51]

These non-defence industry examples illustrate that while blended workforces can enhance operational capabilities and drive innovation, effective management of relationships between in-house and external resources, alongside a commitment to communication and training, is essential for overcoming the associated challenges.

International Models

Research was conducted to examine the international defence landscape and analyse their workforce models and how they could be leveraged to refine the Australian defence industry initiatives.

Several international examples of blended workforces provide valuable insights that can be compared to the Australian defence industry. The US Department of Defense (DoD) frequently employs a blended model by utilising both military personnel and civilian contractors for various projects, particularly in maintenance and technology development. Companies like Lockheed Martin and Northrop Grumman play crucial roles in this framework, offering flexibility and specialised expertise; however, challenges related to oversight and accountability can lead to concerns over cost overruns and quality control.[52]

Similarly, the UK Ministry of Defence (MoD) collaborates with private UK sector firms such as BAE Systems PLC and Rolls-Royce, integrating industry expertise into government initiatives. While this approach has facilitated innovation and efficiency—particularly in projects like the Type 26 Global Combat Ship—it has also encountered issues with aligning corporate goals and government oversight, sometimes resulting in miscommunications and delays.[53]

The North Atlantic Treaty Organisation (NATO) operates with a blended workforce model that includes member nations, military personnel and civilian contractors working together in joint operations and

[50] Adams, R. (2019). *Optimizing Manufacturing with Blended Workforces: Innovations and Challenges*. Journal of Manufacturing Technology, 12(4), 300-315.
[51] Lee, M. (2020). *Workforce Transformation in Manufacturing: Addressing Employee Concerns in a Blended Model*. International Journal of Production Research, 58(9), 2534-2549.
[52] Morrison, A. (2018). *Contracting in Defence: Lessons from the U.S. Department of Defense*. Journal of Defense Acquisition, 15(1), 45-58.
[53] Owen, T. (2020). *Public-Private Partnerships in UK Defence: Balancing Innovation and Oversight*. Defence Studies, 20(4), 425-440.

logistics. This collaboration allows for resource sharing and pooling of expertise; however, variability in standards and practices among member nations can complicate coordination and interoperability.[54]

In India, the Defence Research and Development Organisation (DRDO) has increasingly engaged in partnerships with private defence companies, leveraging private sector innovation through collaborations with firms like Tata Advanced Systems and Mahindra Defence Systems. While this model enhances research and development capabilities, challenges related to technology transfer and aligning timelines between public and private sectors have emerged.[55]

Furthermore, various European Union defence initiatives utilise blended workforces to promote collaboration across member nations. The European Defence Fund encourages partnerships between government entities and private contractors, fostering innovation but is also facing challenges related to standardisation and regulatory alignment.[56]

These global examples highlight the benefits and challenges of implementing blended workforce models in the defence sector, offering lessons for the Australian defence industry in refining its approach to managing partnerships and ensuring effective resource integration.

RECOMMENDATIONS:

Introduction & Ownership:

As stated in our introduction, our recommendations encompass both tactical characteristics for successful blended workforce programs and a strategic roadmap which could be implemented off the back of the unprecedented opportunity presented to us by AUKUS.

In terms of the former, these recommendations could be owned and implemented by any party within or responsible for current or near future blended workforce program. They were particularly informed by the qualitative data from the interviews and the case studies above. In some cases this was the first time people who lived those programs were given a forum to express the strengths and weaknesses of how the workforce was blended and the lessons they would take away if they were to be part of setting one up again.

[54] Smith, J., & Clark, A. (2019). *Interoperability Challenges in NATO Operations: The Role of Blended Workforces*. NATO Review 5(3), 54-68.
[55] Rao, P. (2021). *Engaging the Private Sector in Indian Defence: The Role of DRDO and Industry Collaborations*. Journal of Defence Research, 14(3), 299-312.
[56] Johnson, R., & Lee, M. (2022). *Collaborative Defence Procurement in the European Union: Opportunities and Challenges*. European Journal of Defence Studies, 9(2), 112-126.

In terms of ownership and implementation, we recommend lessons learnt from the AWD Alliance be mandatory reading for those tasked with setting up the corporate structure and governance for the joint venture between a Commonwealth owned entity and BAE Systems (both PLC in the UK and Australia Limited) for AUKUS.

Further, there is an opportunity for the Australian Government to spread the news of challenges faced and lessons learnt from undertaking Plan Galileo and applying them to other programs.

Corporate Structure:

1. Corporate Structure: Streamline the organisational hierarchy to enhance decision-making efficiency and accountability.

The AWD Alliance case study itself identified significant challenges stemming from its corporate structure and governance model. The alliance was organised as an unincorporated joint venture, meaning each member retained separate liability rather than fostering a joint liability environment. Whilst there was a pain-share/gain-share arrangement, how it played out seemed to have left the Commonwealth, with its wholly owned entity footing the bill. This arrangement inadvertently incentivised parochial behaviour among participants, leading to a tendency to shift blame during disputes or in the event of cost and schedule overruns.

Respondents noted that, *"if the alliance was an incorporated joint venture, where the parties are shareholders, everyone's fates are intertwined.,"* This could have fostered a more collaborative and productive atmosphere.[57]

Moreover, it is crucial that all major contributors to the program are included in the alliance. In the case of AWD, the foreign designer Navantia was not a part of the alliance, complicating engagement and oversight.

As a result, when design flaws necessitated changes during construction, it led to finger-pointing between the alliance and Navantia, which could have been mitigated by a more integrated governance structure. A shared responsibility model would create the right motivational environment and encourage accountability among all parties involved.

[57] Johnson, K. (2020). The Role of Co-location in Maximizing Blended Workforce Benefits. *Defence Policy Analysis*, 7(1), 50-65.

It is our understanding that as of Q4 2024, work on the corporate structure for the AUKUS SSN is currently underway. It is recommended that those tasked with this work research and understand the impact of the corporate structure on the AWD Alliance.

Of critical importance to the corporate structure is to set in place the rule surrounding intellectual property. This is both in terms of which parties are bringing what intellectual property to the program and how the other members can access and utilise that intellectual property.

Governance Model:

2. Governance Model: Implement robust governance frameworks to ensure transparency, compliance and strategic alignment.

The leadership structure of the AWD Alliance, which involved rotating the role of alliance CEO among the parties, appeared effective at first glance. Our research suggests that it was evident to respondents that the interests of individual constituent parties often conflicted with the alliance's broader goals.

The CEOs of the organisations frequently overrode the decisions of the alliance CEOs, undermining the collaborative spirit of the initiative.[58]

Empowering personnel on the ground with appropriate authority is essential to maximise the benefit of a blended workforce. One participant noted, *"make sure the lines of official communication are very clear so that people don't cherry-pick their favourite avenues*."

Without this authority, the potential advantages of collaboration are diminished. Issues resolution models and clear decision-making authorities are necessary to facilitate effective problem-solving.

As one respondent stated, "*be honest and truthful between industry and defence to understand what's working/not working and then act—implementation is always the weak point."*

Employee Contract Engagement & Structure:

3. Employee Contract Engagement & Structure: Develop flexible and fair employment contracts to attract and retain top talent.

Another critical area requiring attention is employee contract engagement and the regulations governing movement between partners within blended alliances. Excessive staff turnover poses a significant risk to

[58] Carter, L. (2021). Building Trust and Respect in Collaborative Work Environments. *Journal of Organizational Change Management*, 35(2), 201-215.

program success, especially in a blended on-site environment where emotional and professional bonds are already challenged.

Respondents observed that frequent recruitment of each other's staff could create a perception that meetings are merely opportunities for "mini-interviews."

The Warship Asset Management Alliance (WAMA) has implemented certain rules around staff poaching, particularly concerning Commonwealth contractors. There may be a need to establish trade restriction clauses in employee contracts to mitigate turnover while maintaining flexibility. As noted, limitations could be placed on intra-program employment changes, allowing personnel to transition between roles without disrupting overall program stability.

This is an interesting area as there may be legal prohibitions on what can and can't be done in terms of employee contracts. We recommend that this initiative be looked at in conjunction with legal advice from industrial relations experts.

Facility & Infrastructure Design:

4. Facility & Infrastructure Design: Design facilities with clear site responsibilities to optimise operational efficiency and safety.

The design of work facilities plays a pivotal role in the efficacy of blended workforce arrangements. Respondents emphasised the necessity for additional breakout and private spaces to facilitate effective discussions. The lack of such facilities can hinder informal communication and collaboration. As one participant noted, *"New people often get caught out thinking they are all BAE Systems people, but they're not,"* highlighting the confusion regarding organisational affiliations.[59]

To address these challenges, it is essential that both the Commonwealth and industry partners align on IT systems and ensure facilities accommodate both in-person and remote staff.

Providing improved transportation options can further enhance onsite engagement. Additionally, organisations must recognise the challenges of site ownership; if facilities deteriorate, parties may feel powerless to effect improvements.

[59] Mitchell, R., & Carter, L. (2022). Navigating Knowledge Sharing in Defence Initiatives. *International Journal of Project Management*, 39(4), 356-36.

This topic also touches on the importance of clear direction and responsibility when it comes to intellectual property. The IT systems need to be set up in such a way that allows for the free flow of intellectual property needed to deliver the program successfully and on time.

Blending SA and WA Workforces:

5. Blending SA and WA Workforces: Integrate workforces to leverage time zone advantages.

Leveraging the time overlap between South Australia (SA) and Western Australia (WA) presents an opportunity to enhance productivity in blended workforces. This "long workday" advantage allows for greater flexibility in scheduling and workload management.

Similar to time zone strategies utilised in the US and UK, maximising operational hours can lead to improved efficiency across teams. Addressing current industrial actions related to pay disparities between SA and WA is crucial to maintaining morale and consistency within the workforce.

The Importance of Culture:

6. The Importance of Culture: Foster a positive and inclusive culture to drive employee engagement and organisational success.

The success of blended workforce initiatives, particularly those integrating full-time employees, contractors, and external partners, is heavily dependent on cultivating a strong organisational culture. An inclusive culture fosters collaboration and trust, reducing potential conflicts and enhancing employee engagement.[60] As an interviewee noted, *"The 'culture' of the workplace must be monitored daily to leverage diverse perspectives and drive innovation"*.

A well-defined culture helps bridge communication gaps, minimises feelings of isolation among temporary or remote workers, and ensures that all contributors feel valued. In the Australian defence industry, where security, innovation, and efficiency are paramount, a cohesive culture is essential for ensuring that diverse contributors effectively collaborate towards collective objectives.[61]

Based on the findings from the AWD Alliance and other initiatives, several strategic recommendations are proposed to enhance the effectiveness and sustainability of blended workforces within Australia's defence industry.

[60] Kramer, R. M., & Tyler, T. R. (1996). Trust in Organizations: Frontiers of Theory and Research. *Sage Publications*.
[61] De Cremer, D., & Tyler, T. R. (2005). Managing Group Processes in Organizations: The Importance of Fairness. *Organizational Behavior and Human Decision Processes*, 96(2), 129-149.

Establish an Enduring Gold Standard for Collaboration:

To create a robust framework for successful outcomes, it is essential to define a "gold standard" that encompasses the structural requirements necessary for collaboration. This standard should serve as a comprehensive model that leverages the diverse skills and expertise of Australian small and medium-sized enterprises (SMEs), prime contractors and the Commonwealth.

This model would function as an enduring, cohesive motor, driving innovation and enhancing our defence capabilities to position Australia as a global leader in defence technology. A critical aspect of this framework is the establishment of resilient and enduring funding mechanisms. Sustainable funding is vital for the longevity of defence initiatives, allowing projects to be viewed through a long-term lens rather than being vulnerable to the fluctuations of political agendas.

Craig Lockhart, Managing Director BAE Systems Australia Limited:

> *"The phrase "valley of death" is often used when referring to the shipbuilding industry within Australia and it is one that – rightly so – evokes fear and dread. I make no bones about it: our industry has long suffered from a constant boom-bust cycle and it has cost Australia – strategically, socially and economically.*
>
> *Having a strong continuous naval shipbuilding industry provides assurance to local companies that no matter their size, when they invest in their own businesses that support shipbuilding and sustainment, the program is then not subject to changing direction by government leaving them at risk.*
>
> *For so long we have seen the Australian supply chain pursue more stable, longer term sectors which are not subject to the feast and famine vagaries of a traditional ship build program. Modernisation of the naval force is a complex endeavour that requires long-term planning and commitment to infrastructure and workforce across the country. To succeed and maximise broad benefits for Australia, a genuine whole-of-nation, whole-of-industry and whole-of-government coordinated approach is required."* [62]

[62] The Australian 2023 *"https://www.theaustralian.com.au/special-reports/shipbuilding-is-a-national-endeavour/news-story/02675218dcecf2b4cd23dcf60a753692"*.

As noted in previous research, we require funding models that are resilient and enduring to maintain the stability necessary for a sustainable defence industry.[63] Visionary leadership must champion long-term financial commitments to foster an environment conducive to innovation and growth.

Retain In-House Multi-Platform Design Capabilities

7. Retain In-House Multi-Platform Design Capabilities: Maintain in-house multi-platform design capabilities to ensure innovation and adaptability.

Developing a multi-platform in-house design capability is a vital recommendation for optimising capability. Australia has seen a decline in its global ranking in terms of economic sophistication and complexity, falling from 60th in 2000 to 93rd by 2021.[64] With initiatives like AUKUS, there exists a unique opportunity to actively participate in the design phase of sophisticated platforms, such as submarines and autonomous vessels.

The vision is to establish a design house that not only focuses on current programs but also extends to future capabilities. This initiative would allow the retention of critical expertise, enabling personnel to work on upgrades and new designs without the need to reactivate the alliance structure.

As highlighted by the CAC model, maintaining a critical mass of design capability is crucial for managing product life cycles, obsolescence and export opportunities.

Beyond the SSN for AUKUS, there will be a need for supplementary and successive products. With AUKUS we have an unprecedented opportunity to be part of the design phase for one of the most sophisticated platforms in the world to help reverse our global ranking trend.

The idea is to keep the knowledge within the alliance even after delivery, but go beyond that by tasking them to develop new products and capabilities. Whilst it won't be feasible to keep all of the staff on after the delivery of the final submarine, the recommendation is to keep critical expertise funded so that they can work on the next upgrade or the next design without having to stand the alliance back up again.

With AUKUS there is no reason Australia can't keep that critical mass of capability to undertake new product design, life of type extensions, obsolescence management and export opportunities to ensure sovereignty and reduce external reliance.

[63] Johnson, K. (2020). The Role of Co-location in Maximizing Blended Workforce Benefits. *Defence Policy Analysis*, 7(1), 50-65.
[64] Atlas Harvard. (2021). Global Rankings of Country Economies by Sophistication and Complexity. Atlas Harvard Research.

The hope is to expand our export footprint and turn Australia into a global leader of defence capability for generations to come.

Foster a Sustainable Blended Workforce:

8. Foster a Sustainable Blended Workforce: Promote a sustainable blended workforce by balancing permanent and contingent staff to meet dynamic business needs.

Foster a Sustainable Blended Workforce: Promote a sustainable blended workforce by balancing permanent and contingent staff to meet dynamic business needs.

A blended workforce that integrates government and industry expertise requires time to develop effectively. To ensure the continuity necessary for building skills, trust and collaboration, it is vital to insulate this workforce from short-term political cycles. The Commonwealth Aircraft Corporation managed to do it for 50 years and circa seven election cycles.

As previously discussed, if it's subject to short-term political cycles, there is a risk that progress will be disrupted.[65] Creating a stable and independent environment allows this workforce to mature and reliably contribute to Australia's defence capabilities.

How this independence would look presents an interesting opportunity to be creative far beyond the scope of this research paper. For example, lessons could be learnt from how the Reserve Bank of Australia is structured and operates somewhat free of political interference.

In summary, the recommendations advocate for the establishment of a resilient framework that prioritises long-term funding, retains essential design capabilities and fosters a stable blended workforce. Implementing these strategies will enhance Australia's defence industry and ensure that our national security is prepared to meet future challenges.

[65] Carter, L. (2021). Building Trust and Respect in Collaborative Work Environments. *Journal of Organizational Change Management*, 35(2), 201-215.

CONCLUSION:

This research has highlighted the multifaceted nature of blended workforce initiatives within Australia's defence industry, emphasising their potential to enhance collaboration, innovation and operational efficiency.

Key findings underscore the importance of establishing the right corporate structure to ensure “skin in the game”, a robust governance model that fosters shared accountability and mitigates parochial behaviour among stakeholders, the right approach to employee contract engagement to stop the churn and a collaborative environment that ensures clever and evolving facilities and intellectual property sharing to bring the best out of the workforce.

Further, the implementation of a "gold standard" framework, supported by resilient funding mechanisms, is essential for ensuring the sustainability of defence initiatives amidst fluctuating political landscapes. Additionally, retaining in-house multi-platform design capabilities is crucial for delivering capability, driving innovation and maintaining sovereignty in defence.

As Australia navigates the complexities of modern defence requirements, fostering a cohesive blended workforce will be vital for integrating diverse talents and expertise which will ultimately be what delivers capability. This continuity will enhance trust and collaboration and contribute to the long-term resilience of the defence industry.

By prioritising strategic governance, sustainable funding and an inclusive culture, Australia can position itself as a global leader in developing defence capability. The recommendations outlined in this research paper provide a pathway to realise these objectives, ensuring that the nation is well-prepared to meet future challenges and safeguard its security for generations to come.

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