

RSL DEFENCE AND NATIONAL SECURITY COMMITTEE

THE ROYAL AUSTRALIAN AIR FORCE (RAAF) - UNREALISED POTENTIAL

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The Royal Australian Air Force (RAAF) is widely recognized as a modern, technologically advanced air force, underpinning Australia's national security and regional influence. Since its establishment in 1921, the RAAF has continuously evolved—from early biplanes to cutting-edge stealth fighters—to meet an increasingly complex security environment. Today, the force boasts state-of-the-art combat aircraft, integrated intelligence, surveillance, and reconnaissance (ISR) capabilities, robust strategic mobility, emerging cyber and space operations, and a growing emphasis on integrated air and missile defence.

Yet, growing regional military power and increasing competition, together with Australia's traditional mismatch between geography and resources, are highlighting deficiencies that constrain the RAAF's reach, stamina and hardiness. Australia should strengthen the RAAF to address these gaps to bolster the ADF's ability to strike powerfully at very long ranges over and over again. Acquiring a long-range bomber is the critical first step.

This paper examines the interdependent nature of the RAAF's capabilities and vulnerabilities, emphasising that every strength has a corresponding weakness. Addressing these gaps will be essential for maintaining the aerial dominance that underpins Australia's strategy of denial.

COMBAT AIRCRAFT AND AIR SUPERIORITY

Air superiority remains the cornerstone of Australia's military power, and the RAAF's combat aircraft are central to its achievement. The introduction of the F-35A Lightning II represents a leap forward in stealth, sensor fusion and networked warfare. This fifth-generation fighter provides the RAAF with a potent tool for countering advanced adversaries in the contested Indo-Pacific theatre. In tandem, the F/A-18F Super Hornet and EA-18G Growler offer multi-role capabilities that allow the force to conduct both air-to-air and air-to-ground missions, while also providing electronic warfare support that is crucial to disrupting enemy communications and radar systems. Adding to this sophistication is the prospects of the domestically designed and built MQ-28A Ghost Bat, an autonomous collaborative combat aircraft that potentially offers Australia to scale up its combat fleet by an order of magnitude.

Despite these strengths, a number of challenges persist. The relatively small size of the RAAF's fighter fleet compared to potential regional adversaries means that even minor losses or extended maintenance requirements could have an outsized impact on operational capacity of the force. High sustainment costs—especially for platforms such as the F-35A, E-7 and E/A-18G—add pressure on Defence budgets and complicate long-term planning but these can be addressed. The limited reach – a product of range, speed, and payload – of Australia's current combat fleet, particularly without aerial refuelling, highlights the glaring omission: that is the absence of a dedicated long-range strike bomber.

THE NEED FOR A LONG-RANGE BOMBER

Australia's strategy of denial demands the ability to strike powerfully deep into the Indo-Pacific. Long-range bombers are the most cost-effective option for this because they can operate independently to deliver enormous firepower quickly at very long ranges and sustainably. Submarines may leave question marks in the minds of potentially hostile actors about the ADF's capability, but bombers provide certainty. Australia can strike decisively when and where it chooses. This is why RAAF long-range bombers were the centrepiece of Australia's deterrence capability up until the F-111's retirement in 2010.

Crucially, long-range bombers can strike deep into the Indo-Pacific from sovereign Australian bases. This enhances flexibility and sustainability by drawing on domestic supply chains and support arrangements and giving the Australian Government unfettered control over the bomber missions. It reduces risk by negating the need to establish and maintain vulnerable lines of supply outside Australia, and minimising the requirement for permission from regional states.

Long-range bombers would complement existing fighter capabilities by providing a persistent, long-range offensive option—especially in scenarios where adversaries have invested heavily in anti-access/area denial (A2/AD) systems. The absence of a bomber limits the force's ability to conduct extended deep strikes, reducing its overall strategic flexibility.

Addressing this gap is not merely a matter of adding another aircraft; it represents a shift in Australia's strategic posture toward a more robust and independent power projection capability. It would encourage the development of new tactics, training programs and logistics solutions designed specifically for deep-strike operations. In practical terms, bombers can work with existing assets to create new options and increase the flexibility of the whole force. For example, the massive power of bomber strikes could 'kick in the door' of enemy air defences and open the way for more vulnerable assets to operate in previously denied areas. This layered approach would significantly enhance the overall effectiveness of Australia's air power.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)

In the modern battlespace, information is power. The RAAF's ISR capabilities provide critical real-time data, enabling swift decision-making and enhanced battlefield awareness. Assets such the Jindalee Operational Network has the ability to monitor air and sea movements across vast areas, far beyond the line of sight of conventional radar, enabling early warning and strategic surveillance capabilities. The E-7A Wedgetail offers advanced airborne early warning and control (AEW&C) functions, integrating radar, communications, and command and control systems to oversee vast areas of operation. Meanwhile, platforms like the MQ-4C Triton, designed for high-altitude maritime surveillance, help secure Australia's extensive maritime borders and monitor potential threats in the region. Electronic intelligence

(ELINT) platforms, such as the MC-55A Peregrine, capture and analyse enemy communications and signals.

Nevertheless, the RAAF's ISR systems are fragile. The RAAF's reliance on allied intelligence-sharing—primarily with the United States—means that its situational awareness can be compromised if these channels are disrupted. Australia's vast maritime and territorial expanse makes comprehensive ISR coverage difficult to achieve with current assets. In addition, while progress has been made in deploying tactical unmanned aerial vehicles (UAVs), operational experience in real-time combat scenarios remains limited. The increasing threat of adversarial electronic warfare further complicates matters; sophisticated jamming and cyber intrusion techniques could potentially degrade ISR capabilities at critical moments. This interdependence means that any weakness in ISR directly undermines the effectiveness of other capabilities, such as strike and mobility.

STRATEGIC MOBILITY AND AIRLIFT CAPABILITY

A robust air mobility capability is indispensable for Australia to project power swiftly over great distances. The RAAF's fleet of transport aircraft, including the C-17A Globemaster III, the C-130J Hercules, and the C-27J Spartan—ensures rapid deployment of troops, equipment and humanitarian aid. The KC-30A Multi-Role Tanker Transport plays a pivotal role in extending the operational range of combat aircraft through in-flight refuelling, thus enabling sustained operations in distant theatres.

Yet, Australia's air mobility fleet constrains the RAAF's stamina and hardiness due to limited numbers and aging platforms. The aging nature of some transport platforms means that significant investments in upgrades or replacements will be required in the near future. Moreover, the overall size of the airlift fleet may prove inadequate in scenarios demanding rapid, large-scale deployments. Australia's geographic isolation adds another layer of complexity. In times of crisis, reliance on civilian logistics could expose vulnerabilities in the supply chain, as commercial assets may be either insufficient or too easily disrupted. The very limited number of KC-30A tankers constrain Australia's reach into the vast Indo-Pacific region. Ensuring mobility assets are both modern and numerous is essential for maintaining a credible deterrent and rapid response capability.

INTEGRATED AIR AND MISSILE DEFENCE (IAMD)

The Indo-Pacific region has witnessed a significant rise in missile threats, ranging from short-range tactical systems to advanced ballistic and hypersonic weapons. In response, the RAAF has been working to integrate various air and missile defence systems. Ground-based air defence platforms, such as the National Advanced Surface-to-Air Missile System (NASAMS), provide crucial short-to-medium-range protection, while the fighter-based missile defence capabilities of platforms like the F-35A and Super Hornet contribute to the overall network of defence.

However, the current integrated air and missile defence (IAMD) systems undermines the RAAF's hardiness. The absence of a comprehensive, long-range missile defence

system capable of neutralizing advanced ballistic threats represents a significant gap. In an era when adversaries are developing hypersonic missiles that can outpace conventional interception systems, the RAAF's reliance on allied missile defence and early warning networks leaves it vulnerable should those partnerships be compromised. The vast geographical expanse over which Australia must monitor and defend also places enormous strain on radar and early warning systems, which are challenged by both range and terrain limitations. Moreover, much of Australia's missile defence technology is imported; there is a notable deficit in indigenous capability development. This dependency not only creates strategic vulnerabilities but also limits the RAAF's operational autonomy in the face of rapidly evolving threats.

COMBAT SUPPORT, LOGISTICS, AND AIRCREW READINESS

The technological sophistication of the RAAF's platforms can only be fully realised through a robust support structure that encompasses logistics, maintenance and human capital. Combat support systems include everything from the maintenance of forward operating bases and airfields, to the management of fuel supplies and spare parts. The effectiveness of these systems is directly linked to the ability of the RAAF to sustain operations under adverse conditions.

One of the most acute challenges to the RAAF's stamina is the shortage of qualified aircrew and maintenance personnel. Recruitment and retention issues have led to persistent gaps in manpower, which in turn affect operational readiness. Training programs, such as those conducted on the Hawk 127 Lead-in Fighter Trainer, are critical for preparing new pilots; however, as new technologies are introduced, the need for specialised skills increases. This human factor is a critical node in the RAAF's operational chain—any disruption in the supply of skilled personnel can have cascading effects across all areas of capability.

In addition, vulnerabilities in the fuel and supply chains, exacerbated by Australia's remote geographic location, pose significant risks. The potential for disruptions in global supply chains, whether due to geopolitical tensions, cyber-attacks or natural disasters, means that the RAAF must invest in more resilient and diversified logistics networks. Furthermore, the limited availability of hardened, forward-deployed bases means that, in a high-intensity conflict, even the most advanced aircraft might find themselves without the necessary support infrastructure.

CYBER AND SPACE OPERATIONS: EXPANDING THE BATTLESPACE

Modern warfare is no longer confined to traditional air, land or sea domains; cyber and space operations have become essential components of national defence strategy. Air power has always been a multi-domain system but this interdependence is broadening and deepening. The RAAF is actively integrating cyber warfare and space-based capabilities into its operational framework to safeguard communications, command and control networks, and ISR assets. Satellite communications and navigation systems underpin all modern military operations, and the RAAF's collaboration with Space Command and the Australian Space Agency is critical for ensuring that these systems remain secure and resilient.

Nonetheless, this expansion into cyber and space domains poses new vulnerabilities. Cybersecurity remains an ongoing battle. As adversaries become more sophisticated in their digital assaults, even minor breaches in the RAAF's network infrastructure could have disproportionate consequences. The reliance on allied space assets also presents strategic challenges. While partnerships currently provide a stopgap measure, Australia's limited indigenous capability in space-based systems means that its operational independence is somewhat constrained. The integration of cyber and space operations with traditional air power requires not only significant technological upgrades but also the development of new operational doctrines and training programs. As the battlefield extends into these new domains, the risks associated with integration and interoperability become ever more pronounced.

AN INTERDEPENDENT FRAMEWORK CAPABILITIES, VULNERABILITIES, AND THE WAY FORWARD

When viewed as a whole, the RAAF's capabilities from combat aircraft and ISR to strategic mobility, integrated defence and emerging cyber/space operations are part of a larger, interdependent system. Each element supports and amplifies the others, but this interdependency also means that vulnerabilities in one area can have cascading effects across the entire force. For example, the effectiveness of advanced fighter jets is contingent upon robust ISR networks and secure logistics, while the potential of strategic mobility is limited by the availability of modern transport and refuelling assets. Similarly, the integration of cyber and space operations is only as strong as the resilience of its underlying networks and indigenous technological capabilities.

The need for a long-range bomber epitomizes this interconnected challenge. Without such an asset, the RAAF's ability to reach deep into the Indo-Pacific to deter, disrupt or defeat hostile action is constrained. This leaves a strategic gap in Australia's deterrence and defence determined adversaries can exploit.

Addressing this gap would require not only the procurement of a bomber but also a rebalancing of investments across other critical domains ranging from enhanced missile defence to expanded airlift capacity and strengthened cyber resilience. A bomber would need to be supported by an expanded logistics network, including dedicated aerial refuelling capabilities, hardened maintenance facilities and enhanced ISR support to ensure that deep-strike missions can be executed effectively. Additionally, the acquisition of a bomber would likely to require advancements in related domains, such as missile defence and cyber operations, as adversaries would undoubtedly focus on neutralising this new asset.

But this supporting investment only reinforces the value of reintroducing long-range bombers as a catalyst for needed institutional and strategic change across the ADF, Defence, and Government. The enhanced reach, stamina and hardiness of an RAAF equipped with bombers shifts Australia's strategic calculus from one of hoping question marks in the minds of opponents will suffice to deter or deny, to a quiet confidence that Australia can respond, with decisive impact, at a time and place of its choosing across the Indo-Pacific.

Looking ahead, a comprehensive strategy for the RAAF must emphasize force expansion, fleet modernization and the development of indigenous capabilities. Investments in next-generation technology should be accompanied by reforms in training and recruitment to ensure that human capital keeps pace with technological advances. Building a resilient logistics network capable of operating independently in contested environments, will be essential to support both conventional and deepstrike operations. Finally, a multi-domain approach that fully integrates air, missile, cyber and space capabilities will be critical for creating a cohesive, adaptive force.

STRATEGIC CONSIDERATIONS AND FUTURE DIRECTIONS

To maintain its aerial dominance and address existing deficiencies, the RAAF must adopt a forward-looking strategy built on several pillars:

- Force Expansion and Modernisation: Increasing the number of combat and support aircraft is paramount. This includes not only modernising the current fleet but also addressing gaps such as the need for a long-range bomber. Investments in indigenous research and development can help reduce dependence on foreign technologies especially with respect to advanced payloads. The domestic production of the Ghost Bat and guided weapons needs additional investment as the basis for the scalable local production of high priority systems.
- Enhanced Network and ISR Resilience: Strengthening domestic ISR capabilities and developing independent digital networks will reduce vulnerabilities associated with reliance on allied systems. Expanding the use of tactical UAVs and integrating advanced electronic warfare countermeasures are also crucial.
- Logistical and Supply Chain Robustness: Developing hardened, forwardoperating bases and diversifying supply chains will improve operational readiness. Enhanced aerial refuelling capabilities and expanded strategic airlift fleets must be prioritised to support prolonged operations.
- **Human Capital Development:** Addressing recruitment, training and retention challenges is essential. Expanded training programs, coupled with incentives to retain experienced pilots and technicians, will ensure that the human element remains a robust force multiplier.
- **Multi-Domain Integration:** As the nature of warfare evolves, integrating cyber, space and conventional air operations into a unified doctrine is imperative. Investments in multi-domain command structures and joint exercises with allied forces will foster interoperability and resilience.
- Long-Range Strike Capability: The acquisition of a long-range bomber should be viewed not as an isolated purchase but as a strategic catalyst that complements and enhances other capabilities. A bomber would offer deep-

strike flexibility, act as a deterrent and serve as the linchpin in a revised force posture that addresses emerging A2/AD challenges.

CONCLUSION

The Royal Australian Air Force stands as a testament to Australia's commitment to national security and regional stability. Its advanced platforms, integrated ISR systems and strategic mobility assets provide a formidable counterbalance to an increasingly complex threat environment. However, the very technologies that underpin its capabilities constrain its reach, stamina, and hardiness, whether in the form of limited fighter capacity, high sustainment costs, missile defence vulnerabilities or persistent challenges in logistics and human resources.

A particularly critical gap in the RAAF's arsenal is the absence of a dedicated longrange bomber. In a world where adversaries are rapidly advancing their A2/AD capabilities, the ability to conduct deep-strike operations is no longer a luxury, it is a strategic imperative. A long-range bomber would not only extend Australia's offensive reach but also complement existing platforms, ensuring that the nation's air power remains robust, flexible and capable of meeting future challenges head-on.

Ultimately, the RAAF's future success depends on a holistic approach that bridges current deficiencies through targeted investments in technology, logistics, and human capital. By embracing a strategy of multi-domain integration, one that includes the critical long-range strike capability, the RAAF can transform vulnerabilities into strengths, ensuring that it remains a cornerstone of Australia's defence strategy well into the future.

It is clear that the path forward involves not only sustaining current capabilities but also addressing systemic gaps with practical solutions and a pathway to success. As the threat landscape evolves, the RAAF must continue to adapt, innovate and invest in a comprehensive, interdependent force structure that secures Australia's strategic interests in an increasingly contested global arena.

Cover image: Defence Image Gallery - Royal Australian Air Force aircraft perform an aerobatics display during the Australian International Airshow 2025 at Avalon Airport.

About the author: Air Marshal Geoff Brown AO (Retd) is a former Chief of Air Force (2011–2015) with a 35-year RAAF career. A seasoned pilot and operational commander, he led major capability upgrades, including the F-35 program and Plan Jericho. He has over 5000 hours in military aircraft.