ADF
Australian Defence Force

ADF Domain Concept

ASPECT

Australian Defence Force Air Domain Concept

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(O) Australian Defence Force – Integration – 3 *Australian Defence Force Air Power*

(O) *Concept APEX: Integrated Campaigning for Deterrence*, Edition 2 (2024)

(O) *Concept ASPIRE: The Australian Defence Force's Theatre Concept,* Edition 2 (2023)

(O) *National Defence: Defence Strategic Review* (2023)

(O) *National Defence Strategy* (2024)

Amendments

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Proposals to amend *Concept ASPECT* may be sent to:

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Chapter 1 –
Context

Introduction

1. *Concept ASPECT: Australian Defence Force Air Domain Concept* is a future focused and aspirational description of how the Australian Defence Force (ADF) aims to develop, employ and sustain air power for an integrated force. It aligns with the *ADF Concepts Framework* and Defence strategic policy. These concepts form a critical baseline for ADF force design, capability decisions and planning guidance.

2. The air domain extends from the surface of the Earth to the Karman Line, 100 kilometres above mean sea level. The physical, temporal and geopolitical characteristics of the air domain both enable and constrain the ways that the ADF operates in the air. Expert understanding of the air domain is required to exploit its potential, providing a unique perspective for the ADF to generate, employ and sustain military power. Additionally, advances in technology provides new opportunities for innovation and military advantage. While technology is a foundational element for unlocking air domain potential, expert employment at the operational level, aligned to strategic objectives, is required to realise air power's full potential.

3. Air power is the total strength of a nation's capability to conduct and influence activities in, through and from the air to achieve its objectives. Air power generation, employment and sustainment must support National Defence—the holistic approach requiring Australia to deploy all elements of national power. The ADF, as an integrated force, will harness all operational domains and integrate with Australian government departments, with allies and partners, and with industry and academia. Understanding each domain's value within the future operating environment is critical for focusing the ADF's capabilities and activities, for finding, generating and exploiting asymmetries, and achieving deterrence through denial.

Strategic policy

4. *Concept ASPECT* is guided by:

a. The *National Defence Strategy* (NDS), which sets out the Government's approach to meet Australia's strategic challenges, including the threat of conflict and the prospect of coercion. It explains the concept of National

Defence and directs Defence to adopt a Strategy of Denial. The NDS also outlines five ADF tasks.

b. Threat assessments which describe the context within which this concept must achieve defined strategic effects and ends.

c. The *ADF Concepts Framework,* which is headed by the capstone concept, *Concept APEX: Integrated Campaigning for Deterrence.*

5. Figure 1 illustrates how policy, the environment, doctrine and concepts inform decisions regarding the ADF's force design, posture and employment.

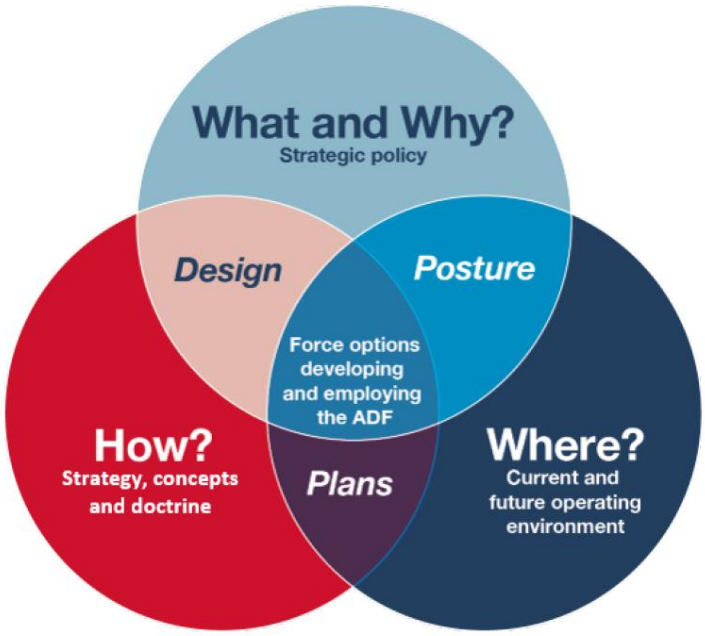

Figure 1: ADF concept relationship to strategic policy and the operating environment *(Concept APEX)*

The ADF Concepts Framework

6. The *ADF Concepts Framework* is a hierarchy of military concepts that describe how the ADF will maximise and employ military power. Concepts cascade in terms of their level of specificity, however, all align with and are subordinate to *Concept APEX*. *Concept APEX* describes how the ADF will maximise and apply power to deter potential adversaries and defend Australia and its national interests.

a. *Concept ASPIRE: The Australian Defence Force Theatre Concept* describes how the ADF will meet *Concept APEX*'s intent in specific theatres. It articulates how the ADF works with other government departments, allies and partners to aggregate military power to achieve deterrence. It also explains how through

this concept of National Defence Australia will respond to undeterred adversaries through the principles of focus, asymmetry and cost imposition.

b. Integrating concepts describe functions fundamental to *Concept ASPIRE*'s success that require the highest level of integrated design. They address specific military effects that require significant cross-domain integration.

c. Domain concepts describe the capability inputs that contribute to *Concept ASPIRE*—both directly and through the integrating concepts. They support integrating concepts, inform the employment of domain capabilities and describe how a domain enhances integrated effects.

The future operating environment and the air domain

7. Political, economic, societal, technological, legal and environmental factors define the operating environment and shape how a military force operates. These factors may interact and lead to uncertainty and change. In the air domain, many influences endure, some are changing, and others could change during the period addressed by this concept.

8. **What endures?** Despite a vast territorial landmass and surrounding geographic areas of interest, Australia is one of the world's most sparsely populated countries. Australia is a trade-based island nation that is dependent on commercial shipping to access the global supply network, and undersea fibre optic cables for most international communications. The population is concentrated in urban areas, particularly on the eastern, south-eastern and southern seaboards (see Figure 2).

9. Such enduring characteristics mean that ADF force generation sites and the national support base, essential for ADF support and sustainment, are also concentrated in these population centres. Geopolitical boundaries define and constrain the scope of operations. Availability of access, basing and/or overflight (ABO) permissions from regional nations for Australia, or potential adversaries, will have vital implications for Australia's defence. Moreover, Australia's expansive geography, remote northern approaches, and distances between regional bases present both opportunities and challenges for projecting and sustaining air power.

10. **What changes?** The range, speed and lethality of both weapons and autonomous systems will continue to increase. Decreasing costs to access the space domain, increasing connectivity and artificial intelligence (AI) combine to increase the pervasiveness of information and actionable intelligence at an exponential rate. These developments will benefit both Australia and potential adversaries. Because of this, air domain capabilities and supporting infrastructure will not have the benefit of

safe sanctuary in the future operating environment. Potential adversaries can observe and target traditional airbases and aircraft on the ground both kinetically and non-kinetically. These technological changes influence the air domain by both reducing the strategic stability conferred by geography and expanding means to target the political calculus of other actors.

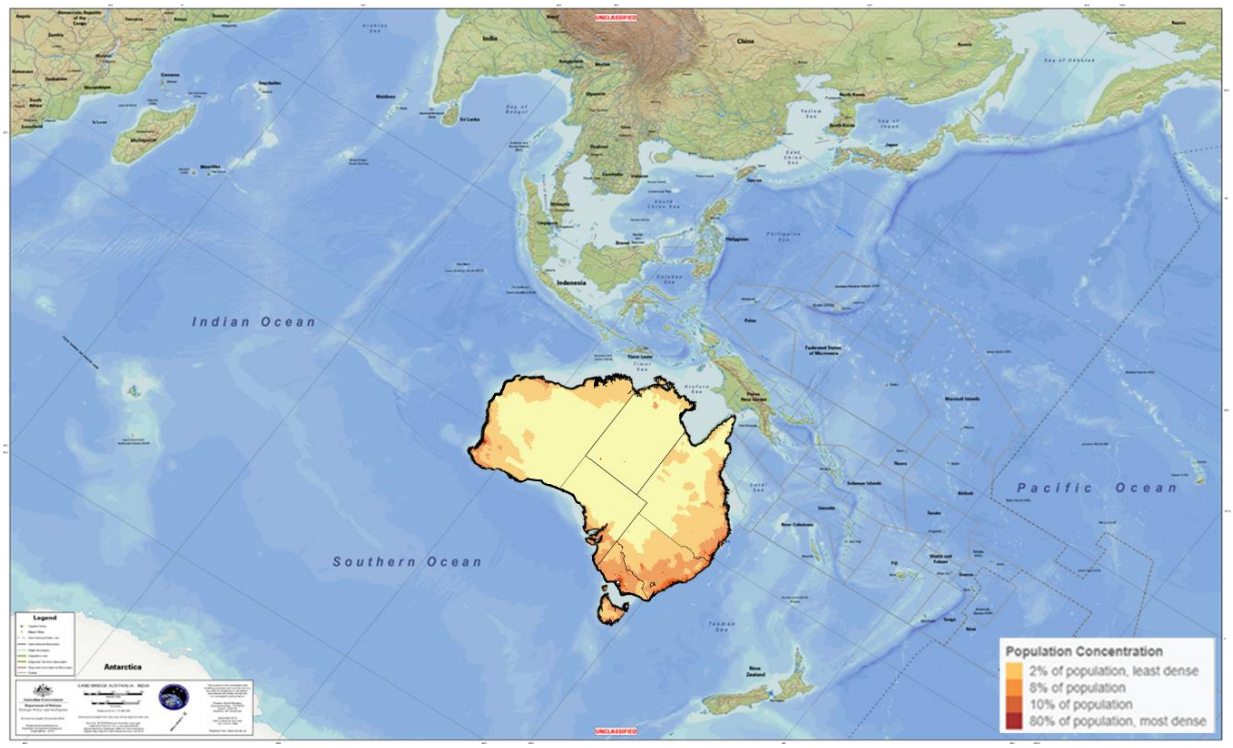

Figure 2: A problem of geography and demography

11. Advances in information technology will significantly increase the speed of transferring and processing data. Modern air power is particularly dependent on data, as military aircraft rely on advanced mission systems, networks and datalinks. Military and non-military capabilities to disrupt, deceive, locate and intercept information flow will also grow. The cyber and space domains, and the information environment more generally, will become more congested and contested.

12. **What could change?** The frequency and severity of natural disasters due to climate change, coupled with changing geopolitical power dynamics, increases the potential for desperate, opportunistic and hostile actions within the region. Responses to these situations could require significant ADF contributions. This may lead to operations with frequencies, intensities, durations and concurrencies far greater than in recent decades. Inherent fragility and the limited numbers of complex systems could exhaust Australian air power prior to achieving the desired end states.

13. Climate change will also affect the geographic contours and conditions of the operating environment. Extreme weather events are likely to occur more often and with greater intensity across Australia and its near region. This will increase risks and

challenges to air power projection sites and ground lines of communication. It will demand more agile and modular approaches to basing and force projection infrastructure. It will also require greater redundancy in lines of communication.

14. Digital design, modern manufacturing techniques and robotic and autonomous systems may potentially disrupt capability costs and development time lines, in turn lowering barriers to technological evolution. These advancements may enable platforms and payloads to scale in ways disproportionate to the number of humans required to operate them. The fourth industrial revolution is a convergence of emerging technologies with increasing automation and efficiency, representing a significant shift in industrial capitalism. Harnessing and exploiting trends such as smart manufacturing, predictive maintenance, smart sensors and operational efficiency may significantly improve warfighting effectiveness through enhanced sustainment, increased mass and accelerated decision-making.

Australia's opportunity for advantage

15. Australian national advantages present opportunities for the ADF to maximise military power. Identifying how to leverage these advantages while exploiting the air domain's unique attributes provides opportunities for the ADF to focus air power development and unlock latent capacity.

16. **Geography.** Australia's geography affords 'strategic depth'—the distance between the front lines and industrial core areas, capital cities and other key centres of population and military industry. This presents an operational challenge for the ADF, but also an opportunity to project offensive military power away from critical and vulnerable locations. Outside of population centres along the east and south-eastern coastlines, Australian communities are often physically, socially and sometimes digitally isolated, with tenuous connections bridging the distances.

17. Operating across and protecting Australia's large geographic area is challenging for a modest force like the ADF. However, these challenges can also be leveraged to our advantage. Australians are long accustomed to living and connecting across vast distances, and strengthening, enhancing and exercising our relationships with our environment. Australia's geography is also a broad link to regional access and influence. Expanding how the ADF projects, aggregates and disaggregates across the country and region, and our ability to support and sustain this manoeuvre, ensures that military power can concentrate when and where it is needed.

18. **Allies and partners.** Relationships, partnerships and alliances enrich collective opportunities, capacities and understandings. Force posture initiatives with the

United States (US), and our enhanced defence cooperation and activities with key partners, build depth and trust in Australia's relationships, support collective deterrence and demonstrate Australia's value as a reliable partner. Cooperative capability development and systems architecture integration enhances our combined operations.

19. Regional defence engagement is also a vital pillar of Australia's diplomacy. It shapes a peaceful, stable and prosperous region that operates by rules, standards and norms whereby countries exercise agency to safeguard their own sovereignty. Importantly, it builds connections among defence forces and forges people-to-people links that the ADF can draw upon during periods of tension. Foundational to Australia's military engagement is credibility, reliability, mutual respect and trust. Additionally, relationships between the ADF and local communities, national institutions, and the defence and aviation industries provide the means to build integrated air power.

20. **People.** Australian society is diverse with a broad range of demographic backgrounds, experiences and perspectives. This diversity allows the ADF to adopt novel approaches, develop multiple solutions and leverage opportunities. In times of competition, pandemics and natural disasters, Australians repeatedly demonstrate resilience and resourcefulness with the capacity to adapt to adversity. Future air operations may require command and control (C2) in contested, degraded and operationally limited environments. Therefore, the ADF requires air power practitioners that can excel in conditions of uncertainty, friction and adversity.

Chapter 2 –
Military problem and central idea

Military problem

1. Large-scale military build-ups in the region, coupled with the ongoing acceleration of technological advances (eg smart manufacturing, long-range fires, intelligence, surveillance and reconnaissance (ISR), data fusion, weaponised cyberspace and autonomy) has changed the character of the military threat facing Australia. Australia now faces potential adversaries with advantages in scale, technology and economic weight. They have the ability to project into our immediate region and apply integrated national power in ways inimical to Australia's interests, sovereignty and prosperity. These actors have developed potent capabilities designed to counter how the Australian Defence Force (ADF) develops, employs and sustains air power. The result is a potential threat that can directly challenge Australia's national interests and the ADF's ability to generate and sustain credible military responses.

2. Against the backdrop of intensifying strategic competition, the Australian Government has adopted a Strategy of Denial to guide Defence's contribution to National Defence. Delivering the Strategy of Denial across Australia's vast expanse and primary area of military interest (PAMI) presents a significant challenge for a modestly-resourced ADF. Both internal and external lines of communication are vulnerable to disruption and attack. To deny adversary objectives across the region, the ADF is required to project air power from sparsely populated regions. To generate the required capabilities the ADF must maximise the strengths, mitigate the limitations and satisfy the dependencies of operating within each domain. This will support the functions, strategic actions and theatre missions in the integrating concepts and *Concept ASPIRE*.

3. In this context, the military problem that *Concept ASPECT: Australian Defence Force Air Domain Concept* addresses is:

Military problem

How does **air power** contribute to an integrated force in support of a Strategy of Denial?

Central idea

4. The ADF will exploit the air domain to meet the Strategy of Denial by adopting an **Australian approach to air power**. *Concept ASPECT's* central idea is:

Central idea

Depth is air power's principal contribution to an integrated force in support of a Strategy of Denial. The ADF will develop, employ and sustain air power that maximises Australia's advantages by **generating and exploiting depth in space, time and posture**.

5. **Depth** is an idea that increases the buffer between ADF military action and critical national and military vulnerabilities. The three elements of depth—space, time and posture—are interdependent and mutually supportive. In the context of this concept, 'space' or 'spatial depth' refers to physical distance in three dimensions, not the space domain.

6. Generating and exploiting depth enables the ADF to employ air power closer to an adversary, earlier in their decision-making cycle, and with increased duration to force culmination. It also affects the decision calculus of an adversary by lowering the value or increasing the cost of coercive military action. This approach requires the ADF to capitalise on opportunities for Australian air power.

Australian air power advantages

7. Air power leverages technology to exploit air domain attributes of speed, range and altitude. Additionally, the characteristics of air power—agility, reach, persistence, resilience and payload—provide a construct to assess and appreciate the relative advantage, or limitations, of air power in an operational context.

8. *Concept ASPIRE* provides theatre-specific context for the application of air power. This presents three Australian opportunities for advantage—geography, allies and partners, and people.

a. **Geography.** Australia's geography and location pose a projection and sustainment challenge to potential adversaries. An integrated force prepared and optimised for air operations across Australia, and throughout the PAMI, gains local advantage. This includes distributed force projection sites and capabilities designed to manoeuvre and project across the region.

b. **Allies and partners.** Relationships, alliances and partnerships provides the ADF opportunities to share information and technology, integrate capabilities and

forces, and gain access, basing and overflight (ABO). Interchangeable technologies and procedures with partners, combined with the agility and reach of air power, enables combined forces to manoeuvre and concentrate in time and space.

c. **People.** The Australian spirit is one of resilience, resourcefulness and adaptability. A shared experience and history of overcoming adversity offer a foundation for integration between the ADF and Australian society. This is particularly important for conducting air operations in remote, austere and potentially degraded locations across the north of Australia.

9. Combining the opportunities afforded by Australia's advantages and air power's characteristics allows the ADF to minimise limitations and challenges. For example, the agility and reach of air power can overcome the challenge of vast distances, particularly when postured and prepared to do so. Additionally, contributions of allies and partners can mitigate air power limitations of persistence. Maximising the potential of Australian air power enhances the effectiveness of an integrated force, particularly when integrated with power from all domains.

10. Air power effects allow the ADF to exploit depth for rapid and agile projection of military effects at a time and place of advantage. *Concept ASPECT* proposes a defence-in-depth philosophy to deny adversary action. This philosophy layers mutually supporting positions to project effects through the air domain. Exploiting depth enables air power to absorb and progressively weaken attack, complicate adversary observation, and allow commanders space and time to manoeuvre an integrated force. It seeks to increase adversary cost of action and conserve time-to-act, as offensive operations tend to lose momentum over time, particularly when executed over a large area.

11. Generating depth across all elements of space, time and posture builds resilience—the ability to withstand, endure and recover from disruption. Exploiting depth enables the ADF to apply air power through the principles of focus, asymmetry and cost imposition. Figure 3 shows the elements of generating and exploiting depth.

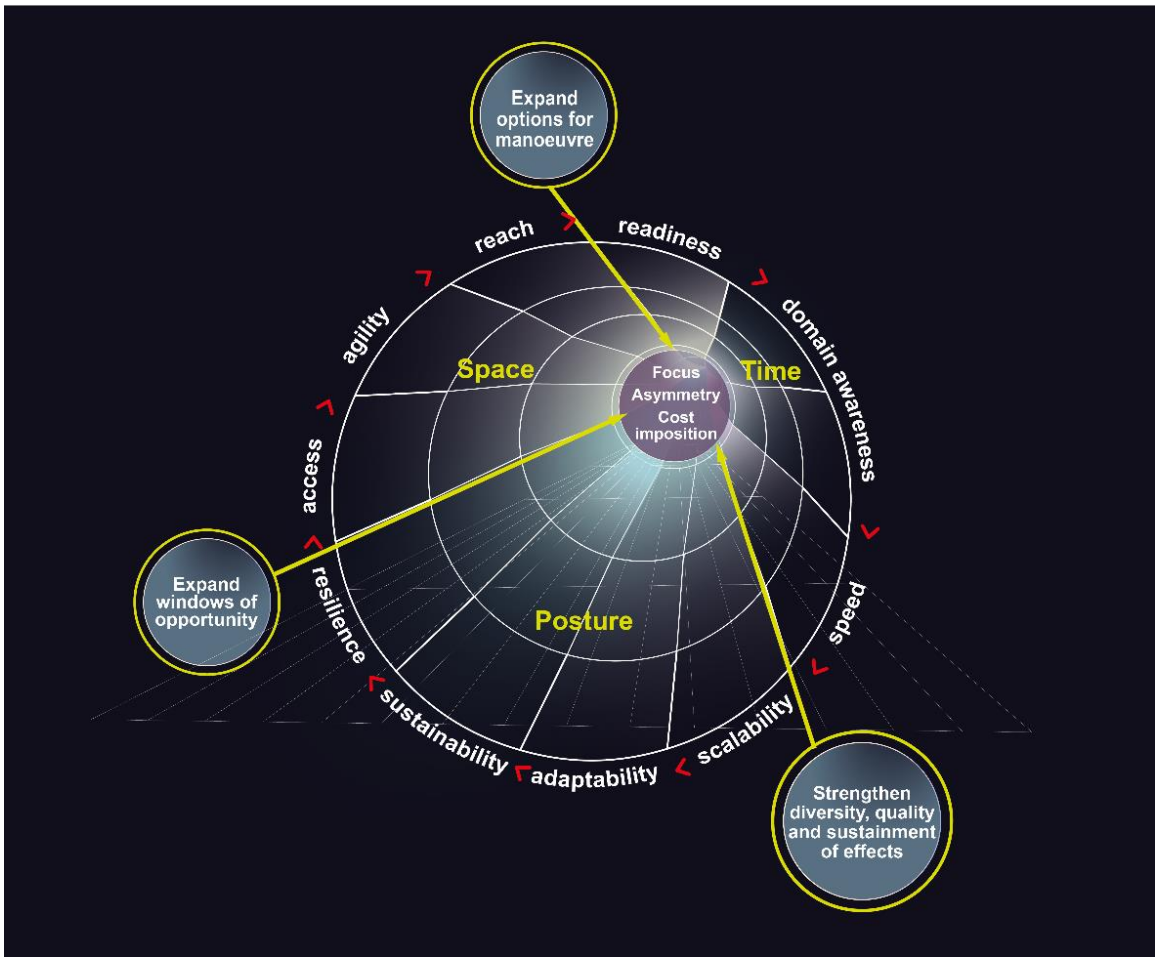

Figure 3: Generating and exploiting depth in space, time and posture

12. The central idea of depth is supported by the following principles:

a. Australian air power will generate depth:

(1) in **space** through air domain access, agility and reach

(2) in **time** through readiness, air domain awareness and speed

(3) in **posture** through resilience, sustainability, adaptability and scalability.

b. Australian air power will exploit depth:

(1) for **focused** effects through understanding, orchestration and manoeuvre

(2) for **asymmetric** effects through adaptation of techniques and technology

(3) for **cost imposition** through deterrence, resilience and sustainability.

Depth in space

13. Depth in space expands options for manoeuvre, mitigates risk and complicates an adversary's cost calculus. Australia's vast and austere landmass enables siting,

dispersal and redundancy through a distributed network of air domain access points. When paired with agility, an integrated force can manoeuvre rapidly, aggregate to focus effects and disaggregate to reconstitute. The capability to support and sustain air operations across a range of potentially dispersed, austere and/or contested locations must adapt to evolving operational requirements and level of acceptable risk. Figure 4 illustrates how the principles of access, agility and reach generate depth in space.

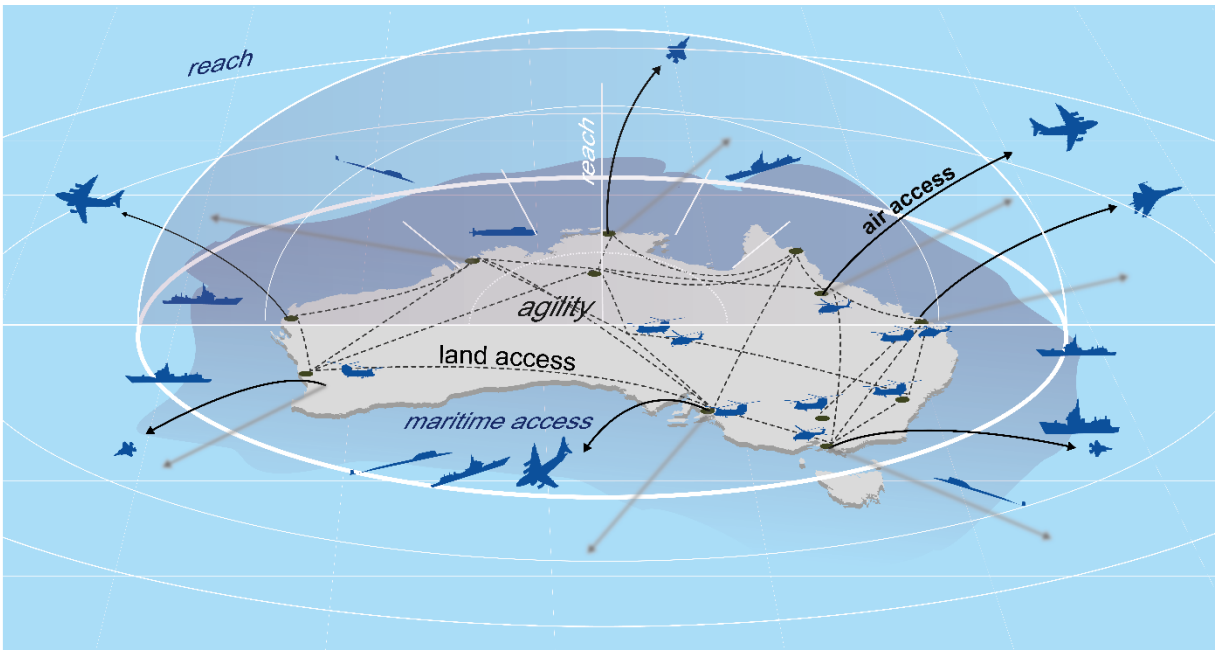

Figure 4: Air domain depth in space

14. **Air domain access.** The ability for aircraft to become airborne, ie access to the air domain, is dependent on physical sites in the land and maritime domains. While vast geography creates the potential for agile manoeuvre, concentrated infrastructure constrains operations to a small number of suitable airfields. Harnessing the full potential of Australia's geography requires identification, improvement and exploitation of infrastructure capable of supporting air power. Similarly, focused capability development emphasising agile employment characteristics will enable agile manoeuvre to exploit all available infrastructure options.

15. Maximising and distributing 'air domain access points'—from large, fixed bases to small transient launch and recovery locations—provides the ADF increased access to the air domain, creates redundancies and enables proactive manoeuvre. Additionally, generating air domain capabilities with a variety of runway independent launch and recovery options (eg roads, ships, other aircraft, catapult systems and

alternative launch and recovery equipment) reduces air power's reliance on fixed and vulnerable infrastructure and minimises single points of failure.

air domain access point

A location in a physical domain that enables the launch and/or recovery of aircraft.

16. Australian geography also enables United States (US) force posture in the region. Substantial US force flow into Australia will stress available infrastructure and constrain the ADF's ability to sustain an agile manoeuvre approach. This will remain dynamic to operational requirements as both ADF and US forces adapt their force postures. Improvement of air domain access in Australia's north will increase capacity and mitigate risk to an agile manoeuvre approach. Suitable active and passive protection of critical infrastructure, such as through integrated air and missile defence (IAMD), is also required to mitigate risk where forces are concentrated.

17. Integration across Australian Government, with Australian aviation industry and international partners, provides opportunities for increased access. Harnessing air power relationships, both within Australia and throughout the region provides the ADF opportunity to maximise air power effects by unlocking and integrating latent capabilities. This enables the ADF to posture air domain capabilities with allies and partners throughout the region.

18. **Agility.** Agility is the ability to move quickly and easily to react to changes in the operational environment. Proactive agility involves the ability to anticipate, prepare for and easily adapt to these changes. A network of air domain access points enables aircraft to manoeuvre rapidly, aggregate to focus effects, and then disaggregate and reconstitute to complicate adversary targeting. This will include operations from dispersed, austere and potentially contested locations within Australia and throughout the primary area of military interest (PAMI). Capitalising on air power's inherent agility requires similarly agile, adaptive and tailored enabling functions. These functions will likely be contested or degraded prior to, and throughout, conflict.

19. Agile air operations will highlight the differentials in speed between aircraft and their supporting ground functions. Synchronising and coordinating air and ground operations will be necessary to empower commanders for agile manoeuvre. This will be reliant on a resilient command, control, communications, computers and intelligence (C4I) system. Proactive agility of information through redundant and prioritised pathways will enable distributed control tasking and reporting in these contested environments.

20. Similarly, logistics and combat support functions require proactive demand signals to prepare a tailored footprint, while remaining adaptive to changing operational requirements. The ability to anticipate logistic options, potentials and constraints well ahead of time is essential to enable and exploit air power agility. Adaptive, distributed and modular approaches to bases (as sites) and basing (as a system) will be required for air domain access points to function as critical fighting nodes. Agile operating constructs will be critical to resilient and sustained air operations in contested environments.

21. **Reach.** Air power's reach at speed allows the ADF to monitor and understand the operating environment, and provides the option to hold an adversary at risk across a broader geographic area. The ADF can maximise reach by increasing the range of aircraft (including with air-to-air refuelling) and integrating crewed and uncrewed aircraft systems (UAS). Air-launched effects into the land and maritime domains exploit the reach and responsiveness of the air domain while harnessing land and maritime domain characteristics (such as persistence or reduced signature). Air-launched effects remaining in the air domain create opportunities to extend, expand and diversify localised air power. A collaborative combat aircraft, for example, can expand the protective envelope of a high-value air or maritime asset while extending its effective reach.

Depth in time

22. Generating depth in time expands windows of opportunity for military action. Air power effects employed with speed can increase the tempo of ADF operations and promote decision superiority. This provides the ability to make and implement informed and accurate decisions at a faster rate than an adversary.

23. Each domain can contribute to 'kill chains'. This system of systems process enables the ADF to find, fix, track, target, engage and assess desired effects against a target. Air power can contribute effects within an integrated kill chain, or close the kill chain autonomously. Ultimately, air power's speed and reach enable the ADF to shorten the time from sense to effect, or to accelerate the kill chain. The ability to apply effects at a moment of choice can mitigate disadvantages, such as force size or technical sophistication.

24. To apply effects with speed, air domain capabilities (and enabling functions) need to be postured, prepared and informed to execute air operations. For example, aircraft must be able to launch (with appropriate awareness, planning and payloads) to initiate air operations. The ADF can also harness air power agility to communicate and demonstrate capabilities and intent. Deliberate actions to shape can influence a

potential adversary to behave cautiously or delay action, further buying time. Figure 5 illustrates the generation of depth in time.

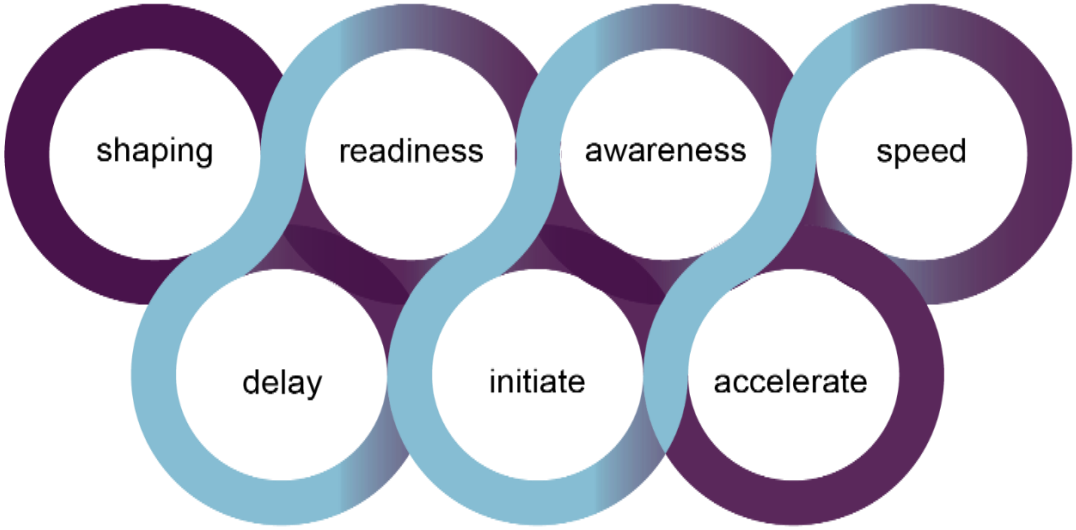

Figure 5: Air domain depth in time

25. **Shaping.** Shaping adversary perceptions is dynamic and persists throughout the competition continuum. Shaping the information environment through the air domain can generate depth in time by influencing potential adversaries to behave more cautiously or predicably. Observation and assessment of air domain capabilities inform risk calculus and may influence the selected course of action. This is central to holding an adversary at risk. A judicious approach to deliberately reveal and conceal desired aspects of ADF air power will build operational advantage, reassure partners and deter adversaries.

26. Managing the ADF's physical, technical and administrative signatures also shapes adversary perceptions. It also maximises survivability and enables operational surprise. Physical signature involves any element of the force that an adversary can observe through geospatial intelligence assets or direct observation. This includes the presence and location of aircraft in parking positions and the loading of specific payloads. Technical signatures are those that can be collected by signals intelligence such as radio frequency transmissions from communications, command and control (C2) or radar systems. They also include specific features of acoustic, chemical or radiation emissions that are detectable by measurement and signature intelligence assets. Finally, administrative signatures are those that an individual or unit creates when conducting planning, movement, contracting or other administrative actions that could be collected by open source, signals or human source intelligence. Masking signatures (eg operations security and camouflage, concealment and

deception) and projecting false signatures (eg decoys and electronic attacks) can contribute to deterring, surprising and confusing adversaries.

27. **Readiness.** Air domain capabilities that are fast, lethal and have a light footprint can serve as an initial response and set conditions for follow-on forces or more enduring elements of national power. These capabilities are equipped and postured to provide immediate, impactful and expeditionary options, as timeliness of action can have a significant effect on outcomes. Ready forces enable the ADF to project and act rapidly. Combined with agility, these forces can minimise threat exposure and manage presence, while demonstrating force generation capability and creating operational ambiguity. Furthermore, the ADF can mitigate the limitations of impermanence by demonstrating persistent and accelerated readiness to act.

28. To ensure readiness to act, air power requires logistic functions to be configured in advance (theatre setting). This means that air power dependencies such as fuel, weapons and airbase operations should be ready at key locations, including non-traditional sites. Options to enhance readiness include adaptable and modular storage, supply and sustainment solutions. Theatre setting is foundational for readiness and a critical logistic requirement to expedite effects.

29. During high-tempo air operations, understanding and communicating operational and logistic demands is essential for synchronising air operations with long lead time force generation, support and sustainment activities. Additionally, areas of logistic interest are geographically broader than air power operating environments. For the air domain, this will require reconfiguration of traditional theatre maintenance arrangements and supply chain configurations. This includes the ability to shift rapidly from 'pull' to 'push' systems at particular air domain access points and for various mission types. Furthermore, the ADF will need to establish and test dynamic transfer points among air domain supply and distribution systems, and a joint expeditionary theatre logistics system.

30. **Air domain awareness.** Awareness provides knowledge and understanding of the environment to promote timely, relevant and accurate assessment and facilitate decision-making. Air domain awareness is the effective understanding of threats associated with the air domain that could affect the security, safety or economy of the nation. It includes how aircraft, weapons and other objects in the air domain are detected, identified, classified and tracked. It also encompasses an understanding of underlying environmental and meteorological factors such as terrain, wind, cloud, rainfall and visibility, and their effects on air operations.

31. Air domain sensors also contribute to awareness of the other domains, such as a maritime patrol aircraft conducting maritime domain awareness activities.

Incorporating sensors that can manoeuvre within cyberspace, the electromagnetic spectrum and the acoustic spectrum can improve fidelity and confidence, particularly in a congested and contested environment. Indeed, responding to adversaries with increased capacities and capabilities requires a smart and resilient network of sensors that can synchronise effects.

32. To generate depth in time, air domain awareness requires wide area coverage and persistence to orchestrate effects at a time and place of advantage. Persistence in the air domain is constrained by the endurance of both aircraft and human operators. To maintain persistence, air domain awareness integrates sensors from other domains, such as a land-based over-the-horizon radar or a maritime air-surveillance radar. Additionally, air power can provide more persistent effects with ultra-long endurance uncrewed aircraft (such as high altitude, solar powered and/or lighter than air vehicles) or by sequencing of assets.

33. **Speed.** Projecting sensors, deciders and effectors with speed expedites the kill chain. Sensing at the point of need, while exploiting the air domain's dynamic physical, operational and temporal characteristics, enhances awareness and optimises collection and targeting. Integration of systems through the space and cyber domains further accelerates data transfer and information flow. The air domain also provides the ability to increase operational tempo quickly and apply kinetic effects. Harnessing and maximising speed enables an integrated force to apply force at a time of transient advantage or adversary weakness.

34. Automation and machine learning presents opportunities to supplant menial, labour-intensive processes, accelerating kill chains and minimising inefficiencies. Enhanced decision-making support will require prioritised collection management, informed risk assessment, and complementary kinetic and non-kinetic response options. Additionally, the complexity and volume of intelligence data will increase exponentially as the quantity and capabilities of air domain sensors increase. To make sense of this, intelligence systems should leverage automation and edge processing to accelerate association, correlation, fusion and targeting. Decentralised and networked nodes with broad access to intelligence data can analyse, exploit and disseminate actionable intelligence when enabled by high capacity, resilient and redundant networks.

Depth in posture

35. Depth in posture leverages resilient and resourceful force generation and preparedness to diversify, focus, mass and sustain effects. However, the force posture

necessary to project and sustain air power is highly particular. It requires careful design and integration with complex sustainment systems and supply chains.

36. Persistent air operations require endurance, capacity and/or tempo that is resource-intensive and will strain an integrated force in protracted conflict. Enhancing sustainment and minimising dependencies will limit adversaries' abilities to disrupt air operations over time. Concurrently, the application of meaningful air power in contested environments requires enhanced protection of air domain capabilities. Figure 6 illustrates how the principles of resilience, scalability, adaptability and sustainability both counters threats and enhances air power effects.

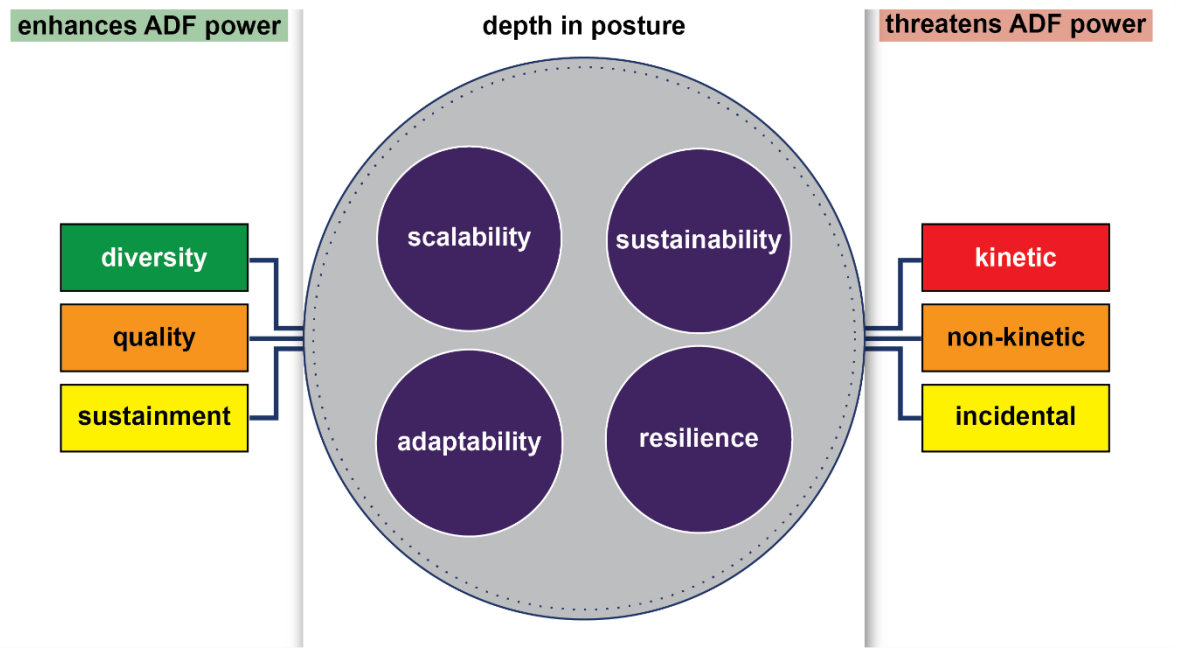

Figure 6: Air domain depth in posture

37. **Resilience.** To prevail through adversity, the ADF must have the ability to regenerate and/or recover critical capabilities amid various levels of degradation. Resilience generates depth in posture by preserving, regenerating and recovering capabilities. Managing air capability risk (both in the air and on the surface) will enhance protection of finite air power resources. The ability to recover fixed infrastructure rapidly and cost-effectively, such as runway repair, both reduces the merit of attack and accelerates air power regeneration. Furthermore, the incorporation of cost-effective, risk-tolerant and expendable uncrewed aircraft (and weapons) minimises human risk.

38. Aircraft survivability incorporates a combination of kinetic and non-kinetic countermeasures, resilient and redundant systems, counter-detection characteristics and defensive operating profiles. Reducing risk not only preserves capability, but also

provides commanders with broader options and thus potential for operational art. Additionally, capabilities that operate with a light footprint can proactively disperse and disaggregate, further complicating adversary decision-making.

39. **Sustainability.** Force application in the air domain is constrained by the quantity and effects of ordnance, weapons and non-kinetic effectors. The ADF requires sufficient strategic reserves of expendables to respond to emerging threats, while establishing assured supply and rapid replenishment capability. Assuring access, supply chain diversity, and sovereign manufacturing of payloads and guided weapons and explosive ordnance (GWEO) will ensure resilience of air power effects. A range of kinetic and non-kinetic effects, to include lower cost munitions, provides options to tailor effects. Additionally, development and employment of diverse and layered effects can create ambiguity, complicate adversary defences and impose costs to respond.

40. **Adaptability.** Resourceful adaptation can create dilemmas and surprise. When focused against vulnerabilities, adaptation of air domain technologies and air power techniques allows the ADF to find and exploit asymmetries. Adaptability and development of effects must prioritise based on the perceived military benefit and such an approach should be responsive to the operational environment. Investment in, development and expansion of multi-role systems can afford operational flexibility and focused mass, but comes with opportunity cost. The benefits of provisioning for expanded and non-traditional roles should consider the costs, including how this affects quality and capacity of existing roles.

41. **Scalability.** In times of need, the ADF may be given more resources (eg funding, aircraft, people) to scale effects. Scalability allows the ADF to rapidly incorporate additional resources into its organisation. In conflict, short notice procurement of large, expensive and foreign sourced aircraft is unlikely. Supplementation with smaller and cheaper air capabilities can provide the ADF scope to scale. Automated, risk-tolerant and expendable aircraft can provide opportunities for rapid generation and regeneration, particularly when manufactured locally. To increase capacity on a relevant time line, it is likely that these aircraft will be comparatively limited in speed, range, payload, tactical effect and mission assurance. Therefore, development and application will require focus to constrain requirement specifications. The ability to field viable but imperfect cost-effective solutions quickly will generate opportunities to iterate, innovate and advance the capabilities required.

42. Australian industrial capacity provides the foundations for an integrated force to adapt and scale air power. Australia's capability to exploit the air domain extends well beyond the ADF as air power is defined as the total strength of a nation's

capability to conduct and influence activities in, through and from the air to achieve its objectives. Developing partnerships with Australia's civil aviation providers and aerospace industry can build latent air power capacity, while empowering rapid technical adaptation and innovation.

43. The ADF could lead the establishment of the national air power enterprise. This represents, but is not limited to, commercial and government air operators, airfields and supporting infrastructure, the design and manufacturing industry, suppliers of consumables, logistics enablers, academia, as well as providers of fundamental inputs to capability.

national air power enterprise

The collective of Defence, aerospace industry, civilian aviation providers and academic organisations that can be integrated to generate national air power.

Exploiting depth

44. *Concept ASPIRE* defines focus, asymmetry and cost imposition as the principles that guide ADF development and application of military power. These principles enable the ADF to maximise military power and overcome size limitations during independent, partnered or multinational operations. The air domain's unique characteristics provide opportunities for an integrated force to undermine an adversary's strengths and willingness to coerce Australia. Proactive orchestration of effects, agile manoeuvre of air domain employment and posture, and resourceful adaptation of tactics and technology exploits depth and enables the core principles of focus, asymmetry and cost imposition.

45. **Focus.** The principle of focus is the act of designing the force and concentrating ADF military power on objectives informed by an understanding of threats within the region. Operational considerations in the air domain, including payload, persistence and precision, inherently require air power to focus for effect. Manoeuvre in space and time and adaptation in posture allows the ADF to prepare concentrated effects while managing the constraints of the national support base. Air domain capabilities will aggregate in time and space for localised windows of military effect. They also require sufficient range, lethality and survivability to deny an adversary. Additionally, the core component of ADF air power must focus on high-end operations in contested environments. Focusing the development of weapon systems and rehearsal of missions on prioritised operations will ensure an agile ADF.

46. **Asymmetry.** The principle of asymmetry is the advantage gained through military actions to which an adversary may not have an effective response. To achieve asymmetric effects, the ADF must apply its strengths against adversary weaknesses. Generating and exploiting depth offers several vectors for air domain asymmetry. An integrated force has experience in lower risk air operations, characterised by highly efficient systems with concentrated and sometimes undefended vulnerabilities. Depth enables the ADF to pivot to a force capable of operating in an environment where an adversary may contest all aspects of air operations.

47. Air power provides the ADF asymmetries through tactics, technology or overmatch. Effective tactics require timely, relevant and high fidelity understanding of an adversary's capability, preparedness and intent. Through proactive adaptation, air power can be orchestrated to apply effects in a time, place or domain of adversary vulnerability. For example, a warship replenishing fuel at sea, a submarine transiting a chokepoint, or a mechanised brigade with minimal air defences. Localised and periodic air domain control with a sustainable force generation tempo can provide asymmetric advantages when implemented in a multi-domain scheme of manoeuvre. Considered actions, such as the deliberate shaping of the information environment through signature management, can also confuse or deceive an adversary.

48. The ADF's ability to maintain relative technological advantages is in constant flux as new offensive systems are developed and defensive systems adapt. It is only by embracing adaptability—and collaboration with industry, academia and multinational partners—that air domain effects can continue to technically evolve and maintain advantage over threats. However, limited resources require the ADF to identify and prioritise asymmetric technologies with the greatest effect in the shortest time. The ADF will not achieve unilateral overmatch of mass against larger adversaries. Rather, relationships, partnerships and alliances expand opportunities for manoeuvre to further collective interests. Such collaborations can generate scalable, cost-effective and rapidly produced aircraft and payloads that complement exquisite capabilities for localised and temporal asymmetry.

49. **Cost imposition.** The principle of cost imposition refers to the actions taken that impose costs on an actor (or actors) pursuing ends contrary to Australia's interests, such that they are deterred from initiating—or compelled into stopping—planned activities. Exploiting depth increases resilience and resistance to coercion and necessitates significantly more adversary resources to delay, disrupt or destroy a force. The ADF's ability to continue generating and sustaining air power in heavily contested environments reduces the benefits of adversary action. It can require adversaries to use more resources, particularly if forced to project over great distances.

50. Although highly desirable, cost imposition does not necessarily require the relative costs to be in the ADF's favour. The generation and exploitation of depth is costly, particularly in remote and austere environments. Optimising to project air power from Australia's north requires significant resource investment. Exploiting depth can impose cost by disrupting the adversary with cost-effective assets (including expendable and risk-tolerant aircraft and payloads) to elicit a costly response. Agile manoeuvre also increases adversary cost, as any action will require expensive and limited long-range, high-speed and increased-lethality effectors to achieve desired results.

Chapter 3 –
Application and implementation

Air domain capabilities

1. Implementing *Concept ASPECT: Australian Defence Force Air Domain Concept* requires an understanding of Australian Defence Force (ADF) capabilities and how they are generated in the air domain. Capability is the power to achieve a desired operational effect in a nominated environment within a specified time, and to sustain that effect for a designated period. It is more than just an aircraft type or weapon system. The ADF generates capability by combining fundamental inputs to capability (FIC) to achieve an operational effect in support of strategic objectives. Generating and exploiting depth is as relevant to organisation, collective training and industry as it is to aircraft (major systems) and support.

2. To maximise the effectiveness of air power an integrated force must prioritise activities to focus the available resources. Air power's agility allows the commander to employ systems that shift quickly from contributing one desired effect (ie capability) to another, with some systems able to support multiple efforts simultaneously. Therefore, planners tailor combinations of aircraft, payloads and personnel into effects-based force packages. The target, threat, desired effects and operating environment dictate the size, complexity and integration requirements for each force package. Theatre requirements dictate that planners also consider the impact of capacity limitations and concurrency pressures for assets employed across multiple missions. Effects-based planning allows the commander options for more efficient prioritisation and apportionment across a theatre.

3. **Risk.** Air operations always involve risk. Capability developers, operational planners and commanders must understand, consider and manage various interdependent forms of risk. Military risk is the estimated probability and consequence of the ADF's inability to achieve current or future military objectives (risk to mission), while providing and sustaining sufficient military resources (risk to force). Tactics and plans that increase the probability of mission success generally increase the probability of loss. This is dependent on the mission requirements, threat environment and capabilities within the force package. An agile force therefore needs to intuitively understand and manage the risk of executing air operations within the commander's acceptable level of risk. Reducing both risk to mission and risk to force requires the apportionment of more assets to enhance force package lethality and survivability. Figure 7 depicts this relationship. Furthermore,

capability development that increases the lethality and survivability of aircraft and weapons provides the commander with options of lower risk and greater effectiveness.

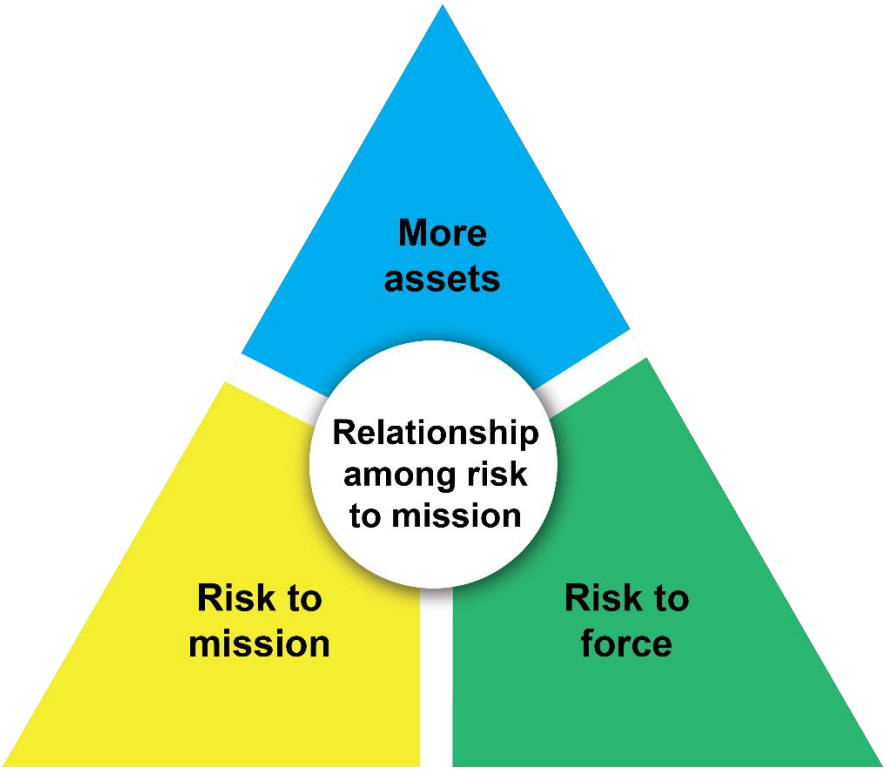

Figure 7: Relationship among risk to mission, risk to force and asset apportionment

Air power practitioners

4. Regardless of the rapid advancement of technology, air operations are critically dependent on personnel—those members that generate and employ air power. An integrated force requires highly skilled, technologically proficient and air-minded personnel to command, manage and operate the advanced capabilities of the future. The future operating environment will be highly contested, requiring leaders and followers to act decisively with gaps of information and without detailed direction. Mission command is a central component of air operations and requires informed and empowered leaders at all levels.

5. The changing character of armed conflict requires air power practitioners ready to project agile air power. This is not just being flexible and responsive. The Strategy of Denial requires proactive action through readiness, orchestration and manoeuvre. Future air operations will be challenging due to a complex and uncertain operating environment. Preparing air power practitioners for this future requires deliberate, continuous and focused education to provide necessary skills, knowledge and

attitudes. For example, operations across Australia's north and throughout the primary area of military interest (PAMI) will encounter remote, austere and harsh environments. Educating personnel for these environments and fostering resourcefulness will enable ADF air operations to thrive in otherwise challenging situations. Additionally, increasing interdependencies of the warfighting domains and information environment requires members to be multi-domain and information aware. Understanding the implications of multi-domain effects (such as how a denial-of-service cyber attack may affect their maintenance system) builds individual resilience through increased threat detection, mitigation and exploitation.

6. **Integrated training.** Integration is neither intuitive nor automatic. The ADF must therefore rehearse and exercise complex and integrated force packages. This will identify gaps and opportunities, and address integration friction points. Integrating enabling functions with air operations during realistic training will ensure that operational and logistic support is fit for purpose. Unified, focused, prioritised and meaningful force generation activities, including with allies and partners, and in realistic operating environments, will instil an 'integration reflex' in individuals and teams.

7. Sophisticated air domain capabilities are challenging to emulate. Operators of high-cost, low-inventory aircraft and payloads should leverage realistic virtual and simulated environments to accelerate and enhance professional mastery. Equally, maintainers, logisticians, sustainment personnel and other enablers should capitalise on investments in common architecture simulation programs to allow increased training opportunities to maintain skills. Developing an integrated simulated ecosystem for air domain training will be complementary to live and integrated training.

8. Technological advances will continue to accelerate the need for commensurate increases in effective air power training and proficiency. The ADF can gain advantage by prudently embracing advancements in automation, machine learning and human-machine teaming. Automation and machine learning can ease the burden of future data processing, analysis and inputs. While recognising the need for basic technical expertise, formal training should generate increased proficiency in management and orchestration of automated and AI-driven systems. This necessitates the development of ethical and critical application of systems effects and technical proficiency in operating systems.

9. **Human performance.** The ADF requires a robust and comprehensive human support system. The development of complex multi-domain skills requires dedicated time and resources. Recruiting, developing and retaining high quality talent yields a

distinct advantage, as air power is dependent on humans and their performance. Hence, enhancing physical health, mental wellbeing and cognitive aptitude are critical. This extends to mentored personal and professional development, tailored career management and family support.

Air domain capability considerations

10. An integrated force develops and employs specialised capabilities to deliver effects to and through the air domain across theatre missions. These capabilities enable air power roles that maximise effect when fully integrated across all levels, domains, settings and forms. This leads to the following general and non-exhaustive specific considerations for Australian air power:

a. Air domain access including airbase operations functions at traditional and non-traditional locations. Considerations include:

   (1) surface survivability and runway independence

   (2) northern base clustering

   (3) expeditionary air operations

   (4) dispersed storage and delivery networks.

b. Command and control (C2) for agile air operations and integrated air and missile defence (IAMD). Considerations include:

   (1) agile command, control, communications, computers and intelligence

   (2) common operating picture

   (3) agile air battle management.

c. Intelligence, surveillance and reconnaissance (ISR) within an enhanced integrated targeting capability. Considerations include:

   (1) integrated intelligence

   (2) airborne collection

   (3) penetrating ISR

   (4) advanced sensors

   (5) processing, exploitation and dissemination.

d. Counter air (as a central element of IAMD) with a focus on crewed and autonomous systems for air defence. Considerations include:
    (1) family of air-to-air missiles
    (2) suppression of enemy air defences
    (3) electronic warfare (EW)
    (4) collaborative combat aircraft
    (5) counter-hypersonic and missile defence.
e. Strike including contributions to enhanced long-range multi-domain strike. Considerations include:
    (1) high-speed missiles
    (2) low-cost effectors
    (3) manoeuvring target engagement
    (4) maritime strike
    (5) non-kinetic effects.
f. Anti-submarine warfare (ASW) as a unique function of ISR and strike contributing to undersea warfare (USW). Considerations include:
    (1) countering submarines
    (2) expanded undersea warfare.
g. Air mobility covering air-to-air refuelling, airlift and rotary wing aviation, integrated with the joint expeditionary theatre logistics system.
    (1) air-to-air refuelling
    (2) autonomous tactical air mobility
    (3) strategic air mobility
    (4) precise and survivable air drop
    (5) palletised effects
    (6) aeromedical evacuation.
h. Personnel recovery for airborne search, survivor supply and rescue. Considerations include:
    (1) enhanced survival life support systems
    (2) passive/active survivor detection and location
    (3) enhanced air domain recovery access
    (4) autonomous combat search and rescue.

Theatre missions

11. *Concept ASPIRE* describes how the ADF will employ military power in specific theatres through the principles of focus, asymmetry and cost imposition. The broad theatre missions captured in *Concept ASPIRE* highlight the enduring need and desire to work with others for collective security. Although the missions are discrete, the ADF may be required to execute elements of each of these missions simultaneously. The scale, scope, concurrency and intensity of each mission will vary as the strategic context changes and policy directs. The ADF's challenge is to apply military power across these missions in an integrated way that maximises military effects. This will generate cumulative benefits to realise the ADF's role in the Defence mission: to defend Australia and its national interests.

Integrating concepts

12. The integrating concepts define how capabilities come together and what abilities the ADF requires to achieve the key functions. Air domain capabilities contribute to, and are dependent on, each of the integrated functions.

a. Command and control, communications and computers, and intelligence, surveillance, reconnaissance and electronic warfare (C4ISREW) is foundational for enabling air power and unifying the functions of warfighting. It consists of several dimensions—command and control (C2), communications and computers, intelligence, surveillance and reconnaissance (ISR), and electronic warfare (EW). Integrated communications, networks and datalinks are critical for orchestrating and executing an air domain, or multi-domain, force package. In addition to air domain contributions of sensors, deciders and effectors to the C4ISREW network, orchestrating activities in and through the air domain generates unique requirements on the C4ISREW system.

b. Integrated air and missile defence (IAMD) identifies layers of activity to deny adversary air power the ability to interfere with ADF operations in all physical domains. The layers of activity include counter-proliferation, deterrence, counterforce, active defence and passive defence. As a range of air and missile threats can originate in the air, land, maritime (surface or undersea) and space domains, a suite of effects across the IAMD spectrum is required. Hardening airbases, managing signatures and assuring resilience (through agile manoeuvre and robust, redundant systems) are key air domain activities for passive defence. Air C2 and air ISR contribute key components of understanding the threats and orchestrating an IAMD response, while strike contributes elements of counter force. Counter air enables localised and

periodic air superiority to contribute kinetic and non-kinetic counterforce against aircraft and active defence against missiles.

c. Integrated international engagement is key to enhancing connection with our regional partners and allies in the pursuit of common goals. Air power is dependent on access, basing and overflight (ABO) of international partners to generate depth. Building credibility, trust and familiarity across all air domain activities builds and strengthens interoperability. It allows the ADF, partners and allies to integrate meaningful contributions to further our collective interests.

d. Logistics and health are crucial for sustained air operations and as a deterrent measure in its own right. Generating and sustaining effects in the air requires assured supply of aircraft consumables (eg fuel, weapons and spare parts) in addition to enabling and support systems. Air domain capabilities—especially fixed wing—are anchored in networked airbase logistics and systems. This demands a distinct form of systems' control and management at the base level to ensure the timely and effective launch of aircraft. It is distinct from the other domains. Understanding and managing the support and sustainment constraints of the national support base and Defence logistics network will be necessary to underpin the capacity to manoeuvre in space and time and sustain an adaptive posture for concentrated effects. Access to health services is essential for maintaining physical and mental performance, particularly in conflict operations and adverse environments where casualties are inevitable. Air mobility, including rotary wing aviation, provides the ability to transport materiel and medical services rapidly at range, but with relatively limited capacity.

e. Multi-domain strike is the orchestration of effectors from two or more domains to strike a target. Air domain strike contributes swift, decisive and precise lethal and non-lethal effects, whether executed solely within the air domain or as an integrated strike across multiple domains. C2 is an essential enabler for orchestrating and deconflicting fires in and through the air domain. Long-range strike involves targets outside of organic sensor range and requires multi-domain integration to complete the find, fix, track, target, engage and assess (F2T2EA) kill chain.

f. Special operations (SO) are military activities conducted by specially designated, organised, trained and equipped forces using distinct techniques and modes of employment. SO forces shape the environment and provide intimate understanding to focus air domain effects, including ISR and precision strike. Conversely, the air domain enables broader situational understanding through

small organic uncrewed aircraft systems (UAS) and larger ISR aircraft. Air mobility also enables rapid force projection, at range, for SO forces.

g. Targeting is an essential component of strike. It incorporates numerous activities including target development, weaponeering and damage assessment. Airborne ISR and the intelligence enterprise are critical in orchestrating a deliberate strike into any domain, while dynamic and time sensitive targets can be refined and engaged independently from the air.

h. Undersea warfare (USW) leverages the opaque nature of the undersea environment to project effects and deny an adversary access in the maritime domain. It incorporates strike, mine warfare, maritime patrol and response, SO, submarine and anti-submarine warfare (ASW) and ISR. Air domain ASW is both an ISR and a strike function that seeks to deny an adversary effective use of their submarines. The air domain requires cuing from persistent undersea sensing in other domains to contribute rapid, focused and lethal ASW and other USW effects at range. It can project and deploy effects into the undersea environment including to the subsea and seabed.

Chapter 4 – Conclusion

1. *Concept ASPECT: Australian Defence Force Air Domain Concept* describes how Australian air power contributes to an integrated force in support of a Strategy of Denial. The air domain enables the Australian Defence Force (ADF) to project power quickly and over long distances. Although relatively limited in mass, the agility and precision of air power enables the ADF to focus effects at a time and place of advantage.

2. Australia's geography, allies and partners, and people provide unique opportunities for the ADF to develop, employ and sustain air power. Generating and exploiting depth is an Australian approach to air power that capitalises on unlocking these opportunities. It builds resilience to disruption and increases the capacity to sustain air power in protracted competition, crisis and conflict.

3. *Concept ASPECT* guides ongoing force design and ADF operation to maximise air power effects. The ideas outlined throughout this concept require action within and beyond the ADF. To enact these ideas, Table 1 below groups key deductions under the three elements of depth.

4. Air power does not exist in isolation. Integrating across domains and functions allows the ADF to find and exploit opportunities, while mitigating limitations of operating in each domain. However, integration is neither intuitive nor automatic. It requires a deliberate and sustained effort across the human, procedural and technical dimensions. Furthermore, continuous campaigning requires the effects within each domain to align and focus on an integrated force's desired effects.

Table 1: *Concept ASPECT* deductions

Concept ASPECT		
Depth in space	Depth in time	Depth in posture
1. Maximise and distribute air domain access points 2. Leverage international partners for access, basing and overflight 3. Reduce dependence on traditional airbases 4. Enable and employ agile operations 5. Operate with distributed control 6. Maximise reach	7. Shape to delay and deter 8. Ensure readiness to deploy and execute 9. Prepare assured supply and support systems 10. Maintain persistent air domain awareness 11. Exploit speed to accelerate the kill chain 12. Harness automation to accelerate processes	13. Regenerate and recover critical capabilities 14. Protect exquisite assets 15. Employ complementary uncrewed and lower-cost systems 16. Sustain enduring air operations 17. Adapt technology and techniques for advantage 18. Scale effects through a national air power enterprise

Glossary

The source for approved Defence terms, definitions and abbreviations is the Australian Defence Glossary (ADG), available on the Defence Protected Environment at http://adg.dpe.protected.mil.au. Note: The ADG is updated periodically and should be consulted to review any amendments to the data in this glossary.

Terms and definitions

agility

The ability to move quickly and easily to react to changes in the operational environment.

Note: Agility encompasses the ability to transition responsively and flexibly between tasks.

air domain

The envelope of air surrounding the Earth, where density, pressure, temperature, natural obstacles and weather systems are the dominant environmental factors.

air domain access point

A location in a physical domain that enables the launch and/or recovery of aircraft.

air power

The total strength of a nation's capability to conduct and influence activities in, through and from the air to achieve its objectives.

aircraft

Any machine or craft, including an uncrewed machine or an uncrewed craft, that can derive support in the atmosphere from the reaction of air, other than reactions of the air against the Earth's surface.

asymmetry

Advantage gained through military actions to which an adversary may not have an effective response.

autonomous collaborative platform (ACP)

Any uncrewed vehicle that is primarily controlled by on board autonomy and/or artificial intelligence software systems.

capability

The power to achieve a desired operational effect in a nominated environment within a specified time, and to sustain that effect for a designated period.

Note: In a military context, capability is achieved by developing a force structure appropriately prepared for a range of military operations.

effector

Systems that stimulate the environment to produce an effect.

Note: 'Stimulate the environment' includes kinetic, non-kinetic and manoeuvre for deconfliction.

electronic warfare (EW)

Military action to exploit the electromagnetic spectrum, encompassing the search for, interception and identification of electromagnetic emissions; the employment of electromagnetic energy, including directed energy, to reduce or prevent hostile use of the electromagnetic spectrum; and actions to ensure its effective use by friendly forces.

force posture

Encompasses where the Australian Defence Force's units, facilities, and support elements are located, the capabilities (equipment and the force structure) that can be deployed at short notice, the quality of training facilities and bases, the ability of our personnel to sustain high-tempo operations and connectedness with partners, allies and industry to achieve intended objectives during war and peace.

fundamental inputs to capability

A standard checklist designed to report on all of the inputs that enable the effective and ongoing generation of Defence capabilities.

Notes:

1. The nine fundamental inputs to capability are: organisation, command and management, personnel, collective training, major systems, facilities and training areas, supplies, support and industry.

2. In line with the generic definition of Defence capability, the fundamental inputs to capability can be used as an aid to management at all levels of Defence.

information environment

The aggregate of individuals, organisations or systems that collect, process or disseminate information.

Note: It also includes the information itself.

intelligence, surveillance and reconnaissance (ISR)

An activity that synchronises and integrates the direction, planning and operation of collection capabilities and actions, and of processing, exploitation and dissemination systems.

kill chain

A system of systems process path used to find, fix, track, target, engage and access desired effects against a target.

manoeuvre

Employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the adversary in order to accomplish the mission.

mass

The concentration of combat power.

national air power enterprise

The collective of Defence, aerospace industry, civilian aviation providers and academic organisations that can be integrated to generate national air power.

payload

The mission specific sensors, weapons, electronic warfare systems, people and cargo that is carried, operated and/or delivered by an aviation system.

persistence

The ability of Defence elements to maintain an enduring effect within an area of operations.

Note: This can be by the continued existence of the Defence element within the area, or by the continuance of an effect through revisiting the objective.

reach

The distance over which a military capability or system can contribute to desired effects.

readiness

The ability of a capability or force to be applied to a specific activity within a nominated time frame, for a specified period of time, to achieve a desired effect.

Note: It assumes the availability of appropriate competencies and other fundamental inputs to capability to manage an acceptable level of risk.

resilience

Adaptive capacity of an entity to resist being affected by a risk event, to maintain vital functions and to return to normal condition as rapidly as possible.

responsiveness

Ability to exploit speed, range and altitude to be able to rapidly contribute to the desired effects.

sensor

An equipment which detects, and may indicate, and/or record objects and activities by means of energy or particles emitted, reflected, or modified by objects.

space domain

The environment corresponding to space where radiation, charged particles, electric and magnetic fields, vacuum, micro-meteoroids and orbital debris are the dominant environmental factors.

uncrewed aircraft system (UAS)

A system that encompasses one or more remotely piloted or autonomous aircraft, the launch and recovery system, the command, control and communications system, the ground controller and the information it disseminates.

weaponeering

The process of determining the quantity of a specific type of kinetic or non-kinetic means required to achieve a desired effect on a target, considering target vulnerability, weapons effect, munitions delivery accuracy, damage criteria, probability of kill and reliability of engagement means.

Shortened forms of words

ABO	access, basing and overflight
ASW	anti-submarine warfare
ACP	autonomous collaborative platform
C2	command and control
C4ISREW	command and control, communications and computers, and intelligence, surveillance, reconnaissance and electronic warfare
EW	electronic warfare
ISR	intelligence, surveillance and reconnaissance
IAMD	integrated air and missile defence
PAMI	primary area of military interest
PED	processing, exploitation and dissemination
UAS	uncrewed aircraft system
USW	undersea warfare

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