The Northern Engine:

Building Australia's northern national defence ecosystem

REPORT

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Executive summary

This report outlines the need for a 'Northern Engine' in policy and practice, which reflects an acknowledgement that northern Australia will determine whether Australia's defence strategy is credible. The report sets out why this choice is not theoretical, but operational, immediate and unavoidable.

For more than a decade, Australia's major defence documents have been unequivocal. The 2016 Defence White Paper,[1] the 2020 Defence Strategic Update,[2] the 2023 Defence Strategic Review (DSR)[3] and the 2024 National Defence Strategy (NDS)[4] all identify northern Australia as the decisive geography for deterrence and denial. Yet clarity of strategy hasn't translated into execution. Australia hasn't built a northern posture capable of delivering the strategy it now espouses. The result is an increasingly consequential gap between strategic ambition and operational reality.

This report argues that Australia's core problem in the north is no longer conceptual but structural.

Deterrence isn't delivered by bases alone. It's delivered through systems: logistics, sustainment, industrial capacity, infrastructure, energy, data, training and allied integration. Geography becomes strategic advantage only when those systems converge and function as a coherent operating environment. Northern Australia must become the place where that convergence occurs. Until it does, Australia will continue to underperform against its own strategy.

At first glance, Australia's force posture in the north appears intact. Mechanised and aviation capabilities do remain in northern Australia, increasingly concentrated in north Queensland. That capability is important, as it's positioned primarily for Pacific campaigning. North Queensland offers clear advantages for forward engagement and Pacific operations. However, it doesn't take away the need for sustained defence, support and regeneration of forces across the broader northern arc.

The cumulative effect of successive posture and basing decisions has been to leave fewer enduring capabilities in the Northern Territory—the geography that anchors Australia's continental defence, western and northern approaches, and allied force integration at scale. And, while the 2023 DSR outlined a shift from a 'balanced force' to a 'focused' one, the key is effectiveness, and that requires a balanced northern system capable of continuous forward sustainment rather than the current posture, which is optimised for episodic deployment.

The result is a hollowing out of the Northern Territory's defence ecosystem. As capabilities concentrate elsewhere, so too do investment signals, workforce pipelines, sustainment contracts and industrial confidence. The Northern Territory increasingly hosts activity without anchoring capability, training without permanence, access without mass, and infrastructure without the industrial depth needed to support sustained operations at scale.

Those outcomes weren't the product of a single decision or a deliberate retreat. They're the cumulative consequence of incremental optimisation choices made without an overarching systems view. And the strategic effect is an erosion of Australia's ability to operate, sustain and regenerate combat power forward, particularly from the continent's most strategically exposed geography, at precisely the moment when endurance, resilience and recovery capacity matter most.

At the same time, the US has moved decisively in the opposite direction. Through the US Force Posture Initiatives (USFPIs), Washington has invested heavily in fuel resilience, training areas, bases and airfield infrastructure across northern Australia. Those investments are operational, not symbolic. They reflect a clear US judgement that the north is foundational to allied deterrence and Indo-Pacific stability. Recent AUSMIN outcomes reinforce that this momentum is accelerating, not slowing.

The consequence is a growing posture asymmetry. The US is building a functioning operating ecosystem in northern Australia while Australia risks becoming a secondary user of its own strategic geography. If left uncorrected, that trajectory undermines sovereign resilience, weakens deterrence credibility and risks turning alliance integration into dependence rather than partnership.

The drift also carries economic and industrial consequences. A denial strategy requires scalable forward sustainment, repair, maintenance and regeneration inside the theatre of operations. Industry can't scale when the Defence organisation's demand is unstable, basing decisions lack clarity, and capabilities are quietly withdrawn. Workforce pipelines weaken, investment stalls and supply chains remain shallow. With Defence accounting for more than 8% of the Northern Territory's gross product, that volatility creates responsibilities as well as risks. Defence isn't merely a security actor in the north; it's a structural economic stakeholder.

History reinforces the lesson. During the Korean War, the US learned that long internal lines of communication slowed tempo, strained logistics and eroded resilience. Shortening supply chains and pushing sustainment forward became a strategic necessity. That logic is even more compelling today. Northern Australia is the only geography through which Australia can meaningfully shorten its internal lines of communication to the Indo-Pacific.

Of course, this challenge must be met under fiscal constraint. Defence can't build the required posture through traditional capital programs alone. New delivery models are essential: public–private partnerships, multi-user facilities, co-investment aligned with other federal government priorities, and infrastructure designed from the outset to serve defence, industry and regional resilience simultaneously. The Defence organisation should act as a partner in national development, not merely a tenant.

To resolve the mismatch between strategy and posture, this report introduces a new organising concept: the Northern Engine. It moves beyond base-centric thinking and reframes northern Australia as a national operating system with four interconnected functions:

1. Launching and lodging forces
2. Sustaining, repairing and regenerating them
3. Testing, integrating and accelerating future capabilities
4. Connecting southern industrial mass to allies and partners across the Indo-Pacific.

Australia's upcoming 2026 National Defence Strategy will confront this reality. To do so effectively, it should address capability imbalance, logistics fragility, industrial hollowing and governance failure, and set out an executable pathway for building the Northern Engine. This report explains why that task can no longer be deferred—and what failure to act would mean.

Key findings

- Northern Australia isn't yet the credible or resilient operating system that Australia's denial strategy requires. Despite strong strategic intent in the DSR and NDS, the north remains a patchwork of bases, infrastructure upgrades and allied investments rather than a fully integrated Australian-led posture.
- The conceptual shift from a 'Forward Operating Base North' to the broader 'Northern Engine' is essential. Australia can't meet its strategic ambition through project-by-project investments and needs an operating system that integrates force projection, sustainment, innovation and industry into a single coherent framework.
- Key enablers remain thin, fragmented or misaligned. Fuel and munitions depth, data and energy resilience, logistics corridors, sustainment capacity, warehousing, workforce and housing all fall short of the levels required to support high-tempo operations or absorb battle damage.
- Personnel numbers tell only part of the story. A slow, long-term drift of capabilities south—mechanised forces, army aviation, ambiguity over amphibious posture, and uncertainty in the Navy's northern basing profile—has weakened both the ADF's ability to operate, sustain and regenerate forces in the theatre that matters most and the industry capacity to support them.
- The US has recognised and acted upon the significance of the Northern Territory for defence, and the divergence between the expanding US presence and the contracting ADF presence is strategically consequential. As the US deepens its reliance on northern Australia for operational access and logistics, Australia risks lacking the sovereign capability and infrastructure needed to match, integrate with or sustain allied tempo.
- Australia lacks a published 'northern theatre logistics concept of operations'. This is a significant barrier to industry mobilisation, private capital investment, and Defence's ability to sequence posture, infrastructure and sustainment planning.
- Industry in the north can't scale without a consistent and predictable Defence presence. A sustainable sovereign industrial ecosystem requires clarity of basing, clarity of capability, and a stable demand signal for repair, maintenance, supply and workforce development.
- Defence represents more than 8% of the Northern Territory economy and a significant share of economic activity in northern Queensland and Western Australia, so Defence is needed as a responsible and reliable economic partner. Sudden capability relocations or unclear posture plans erode local industry confidence and distort long-term planning.

Without immediate action, Darwin risks becoming the centrepiece of US regional posture rather than an integrated Australian-led operating hub. That may reduce sovereign resilience and complicate national command in crisis or conflict.

Australia's strategic geography is an unmatched national asset—but only if the north functions as an engine rather than a frontier. The DSR and NDS provide aligned frameworks; what's missing is the coherent implementation needed to convert geography into operational advantage. That should be addressed in the 2026 National Defence Strategy.

Recommendations

1. Develop and publish a Northern Theatre Logistics and Basing Concept of Operations (CONOPS).

   The federal government should prioritise the development and publication of a theatre-level CONOPS for northern Australia on logistics and basing. That document should define the roles of key bases, logistics flows across land, air and maritime domains, sustainment hubs, stockpile depth requirements, and the framework for allied integration. Without that blueprint, infrastructure investment, industry planning and allied posture will continue to develop in parallel rather than as a coherent operating system.

2. Establish a Northern Defence and Infrastructure Delivery Authority.

   Australia should create a dedicated coordination mechanism—virtual or statutory—bringing together the Commonwealth, the Northern Territory, Queensland and Western Australia. That body should be responsible for sequencing and integrating defence-critical infrastructure, industry development, housing and key enablers. Fragmented governance is now a strategic vulnerability that must be addressed through shared oversight and delivery.

3. Formally designate Darwin as Australia's primary littoral manoeuvre hub.

   The Army's emerging littoral force design requires a clear northern anchor. The federal government should formally confirm Darwin as the centre of gravity for littoral manoeuvre, supported by amphibious staging areas, hardened facilities, integrated logistics hubs and deliberate industry partnerships. Geographical ambiguity is incompatible with credible force design.

4. Fully develop the Darwin Maritime Sustainment Precinct as a national asset.

   The federal government should integrate RAN northern facilities, the Darwin Ship Lift, the Marine Industry Park, Australian Border Force (ABF) sustainment and allied users into a single maritime sustainment ecosystem. This requires multi-decade maintenance and sustainment commitments to provide industry with demand certainty and workforce stability.

5. Expand fuel and munitions storage across northern Australia.

   Fuel and munitions infrastructure must be increased in depth, dispersion and hardening. Investment should prioritise survivability, redundancy and surge capacity rather than minimum peacetime efficiency. Endurance is central to denial strategy, and thin stockpiles undermine deterrence.

6. Establish a sovereign test and evaluation precinct in northern Australia.

   Australia should implement a northern test and evaluation ecosystem, including instrumented corridors, live-virtual-constructive training, autonomous systems testing and mission rehearsal. That would accelerate capability development, strengthen allied integration and exploit the north's unique geography and airspace.

7. Implement a Northern Strategic Workforce Agreement between Defence and the Northern Territory Government.

   Workforce constraints should be addressed through a coordinated agreement that treats housing, health care, childcare, spouse employment and training pathways as strategic enablers. Defence posture can't grow or be sustained without a stable population base capable of supporting a long-term presence.

8. Designate the Adelaide–Darwin and Brisbane–Townsville corridors as defence-critical infrastructure.

   Those corridors should be formally recognised as national defence arteries. Investment in redundancy, climate resilience, cybersecurity and logistics hubs should be delivered through dual-use national-security funding models that reflect their economic and strategic importance.

9. Prioritise resilient power, water and data infrastructure at, and to, all northern bases.

   Hardened, redundant and cybersecure power, water and data systems should support each northern base and sustainment node. Without those enablers, posture upgrades won't translate into operational readiness under stress.

10. Integrate allied posture as a core component of the Northern Engine.

    USFPIs and expanding partner engagement should be synchronised with Australian operational planning to strengthen sovereign capability. Growth in allied rotations, including the Marine Rotational Force – Darwin, should be deliberately leveraged to build shared sustainment, logistics and training systems anchored in Australian leadership.

Background

Northern Australia has always been central to the nation's security, but the speed and scale of recent strategic change have elevated its importance to a level not seen since World War II. It's the geography through which Australia connects to the Indo-Pacific (Figure 1), the region most exposed to coercive pressure, and the only part of the continent from which Australia can credibly project and sustain joint and allied military operations into Southeast Asia

Despite that enduring strategic reality, successive waves of policy ambition haven't produced the integrated northern operating system that Australia's circumstances demand. Across decades of white papers, defence updates and posture commitments, progress has been uneven. Periods of strong intent have been followed by organisational drift, leaving northern Australia as a patchwork of bases, infrastructure projects and isolated capability announcements rather than a coherent national system. ASPI's earlier Northern Australia work on the 'drift to the south' has highlighted how institutional habits and southern consolidation repeatedly weakened Defence's presence in the North.[5]

Figure 1: Northern Australia's geographical connections

Source: iStock/PeterHermesFurian, online.

In contrast, the US has expanded its posture in the north with clarity, sequencing and delivery discipline. Investments under the USFPIs have transformed key training areas, enhanced fuel and logistics infrastructure and improved the operational readiness of forward air and maritime elements. That creates a widening asymmetry: the allied posture is accelerating, while Australia's own posture remains constrained and, at times, is contracting.

Industrial and economic realities further shape northern Australia's strategic utility. Sustainment, repair and regeneration can't be achieved without a scalable industrial presence in the north—one built on predictable demand, forward-based capability and integrated planning. Yet industry signals remain inconsistent, limiting private investment and weakening workforce development pipelines. Long internal supply lines further reduce resilience; as historical experience shows, distant sustainment slows tempo and strains logistics, while forward repair and supply shorten decision cycles and strengthen operational endurance.

This report situates those dynamics within a new conceptual model: the Northern Engine. It provides a framework for viewing northern Australia not as a cluster of bases, but as a national operating system—one that integrates force projection, sustainment, innovation, industry participation and allied cooperation. This background sets the context for the analysis that follows, explaining how Australia arrived at this strategic juncture, what's been delivered to date, where capability and infrastructure gaps persist, and what's required to turn the north into the backbone of Australia's defence posture.

Strategic context: the north as a place of strength or vulnerability

Northern Australia's importance stems from its position along the archipelagic arc stretching from the eastern Indian Ocean through Southeast Asia into the Western Pacific. That arc has become a focal point of military activity, strategic signalling and coercive statecraft. It's also the region through which Australian and allied forces would be most likely to operate in any crisis that demands collective action.

Northern Australia is adjacent to the arc in a way no other part of the continent is, offering forward access, shorter transit times and the ability to support sustained operations in a contested environment. It's where Australia meets the Indo-Pacific.

Geography, however, isn't strategy.

The north provides an opportunity, but becomes an advantage only when it's backed by presence, infrastructure, capability and planning. Australia's past posture decisions often treated the north as a place to store potential rather than a place to generate operational power. While it hosts some of the world's most expansive training areas, its capacity to support a sustained posture remains underdeveloped. Training value alone doesn't deliver deterrence.

What matters is whether Australia can project, recover and regenerate combat power from the north under pressure. At present, that remains uncertain.

Northern Australia does possess strategic advantages that few nations enjoy. It offers depth and proximity in equal measure: close enough to the region to matter; sufficiently distant from many threat vectors to retain operational flexibility. It has controlled airspace, low population density, world-class training environments and the foundations to support energy, data and industrial infrastructure. Those are conditions other nations would envy.

But the erosion of Australian defence capability in the north over time—through workforce stagnation, the relocation of mechanised forces, the consolidation of Army aviation elsewhere, and uncertainty around amphibious and maritime basing—has weakened the ability to convert those structural advantages into operational readiness.

Meanwhile, allies increasingly recognise the north's utility. Recent AUSMIN meetings underscored that the US sees northern Australia as central to combined deterrence and regional stability. Expanded aircraft rotations, larger US Marine deployments and enhanced logistics arrangements all reflect a clear strategic judgement: northern Australia isn't a training backwater but an operationally relevant location for high-tempo activities.

For Australia, that convergence of allied interest brings both opportunity and responsibility. A strong Australian posture enables an integrated allied posture; a weak one risks over-reliance on partners and diminished sovereign credibility.

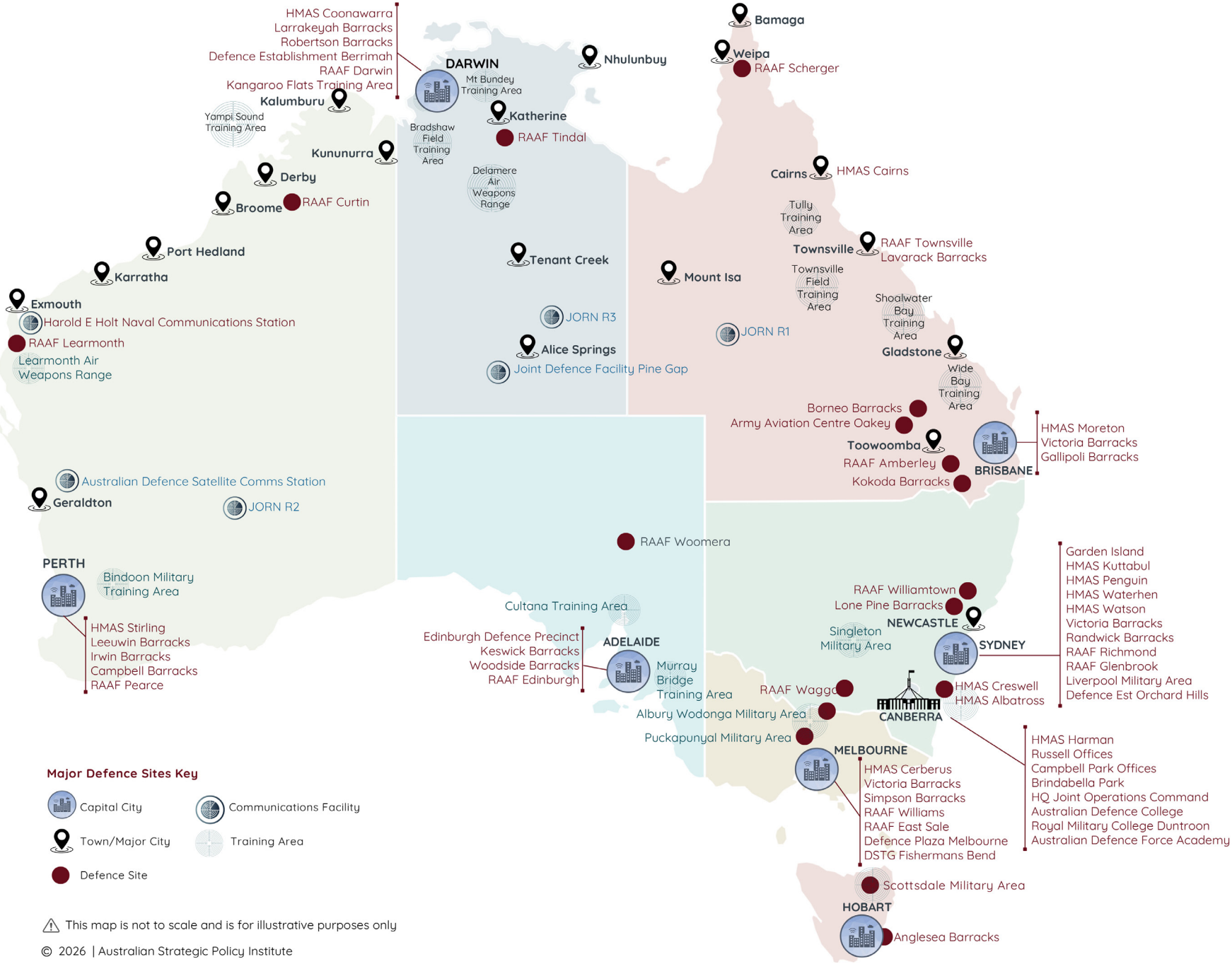
The emerging asymmetry between allied ambition and Australian delivery has significant implications. If Australia's posture remains fragmented, the country's ability to contribute meaningfully to collective deterrence will diminish. The alliance, though resilient, isn't a substitute for sovereign capability.

A posture that depends heavily on allied logistics without a strong Australian backbone risks creating vulnerabilities that could be exploited in crisis or conflict. It also signals to partners and competitors alike that Australia's strategic geography is underutilised and its preparedness uneven.

A fragmented northern posture reduces the government's operational options, limits the ADF's ability to respond rapidly, increases pressure on already stretched southern bases and weakens national resilience. It also undermines Australia's strategic credibility at a time when expectations from partners and the region are rising. Australia can't afford a future in which its most strategically important region remains the least developed part of its defence posture.

To address this, northern Australia must be understood not as a frontier but as a national asset requiring coherent design. The concept introduced in this report—the Northern Engine—recognises that deterrence isn't delivered solely by bases. It's delivered through systems: logistics, sustainment, industrial capacity, infrastructure, data, energy, training, and allied integration.

Figure 2: Key defence sites



Northern Australia can be a place of strength or a place of vulnerability. The difference lies in whether its geography is harnessed through integrated planning, sustained investment and strategic discipline. The next phase of Australian defence policy will determine which path the nation takes.

The strategic context is clear: the north is no longer optional. It's the backbone of Australia's defence posture, and building it into a resilient operating system is now a matter of national urgency.

The north must become the place where these systems converge. Only then can Australia convert its geography into a genuine strategic advantage.

Powering strategy: the Northern Engine framework

Northern Australia must shift from a loose collection of bases and infrastructure projects to a fully functioning national operating system.

Earlier Defence strategy concepts—whether framed as a 'Forward Operating Base North', a 'frontline of defence' or a 'network of northern bases'—offered important insights but remained fundamentally partial. They captured locations, not systems. They encouraged the construction of facilities rather than the integration of functions. They didn't explain how northern Australia should work as a strategic engine capable of generating, sustaining and regenerating national and allied power.

The Northern Engine presented in this report provides systemic framing. It identifies four roles to be delivered simultaneously for northern Australia to be able to serve as the backbone of Australia's defence posture. Those roles are interdependent. Strength in one can't compensate for weakness in another; only when all four roles are functioning can Australia convert its strategic geography into real operational advantage.

The first role is to launch and lodge. Northern Australia is the place from where Australian and allied forces deploy and to which they return. Launch is about power projection: the ability to house, assemble, manoeuvre and dispatch air, maritime and land forces into the archipelagic arc at speed. Lodge is about endurance: the capacity to sustain forces forward over extended periods.

This role requires a hardened, dispersed and resilient northern air-base network—not only at RAAF Base Darwin in the Northern Territory, RAAF Base Tindal near Katherine in the Northern Territory and RAAF Base Townsville in Queensland, but also across Defence's northern bare bases: RAAF Base Curtin (near Derby, Western Australia), RAAF Base Learmonth (near Exmouth, Western Australia), and RAAF Base Scherger (near Weipa, Queensland). Together, those facilities should be capable of rapid recovery following attack, sustainment under degraded conditions, and the generation of continuous air operations across Australia's northern approaches.

The role also demands clearly defined amphibious and littoral hubs, supported by scalable accommodation and staging areas. This isn't simply infrastructure; it's a statement of presence. For launch and lodge to function, the north must return to being a centre of capability, not merely a waypoint. Decisions over the past decade that relocated mechanised, rotary-wing and amphibious elements southwards have weakened this role and reduced the ADF's operational options. Rebuilding it will require deliberate choices about what should be in the north and why.

The second role is to sustain and repair. A denial strategy can't rely on long internal supply lines stretching to southern Australia. History shows the consequences of such dependence: during the Korean conflict, the US found that long sustainment chains slowed operations, strained logistics and reduced resilience. The strategic lesson was clear then and is clear today: forward sustainment shortens decision cycles, strengthens readiness and increases deterrence. For Australia, that means establishing a northern sustainment architecture that's robust, scalable and integrated. Darwin should function as a maritime sustainment precinct capable of supporting the RAN and allied vessels. Air bases should have deep fuel and munitions reserves, forward spares, battle-damage repair capacity and modernised storage facilities. Logistics hubs at Darwin, Katherine and Townsville should act as the nodes that connect operations to the national logistics grid. The Adelaide–Darwin and Brisbane–Townsville corridors should be treated not as commercial routes but as strategic arteries essential to national resilience. Without those elements, launch and lodge become symbolic rather than operational.

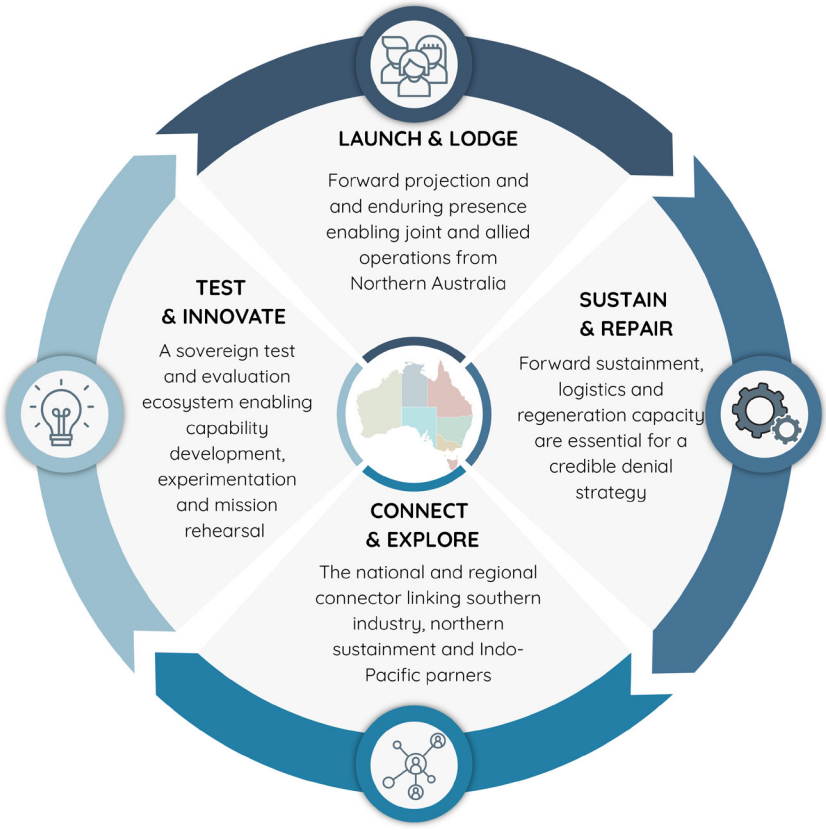
The third role is to test and innovate. Northern Australia is uniquely suited to becoming the nation's sovereign test and evaluation ecosystem. Its vast training areas, controlled airspace, climate and geography provide conditions unmatched elsewhere in Australia.

That environment enables complex, integrated testing of emerging capabilities, including uncrewed systems; long-range strike; electronic warfare; intelligence, surveillance and reconnaissance (ISR); and hypersonic technologies. It's the only region capable of hosting large-scale, joint, live–virtual–constructive experimentation with partners. Accelerated capability development requires regulatory pilots, mission rehearsal environments, instrumented corridors and advanced modelling and simulation infrastructure. If Australia is to reduce the risk associated with advanced capabilities—particularly those envisioned under AUKUS Pillar 2—northern Australia must be the place where new systems are trialled under real-world conditions.

The fourth and final role is connect and export. This role recognises that northern Australia sits between two worlds: the industrial mass of southern Australia and the operational demands of the Indo-Pacific. The Northern Engine positions the north as the bridge linking those two systems. This requires predictable pathways between southern industry and northern sustainment ecosystems, allowing components, spares, data and expertise to flow forward and operational needs to flow back. It also includes deeper integration with allied posture arrangements, shared use of infrastructure, the pre-positioning of stores, and closer logistics ties with regional partners. This isn't a limited vision of 'Fortress North'. It's a networked system that uses the north as the hub through which Australia's domestic industrial capacity and its regional partnerships converge. It reflects a modern understanding of deterrence: deterrence isn't achieved by isolation but by integration.

Together, these four roles—launch and lodge, sustain and repair, test and innovate, connect and export—form the Northern Engine illustrated in Figure 3. Each role is essential. Each role involves decisions about capability, infrastructure, industry, data, energy, people and planning. And each role requires the Defence organisation to move beyond project-led thinking towards a systemic design that recognises northern Australia as the backbone of Australia's defence posture.

Figure 3: The Northern Engine: a national operating system



Source: ASPI.

The Northern Engine is therefore both a conceptual model and a practical guide. It explains what northern Australia should become, what functions it must be able to perform, and what factors determine whether it succeeds or fails. It provides policymakers with a framework that links posture, industry, infrastructure and allied integration into a single national system. It is, above all, a call for coherence.

Only when the north operates as a connected system—not a scattered collection of projects—will Australia be able to convert geography into national power.

Australia's historical trajectory of northern thinking

For more than half a century, Australian defence planners have recognised the strategic centrality of the north. Yet acknowledging importance has rarely translated into building a northern posture capable of deterring threats or sustaining operations. Across successive governments, northern Australia has experienced predictable cycles: moments of intense policy focus followed by long periods in which attention, investment and institutional commitment dissipated. Those oscillations created a strategic pattern in which the north was frequently invoked but seldom operationalised (Figure 4).

Figure 4: Australia's northern posture: a history of drift and disruption

Source: ASPI.

Earlier ASPI analysis captured this trajectory clearly. 'Stopping the drift to the south' described how successive policy frameworks elevated the north rhetorically.[6] Still, they failed to convert that rhetoric into enduring capability.

Northern posture periodically surged after major events, strategic shocks, defence reviews or alliance initiatives, yet just as reliably receded once political momentum waned.

Over time, that produced a stop–start pattern that shaped the physical landscape of defence in the north: infrastructure partially modernised, workforce initiatives piloted but not sustained, and basing proposals that began with promise but faded without systemic follow-through.

Darwin Harbour stands as the most illustrative case study (Figure 5). ASPI's *Lead me to the harbour!* documented how one of Australia's most strategically important maritime geographies evolved without a unified national strategy.[7]

While the harbour's location, access and deepwater characteristics made it essential to northern posture, decades of fragmented governance, inconsistent investment and competing commercial priorities prevented it from becoming an actual maritime engine for Defence. Instead, the port precinct grew in an *ad hoc* manner, shaped more by unrelated commercial drivers than by coherent national planning.

The result wasn't failure but under-realisation: a site with extraordinary strategic potential that lacked the integrated development needed to support modern naval, commercial and logistics requirements.

Figure 5: Darwin Port

Source: Defence image library, online.

Those patterns weren't caused solely by neglect. Australia faced structural barriers that consistently constrained northern development.

Workforce availability has long been limited, both in scale and in the range of technical skills required to support sophisticated platforms and sustainment activity. Infrastructure was frequently fragile or outdated, and roads, energy systems and data connectivity lagged behind Defence needs.

Federal, state and territory responsibilities were often siloed, creating uncertainty about who should pay for or deliver essential enablers. Funding was episodic, arriving through short-term programs rather than as part of a sustained posture strategy.

A northern theatre logistics plan never emerged, leaving industry and Defence planners without a coherent supply-chain model. Industry integration remained partial, weakened by inconsistent demand signals and uncertainty about whether major capabilities would be based in the north for the long term.

At the strategic level, those constraints meant that northern Australia remained more aspirational than operational. Defence posture announcements often landed before the enabling infrastructure, workforce or sustainment pathways needed to realise them. Ambition wasn't the limiting factor; execution was.

The DSR was the most serious attempt in decades to break that cycle. It identified northern Australia as the centre of gravity for Australia's denial strategy and called for its development into a true forward-operating and sustainment hub. Significantly, it recognised that building northern capability isn't merely an extension of southern posture—it requires a different logic. Distance, climate, scale and geography all impose demands that can't be met through southern-based assumptions about supply chains, infrastructure sequencing or workforce distribution.

The DSR marked an intellectual turning point, but identifying the requirement was the easy part.

The challenge is to transform that strategic recognition into an integrated northern operating system. Some progress has been made, including through joint investments with the US. Yet the structural issues that have shaped northern posture for decades remain largely intact. Workforce constraints continue to limit scale. Infrastructure strain persists. Logistics pathways still lack strategic coherence. Industry remains hesitant to invest without long-term certainty. And Defence's own posture decisions, including capability relocations and undefined force-design outcomes, continue to send mixed signals to the region and to industry.

The question confronting policymakers now is whether Australia can avoid repeating its historical trajectory of peaks and troughs, ambition and drift, promise and under-delivery. Northern Australia can no longer afford to be a region where ideas outrun implementation.

What the DSR, NDS and IIP promised

The DSR was intended to reset the nation's strategic posture for an era defined by compression—compressed warning time, compressed decision cycles, compressed operating distances—and by the growing realisation that Australia needs to be able to project and sustain power in its northern approaches.

The review was blunt in its logic: Australia could no longer afford the luxury of a balanced force structure built around continental defence and global contribution. Instead, it needed a focused force, optimised for the archipelagic arc to Australia's north and underpinned by an operating model centred on preparedness rather than episodic readiness.

In its core recommendations, the DSR called for a shift from a defence force that could do many things slowly to one that could do fewer things, but decisively. It emphasised the need to accelerate posture development, strengthen northern bases, deepen sustainment networks and integrate Australia's operational planning with that of its principal ally. It was unambiguous that the north would be the centre of gravity for deterrence and that the nation's ability to operate credibly alongside the US and regional partners depended on building a hardened, networked posture in northern Australia.

The subsequent NDS and the Integrated Investment Plan (IIP) attempted to resource that shift. The government committed $5.7 billion over the forward estimates and more than $50 billion over the decade to deliver the posture, sustainment and enabling infrastructure that the DSR deemed essential. Those weren't abstract numbers; they represented the first significant repositioning of defence funding priorities towards northern hardening, dispersal, logistics, munitions depth, base upgrades and fuel resilience. The NDS reinforced that northern Australia wasn't simply a staging point but a critical operating area in its own right—one that requires a profound modernisation of infrastructure, data systems, housing, workforce support and industrial partnerships.

Together, the DSR and NDS provided the strategic logic and the financial foundation for a transformed posture. What they didn't provide was the operational blueprint for how Australia should build the northern system itself. The policy direction was clear, but the mechanisms through which Australia would convert strategic ambition into practical capability were less defined. That task has fallen to Defence planners, state and territory governments, industry partners and the private sector—each operating in an environment in which the need for coherence is acute but the structures for coordination haven't yet matured.

The absence of a northern theatre logistics concept remains the most glaring gap. The DSR recognised the need for deeper sustainment, but, without a defined logistics model that explains how fuel, munitions, spares, water, components, data and maintenance capacity move through the north, industry is unable to scale with confidence. Private investors don't respond to uncertainty. Without clarity on supply chains and force posture, northern businesses can't build the capacity required for forward sustainment, and the ADF can't establish the operational rhythms essential to a denial strategy.

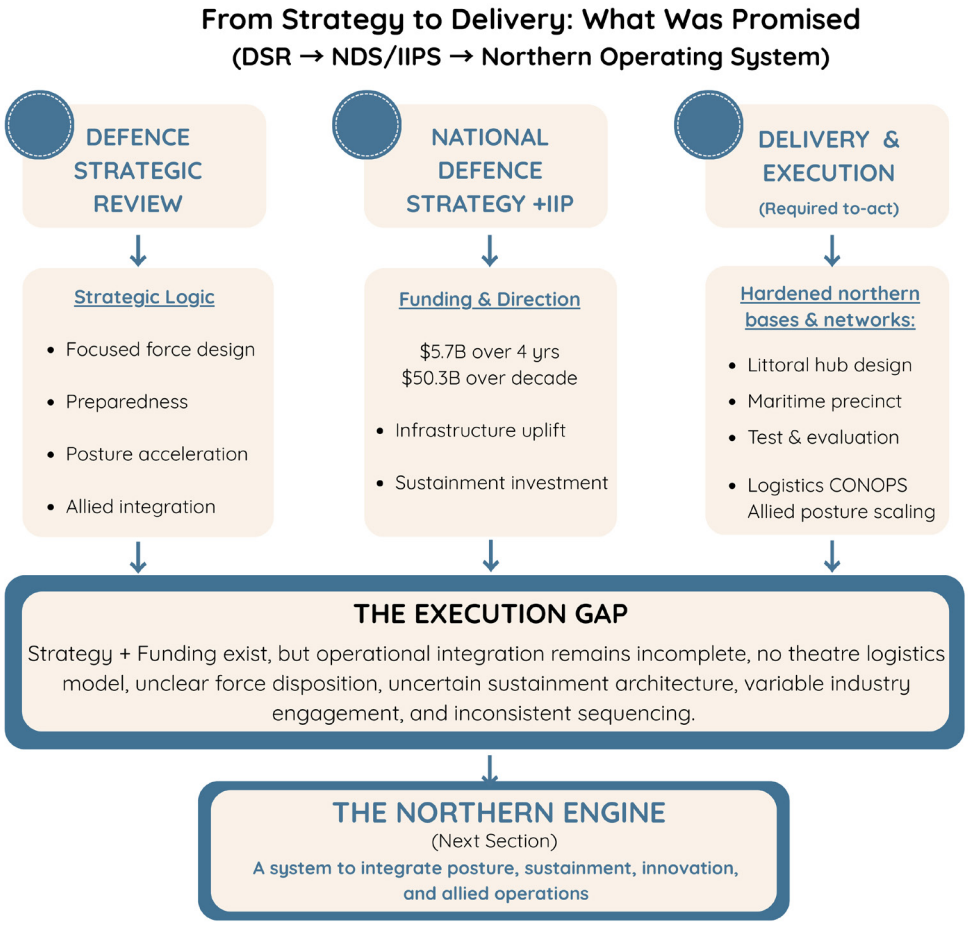
Similarly, the DSR assumed but didn't specify the structure of joint and allied integration. It acknowledged the centrality of the USFPI and the role of partners such as Japan, but didn't articulate how Australian, US and partner forces will share infrastructure, sustainment flows, logistics nodes, or testing and training environments. The NDS recognised that by emphasising integration, but the details of how allied posture connects to Australian posture remain incomplete. Without that clarity, Australia risks either duplicating US efforts or relying heavily on allied infrastructure without building sovereign resilience.

Another unresolved issue concerns the Army's transformation and its implications for the north. The DSR and NDS were clear that Australia's future force will require amphibious and littoral manoeuvre capability, but they didn't delineate how that capability should be geographically anchored. As capability drift has seen mechanised and rotary-wing elements leave Darwin, uncertainty now surrounds where the Army's littoral force will reside and how it will integrate with naval assets, sustainment facilities and regional training areas. The NDS acknowledged that gap but stopped short of specifying the basis for its basing decisions.

The maritime picture shows similar tension. The IIP includes significant investment for northern maritime infrastructure, including precinct redevelopment and sustainment facilities. Yet the long-term basing profile of the RAN in Darwin remains unclear. Maritime sustainment capability can't mature if the presence it supports is uncertain. The risk is that facilities are built without the enduring naval mass required to justify or sustain them.

At a systems level, the DSR, NDS and IIP tell a coherent story: Australia should build a northern posture that's integrated, hardened, dispersed and capable of supporting sustained joint and allied operations (Figure 6). They collectively describe what must exist. Yet the challenge lies not in the strategic logic but in the execution.

Figure 6: DSR and NDS analysis



Source: ASPI.

Northern Australia still lacks a unifying operating concept. Funding is real but not always sequenced. Infrastructure is improving, but not yet integrated. Capability decisions are being made, but not always with clear reference to a northern operating system. And industry engagement remains inconsistent, creating a gap between ambition and capacity.

What emerges is a strategic paradox. The DSR and NDS provide the clearest articulation in decades of why the north matters and what must be done. The IIP begins to resource that transformation.

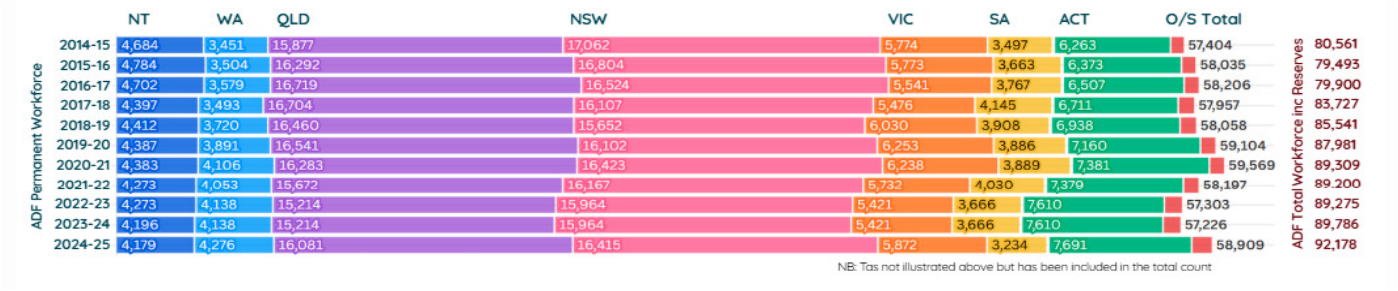
But until an operational concept ties those documents together—one that explains how bases, sustainment pathways, allied posture, test and evaluation ecosystems, industrial networks and logistics corridors combine into a single Northern Engine—the promise of this strategy will remain unrealised.

The next update to the NDS in 2026 will need to confront this directly.

The real state of northern posture: delivery, drift and the risk of strategic mismatch

In headline terms, the ADF's permanent presence in the Northern Territory stands at approximately 4,179 personnel, representing just 7.1% of the total ADF workforce (Figure 7).[8] Those numbers are routinely repeated in Senate estimates and posture updates. Yet, they obscure the most important trend: personnel numbers have remained relatively static. At the same time, ADF capability in the north has quietly contracted. A force can maintain a footprint on paper while losing the diversity, mobility, firepower, logistics and lift required to employ it credibly.

Figure 7: Permanent ADF numbers, by geography, 2014–15 to 2024–25



Source: Defence Department annual reports, 2014–15 to 2024–25.

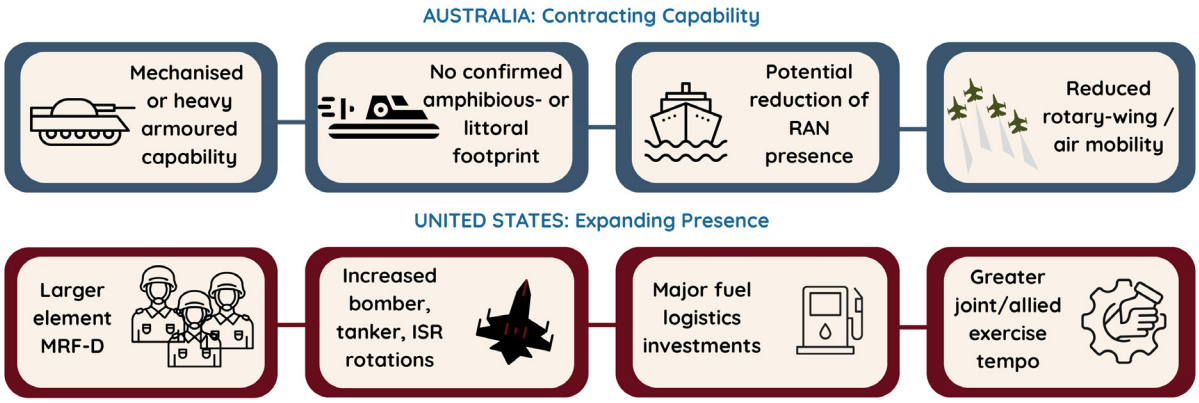
That capability erosion has been gradual, rarely announced as a single decision, often buried within larger structural changes, and seldom scrutinised in public debate. But its consequences are cumulative and profound.

In strategic terms, the ADF today has a smaller variety of deployable capabilities in the north, fewer enablers, and a diminished ability to operate independently in the theatre that matters most. That shift stands in sharp contrast to the trajectory of the US, which is rapidly expanding its posture, operational tempo and sustainment depth in northern Australia (Figure 8).

The divergence is now so pronounced that Australia risks creating a paradoxical posture: Northern Australia is becoming more important to allied operations than to the ADF itself.

The story of the drift begins with the 1st Brigade. For decades, the brigade was the Army's primary mechanised formation, possessing the armour, engineering, signals and support elements required for high-intensity warfare. Darwin was selected as its home because the region provided unparalleled training environments and aligned with the longstanding logic that Australia's defence begins forward. Armoured forces in Darwin were never about defending the city; they were about building readiness, training on relevant terrain, and positioning to project capability into the archipelagic arc rapidly.

Figure 8: US and Australian Force Posture Developments in Northern Australia



Source: ASPI.

Yet throughout the mid-2010s, the Army restructured, consolidating armoured and mechanised capabilities in South Australia. As that transition unfolded, key components of the 1st Brigade were relocated from Darwin to Adelaide. Combat engineering, logistics and enabling elements followed. While those decisions were framed as force-design optimisation, they effectively hollowed out the mechanised presence in the north. Darwin retained the brigade, but the brigade lost its character as a fully rounded mechanised formation. The fragmentation reduced not only capability diversity but also the brigade's coherence, training value and capacity to support joint and allied activity in the region.

Rotary-wing capability experienced a similar decline. For many years, Defence provided consistent reassurance that Army aviation units underpinning mobility and manoeuvre would remain in Darwin. Yet as Defence sought efficiencies and consolidated training pipelines, rotary-wing forces are now concentrated in Townsville.

From an internal Army perspective, the decision was logical; from a northern posture perspective, it was damaging. Helicopters are essential for littoral and amphibious operations, independent Army mobility, humanitarian response across vast areas and interoperability with partners. Their absence from the Northern Territory reduces the ADF's responsiveness and mobility in the region where those attributes matter the most. During that process, local businesses were explicitly and implicitly encouraged to maintain confidence and continue investing in people, facilities and capability. Those investments were substantial, often irreversible, and made in good faith.

When decisions shifted, the risk wasn't shared; it was localised. Those decisions weaken the local industrial base that Defence relies upon in a crisis. Sustainment ecosystems can't be paused and restarted at will. Once skilled workers leave and specialised firms fail, rebuilding capacity is slow, expensive and uncertain.

The drift in Army presence coincides with significant uncertainty surrounding the future of amphibious and littoral capability in the Northern Territory. The Army's transition towards a littoral force design has been signalled repeatedly, and the strategic rationale is sound. Yet there remains no clear articulation of which portion of that future force will be based in Darwin, which watercraft will be stationed there, or which command and control elements will anchor forward. Infrastructure planning is therefore based on assumptions rather than commitments.

Industry is hesitant to invest without a stable basing picture. Defence planners can't confidently sequence sustainment activities. And partners remain unclear about what Australian capabilities they can expect to integrate with in the north.

The RAN's northern footprint also faces mounting questions. Darwin has historically been central to the Navy's role in Australia's northern approaches, serving as a forward operating base for patrol vessels and supporting a persistent presence across the region. Yet speculation persists across Defence, industry and naval circles that the number of vessels home-ported in Darwin may decline or that readiness cycles could shift south. Defence hasn't confirmed such changes, but the lack of clarity has already created operational uncertainty. Any contraction would weaken maritime domain awareness, reduce opportunities for interoperability with US and

Indo-Pacific partners, and undermine the viability of the naval sustainment precinct emerging around Darwin Harbour. It would also run counter to the strategic logic that positions the north as the key maritime theatre for Australia's defence.

In contrast to those reductions or uncertainties within the ADF, the US has moved decisively to expand its presence. Through the USFPI, Washington has delivered substantial upgrades in fuel storage, runway reinforcement, aircraft parking, maintenance infrastructure and training area enhancements (Figure 9). The US investment includes major projects such as US$76 million for bulk fuel storage in Darwin, US$80.4 million for fuel infrastructure at Tindal, more than A$389 million for upgrades to Robertson Barracks, A$747 million for training area improvements, and over A$1.07 billion in runway and supporting works at Tindal.[9] Those investments reflect a strategic judgement that northern Australia is essential to the US's Indo-Pacific posture.

Figure 9: USFPI Investment in northern Australia

Source: ASPI.

That judgement is reflected in both practice and infrastructure. Bomber, tanker and ISR rotations have expanded at a pace that demonstrates operational dependence, not experimental presence. The Marine Rotational Force – Darwin has grown in scale and scope, with more complex integration, joint training and combined arms activity. Pre-positioning of equipment has increased. Logistics planning between the ADF and US forces has become more sophisticated. AUSMIN dialogues continue to emphasise deepening posture integration. The momentum is unmistakable: allied reliance on northern Australia is growing, rapidly and structurally.

That creates a striking strategic asymmetry. The US is building a northern operating ecosystem. Australia, by contrast, is allowing its capability in the Northern Territory specifically to fade. A posture architecture in which allied forces are better positioned than the ADF to leverage Australia's geography is neither credible nor sustainable. It undermines sovereign resilience, weakens operational flexibility and risks turning Australia into a facilitator of allied operations rather than a fully integrated strategic actor.

Capability drift matters because deterrence isn't measured by intentions or strategies but by capabilities positioned to be employed. Personnel can be recruited and relocated in relatively short order, but capability, armour, aviation, littoral forces, sustainment chains and naval presence, require decades of investment and deliberate basing decisions. Once absent from the north, those capabilities can't simply be reconstituted in a crisis. Their withdrawal leaves a structural gap in the nation's posture, limiting operational choices and weakening readiness in the theatre where it's most needed.

The implications extend beyond the Defence organisation. Industry is less likely to invest in sustainment facilities or supply-chain capacity if northern basing remains uncertain. Housing markets fluctuate when the Defence presence appears to contract. Training area optimisation becomes more difficult. Logistics planning becomes more complex. Every part of the northern operating environment becomes less predictable, and, as predictability decreases, so does deterrence value.

The Northern Engine model offers a corrective—a way to understand capability not as isolated units or platforms but as interconnected systems of mobility, sustainment, innovation and integration. From that perspective, the decisions that shifted capability southward weren't minor adjustments but structural degradations. Mechanised forces in Darwin were a foundation for readiness. Rotary-wing

presence was a key enabler of manoeuvre and response. Amphibious capability requires a credible forward anchor. The Navy's presence in Darwin is essential for maritime domain awareness and sustainment. And allied posture integration requires Australia to maintain capability mass, not outsource it to partners.

The trajectory of the past decade, therefore, amounts to a warning: without decisive correction, northern Australia will become the backbone of allied operations, not the backbone of Australia's own defence posture. Northern Australia will become a strategic asset only if Australia itself invests in the capabilities needed to operate from it. The US has made its choice clear. Australia must now do the same.

Critical gaps

Despite the strategic clarity provided by the DSR and the NDS, and despite the accelerating pace of US investment, Australia's northern posture remains constrained by structural gaps that undermine the nation's ability to implement a credible strategy of denial. Those gaps are systemic, not incidental. They span logistics, sustainment, industrial capacity, workforce, energy and governance, and collectively reveal a posture architecture that isn't yet integrated, resilient or able to support high-tempo, multidomain operations. Australia is attempting to realise a forward, operationally demanding strategy atop a foundation that remains fragmented, under-sequenced and insufficiently hardened. Unless those gaps are addressed, the DSR's ambitions will remain unfulfilled.

The most significant of the gaps is the absence of a northern theatre logistics and basing CONOPS (Figure 10). In any military system, logistics is the determinant of tempo, endurance and scale. Yet in northern Australia, infrastructure decisions, industry planning and allied engagement all occur without a clear framework outlining logistics flows, basing roles, fuel and munitions distribution, warehousing requirements, surge pathways and sustainment dependencies across the joint force. The result is disjointed investment: fuel projects delivered separately from munitions planning, base upgrades undertaken without an integrated view of mobility corridors, and industry incentives misaligned with expected operational needs. Without a logistics blueprint, industry can't scale confidently, state and territory governments can't align infrastructure delivery, and allied forces operate in parallel rather than as part of a fully integrated theatre plan. For a strategy that relies heavily on persistent forward operations, that gap is unsustainable.

Fuel and munitions represent the next set of critical vulnerabilities. Fuel is the enabler of every movement—air, land and maritime—and munitions underpin every credible deterrent posture.

While the US has significantly enhanced its own fuel resilience in the north through recent posture investments, Australian stockpiles remain comparatively thin, storage is dispersed unevenly and surge capacity is underdeveloped.

Munitions storage and handling infrastructure also remains insufficient to meet the needs of emerging long-range strike capabilities, integrated air and missile defence systems, maritime operations, and the allied stockpiles that may need to be accommodated in a crisis.

Those deficiencies limit the ADF's ability to sustain prolonged operations and erode the credibility of any denial strategy. A posture can't be forward if its fuel and munitions are to be drawn from the south; distance imposes penalties that can't be wished away.

Sustainment and industrial capacity also lag behind strategic requirements. Darwin's maritime infrastructure—the Regional Maintenance Centre – North, the proposed ship lift and the emerging Marine Industry Park—form

Figure 10: Critical gaps in Australia's Northern Posture

Source: ASPI.

the nucleus of what should be a northern maritime sustainment precinct. Yet utilisation rates remain insufficient to anchor a stable workforce or attract the second-tier suppliers needed to build a resilient, regionally focused maintenance ecosystem.

That fragility is amplified by the absence of predictable maintenance cycles for ADF and ABF vessels. Without multidecade, multiplatform commitments, the local industry can't invest with confidence. Across air and land domains, similar challenges persist: limited forward repair capability, insufficient battle-damage repair potential, fragmented warehousing and supply nodes, and an over-reliance on moving essential sustainment flows from southern Australia. Those gaps place a ceiling on operational tempo that's inconsistent with the north's role as a forward operating hub.

Workforce availability remains the most persistent inhibitor. Recruitment, retention and family-support challenges are significantly more acute in the Northern Territory, northern Queensland and northern Western Australia than in any other jurisdiction. Defence personnel routinely cite housing shortages, inconsistent access to health care, childcare constraints and limited spousal employment opportunities as barriers to accepting or extending northern postings. Without sustained population growth and a deliberate strategy to stabilise and expand the workforce, Defence can't grow the presence required by its own posture ambitions. This isn't a Defence-only problem; it's a structural demographic constraint that demands coordinated action across Defence, federal government agencies, state and territory governments, and industry. The north won't develop strategically if its workforce base can't expand.

Critical enablers such as data, power and water remain underdeveloped. Modern operations rely on resilient cyber and data architectures, yet redundancy and hardening in northern networks are uneven. Power generation remains insufficiently diversified, leaving bases and industry vulnerable to outages or disruptions. Water security in several locations is yet to be aligned with expected force growth or industry expansion. Energy and data vulnerabilities can quickly translate into operational vulnerabilities; without reliable enablers, posture upgrades can't translate into operational readiness.

Overlaying all of those issues is a governance and sequencing challenge that continues to constrain effective delivery. The DSR called for an enhanced network of bases, ports and barracks across the north, but that network is being delivered through fragmented, agency-specific investment streams rather than through a single integrated delivery architecture.

The Defence organisation, state and territory governments, infrastructure agencies and industry are each progressing their own priorities without a unifying mechanism to sequence work logically and coherently. Without alignment, projects risk being delivered out of order, duplicating effort or failing to connect to the wider posture system. A single Northern Defence and Infrastructure Delivery Authority—whether virtual or physical—would provide the governance spine needed to coordinate investments, align sequencing, manage trade-offs and integrate allied activity.

Taken together, those gaps reveal the core strategic truth: Australia doesn't yet possess a northern posture capable of supporting the DSR's operational vision. The pieces exist—bases, training areas, emerging sustainment nodes, allied investment, industry potential—but they don't yet form a system. Until they do, the north will remain more a strategic aspiration than a genuinely integrated operating environment.

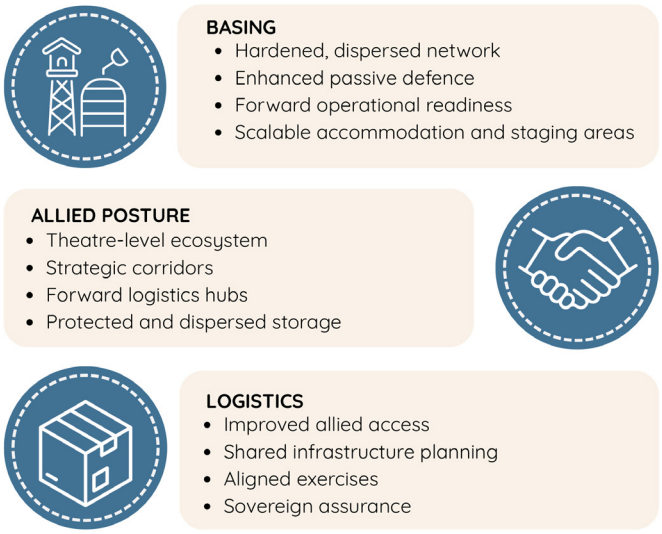
The next stage of defence planning should treat these gaps not as peripheral issues but as the central tasks required to produce the Northern Engine: a northern posture that's capable, resilient, scalable and aligned with Australia's national strategic needs.

The Northern Engine in practice

The Northern Engine moves from abstraction to reality when applied to the practical questions of basing, logistics and allied integration (Figure 11). Those aren't technical sub-issues; they're the mechanisms through which strategy is either realised or undermined. Australia's defence challenge in the north isn't the absence of intent, but the difficulty of translating strategic clarity into an operating system capable of sustaining high-tempo, multidomain operations under pressure. The Northern Engine provides a framework for doing so, but only if it's applied consistently across how Australia bases forces, sustains them, and integrates allied presence.

Basing is the physical expression of strategy. A northern posture built around the Northern Engine demands a hardened, dispersed and resilient network of bases rather than reliance on a small number of concentrated nodes. Darwin, Tindal, Townsville and the wider bare-base network each play distinct roles, and those roles should be explicitly defined and aligned to a theatre-level concept of operations.

Figure 11: The Northern Engine in practice



Source: ASPI.

Basing decisions need to move beyond incremental upgrades towards deliberate design choices that account for survivability, recovery and endurance. That includes enhanced passive-defence measures, rapid runway repair capability, hardened fuel and munitions storage, and the capacity to absorb surges in personnel and platforms without degrading readiness.

Critically, basing should support forward operational readiness rather than simply serving as a staging area between exercises. Accommodation, staging areas and support services must be scalable, enabling rapid expansion in a crisis without relying on *ad hoc* arrangements. Without that depth, the north risks remaining a transit zone rather than a lodgement area. The Northern Engine, therefore, treats basing as an enabler of sustained presence rather than just a geographical location.

Logistics is the beating heart of this system. Strategy collapses without sustainment, and denial fails without endurance. For decades, northern logistics has been treated as a throughput problem—moving fuel, munitions and supplies through the north rather than sustaining forces from it.

The Northern Engine requires a fundamental shift to a theatre-level sustainment ecosystem that's redundant, resilient and capable of absorbing disruption. That means treating the Adelaide–Darwin and Brisbane–Townsville corridors as strategic arteries rather than as commercial routes, and integrating them into national defence planning and infrastructure prioritisation.

Forward logistics hubs at Darwin, Katherine and Townsville should function as interconnected nodes, supporting land, air and maritime operations simultaneously. Stockpile depth and pre-positioned materiel are essential, not optional. Protected and dispersed storage facilities should be designed with survivability in mind, recognising the growing reach and precision of long-range strike systems. Logistics nodes should be joint by design, supporting Australian and allied forces within a shared operating framework rather than being parallel systems that compete for space, workforce and infrastructure.

Modern logistics is also digital. The Northern Engine envisages the use of advanced logistics modelling and 'digital twins' to test scenarios, identify vulnerabilities and optimise sustainment flows before crises occur. Without that level of planning, Australia risks discovering logistics shortfalls only when operations are already underway. A denial strategy can't be improvised; it must be sustained.

Allied posture integration adds another layer of complexity—and opportunity. The US force posture in northern Australia is no longer episodic; it's a permanent structural feature of Australia's defence environment. Recent AUSMIN statements have reinforced that US rotations, pre-positioning and logistics integration will continue to expand. At the same time, partners such as Japan, the UK and South Korea are deepening their engagement through training, exercises and sustainment activity in northern Australia.

Managing that growth requires more than goodwill. Australia needs to improve allied access arrangements, integrate shared infrastructure planning and align exercises with long-term capability development rather than short-term activity. Most importantly, allied integration must be balanced with sovereign assurance.

In a crisis, Australia must retain the ability to prioritise national requirements, control access to critical infrastructure and sustain its own forces independently if required. The Northern Engine doesn't diminish alliance value; it strengthens it by ensuring that Australia remains a capable and credible partner rather than a host dependent on others.

Maritime sustainment is a central pillar of that approach. Darwin's harbour and associated infrastructure represent Australia's most strategically important northern maritime geography. A fully functioning Darwin Maritime Sustainment Precinct (Figure 12) is therefore not a regional aspiration but a national requirement. Integrating the RAN's northern facilities, the ship lift, the Marine Industry Park and ABF sustainment into a single precinct creates economies of scale, stabilises the workforce and attracts second-tier suppliers. Long-term maintenance contracts are essential to anchor that ecosystem, providing the industry with the certainty needed to invest in skills, equipment and facilities.

The maritime precinct should also be designed with allied integration in mind. Shared sustainment pathways reduce duplication, enhance interoperability and increase resilience in crises. Without a robust maritime sustainment capability in the north, Australia's naval presence risks remaining shallow, episodic and overly dependent on southern facilities—an arrangement inconsistent with the strategic demands of the Indo-Pacific.

Figure 12: Darwin Maritime Sustainment Precinct, Marine Industry Park preliminary concept plan

Source: 'Multi-user marine facility', *Australia'sNorthernTerritory.com.au*, online.

Littoral manoeuvre brings those strands together. The Army's emerging littoral force design is conceptually sound, but it can't be operationalised without two northern anchors: Townsville and Darwin. Geography dictates that amphibious and littoral operations must be staged, sustained and rehearsed from northern Australia. That requires dedicated staging areas, hardened logistics nodes, assured access to training ranges and seamless maritime integration. It also requires industry partnerships capable of sustaining watercraft, vehicles and support systems forward. Without those elements in place, littoral manoeuvre risks becoming a doctrinal concept divorced from practical capability.

The Northern Engine approach makes clear that littoral capability isn't about defending a particular location; it's about enabling Australia to operate credibly across the archipelagic arc. That credibility depends on a base that can absorb and project force, logistics that can sustain it, and allied integration that enhances rather than substitutes for sovereign capacity.

Taken together, basing, logistics and allied posture form the operational core of the Northern Engine. They determine whether northern Australia functions as a genuine operating system or remains a collection of disconnected facilities. The difference is consequential. A north built on integrated basing, theatre-level logistics and disciplined allied integration becomes the backbone of Australia's defence posture. A north without those elements remains exposed, fragile and strategically underpowered.

Figure 13: Australian Army medium landing craft rendering of Birdon design

Source: Laura Keckmann, 'JUST IN: Australian Army going littoral', *National Defense Magazine*, 11 April 2025, online.

Corridors and national infrastructure

Australia's defence posture in northern Australia doesn't begin at the gates of its bases. It begins hundreds, and in some cases thousands, of kilometres to the south. The Adelaide–Darwin and Brisbane–Townsville corridors aren't simply transport routes; they're the connective tissue that links Australia's industrial heartlands to its most strategically exposed geography. In practical terms, they're the Highway to the North. In strategic terms, they're national defence arteries whose resilience will determine whether Australia can sustain operations in the very theatre where its security challenges are most acute.

The corridors carry fuel, munitions, vehicles, spare parts and personnel. They enable rapid reinforcement in crisis and underpin the ability to maintain high-tempo operations over time. They connect southern manufacturing and sustainment capacity with northern bases, ports and airfields. They also support the economic activity—critical minerals, energy development, agriculture and regional logistics—that underpins northern Australia's viability. Australia's denial strategy implicitly assumes that those corridors remain intact, functional and secure under duress. That assumption is increasingly risky.

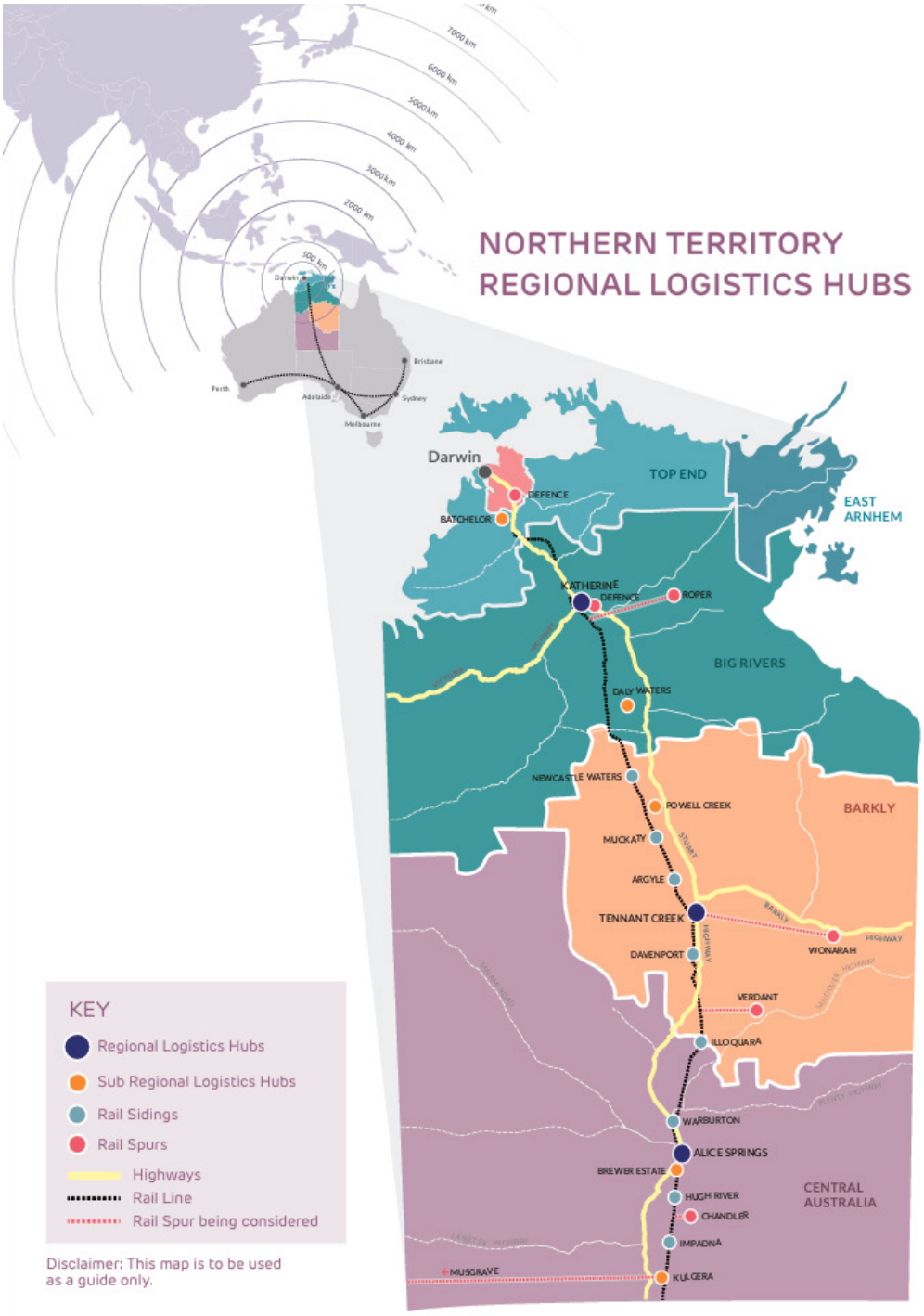
A single prolonged disruption to either corridor—whether from extreme weather, infrastructure failure, sabotage or cyber intrusion—would have immediate and cascading effects on Australia's northern operating capacity. Flooding already disrupts sections of the road and rail networks with increasing frequency. Climate change is amplifying those risks rather than reducing them. At the same time, the growing sophistication of cyber and hybrid threats raises the prospect that logistics systems could be targeted well short of kinetic conflict. In a contested environment, corridor vulnerability becomes a strategic liability rather than an inconvenience.

Yet despite their centrality to national Defence, the two corridors haven't been fully integrated into Defence planning. They're treated primarily as economic infrastructure, managed through fragmented funding programs and jurisdictional responsibilities, rather than as defence-critical assets the resilience of which must be assured. That disconnect reflects a broader challenge in Australia's strategic culture: the tendency to separate military capability from the infrastructure and systems that enable it. The Northern Engine approach rejects that separation. It recognises that without resilient corridors, forward posture collapses into aspiration.

Addressing that gap requires a deliberate shift in how Australia invests in and governs its north–south infrastructure. Corridor resilience must be treated as a national-security priority rather than a collection of regional projects. That means investing in redundancy: ensuring that key sections of road and rail have alternative routes and dual-lane capacity where feasible. It means climate-proofing infrastructure against flooding and extreme heat, not as a future adaptation but as an immediate requirement. It means ensuring that rail operations are resilient not only physically but digitally, with robust cyber protections and energy security that allow movement even under sustained disruption.

Strategic logistics hubs along the two corridors are equally important. Locations such as Katherine, Tennant Creek, Mount Isa and Townsville already sit at critical junctions, yet their potential as defence logistics nodes remains underdeveloped (Figure 14).

Figure 14: Northern Territory regional logistic hubs



Source: Infrastructure NT, 'Regional logistics hubs', Northern Territory Government, online.

Properly designed hubs would provide warehousing for pre-positioned stores, fuel and munitions sidings, maintenance facilities and staging areas for personnel and equipment. They would shorten internal lines of communication, reduce reliance on a small number of vulnerable nodes and allow Defence to surge capability northward in a more controlled and resilient manner.

Modern logistics planning also demands better modelling. Digital logistics 'twins' that simulate disruptions, test rerouting options and identify bottlenecks before crises occur should be embedded into defence and infrastructure planning. Without that analytical backbone, Australia risks discovering corridor vulnerabilities only when they're already being exploited. Exercises that stress-test the corridors under realistic conditions should become routine, not exceptional, ensuring that Defence, industry and civil authorities understand their roles when systems are under pressure.

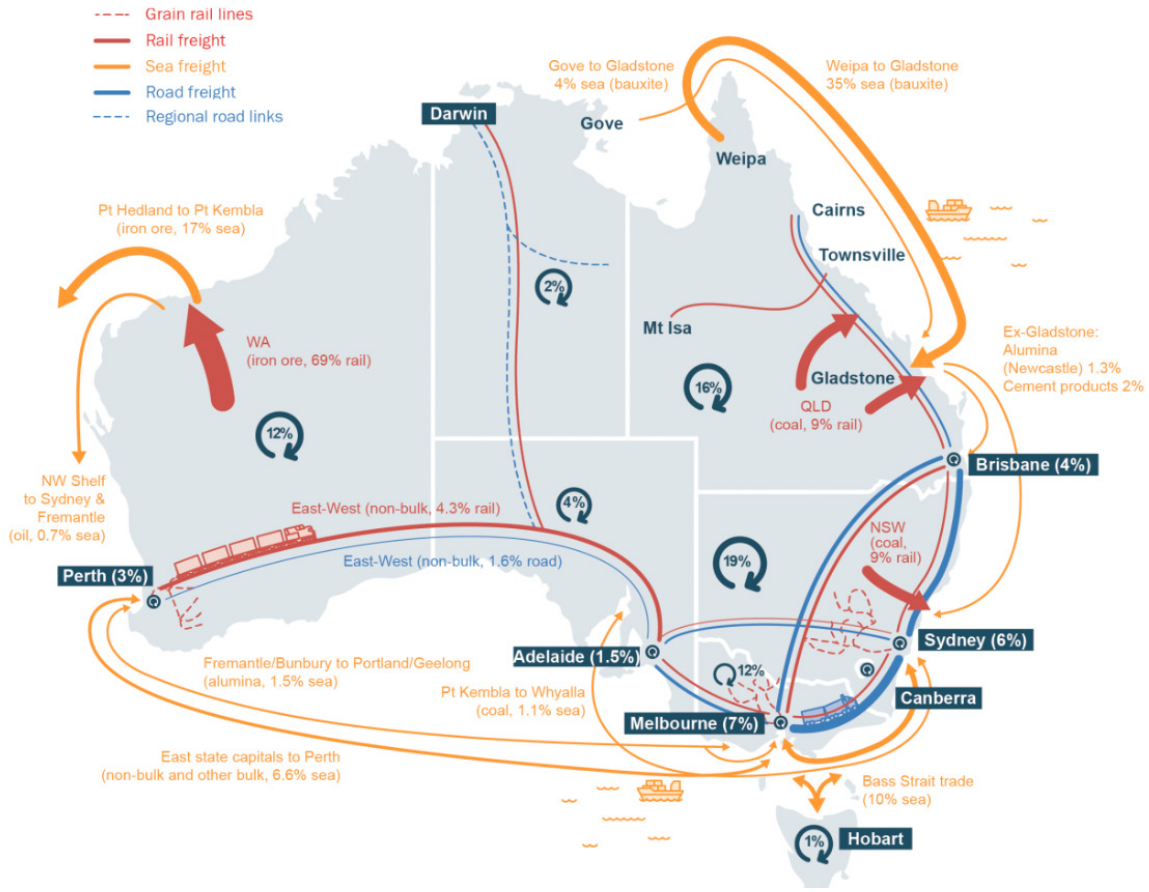
Integration with Defence planning is the decisive step. The Adelaide–Darwin and Brisbane–Townsville corridors must be formally recognised within theatre-level concepts of operations as defence-critical infrastructure. That designation would allow posture investments—such as upgrades, stockpiles and sustainment facilities—to be aligned with corridor resilience measures. It would also enable Defence to work more effectively with other federal agencies, state and territory governments and private operators to prioritise upgrades that deliver both economic and security benefits.

Financing that work will require innovation. Defence budgets are under pressure, and the scale of investment needed can't be met through defence appropriations alone. Leveraging mechanisms such as the Northern Australia Infrastructure Facility, housing and infrastructure finance programs and private capital will be essential.

Multi-user facilities that support defence, industry and regional development offer a way to stretch limited funds while building resilience into the national system. The corridors should also be integrated into test and evaluation activities, ensuring that new capabilities are designed with realistic sustainment pathways in mind.

Ultimately, the Highway to the North is about more than logistics. It's about whether Australia is serious about defending its most strategically exposed region. A denial strategy that can't move, sustain and reinforce forces isn't a strategy at all. By treating the Adelaide–Darwin and Brisbane–Townsville corridors as the national defence arteries they are (Figure 15), Australia can begin to close one of the most consequential gaps in its northern posture.

Figure 15: Australian freight movement



Source: Lennard Peters, G Chattopadhyay, MA Tuck, 'Studies on the impact of road freight transport and alternative modes in Australia: a literature study', *International Journal of Systems Assurance Engineering and Management*, July 2022, 14(5), online.

Industry integration

Australia's defence–industrial geography isn't evenly distributed; nor should it be. The nation's industrial strength is overwhelmingly concentrated in southern Australia, where population density, infrastructure, research institutions and capital markets create the conditions for complex manufacturing and systems integration. That concentration isn't a weakness. It becomes a strategic liability only if northern Australia is expected to replicate what already exists elsewhere.

The challenge for Australian defence planning is therefore not to industrialise the north in isolation, but to design a posture that converts southern industrial mass into forward combat power. That's the essence of the north–south division of labour at the heart of the Northern Engine.

Southern Australia provides the industrial depth upon which the ADF relies—shipbuilding in Adelaide and Western Australia anchors sovereign naval capability. Complex systems integration across Melbourne, Sydney and Brisbane sustains advanced platforms, software, sensors and weapons. Deep sustainment capacity, advanced manufacturing, large skilled workforces and dense university and research ecosystems all reside predominantly in the south. Those capabilities must remain where they are. Attempting to duplicate them wholesale in the north would be inefficient, expensive and strategically unnecessary. The objective isn't geographical symmetry, but functional integration.

Northern Australia's role is fundamentally different. Its value lies in proximity, access and endurance. Industry in the north should be structured to support forward operations by specialising in those functions that can't be delivered effectively from the south during a crisis or conflict. Forward repair and refurbishment, rapid battle-damage repair, littoral sustainment, air-base support, component replacement, maritime sustainment and uncrewed systems maintenance are all inherently time- and distance-sensitive activities. They benefit disproportionately from being located close to where forces operate. Data and cyber-maintenance nodes, particularly those supporting deployed platforms and networks, also gain strategic value when positioned forward rather than routed through long southern supply chains.

That's the industrial logic reinforced by the Northern Engine model. Northern industry isn't a substitute for southern industrial mass; it's its forward extension. Southern primes and specialist small and medium-sized enterprises generate capability. At the same time, northern industry sustains, repairs and regenerates itself under operational conditions. When designed properly, that relationship reduces turnaround times, shortens internal communication lines and increases resilience under stress. It also reflects lessons repeatedly learned in conflict, including the importance of maintaining combat power close to the point of employment rather than relying on distant rear areas.

However, that division of labour doesn't emerge organically. Northern industry won't scale based on aspiration or one-off projects. It requires predictable demand, integration into national supply chains and deliberate workforce development. The absence of those conditions has been one of the central reasons why northern industrial capacity has remained thin despite decades of strategic rhetoric.

Predictability is the first requirement. Industry can't invest in facilities, tooling or workforce based on episodic maintenance contracts or short-term tasking. Multi-year, multiplatform sustainment pipelines are essential to provide the confidence required for capital investment. That applies equally to naval vessels, aircraft and land systems. Without predictable demand from Defence and other agencies such as the ABF, northern sustainment precincts will struggle to attract and retain skilled workers or develop second-tier supplier networks.

Integration with southern industry is the second requirement. Northern sustainment must be embedded within national supply chains rather than treated as a stand-alone ecosystem. That demands secure digital engineering environments, trusted data-sharing arrangements and close collaboration between primes, original equipment manufacturers and regional providers. When northern facilities are digitally linked to southern design authorities and logistics systems, repair and refurbishment can occur in advance without compromising safety, certification or intellectual property. That model is already used effectively by allies, allowing complex systems to be sustained at a distance without duplicating full manufacturing capability.

Workforce development is the third requirement. Northern Australia faces persistent skills shortages, exacerbated by population constraints and competition from other sectors. Scaling defence sustainment in the north, therefore, requires targeted investment in apprenticeships, technical training and partnerships with technical and further education (TAFE) institutions and other training providers. Defence presence alone isn't sufficient; industry must be able to offer stable, skilled employment that supports families and long-term residency. Without that, workforce churn will continue to undermine capability.

International experience reinforces this approach. The US, Japan and the UK all employ variations of a north–south or centre–periphery industrial model, in which industrial mass is concentrated in core regions. At the same time, forward sustainment is distributed closer to operating theatres. Those models recognise that resilience comes not from duplication but from integration.

The north–south division of labour also carries broader national benefits. A credible northern sustainment ecosystem strengthens deterrence by increasing the ADF's ability to absorb damage and recover quickly. It reduces dependence on long, vulnerable supply lines. It provides economic anchors for northern communities without distorting local economies. And it allows Australia to host allied forces with confidence that the national industry can support combined operations rather than merely providing access to infrastructure.

Northern industry must be scaled deliberately, predictably and in partnership with national supply chains.

If northern Australia is to become the backbone of Australia's defence posture, industry integration should be treated as a strategic enabler rather than as a secondary consideration. Southern industrial strength must be preserved and leveraged. Northern industry must be scaled deliberately, predictably and in partnership with national supply chains. The Northern Engine provides the framework for doing so. Without it, Australia risks building a forward posture that can deploy forces but can't sustain them. Such a posture appears impressive but is fragile in practice.

Policy implications

The Northern Engine isn't simply a conceptual refinement of northern posture; it carries significant implications for how Australia thinks about national defence, how it organises delivery and how it aligns strategy with capability. If taken seriously, the model requires a shift in mindset across the Defence organisation, central agencies and governments. It challenges longstanding assumptions about estate management, allied integration, economic policy and preparedness, and it exposes the limitations of incremental reform in an era of strategic acceleration.

At its core, the Northern Engine reframes northern Australia not as a collection of isolated bases but as a national operating system. That distinction matters. For decades, Defence has approached the north primarily through the lens of estate management—upgrading individual facilities, addressing local deficiencies, and allocating resources on a base-by-base basis. That approach may have been adequate when warning times were long and operational demands limited. It's no longer sufficient. A denial strategy requires an integrated system in which basing, logistics, sustainment, industry, workforce and infrastructure are planned and delivered as interconnected components. That can't be achieved solely through Defence. It demands shared governance arrangements, shared investment decisions and shared delivery schedules that align federal, state and territory priorities around a single strategic purpose.

Treating northern Australia as a national operating system elevates northern development from a Defence portfolio issue to a whole-of-government responsibility. It requires central coordination mechanisms capable of sequencing investments across portfolios, resolving trade-offs and ensuring that infrastructure built for one purpose strengthens others. This isn't about expanding bureaucracy for its own sake; it's about recognising that fragmented delivery is a strategic vulnerability in its own right. In a contested environment, disjointed systems fail first.

Allied posture in northern Australia is no longer episodic or peripheral. It's structural. US forces, and increasingly those of other partners, are embedded in the north through rotations, exercises, sustainment arrangements and infrastructure investment.

The Northern Engine also forces a recalibration of how Australia approaches joint and allied integration. Allied posture in northern Australia is no longer episodic or peripheral. It's structural. US forces, and increasingly those of other partners, are embedded in the north through rotations, exercises, sustainment arrangements and infrastructure investment. The policy implication is clear: allied integration must be treated as core business rather than an overlay added to Australian planning. That doesn't diminish sovereignty; it reinforces it. When an allied posture is deliberately resourced, synchronised and governed within an Australian-led framework, it enhances national capability and resilience. When it's allowed to develop in parallel, without sufficient integration, it risks bypassing Australian systems rather than strengthening them.

This requires Australia to invest deliberately in the enablers of integration: shared infrastructure, common logistics frameworks, interoperable sustainment arrangements and exercises that build capability rather than merely demonstrate presence. It also requires clarity about sovereign assurance—how Australia prioritises access, controls critical infrastructure and sustains its own forces in a crisis. The Northern Engine makes explicit that alliance effectiveness depends on Australian capability, not on substituting for it.

Another critical implication lies in the integration of economic and strategic planning. Northern Australia sits at the intersection of defence posture, critical minerals development, energy infrastructure, logistics networks, migration settings and regional development policy. Historically, those agendas have been pursued in silos, often competing for resources or operating on different timelines. The Northern Engine model rejects that fragmentation. It recognises that infrastructure built to support defence—ports, airfields, energy systems, data networks, transport corridors—also underpins economic resilience and regional growth. Conversely, economic infrastructure that ignores defence requirements may fail under stress.

Merging those agendas doesn't mean subordinating economic development to defence, nor vice versa. It means designing infrastructure that serves multiple national purposes and delivers resilience across domains. That approach is particularly important, given fiscal constraints. Defence budgets are under pressure, and the scale of investment required in the north can't be met solely through defence funding. Leveraging other federal government programs, state and territory investments and private capital through multi-user facilities isn't optional; it's essential. The Northern Engine provides a framework for doing so coherently, ensuring that investments reinforce rather than dilute national-security outcomes.

The most profound policy implication is the shift from readiness to preparedness. The DSR was explicit that Australia must prioritise preparedness—building the depth, resilience and scalability needed to respond to crises that may arrive with little warning. The Northern Engine operationalises that concept. It focuses not on whether forces are ready today, but on whether Australia has the infrastructure, logistics, industrial capacity and workforce needed to sustain operations tomorrow, expand rapidly if required and recover from disruption or attack.

Preparedness is inherently systemic. It depends on deep, dispersed stockpiles, resilient supply chains, industry that can surge and communities that can support a sustained defence presence. Readiness can be generated quickly; preparedness takes years. The north is where that distinction matters most. Without a prepared northern operating system, Australia risks possessing advanced capabilities that can't be employed or sustained when it matters.

Taken together, these implications point to a clear conclusion. Implementing the Northern Engine requires more than endorsement; it requires institutional change. It demands new ways of coordinating government, new approaches to integrating allies and a willingness to align economic and strategic policies to pursue resilience. The alternative is to continue managing the north as a collection of projects rather than as the backbone of national defence.

Conclusion

The uncomfortable reality exposed by this report is that Australia's defence posture isn't evolving at pace and is running ahead of its operating system. Strategic intent has sharpened, allied reliance has deepened, but the national machinery required to sustain, move and regenerate combat power in northern Australia remains incomplete. Capability has drifted south. Logistics remains thin. Industry is under-integrated. Critical corridors are vulnerable. Those aren't marginal deficiencies; they're the conditions that determine whether deterrence holds or fails.

Allies have already drawn their conclusions. The US is investing in, hardening and operating from northern Australia at speed. It's doing so because geography matters and because it judges the north to be indispensable to Indo-Pacific stability. The risk for Australia isn't alliance overreach; it's strategic underreach. If Australia doesn't build its own Northern Engine, it will increasingly rely on others to keep the north functioning in a crisis. That isn't partnership—it's dependency.

The Northern Engine is therefore not a conceptual preference but a strategic necessity. It's the difference between hosting allied forces and fielding sovereign power. It's the difference between having access to the north and being able to fight from it. It's the difference between a denial strategy that deters and one that collapses under pressure.

This report doesn't argue for more strategy. It argues for delivery. The choices are practical, immediate and unavoidable. Australia can continue to manage the north as a collection of projects and bases, or it can build the operating system that its own strategy demands. One path leads to fragility masked by rhetoric. The other leads to credible deterrence, sovereign resilience and strategic relevance.

Notes

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9 Society of American Military Engineers, 'Combined INDOPACOM–ADF United States Force Posture Initiatives (USFPI) briefing', presentation, 13 September 2023, online.

Acronyms and abbreviations

ABF	Australian Border Force
ADF	Australian Defence Force
AUSMIN	Australia – United States Ministerial Consultations
CONOPS	concept of operations
DSR	Defence Strategic Review
IIP	Integrated Investment Plan
ISR	intelligence, surveillance and reconnaissance
NDS	National Defence Strategy
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
USFPI	US Force Posture Initiative
TAFE	technical and further education

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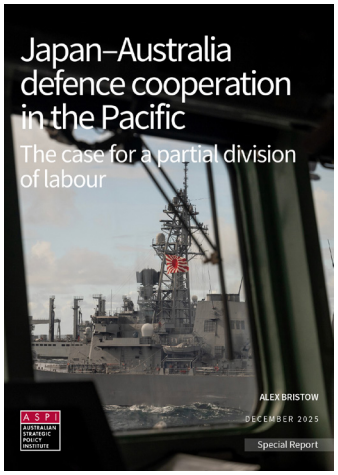

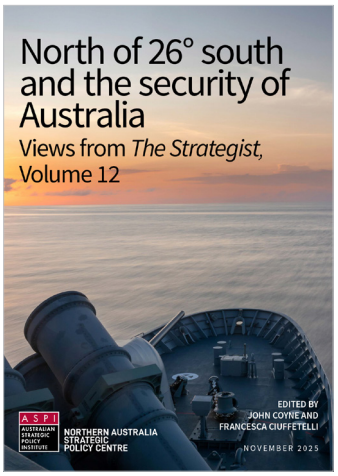

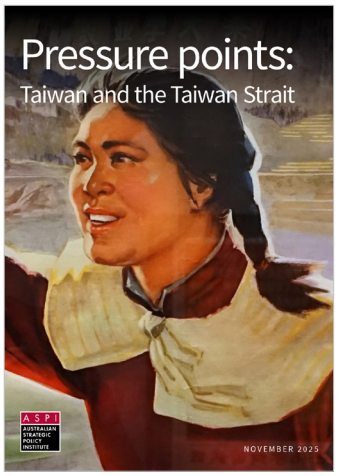


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