

Australia's Space Launch Roadmap

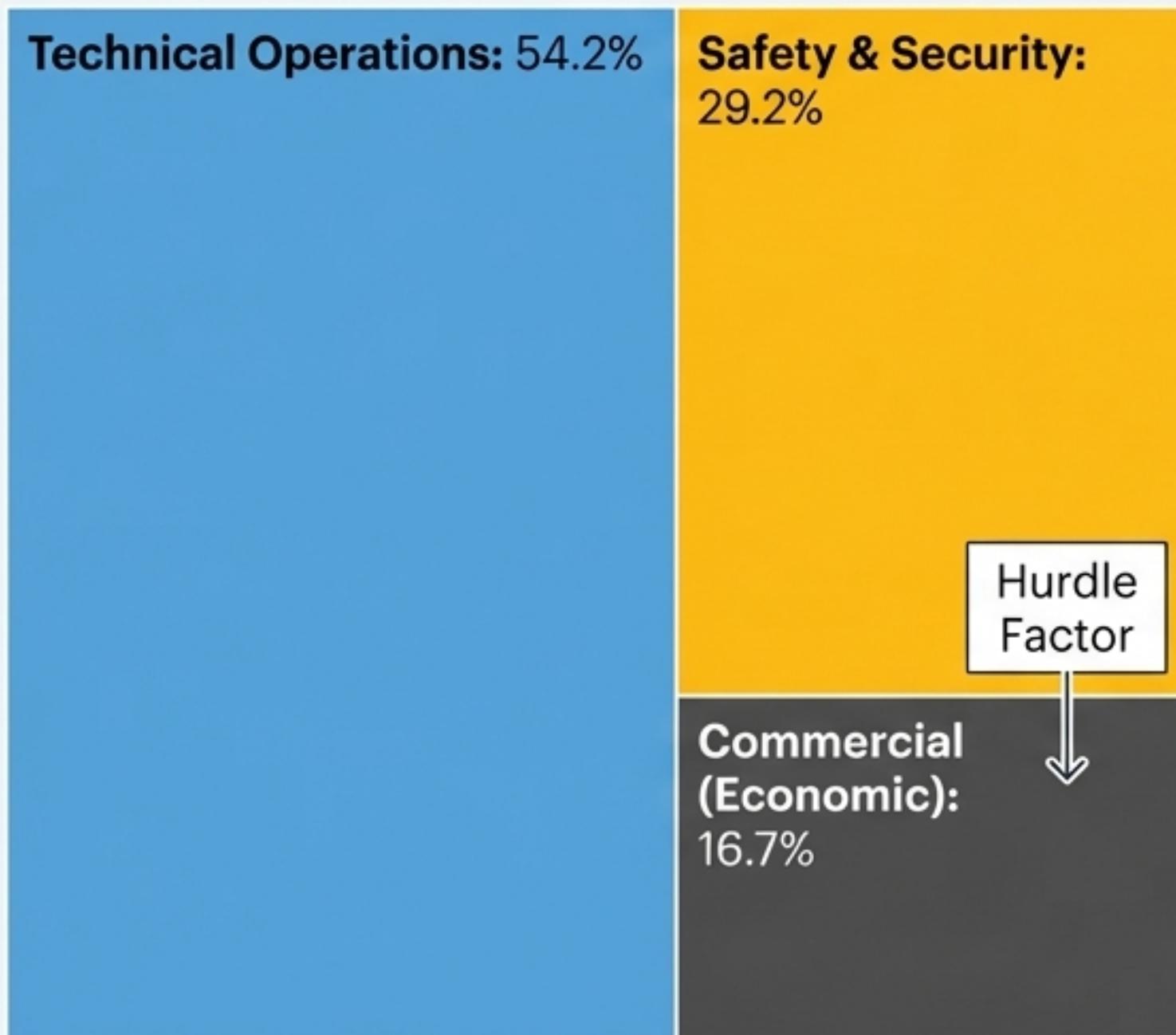
Optimizing Geographic Advantage for Global Competitiveness



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Defining “World-Class”: The Three Pillars of Launch Site Selection are Dominated by Technical and Safety Factors

MCDM Dimension Weights

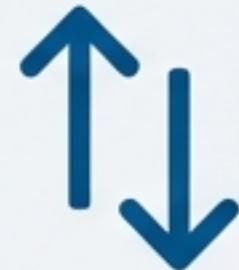


Detailed Breakdown

MCDM Dimension (with weight)	Key Determinants	Commercial Implication
Technical Operations (54.2%)	ΔV efficiency (latitude), accessible orbits, launch vehicle compatibility.	Directly determines payload capacity and fuel costs.
Safety & Security (29.2%)	Flight trajectory over unpopulated areas, population density (PD), weather stability (WC).	Hard Constraint: Governs operating permits, insurance costs, and international liability.
Commercial (Economic) (16.7%)	Infrastructure (IS), transport logistics (TP), non-recurring engineering (NRE) costs.	Hurdle Factor: Determines long-term profitability; excessive costs negate technical advantages.

Strategic Assessment of Australia's Commercial Launch Capabilities

Positioning for Sovereign Control and Global SmallSat Leadership



Core Advantage

Australia has established a world-class **Dual-Niche Strategy** in the global SmallSat market, offering launch customers unparalleled orbital efficiency (high ROI per launch) and high geopolitical reliability.



Strategic Gap

Current sovereign capabilities are limited to Light-lift (e.g., Eris, ~300 kg LEO payload). A **critical strategic gap exists in Medium-lift capability** (4,000 – 23,000 kg), creating a fundamental risk to national strategy.



Imperative

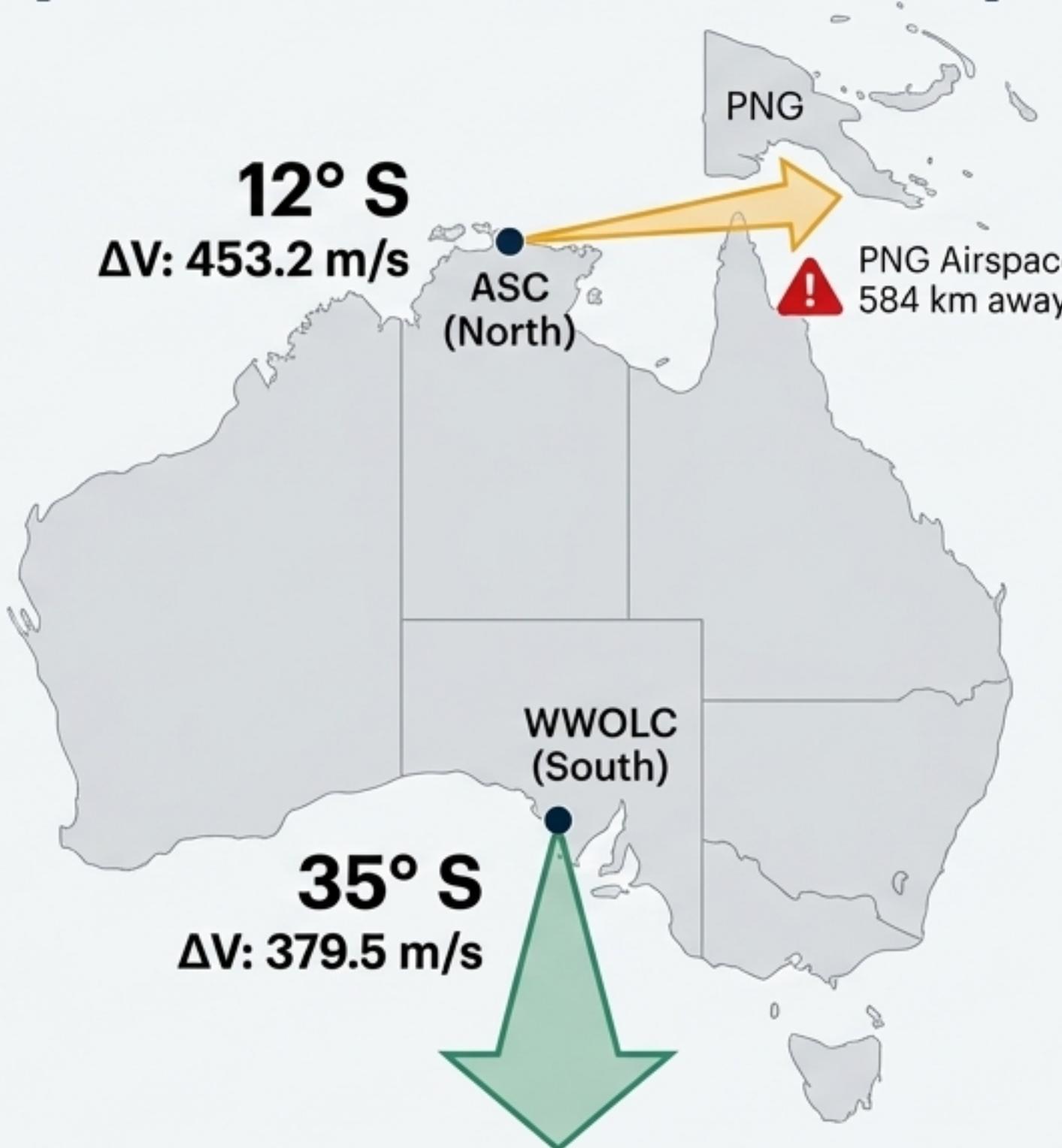
Developing **sovereign Medium-lift capacity** is non-negotiable for securing national space sovereignty for critical assets and achieving the national **\$12 Billion AUD industry target**.

Australia's Two Sites Offer a Complementary Portfolio of Technical Efficiency and Unmatched Safety

ASC's Technical Edge: Near-Equatorial ΔV Delivers Cost Competitiveness

At 12° S latitude, ASC achieves **453.2 m/s** of rotational assist—**97.8% of Earth's maximum**—making it highly competitive for GTO and Low-Inclination LEO missions.

Key Constraint: Launch azimuth is limited (72°–143°), with trajectories overflying Far North Queensland and approaching foreign airspace, increasing compliance complexity.



WWOLC's Safety Guarantee: Unrestricted Corridor Creates Absolute Advantage

A wide 135°–296° launch azimuth directly over the Southern Ocean means **Population Density (PD) risk is near-zero**.

Key Benefit: This unique safety profile dramatically simplifies compliance, reduces insurance costs, and eliminates international overflight risks, appealing to high-value and national security payloads.

The World-Class Playbook: Securing Leadership via a Dual Niche Strategy and Three Critical Actions

Strategic Positioning Summary

Positioning Dimension	Whalers Way (WWOLC)	Arnhem (ASC)
Market Niche	High-Inclination (HI) / SSO (Polar)	Low-Inclination (LI) / GTO (Equatorial Efficiency)
Core Advantage	Unmatched Safety Assurance (Unrestricted Southern Corridor) & High Commercial Maturity	Superior Orbital Mechanics ($\Delta V = 453.2 \text{ m/s}$ efficiency)
World-Class Status	Achieved Functional World-Class	Contingent World-Class Potential

Key Strategic Recommendations

- Maintain Dual Niche Focus**
Aggressively develop ASC & WWOLC as complementary assets offering **Efficiency (LI)** and **Assurance (HI)**, avoiding internal competition.
- De-Risk ASC Logistics**
Prioritize the A\$355M Central Arnhem Road upgrade and solve the regional housing shortage to convert ASC's technical potential into commercial reality.
- Maximize WWOLC Throughput**
Leverage its safety and logistical advantages to rapidly increase launch frequency, establishing Australia's reputation for high-reliability launch services.

Commercial Readiness is the Deciding Factor: WWOLC is Operationally Mature While ASC's Potential is Locked Behind a Major Logistics Barrier

Commercial Factor	WWOLC: High Maturity / Low Risk	ASC: Low Maturity / High Risk
Infrastructure & Logistics	High Integration: 17 km from Port Lincoln, leveraging existing regional resources. Low NRE costs.	Extreme Isolation: 500 km from Darwin via the largely unsealed 675 km Central Arnhem Road.
Required Public Investment	Low: Minimal new public investment required.	High: A\$355M required for critical road upgrades.
Workforce & Housing	Accessible: Utilizes existing regional labor pool and housing.	Major Challenge: A deficit of 150-200 homes prevents attraction of skilled labor.
Schedule Reliability (Weather)	Very High: Stable climate with low annual rainfall (65.9 days/year), maximizing launch windows.	Medium/Low: Tropical climate presents higher risk of weather-related launch delays.

WWOLC's commercial readiness makes it Australia's most scalable and immediately profitable launch asset. ASC's technical advantage is currently nullified by its significant operational and financial risks.

From Precision Surgical Tool to Strategic Power: Securing Australia's Sovereign Future in Space

Australia's launch sites currently function as a **precision surgical tool**—excelling at highly efficient, niche orbital insertions. To evolve into a robust space power, this precision must be paired with the **strategic capability** to deliver larger, sovereign missions.

1. **Develop Sovereign Medium-Lift Capability:** Secure independent access to space for all critical assets.
2. **Invest in Operational Backbone:** Build infrastructure resilience to support higher operational cadence and larger components.
3. **Integrate the National Ecosystem:** Convert launch ‘points’ into a cohesive national industry ‘catalyst.’
4. **Drive Commercial Excellence:** Solidify Australia’s position as the most reliable provider in the SmallSat market.