WRegSAT I, 2025 Regulatory Challenge

Supplementary Brief – Regulatory Theory

When regulating any industry, including the Australian space industry, it is important to consider a range of regulatory approaches. This allows policymakers to create frameworks that are tailored to specific needs, balancing innovation, safety, and compliance with international standards. For the Australian space sector, using a range of regulatory strategies ensures adaptability to technological advances. This adaptability enables a competitive position.

The experts participating in ASRW are expected to provide regulatory options for each in-depth issue. Different regulatory approaches offer varying levels of control, flexibility, and industry engagement. When used appropriately, these differing approaches enable a regulatory environment that promotes growth while safeguarding public interests.

This document provides a primer on regulatory approaches for participants in the ASRW.

Regulatory Approaches

Prescriptive Regulation: This approach involves setting specific rules or standards that industry participants must follow. It is effective for ensuring safety and compliance with international treaties, such as those that govern handling of rocket fuels and registration of space objects. In the context of Australian space activities, prescriptive regulation could be used to define precise technical requirements for launch vehicle operations or space debris mitigation strategies through rules made under the *Space (Launches and Returns) Act 2018*. However, prescriptive regulations can be rigid, potentially stifling innovation if they fail to keep pace with rapid advancements in space technologies.

Performance-Based Regulation: Rather than specifying the exact methods that must be used, performance-based regulation sets desired outcomes and allows industry participants the flexibility to decide how to achieve them. This approach is well-suited for space activities where technological diversity and innovation are critical. For example, Australia could set performance standards for space debris mitigation, requiring operators to demonstrate that their methods meet certain benchmarks, without dictating how they achieve these outcomes. This allows companies to innovate while still adhering to the overall regulatory goals of safety and sustainability.

Self-Regulation: In self-regulation, industry participants develop and enforce their own standards, often through industry associations or trade groups. This can be effective in sectors where there is a high level of industry expertise and a strong commitment to maintaining standards. In the Australian space industry, self-regulation could be relevant

for niche areas like formation flying of space objects or conjunction warnings, where operators might develop codes of practice that ensure safety without the need for detailed government intervention. However, this approach risks inadequate enforcement if industry priorities conflict with broader public interests, such as environmental protection or national security.

Co-Regulation: Co-regulation involves collaboration between industry and government to develop regulatory standards. This hybrid approach allows stakeholders to contribute their expertise, while the government ensures that broader social and environmental objectives are met. For Australia's space industry, co-regulation could facilitate the development of a balanced licensing framework, where industry input helps to streamline processes for obtaining multiple launch licenses, while government oversight ensures compliance with safety and international obligations like the Technology Safeguards Agreement with the United States.[1]

Market-Based Regulation: This approach uses economic incentives or market mechanisms to encourage compliance. Examples include tradable permits for emissions or penalties for non-compliance. In the space sector, market-based regulation could involve setting fees or penalties for space debris generation or offering incentives for sustainable practices, such as reducing the environmental impact of launches. This approach can be effective in encouraging industry participants to exceed minimum standards, but it requires careful design to avoid unintended consequences and ensure that market signals align with regulatory goals.

The choice of regulatory approach for specific issues in Australian space activities depends on the nature of the issue and the desired outcomes. For safety-critical activities, such as launch operations, prescriptive regulations may be necessary to ensure compliance with detailed technical standards. For areas where technological innovation is crucial, like space debris mitigation, performance-based or co-regulatory approaches might be more effective. Market-based mechanisms could be suitable for encouraging industry to adopt sustainable practices. Ultimately, a mixed approach—tailoring the type of regulation to the specific challenges and opportunities of each aspect of the space industry—can provide the most balanced and adaptive regulatory environment. This flexibility ensures that Australia remains competitive in the global space industry while safeguarding public interests and maintaining high standards of safety and sustainability.

[1] Agreement between the Government of Australia and the Government of the United States of America on Technology Safeguards Associated with United States Participation in Space Launches from Australia, signed 26 October 2023, [2024] ATS 12 (entered into force 23 July 2024).