Sustainable Space Initiative

RESEARCH SUMMARY

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The intersection of space and sustainability: the need for a transdisciplinary and bi-cultural approach

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Space sustainability is about much more than debris. With a bi-cultural framework founded on Te Tiriti o Waitangi and a young, market-driven space sector, Aotearoa New Zealand is uniquely placed to rethink what a sustainable space sector looks like.

A PESTLE VIEW OF SPACE AND SUSTAINABILITY



Political · Policy design and government intervention in a free-market space sector

Economic · A NZD 1.75b a year space economy (2019); weak versus strong sustainability

Social · Te Ao Māori: kaitiakitanga, tino rangatiratanga and intergenerational wellbeing

Technological · Space-enabled data for sustainability on Earth, from land management to methane

Legal · International space treaties alongside Te Tiriti o Waitangi obligations

Environmental · Orbital debris and crowded orbits, spectrum demand, and Earth's role in the space environment

WHICH SUSTAINABILITY DO WE MEAN?

Weak sustainability
Natural capital can be swapped for technology fixes.
e.g. keep launching and rely on active debris removal to clean up orbits later.

Strong sustainability
Natural capital must stay intact for the next generation.
e.g. treat orbits and the upper atmosphere as finite, and design missions so they leave no debris or lasting harm.

Indigenous knowledges run parallel to systems thinking. Te Ao Māori sees land, resources and knowledge as *taonga* needing *kaitiakitanga* (guardianship), with people and the natural world inherently interconnected. Engagement must be more than consultation, and avoid tokenistic use of mātauranga Māori.

RECOMMENDATIONS

Reach a cross-sector, bi-cultural consensus on a preferred future for a sustainable space sector, through:

1. Build genuine, non-transactional, ongoing partnerships for Māori participation, including tino rangatiratanga and kaitiakitanga
2. Policymakers work with stakeholders to shape the pathway of sustainable development
3. Engage with the experts shaping a bi-cultural space sector
4. Set clear sustainable development strategies that all stakeholders can see
5. Establish consistent sustainability reporting for the space sector

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