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How to make a submission

The space policy review consultation is an opportunity to share your interests in space and views on the values and policy objectives that underpin New Zealand's space activities and engagements.

You can make a submission either though this form or the survey linked below.

Submissions close by 31 October 2022.

Submission form

This submission form can be accessed via the MBIE consultation portal at www.mbie.govt.nz/have-your-say/new-zealand-space-policy-review. To make a submission through this form you will need to:

- 1. Fill out the **submitter information** page within this document, including your name, email address, phone number and organisation. If you are representing an organisation, please ensure you have the authority to represent its views.
- **2.** Fill out your **responses to the questions** within this document. You can answer any or all of these questions.
- 3. Please send this submission form either:
 - Via email: to spacepolicyreview@mbie.govt.nz; or
 - <u>Via post:</u> to: Space Policy Review, Ministry of Business, Innovation and Employment, PO Box 1473, Wellington 6140.

Submission survey

Alternatively, you can complete a submission on the same questions within this form using the following link: https://www.research.net/r/spacepolicyreview

How feedback will be used

Your feedback will be collated into a summary of feedback report. This will assist the New Zealand government to create or amend space policies and to look at:

- Creating a National Space Policy: a document which outlines New Zealand's values and objectives on space, including for our international partners.
- Articulating New Zealand's broad interests on space across multiple activities and engagements: including at United Nations for aand with international space and security partners.
- Developing future space strategies, policies and regulatory changes: including adjusting our policies and regulations to meet advancements in space technology.
- Future engagement on space policy with the New Zealand public: including on any key areas of interest identified through the consultation.

Considering whether any legislative changes are required to the Outer Space and High-altitude Activities Act 2017.

MBIE has commissioned PublicVoice to produce a summary of feedback report on the space policy review consultation. PublicVoice will collate all submissions, and other feedback received through the course of the consultation.

All feedback from the space policy review consultation will be collated by PublicVoice for the purposes of producing a summary of feedback report. MBIE will upload the summary of feedback report onto the MBIE website and may also upload PDF copies of submissions received to MBIE's website in due course.

Private information

The *Privacy Act 2020* establishes certain principles with respect to the collection, use and disclosure of information about individuals by various agencies, including MBIE.

Any personal information you supply to MBIE in the course of making a submission will be used in the collation of feedback on the space policy review consultation, to facilitate the purposes outlined in the "how my feedback will be used" section above.

Release of information

Submissions remain subject to requests under the *Official Information Act 1982* and MBIE will consider you to have consented to the release of your submission in full unless you clearly specify otherwise.

Release of your submission will include releasing your name in a list of submitters in the report, and as part of uploading submissions in due course to the MBIE website – www.mbie.govt.nz, and in the event of a request under the Official Information Act 1982.

If you do <u>not</u> wish for certain information in your submission to be released, please tick the relevant boxes on the next page and outline which parts you consider should be withheld, together with the reasons for withholding the information.

MBIE will take such objections into account and will consult with submitters when responding to requests under the *Official Information Act 1982*.

Submitter information

About you

Name:		Nicholas van Brakel
Email a	address:	ABsfan@hotmail.co.nz
Are you	making th	is submission on behalf of a business or organisation?
☐ Ye	S	⊠ No
<u>If yes</u> , ple	ease tell us t	the title of your company/organisation.
Would y	ou like to	be kept informed of the outcome of the Space Policy Review?
⊠ Ye:	S	\square No
Are you	happy for	MBIE to contact you if we have questions about your submission?
⊠Y	es	\square No
Release	of informa	ition
1 1		nis box if you do <u>not</u> wish your name and contact details above to be included in tion about submissions that MBIE may publish.
□ k	ept confide	nis box if there is other information within your submission that you want to be ntial. If you have ticked this box, please <u>state your reasons</u> and grounds under the mation Act 1982 below, for consideration by MBIE.

Section 1: New Zealand interests in space

New Zealand's association with space goes back centuries – the first Māori explorers navigated by the stars to Aotearoa New Zealand, and centuries later they were followed by European navigators whose instruments also looked to the stars. Today, our modern navigation systems are still guided from space.

New Zealanders rely on space assets to do everyday tasks, like banking, transporting goods, travelling by air, and talking with each other. As the world becomes more connected and digitised, our reliance on space to support our daily lives is only going to increase.

The New Zealand government pursues a range of cross-cutting interests in space – including economic development, national security, regulation, international relations, and environmental interests. These interests are often articulated in broader government policies, strategies and assessments and inform our approach to space policy interests.

Question 1. What are your interests and relationship to space? (Pick as many as apply below)

Ge	neral interest in space	Work in the New Zealand space sector	Cultural connections to space	Academic involvement on space issues	Other (please explain in box below)
	\boxtimes				
Pleas	e note any other ir	nterests and relationsh	nip to space below t	hat you would like to	share.

Section 2: New Zealand values in space

New Zealand's values speak to who we are as a nation and how we act in the world. The following are values that the New Zealand government aims to reflect and promote through space activities, engagements and the use of space technologies. These values are informed by the concept of kaitiakitanga (guardianship) as a guiding framework to ensure that space, and its benefits, remain accessible for all.

- Innovation We value innovation, science, and technology as means of advancing our knowledge about the universe, driving productivity in the economy and improving the wellbeing of New Zealanders. We also want to encourage innovation, which is responsible, enables New Zealand to be a good steward of the environment, and enables collaboration with companies and other governments.
- **Responsibility** Space is a unique domain which is shared by all states. We act responsibly to promote a peaceful, stable, and secure space environment and to inform responsible behaviours on Earth. This includes acting in accordance with the principles in the Outer Space Treaty and other international agreements and arrangements applicable to space, as well as New Zealand's domestic law and policies. We also seek to influence the development of new international instruments, and develop norms and standards with like-minded countries, where there are gaps.
- **Stewardship** Space offers a unique perspective that is crucial for understanding our environment, including to fight climate change, and better manage our natural resources. At the same time, we take care to act sustainably in space and on Earth to preserve the benefits of these environments for future generations.
- Partnership We are better when we work together. Participation, Partnership, and Protection are
 key principles of Te Tiriti o Waitangi and we want to continue to engage with Māori on New Zealand's
 space activities and engagements. The government works alongside New Zealanders and the space
 sector in developing policy and regulations that impact them; collaborates with international partners
 on economic, security and other interests; and within international institutions to promote New
 Zealand's values.

Question 2. To what extent do you agree or disagree that these values should apply to New Zealand's space activities and engagements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
Innovation					\boxtimes	
Responsibility					\boxtimes	
Stewardship					\boxtimes	
Partnership					\boxtimes	

Question 3. Are there any other values, or aspects of kaitiakitanga (guardianship), that you think should apply to New Zealand's space activities and engagements (for example, cultural values regarding space).

Section 3: New Zealand's space policy objectives

The New Zealand government supports a range of interests in space (economic, environmental, international, national security and regulatory) by pursuing the following key policy objectives:

- Growing an innovative and inclusive space sector
- Modelling sustainable space and Earth environments
- Promoting the responsible uses of space internationally
- Protecting and advancing our national security and economic interests
- Regulating to ensure space activities are safe and secure

Question 4. Are any of these key policy objectives of particular importance to you?

- Regulating to ensure space activities are safe and secure
- Promoting the responsible uses of space internationally

We must work with partners to try and reduce all orbital debris which is a hazard to space flight and to stop military weaponizing space activities.

An example of military action which needs to be stopped - In November 2021, Russia launched a missile which blasted one of its satellites thus creating over 1500 pieces of dangerous debris and temporary causing a near evacuation of the international space station.

An example of irresponsibility use of space is of old satellites made to de-orbit at the end of their life and burn up in the atmosphere. Some of that material makes it back to Earth, usually using the Pacific Ocean as a dumping ground. We need to develop (with partners) a recovery program to bring those old satellites back to Earth safely. Using reusable rockets, like SpaceX does, this can be feasible through development, planning and in conjunction with other countries.

There is no mention of scientific discovery and understanding in the 'New Zealand Government supports a range of interest in space.'

The main drivers of technological, economical, security, social and environmental changes has been the pursuit of discovery, knowledge and understanding in the science realm. There have been many spinoffs from space technology that have helped the world, not just from orbital space flight but from space missions exploring the solar system.

Some examples of spinoffs are:

Vacuum-sealed food, Fireproof materials in firefighters uniforms, satellite data that has helped to preserve endangered species e.g. tracking elephants. Also data on ocean pollution, deforestation, and desertification. Medical work on the International Space Station has helped come up with treatments for Type2 diabetes, osteoporosis and a range of cardiovascular disorders.

My question is – can the New Zealand Government include 'The pursuit of scientific discovery and understanding' in its range of interest?

Section 3a: Growing an innovative and inclusive space sector

OBJECTIVES

The New Zealand government supports the growth of an innovative and inclusive space sector. This means:

- Promoting New Zealand's natural advantage for conducting space activities, and research and development expertise across the space value chain
- Partnering within New Zealand and internationally to increase research and development capabilities
- Identifying opportunities to increase diversity in the space sector

		ree or disagree tha rative and inclusive		bjectives will	help the New
a. Promoting New development expe		al advantage for co pace value chain	onducting space a	nctivities, and I	esearch and
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
				\boxtimes	
b. Partnering with capabilities	in New Zealan	d and internationa	lly to increase r	esearch and o	development
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
c. Identifying oppor	rtunities to incre	ase diversity in the	space sector		
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
				\boxtimes	
		ogy and space sourc s to increase diversi			's values and
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know

• Using cutting-edge space technology and space sourced data to support New Zealand's values and

interests

On New Zealand's natural advantage, Kaitōrete Spit has been named as a place for space launches. I am concerned about that location as the spit is made up of river and sea sediment and only 8 metres above sea

they are framed)? Is there anything missing?)

Question 6. Do you have any comments on these policy objectives (e.g. any suggested change to how

level. Due to climate change the seas are getting warmer which makes storms stronger and sea level rise is accelerating which combined with, high tides, king tides and storm surges increases the rate of erosion. Even NASA is having serious concerns with the Cape Canaveral launch site.

The long term sea level rise projections are shifting to higher multi-metre sea levels than previously thought due to more knowledge and evidence. The recent reports on Greenland's increasing contribution, Twaites glacier and Pine Island in West Antarctica, the slowdown of the SMOC (Southern Meridional Ocean current) the keeps Antarctica cold, increasing concerns of Ice shelf instability and Ice cliff instability for the Ross Ice shelf and Ronne Ice shelf in Antarctica, all point to multi-metre sea level rise coming sooner than later. Tipping points are closer or have been crossed. This does not bode well long term for any space launch site or any other infrastructure close to the ocean.

Question 7. Are there any other policy objectives that you think would help the New Zealand government to grow an innovative and inclusive space sector?

Promote technologies that lead to reusable spacecraft. This leads to cheaper spaceflight activities and less wastefulness.

There is no mention on future mining on the Moon, Asteroids or any other Celestial bodies. Other countries and private businesses have interest on this. There is huge economical potential with regard to rare metals but also there are international legal aspects to consider. Also, there is no mention of space tourism which has huge potential as well.

Question 8. Do you have any questions or comments about what these objectives would mean in practice?

We need people to have the education in these fields to achieve the objectives. Therefore we need to focus on better education throughout the schooling spectrum – Primary, Intermediate, High School, University years, and any further training programs to have a continuous and evolving knowledge base to meet these objectives. This will not just help the space industry as it will help the whole economy by having a higher educated population.

Section 3b: Modelling sustainable space and Earth environments

OBJECTIVES

The New Zealand government advocates for the sustainable use of space to ensure its benefits remain available to future generations. At the same time we seek to use space, and space technologies, to gain understanding and better protect our environment on Earth. Specifically this means:

- Encouraging inclusive, sustainable space collaborations within New Zealand
- Assessing the cumulative impact of space activities on the Earth environment
- Assisting with solving sustainability challenges through space data, including to better monitor or understand the Earth's environment
- Investing in New Zealand's capability to retain, grow, access and use sustainable space technologies

Question 9. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to model sustainable space and Earth environments?

a. Encoi	iraging inc	lusive, sus	stainable spac	ce collabora	itions within	New Zealand
----------	-------------	-------------	----------------	--------------	---------------	-------------

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know

b. Assessing the cumulative impact of space activities on the Earth environment

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
				\boxtimes	

c. Assisting with solving sustainability challenges through space data, including to better monitor or understand the Earth's environment

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
	d. Investing in New	Zealand's capa	bility to retain, grow	, access and use	sustainable spa	ce technologies
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
	tion 10. Do you ha	-	ents on these polic nissing?)	y objectives (e.	g. any suggesto	ed change to how
			cy objectives that vice and Earth envir	•	help the New	Zealand
Prom	note reusable Earth t	o Space vehicle	s by funding new tec	hnological develo	pments and ide	as.
Ques pract	•	ve any questic	ons or comments a	bout what these	e objectives w	ould mean in
Abou	it investing in NZ's ca	apability to reta	in, grow, access and	use sustainable s _l	pace technologi	es –
Hub. Deve Spac be pa	We could attract for lopment. Just like a e Hub can be as well	reign investmen Technology Hub . There are man benefit their ov	keep people here. Ho It and highly skilled po It can be inspirational Ity countries (that doi Ivn needs. i.e. countri	eople which will l and collaborative n't have direct acc	pe beneficial to e which drives in cess to Space) th	Research and novation, a nat may want to

OBJECTIVES

disagree

The New Zealand government promotes the responsible use of space internationally. This means:

- Advocating for effective international rules, norms and standards in space
- Partnering with like-minded launch states to adopt peaceful, responsible and sustainable space practices
- Collaborating internationally to increase New Zealand's influence and capabilities in the global space sector

Question 13. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to promote the responsible uses of space internationally?

a. Ad	vocating for effe	ctive internation	onal rules, norms and s	tandards in spac	:e	
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
					\boxtimes	
b. Pa pract	_	e-minded laun	ch states to adopt pea	ceful, responsib	le and sustair	nable space
	Strongly	Disagree	Neither agree	Agree	Strongly	Don't know

Agree

nor disagree

	c. Collaborating inter space sector	nationally to	increase New Zealar	nd's influence ar	nd capabilities	in the global
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
					\boxtimes	
Ques	tion 14. Do you hav	e any comme	ents on these policy	, objectives (e.	g. any suggest	ed change to ho
	are framed)? Is there	-	= :	,,	5 <i>j</i> - 1.66	
See r	ny answer to question	ı 4 .				
-	tion 15. Are there ar				help the New	<i>ı</i> Zealand
	government to promote the responsible uses of space internationally? Maybe with other countries to have an autonomous organisation within the United Nations acting as a watchdog similar to the International Atomic Energy Agency.					
Ques ^a	tion 16. Do you have ice?	e any questio	ns or comments ab	out what these	e objectives w	ould mean in

Section 3d: Protecting and advancing our national security and economic interests

OBJECTIVES

disagree

To sustainably grow our space sector by having due regard to our national interests we need to:

- Use space assets to protect and advance New Zealand's national security and economic interests
- Manage the broad range of security risks in space to protect New Zealand's space industry
- Collaborate with international space and security partners to pursue New Zealand's national security and economic interests

Question 17. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to protect and advance our national security and economic interests?

a. Use space asse	ts to protect and	advance New Zealan	d's national sec	urity and econo	mic interests
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
				\boxtimes	
b. Manage the br	oad range of secu	urity risks in space to	protect New Ze	aland's space in	dustry
Strongly	Disagree	Neither agree	Agree	Strongly	Don't know

Agree

nor disagree

	security and econon	nic interests				
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
					\boxtimes	
	tion 18. Do you ha are framed)? Is the	•	•	y objectives (e.	g. any suggeste	ed change to how
tiley	are framed; is the	ie anything in	133111g: <i>J</i>			
Fram	ned as: 'To pursue Pea	aceful and Inclu	sive Endeavours for	all space activitie	s and for all peo	ple.'
	tion 19. Are there a	= =			-	Zealand
On tl	ne economic side we	need our educa	ition and pathways i	n these fields of s	cience to impro	ve.
Ques pract	tion 20. Do you hav ice?	e any questio	ns or comments a	bout what these	e objectives w	ould mean in

c. Collaborate with international space and security partners to pursue New Zealand's national

Section 3e: Regulating to ensure space activities are safe and secu	Section 3e: Regula	ting to ensure	space activities	are safe and	secure
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OBJECTIVES

The New Zealand government regulates to ensure New Zealand space activities are safe and secure. This means:

- Facilitating the safe and secure use of emerging space technologies from New Zealand
- Clarifying what New Zealand space activities are inconsistent with the national interest
- Promoting and protecting New Zealand's interests through permitting space technologies

Question 21. To what extent do you agree or disagree that these policy objectives will help the New Zealand government to ensure space activities are safe and secure through regulation?

a. Facilitating the safe and secure use of	emerging space techn	ologies from New Zealand
--	----------------------	--------------------------

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
				\boxtimes	

b. Clarifying what New Zealand space activities are inconsistent with the national interest

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
				\boxtimes	

	c. Promoting and pro	otecting New Z	ealand's interests thi	ough permittin	ng space technolo	ogies
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	Don't know
					\boxtimes	
		ve any commo	ents on these policy			ed change to how
			cy objectives that yes space activities are			Zealand
Ques ^a		e any questio	ons or comments ab	out what the	se objectives w	ould mean in

Section 3e(i): Regulating in line with our national interests

Under the Outer Space and High-altitude Activities Act 2017, the Minister for Economic and Regional Development may decline a licence or permit if they are *not satisfied* that it is in the national interest. The Minister may take into account when considering the national interest: economic or other benefits to New Zealand; risks to national security, public safety, international relations or other national interests; risks that cannot be mitigated by conditions of the licence or permit; and any other relevant matters.

As part of policy to inform the language in the Act, Cabinet has agreed to principles that will inform the consideration of national interest for space activities, as well as what is not in New Zealand's national interests. These principles are:

- Responsibility: that space activities from New Zealand should be conducted with due care and in such a way as to promote an orbital environment where actors avoid causing harm or interference with the activities of others.
- **Sustainability**: New Zealand should promote sustainable space practices that preserve the benefits of space for future generations.
- Safety: space activities from New Zealand should be conducted in a way that does not jeopardise human safety (including the safety of people in space).
- Aligning with New Zealand's values and interests: space activity from New Zealand should uphold the policies and values supported by New Zealanders and align with broader policy settings.

The following space activities are <u>not</u> in New Zealand's interests, i.e. the Minister will not authorise space activities:

- that contribute to nuclear weapons programmes or capabilities
- with the intended end use of harming, interfering with, or destroying other spacecraft or space systems on Earth
- with the intended end use of enabling or supporting specific defence, security or intelligence operations that are contrary to government policy
- where the intended end use is likely to cause serious or irreversible harm to the environment.

Question 25. Are there any comments you would like to make about these criteria that inform consideration of the national interest?

There is no mention of scientific interest which is more broadly World interest than just New Zealand's national interest. Also scientific interest is usually non-profit in understanding the universe we live in. Does New Zealand national interest take this into account or is it just looking for a financial gain?

It is scientific curiosity and interest of 'What is up there,' that gets people to seek out answers to their questions. To push and expand ideas and technological boundaries we need to aim beyond earth's orbit and the Moon. This drives the innovation. Most of what has been mentioned in this submission review about space is that of orbital activity. The vision and objectives of many around the world is beyond orbital activity. It is to explore the solar system e.g. The Moon, Mars and beyond.

Maybe one of our principles should say something like this -

Science and Exploration: New Zealand space activities should advance Space Exploration and the answering of Scientific Questions about our universe with a sense of wonder and adventure that will inspire future generations to follow in the footsteps of those living today.

estion 26. What questions do you have about how the national interest is considered in practice?