Briefing for the Incoming Minister for Space

27 November 2023

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Te Kāwanatanga o Aotearoa
New Zealand Government

Contents

1. Welcome to the Space portfolio

1. As the Minister for Space, you are focused on growing New Zealand's space and advanced aviation sectors. We understand that the Government's priorities in this portfolio are based on the National Party manifesto that will support your objective of a **New Zealand space sector worth $10 billion by 2030**:

Area	Priorities
Regulation	Deliver a **high performing regulatory regime** that makes it easy to do business in New Zealand. This includes: • Streamlining rules, including delegating Ministerial approval responsibilities to officials for some decisions. • Setting key performance indicators for regulators with independent monitoring to ensure space and advanced aviation companies get timely and consistent decisions. • Ringfencing funding for the New Zealand Space Agency and the advanced aviation functions within the Civil Aviation Authority (CAA) to secure funding for regulatory functions and existing appropriations.
Workforce development and education	**Education focused initiatives** to inspire young people and train more students in STEM. This includes: • Establishing the Prime Minister's Space Prize. • Re-writing the curriculum for primary and intermediate school level students to include minimum science requirements. **Attracting high-performing international talent** to work in New Zealand's space and advanced aviation sectors. This includes: • An accelerated pathway for residence for exceptional talent from around the world. • Allowing migrants or New Zealand businesses sponsoring them to pay an additional fee for priority processing to fast-track visa applications within a guaranteed two weeks. • Introducing an International Graduates Visa that offers a three-year open visa to highly educated graduates from the world's top 100 universities. • Introducing the Global Growth Tech Visa – a residence visa for people with highly specialised skills who have worked at a top global tech company earning at least NZD$400,000 per annum.

Technology development	**Establishment of testing zones** for space and advanced aviation. This includes: • Establishing areas for testing that are exempt from usual compliance regimes that provide reliable access to testing for space and advanced aviation without risking conflicts with other traffic*. • Inviting landowners to bid to have their land declared a dedicated aerospace testing zone in legislation. • Naming each testing area in legislation and permanently vesting these special rights in the land, rather than the current owners, for added certainty. • Setting minimum standards for environmental protection in testing zones at a level that is appropriate for testing and minimises compliance.
Data procurement coordination	**Coordination between agencies on purchasing of satellite data**. This includes: • Rationalising procurement of satellite data and Earth imagery by requiring government agencies to share purchased information with other agencies. • Encouraging agencies to consider opportunities to use satellite- and drone-based data, alongside traditional tools, for example to measure environmental changes or in disaster recovery.

*Such a regime does not currently exist in New Zealand but, if established, could be applied to existing sites eg Tāwhaki.

2. To support your priorities, we suggest the following areas are the most critical to delivering growth in the sector (in order of importance):

   - Ensuring the regulation of aerospace activities keeps pace with innovation in the sector.
   - Enabling government as a user and purchaser of aerospace technologies and data.
   - Growing New Zealand's aerospace workforce.
   - Improving access to capital for the aerospace sector.
   - Providing access to infrastructure.

3. The purpose of this briefing is to:

   - provide background information about the newly created Space portfolio (sections 2, 4 and 5 of this briefing)
   - provide initial advice on the strategic issues facing the New Zealand space and advanced aviation sectors (section 3 of this briefing)
   - identify key areas beyond your priorities for the portfolio where the Ministry of Business, Innovation, and Employment (MBIE) and the Ministry of Transport (MoT) consider there are opportunities for government to support growth of the space and advanced aviation sectors or where there are important risks to manage (section 25). These areas could be considered for inclusion in the work programme alongside your stated priorities.

4. Further briefings will be provided to you as needed, focussing on specific topics in greater depth.

2. Portfolio overview

Purpose of this section

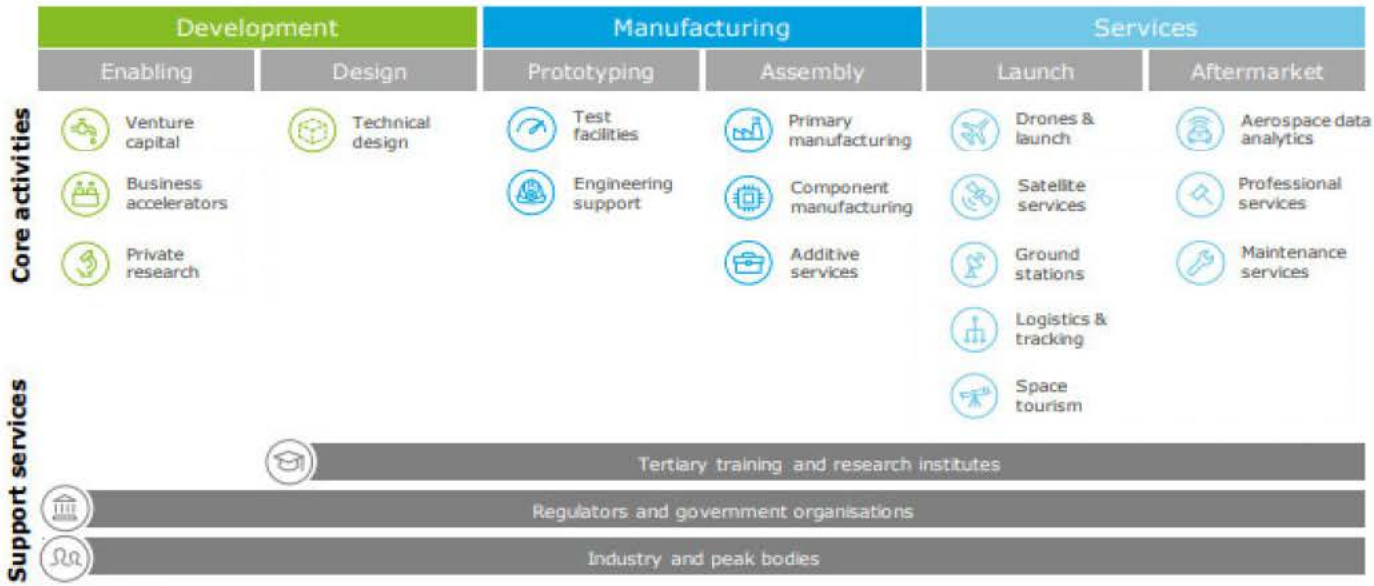
5. This section outlines your Space portfolio responsibilities, the associated appropriations and MBIE and MoT staffing arrangements.

6. This is supplemented by section 4 of this briefing, which provides a more detailed breakdown of the legislation that sits within this portfolio.

Context

7. The space and advanced aviation sectors cover aircraft and spacecraft operating at different altitudes; from drones at low altitudes through to vehicles reaching space. Together the sectors also include satellites, ground stations, services and data, and support services (see figure below).

8. Although the term aerospace can carry a broader meaning (all aviation and space flight) it is used in this briefing to cover the space and advanced aviation sectors[1].



Source: Deloitte

Scope of the Space portfolio

9. We took from the National Manifesto that the scope of the Space portfolio may include the areas set out below. Historically, these responsibilities have been split between portfolios and across agencies.

[1] Note that the term emerging aviation is preferred over advanced aviation.

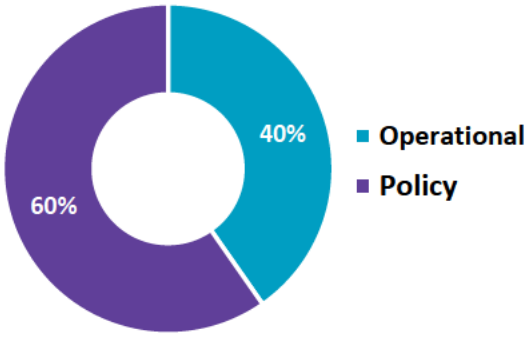
Portfolio	Space and advanced aviation scope	Current agencies responsible
Economic Development	• Space activities regulation • High-altitude activities regulation • Space policy (including security) • Advanced aviation policy (high altitude) • Sector development – space, advanced aviation	MBIE
Research, Science, and Innovation*	• Supporting research and development – space, advanced aviation	MBIE
Transport	• Advanced aviation regulation through the Civil Aviation Authority (CAA) • Advanced aviation policy (below high-altitude)	CAA MoT
Multiple portfolios	• Coordinated satellite data procurement	None

*Now superseded by the Science, Innovation and Technology Portfolio

Departmental arrangements

MBIE

11. MBIE currently has policy, regulatory, and sector development space functions that sit inside the Science, Innovation and International branch. Full-time equivalents (FTEs) within MBIE who deliver these functions are collectively presented to stakeholders as the New Zealand Space Agency (NZSA). These FTEs break down as follows across MBIE's Space Policy & Sector Development and Space Regulatory Systems teams:



Function	Portfolio FTE*	Portfolio %
Operational	6.8	40%
Policy	10.0	60%
Total staff	**16.8**	**100%**

**The portfolio view does not include enablement functions (eg finance, legal, communications, ICT). All numbers are represented as FTE. Data is as of 30 September 2023.*

12. Within MBIE, the Space portfolio consists of 16.8 FTE, which is approximately 0.3% of the total MBIE workforce (enablement functions eg corporate, ICT, have not been included). Operational staff perform regulatory functions including the assessment of licence and permit applications under the Outer Space and High-altitude Activities Act 2017. Both space teams have staff with subject specific expertise in space or aerospace engineering.

13. Policy staff develop the regulatory system and rationale behind sector initiatives (c.7 FTE) and implement sector initiatives (c.3 FTE) eg international science partnerships with leading space agencies including the US National Aeronautics and Space Administration (NASA) and the German Aerospace Centre (DLR). Further information on the functions MBIE performs is outlined in Section 4.

14. In addition to the Space Regulatory Systems and Space Policy & Sector Development teams above, other MBIE teams and roles also contribute to the functioning of the NZSA from time to time but with their own more general purposes, funding, and reporting to their respective Managers.

MoT and CAA

15. MoT is the policy and strategy lead for the aviation system, which includes advanced aviation activities below high-altitude. MoT has a team of 8 FTEs that provides advice on domestic and international aviation policy matters, this includes leading advice on emerging aviation technology and drones. Further staff across various teams, such as safety and environment, contribute to advanced aviation policy and strategy as required.

16. The Minister of Transport is responsible for transport regulation including the Civil Aviation Act and the monitoring and oversight of the CAA. The Emerging Technologies Unit within the CAA (initially funded by MBIE) is intended to act as a bridge between the CAA and advanced aviation technologies stakeholders. The Unit has 6 FTEs and is not involved in the assessment of regulatory applications. The CAA has dedicated staff for assessment of regulatory applications.

17. The Emerging Technologies Unit has begun to:

- provide guidance to the sector and internally, through better application systems, processes, and guidelines, to support stakeholders' full understanding of rule requirements and certification pathways
- proactively engage with stakeholders and work collaboratively to give effect to intelligence-led, risk-based regulation of emerging technologies, and manage the expectations of all parties (innovators and regulators alike)
- facilitate and lead the CAA's domestic and international engagement on emerging technology information sharing and expertise exchange. Where practical and appropriate, align with internationally accepted practices that support the safe integration of emerging technology
- identify opportunities for process and other changes through whatever available means that will increase the effectiveness of emerging technologies regulatory engagement and output.

Appropriations you are responsible for

18. Funding for MBIE's departmental space activities currently comes from within the Economic Development appropriation under Vote Business, Science, and Innovation and is $3.75 million per annum. There is no dedicated ongoing non-departmental funding related to space and advanced aviation. However, there have been several initiatives provided with one-off or time-limited funding from various Research, Science, and Innovation appropriations (see Annex 3).

19. Confidential advice to Government

20. Confidential advice to Government

Confidential advice to Government

Overview of the space and high-altitude activities regulatory system

21. This regulatory system is critical to supporting the growth of a safe and secure space sector in New Zealand. The purpose of the space and high-altitude legislation is to:

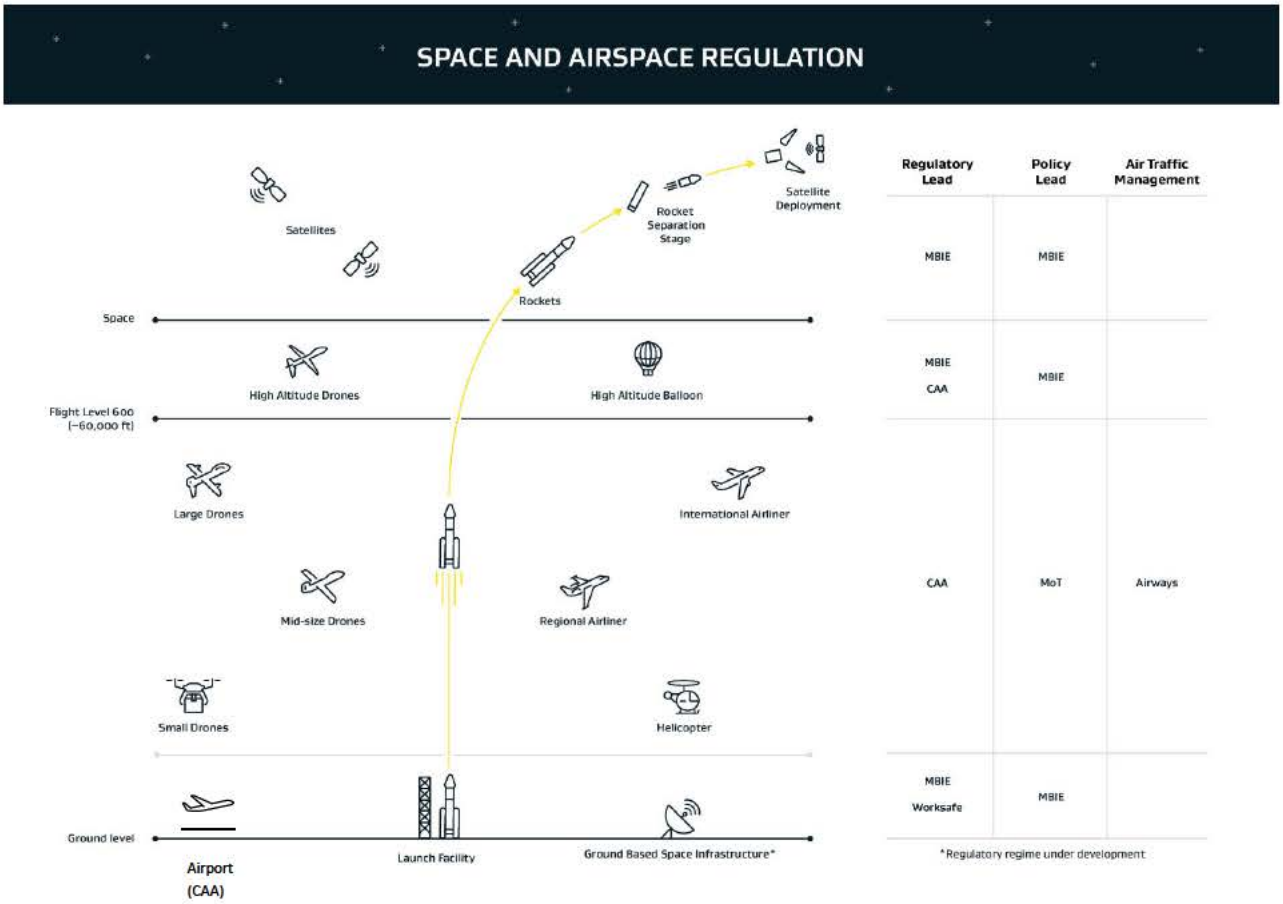
- facilitate the development of a space industry and provide for its safe and secure operation
- implement certain international obligations relating to space activities and space technology
- manage any potential or actual liability that may arise from the space industry
- preserve New Zealand's national security and national interests.

22. MBIE administers the following primary and secondary legislation (further detail in Annex 1):

Legislation	Function
Outer Space and High-altitude Activities Act 2017 (OSHAA)	The Outer Space and High-altitude Activities Act 2017 regulates — through licences or permits — launches into outer space, launch facilities, high-altitude vehicles (HAVs) and payloads from New Zealand or by New Zealanders overseas.
Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017	Sets out requirements for licences and permits, including the information that applicants provide on orbital debris mitigation plans and for safety cases with respect to launch licences, launch facility licences and high-altitude vehicles (non-aircraft).
Outer Space and High-altitude Activities (Definition of High-altitude Vehicle) Regulations 2017	Clarifies which vehicles that go or are capable of going into high-altitude are not high-altitude vehicles for the purposes of OSHAA, and hence will not require a licence.

Regulatory responsibility for some vehicles or activities is shared between MBIE and the CAA

23. While vertical space launch vehicles are solely regulated by MBIE, high-altitude or space launch vehicles *that are also aircraft* (ie not rockets) are jointly regulated by MBIE and the CAA. Aircraft testing and operations below high-altitude are solely regulated by the CAA.



24. OSHAA requires you to receive confirmation from the Director of Civil Aviation that an aircraft applying for a high-altitude licence holds all appropriate permits prior to granting the licence and to take into account any advice or information provided by the Director of Civil Aviation in relation to the safety of the operation of the aircraft at high-altitude. In order to facilitate this consultation, MBIE has a Memorandum of Understanding with the CAA.

Civil aviation regulation is undergoing a change

25. Civil aviation activity in New Zealand is regulated under the Civil Aviation Act 1990 and the Airport Authorities Act 1966. The Civil Aviation Bill was developed following a review of the legislation in 2014. The Civil Aviation Act 2023 will come into force on 5 April 2025, replacing the 1990 Act.

3. Strategic choices in the Space portfolio

Overview of this section

26. The National manifesto commitments outlined in 'Unleashing New Horizons' reflect an interest in supporting the growth of New Zealand's space and advanced aviation sectors, through a range of initiatives across education, immigration, data procurement and use, and regulation.

27. This section outlines the opportunities that the space and advanced aviation sectors present, along with the barriers to sector growth.

New Zealand is facing broad economic challenges

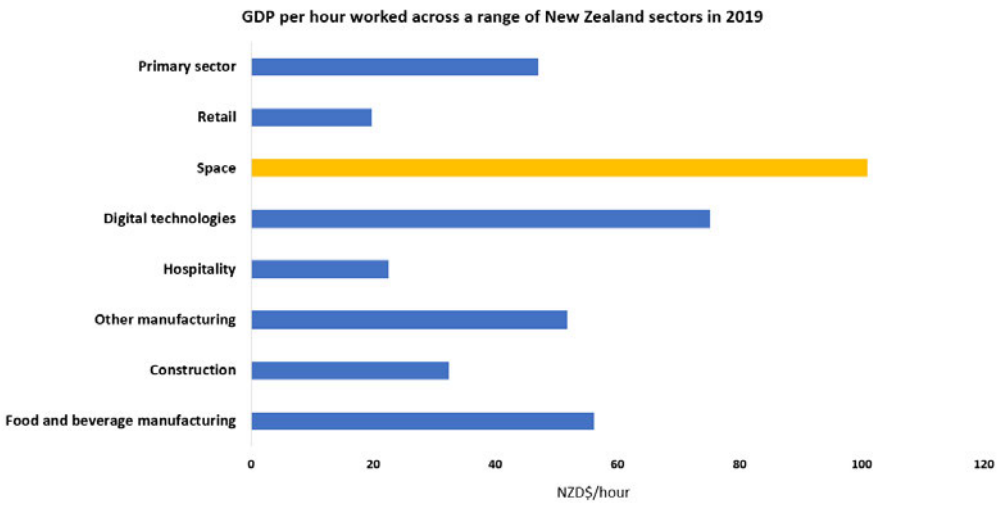
28. As outlined in MBIE's separate briefing on the economic context, New Zealand's economy faces several long-term challenges. These include weak productivity growth, increasing stresses on our economic resilience, negative impacts on the natural environment, and significant disparities between different population groups. Compounding these, are global 'megatrends', such as changes in climate, technology, and demography, and rising geopolitical tensions.

29. In the short-term, our economy also faces immediate headwinds. These challenges and trends present both risks and opportunities to the economy. MBIE can help you to work collaboratively across portfolios and with stakeholders, such as business and local communities, to achieve your immediate portfolio priorities and address these challenges.

The space sector presents an opportunity to support the growth and diversification of New Zealand's economy

30. Global investment bank Morgan Stanley has estimated the global space sector could be worth USD 1 trillion by 2040, with other sources providing even higher estimates.

31. The global space sector is characterised by high productivity (as highlighted in the chart below), high wages and high research and development output that can also enhance the efficiency and productivity of other sectors, including the primary sector. Should government seek to influence the sectoral make-up of the New Zealand economy, aerospace is a strong candidate sector to support.



New Zealand has geographical advantages and a strong relationship with the US

32. Clear skies and seas to the East for launch activities, and land in an isolated part of the world where ground stations are needed to ensure satellite systems have global coverage, offset New Zealand's low population and distance from world markets, often major disadvantages in other sectors.

33. Our **Technology Safeguards Agreement** with the US enables sensitive technology transfer; without this Rocket Lab's launch activity from New Zealand would not be possible. Relatively fast law-making, a flexible regulatory regime, and recognition of licences from overseas regulators (notably the US) have avoided the need to build complex regulatory systems of our own from scratch, and ensured our regime has kept pace with rapid innovation in the space sector.

34. In March of this year, NASA's Administrator and Deputy Administrator visited New Zealand, further underscoring the close and growing space partnership between New Zealand and the US.

Space launch capability is highly sought after internationally

35. New Zealand is one of fewer than 15 active orbital space launching states worldwide and hosts the fourth most frequent launches in the world. Orbital launch is highly sought after; many countries look to establish or attract activity through subsidies, tax incentives and building spaceports.

36. Rocket Lab currently launches its small launch vehicle *Electron* from its launch complexes in Mahia and on Wallops Island, Virginia. It is developing a larger launch vehicle, *Neutron*, which it intends to launch exclusively from its US launch complex – though much development work remains here.

37. In addition to its inspiration value, launch is often a vector through which a wider space sector can develop. Rocket Lab employs over 600 staff in New Zealand, many in high-skill, high-wage jobs. The company's success has inspired new space-related activity in New Zealand. Rocket Lab – and Peter Beck personally – have invested in a number of space start-ups in New Zealand and former Rocket Lab staff have established new space companies in New Zealand.

The advanced aviation sector is also promising

38. Advanced aviation technologies in New Zealand include both uncrewed aerial vehicle (UAV) technologies as well as alternative propulsion technologies. This subsector largely consists of startups and small-to-medium size enterprises, with Boeing subsidiary Wisk Aero the largest uncrewed vehicle firm currently operating in New Zealand.

39. A study released by MoT in 2019 showed that the use of drone technologies is forecasted to benefit the New Zealand economy by $4.6-$7.9 billion over the next 25 years. The global drone market alone was valued at USD 28.5 billion in 2021 and is expected to reach USD 260 billion by 2030.

Opportunities and barriers to sector growth

A New Zealand sector worth $10 billion by 2030 is ambitious…

40. Globally the growth of commercial space businesses frequently stems from anchor customer contracts. Space innovations often require large capital investments and are being developed to serve markets that do not currently exist. Activities that initially serve public sector needs are often developed into commercial services, which is why the role of government as an anchor customer can be important for later growth. For most countries, success in the space sector will come from a combination of public and private investment.

41. Space technologies are key enablers of services that the Government relies upon. Procuring space services to meet legitimate needs and improve the delivery of public services is also an important way other governments support the development of their sectors. Militaries, in particular, are typically large customers for space companies, given modern military reliance on space capabilities.

…given our small domestic market

42. However, New Zealand's story differs. New Zealand Government spending on space is low in comparison to many other countries, both absolutely and per capita and the Government is not an anchor customer for space companies operating out of New Zealand. This means that companies here not only miss out on the direct benefits of a large anchor customer, but they also miss out on the spill over benefits of having government use provide confidence to investors, commercial customers, and overseas governments.

43. Although the New Zealand Defence Force is heavily reliant on space-based capabilities, New Zealand does not have any space assets on orbit, instead relying entirely on partners' or commercial assets. This contrasts with many overseas militaries with large space-specific budgets. For example, the Australian Defence Force has committed AUD 7 billion to space over the next decade. This is a major contribution to Australia's ambition to grow its space sector to AUD 12 billion per annum by 2030.

44. Growing the sector here to $10 billion per annum by 2030 will be challenging in the absence of a dedicated space programme (a national space science and exploration programme), sovereign space missions, and the New Zealand Defence Force (NZDF) as a customer for domestic space companies. Such government use of space is often a cornerstone of downstream market demand overseas.

We also face international competition to retain our sector

45. National security or defence, International relations

46. While New Zealand is not in a position to match other countries' financial incentives to attract new aerospace activities, the Government has levers to address barriers to sector growth and increase support for high impact opportunities. The more of these levers that can be brought together, the greater the impact is likely to be on the growth of the sector.

Government cannot sustain growth in the long run - but opportunities exist in the short run

47. Although government spending cannot sustain sector growth in the long term, there are high-value space opportunities not currently being taken up where government demand could play a decisive role. For example, the application of satellite remote sensing to some local challenges is limited. Seizing such opportunities will not only meet government needs, but also spur growth in the sector.

48. The spur to growth argument is likely limited by the scale and duration of government support, ie longer and greater support may produce diminishing returns over time. Determining the appropriate scale and duration of government support is part of the analysis that could feed into advice on a possible package of space sector interventions, should this be something you wish to advance.

49. We have outlined some potential government interventions below, alongside your manifesto commitments, that could support the growth of New Zealand's space sector. We would be happy to provide you with further advice on any potential interventions you are interested in and a potential relative prioritisation of the same.

Effective regulation is critical to supporting sector growth

Our space and high-altitude regulatory system faces challenges

50. New Zealand's space and high-altitude regulatory regime was designed to be enabling and flexible, to ensure it could keep pace with innovation while still managing safety, national security, and national interest risks. The regime was developed in response to Rocket Lab's decision to establish orbital launch services from New Zealand with the first commercial launch taking place in 2018.

51. New Zealand's relatively new space legislation allows MBIE to be an agile space regulator, relative to many overseas space regulators. Rather than establishing prescriptive regulations, MBIE frequently develops regulatory policy to enable novel space activities to take place from New Zealand. While our system remains world-leading in many areas, we do need to address some challenges to ensure we can maintain our reputation.

Timelines for processing payload (satellite) permit applications

52. The National manifesto highlights the importance of high-performing regulatory regimes. World-leading application processing times and access to specialist expertise would place New Zealand at the forefront of the regulation of space activities. High-performing systems will encourage both domestic and international space companies to choose to remain or relocate their activities to New Zealand as they move towards operational scale.

53. MBIE has an unofficial target of 12 weeks for assessing payload permit applications, which is comparable to the fastest space activities regulators internationally. While most applications are assessed within 12 weeks, some take longer, particularly if MBIE has to request further information from the applicant.

54. Rocket Lab has raised concerns about payload permit application processing timeframes. MBIE is working to make the application assessment process more efficient and reduce duplication between similar applications. Work is also underway on improving pre-application advice to ensure applicants clearly understand what information they must supply for their application to be assessed. This is in line with the National manifesto commitment to regulatory streamlining.

Assessing future launch licence applications

55. Rocket Lab is currently the only holder of a launch licence under OSHAA. As a US company, Rocket Lab is also required to hold the relevant licences from the US Federal Aviation Administration (FAA). New Zealand recognises Rocket Lab's FAA licences as meeting the technical capability and public safety requirements for a launch licence under our Act (Annex 1).

56. This recognition arrangement enabled Rocket Lab to be issued with a New Zealand launch licence without MBIE having to carry out a technical and safety assessment. MBIE has internal engineering expertise which allows technical work such as the assessment of orbital debris mitigation plans and safety assessments for some simple high-altitude vehicles to be carried out. The safety assessments required to issue launch and some high-altitude licences are more complex and resource intensive, requiring highly specialised expertise and capabilities that MBIE does not have.

57. MBIE will need access to appropriate regulatory capability in advance of receiving any new applications for launch licences (and some complex high-altitude licences) from non-US launch companies, including domestic companies such as Dawn Aerospace. Given global scarcity of the necessary skills, in-housing and maintaining capability may not even be feasible, or if it were, the high cost of doing so is likely not justified by application flows in the medium term.

58. We are currently designing a system for making use of external specialised expertise to evaluate technical material and safety cases provided by applicants seeking licences. While likely more cost effective than retaining in-house expertise, there will be an additional resource requirement (above what current departmental funding can cover) to make use of external expertise. We will provide you with further advice on potential options, Confidential advice to Government

Dedicated testing zones for space and high-altitude activities

59. In your Unleashing New Horizons plan you noted your intention to establish **two dedicated testing zones**, in addition to Tāwhaki. These would be exempted from usual compliance regimes and would provide reliable access to space and advanced aviation testing without conflicting with other traffic.

60. In regard to space and high-altitude activities, OSHAA does not provide for exemptions from licensing requirements (unless carried out by the NZDF whose activities are carved out from the legislation). In the short term, we can explore ways to reduce practical burdens on parties testing in these zones, eg support for developing multi-user safety and security plans for a facility licence. If needed, amendments to the Act could be considered as part of wider potential reforms (see below).

Key performance indicators for the space and high-altitude regulatory regime

61. You have also stated your intention to set **key performance indicators** for regulators with independent monitoring to ensure space and advanced aviation companies get timely and consistent decisions. MBIE's regulatory stewardship role includes responsibility for monitoring, reviewing, and reporting on the 17 regulatory systems it has responsibility for. However, once the new government department for regulation is established, that may be an appropriate agency for independent monitoring.

The advanced aviation sector also faces complex regulatory challenges

62. Advanced aviation technologies and innovative solutions to contemporary issues bring additional complexity into the aviation and regulatory systems. They test and challenge traditional aviation models and ways of thinking. As a result, civil aviation regulators around the world, including in New Zealand, are grappling with the complexities of regulating novel aviation technologies and integrating them into existing aviation systems.

63. MoT's regulatory stewardship role requires it to ensure that systems remain fit for purpose as we facilitate and authorise new approaches. Regulating emerging aviation technologies has been, and continues to be, a challenge for the CAA. Sector demands and advancements in technology are moving much faster than the CAA's resourcing model and rules development processes can respond.

64. Following public consultation in 2021, MoT has developed an Enabling Drone Integration package to enhance the regulatory framework for drone operations, and as a building block for supporting more advanced and autonomous operations. Confidential advice to Government

65. Cabinet's approval of the Enabling Drone Integration package is required before MoT and the CAA can commence work on it. Funding for the Enabling Drone Integration package was approved by Cabinet in Budget 2022, subject to Cabinet's approval of the package itself.

66. MOT is in the early stages of determining what an uncrewed aircraft systems traffic management (UTM) framework could look like in New Zealand. The effective management, and integration of uncrewed aircraft into our aviation landscape will be fundamental to a safe system. UTM will play an

important role in managing uncrewed aircraft and airspace challenges as we seek to integrate autonomous aircraft into the aviation system.

67. To help understand emerging aviation technologies that may enter the New Zealand aviation system in the next decade and beyond, the CAA has created an Emerging Aviation Technologies Forum, in collaboration with industry, and supported by MoT and the NZDF.

Testing zones for advanced aviation

68. New Zealand airspace is designated and classified in accordance with Civil Aviation Rules Part 71, which also allows for restriction of aviation activity by the designation of special use airspace.

69. In the short term, MoT and the CAA can explore ways to reduce the practical burden on parties to for designating special use airspace to establish testing zones. Part 71 is written in a sufficiently broad way to potentially allow for alternative uses of existing airspace types within the current rule set. The CAA is also aware of other innovative airspace types and operational needs, based on overseas models, it could add to its toolkit. These would likely require changes to civil aviation rules.

70. Creating testing zones that are exempt from usual compliance regimes would require changes to both primary and secondary legislation, along with new operational functions and FTEs. The time required to develop this regime would not meet the immediate needs of users and risk not being consistent with international civil aviation conventions. Creating a 'regulatory sandbox' with appropriate frameworks, knowledge, skills and resource, could allow government agencies and the sector to collaborate and apply learnings from testing zones into future rule design.

71. The location and establishment of additional testing zones should be based on the outcomes and operational requirements of the test activity. We can provide you with further advice on pathways to develop testing zones, what is required and any constraints.

72. The CAA has previously sought to stand up Emerging Technology Unit functions which could accomplish goals similar to those sought through the testing zones. However, the necessary funding was not secured. The CAA is ready to discuss the previously proposed functions and how they could support an easier testing, development, and deployment pathway.

73. New Zealand could benefit from an early mover advantage if it was one of the first countries to appropriately calibrate regulatory settings to safely and efficiently enable advanced aviation technology to test and then eventually be fully integrated and commence commercial operations.

74. This advantage, if coupled with testing facilities designed for testing advanced aviation technologies (as per your manifesto commitment), could offset our distance from markets and small population to make New Zealand an attractive location for international advanced aviation companies.

75. Committing to immediate-term continuity of flagship advanced aviation programmes (eg the Airspace Integration Trials Programme) will maintain momentum for a portfolio of R&D projects designed with industry under the current regulatory settings.

76. Building a coordinated approach within government relating to key issues for risk management of emerging aviation technologies such as indemnity and insurance requirements will signal to the sector and public that Government is open to supporting safety-led testing and trialling.

Key performance indicators for advanced aviation regulation

77. The CAA (including the Emerging Technologies Unit) have made process changes to address wait times to meet industry expectations. MoT and the CAA are open to exploring options for developing suitable regulatory performance measures for advanced aviation.

78. It is beneficial for industry and regulators to work together to establish appropriate timeframes for approvals while recognising their complexity. A number of outcomes have been proposed to improve industry awareness of regulatory requirements, reduce certification wait times for advance aviation applications, and whole-of-life compliance costs. MoT and the CAA intend to develop performance measures that align and contribute to these outcomes and funding.

Interventions beyond regulation could also support sector growth

Better and more widespread use of aerospace-enabled services and data

79. As per the National manifesto there is great potential for **better coordination of government agencies procurement of remotely sensed data** (eg from satellites). Often data purchased will have licence conditions meaning it is unable to be shared across agencies. Sometimes the same data will be purchased by more than one agency. Capability shortfalls mean some agencies may purchase the wrong products relative to the effect they are seeking.

80. The National Emergency Management Agency is in the process of applying for Authorised User status of the International Charter for Space and Major Disasters. This is an international collaboration through which satellite data is made freely available to support emergency response efforts. Authorised User status will enable New Zealand to take advantage of this access.

81. Several overseas governments and regions have or are **developing geospatial data platforms** to optimise data-driven government decision making (sometimes called 'Digital Earth' platforms). New Zealand at present does not have such a platform. This means there are high barriers for all but the most sophisticated users making use of even freely available data, let alone new data purchases.

82. New Zealand is currently investing alongside Australia in SouthPAN, a project to utilise satellite capability on commercially owned satellites for the delivery of a satellite-based augmentation system. This will improve the accuracy and reliability of existing satellite positioning systems, such as GPS, and contribute to increased productivity and innovation through, for example, automation on the factory floor and enabling navigation for uncrewed aerial vehicles.

83. The current use of commercial satellite data undoubtedly adds value to the delivery of public services but is not tailored to New Zealand use cases. For example, radar satellite coverage is important for New Zealand as it can penetrate clouds, but the coverage over New Zealand is patchy.

Facilitating international space and advanced aviation business

84. Government also has a role to play in **reducing trade and export barriers** to unlock an international customer base, particularly due to increasing protectionism globally and the sensitive nature of some space technologies with national security applications. Trade and export restrictions make it harder to collaborate on sensitive R&D across borders – even with companies in the same overall corporate holding group. New companies look for an association with their home government to provide a 'seal of approval' to foreign governments whom they are approaching as potential customers.

85. In October, Australian PM Albanese and President Biden announced an intention to sign a bilateral technology safeguards agreement. Like the one signed with New Zealand, this agreement will allow the importation of controlled rocketry technology to enable US commercial launch from Australia.

86. President Biden also announced that he would seek legislation to designate Australia as a "domestic source" under Title III of the *Defense Production Act 1950*. National security or defence, International relations

87. We could also **further our space policy partnerships** (such as we have with the UK Space Agency). Solving problems as yet unaddressed internationally will be a pre-requisite for enabling some activities to occur and could support attraction of activities focused on technology development.

Launching our own missions – potentially with another leading space nation

88. **Design and implementation of a national space mission** (a recurrent suggestion of Rocket Lab's to develop New Zealand's wider sector) could be an effective way of better meeting everyday government needs (such as responding to extreme weather events like Cyclone Gabrielle) as well as supporting the development of the sector.

89. Space agencies are often the front door to government customers and R&D partnerships. Modest **ongoing aerospace specific R&D funding** would provide a basis for extending current collaborations (with NASA and the German Aerospace Centre, DLR) and establishing new partnerships. Such partnerships accelerate the development of the New Zealand sector by enabling us to leverage the long legacy of other countries' space activities and focus on where we can add value. The end point of such collaborations could be a joint mission – which may be lower cost than going it alone.

Addressing cross-cutting barriers impacting sectoral growth

90. The supply of skilled workers will be a rate-limiting factor as to how quickly the global space sector is able to grow. Recent space sector surveys in the UK and Canada determined that the majority of space companies faced labour shortages and difficulty retaining qualified staff. New Zealand will face competition from other countries and sectors outside of space. Rocket Lab has highlighted the need to **raise the profile of the sector amongst young people who might not see themselves in space**. Officials will work to implement the **Prime Minister's Prize for Space** which seeks to highlight the aerospace career pathways to young people.

91. National has proposed **immigration and education initiatives** to support the growth of an aerospace capable workforce. As these initiatives sit outside of the Space portfolio, cross-portfolio work will be needed for implementation.

92. Technology development in the space sector is often capital intensive with long lead times, which can pose **challenges for accessing finance.** This is compounded by New Zealand's shallow capital markets and limited borrowing options, particularly for companies developing intangible products eg software and automation. These challenges could, in part, by addressed by government.

93. **Securing affordable – or indeed any – insurance** is challenging in advanced aviation and space activities. Without adequate insurance, innovators and their investors are unable to bear the risk of proceeding with testing and product development to the extent that may be desirable.

94. The **development of further infrastructure**, including at Kaitorete through the Tāwhaki Joint Venture, would provide an opportunity for testing and development of innovative space and advanced aviation technologies. This could include vertical or horizontal launch infrastructure, and other ground-based infrastructure that supports the testing and trialling of uncrewed aerial vehicles, rockets and supporting technologies. Maximising the opportunities that testing sites could offer will require the right regulatory settings to enable innovation while managing risks.

Raising awareness of the benefits – and risks – of aerospace activities

95. The Government could also play a role in **increasing public awareness of the importance, benefits, and risks of space to New Zealand**. The use of space assets is pervasive in most New Zealanders' lives – yet awareness of these benefits remains low. There is a need to build and maintain social licence for space activity – particularly, as the impacts of space activity become literally more visible eg in chains of satellites across the night sky.

We could also build on strengths across New Zealand research institutes

96. A number of New Zealand universities have strengths in space engineering research, including the University of Canterbury, Victoria University of Wellington (including Pihau-Robinson Research Institute), and the University of Auckland (including Te Pūnaha Ātea - Space Institute). There are also strengths in space science, space law and the use of Earth observation data across New Zealand universities.

97. New Zealand faces challenges in developing research-industry collaborations, which can stifle innovation. The Government could consider **establishing innovation hubs** where linkages are created between research institutes, space companies, and investors. Australia has a space innovation hub that brings together the Australian Space Agency, Defence organisations, Australian research centres, key space organisations and start-ups.

98. Te Pūnaha Ātea - Space Institute is staffed by an international team of world-leading space engineers and scientists with diverse capabilities, including the capability to design and execute space missions. The Institute also houses the Mission Operation Control Centre for the MethaneSAT mission and could be used as a control centre for further space missions. Commercial Information

The strategic decision is whether, and if so how, to push further and faster

99. Launch activity is high profile and attracts international interest from companies and governments alike. The visibility of launch makes it particularly potent in inspiring young people into the aerospace sector and STEM careers more generally.

100. However, launch services are only a small fraction of the value of the aerospace sector. More than 70% of economic value is in the downstream – primarily in the application of data acquired by satellites. Maximising the value of New Zealand's space sector will mean building on existing strengths across all parts of the space value chain.

101. We would welcome the opportunity to discuss prioritisation of National's manifesto commitments and any other government interventions you may be interested in. We would be happy to provide further advice on prioritisation and the estimated impact of the interventions outlined above. An initial view on the priorities outlined in your manifesto is summarised in the table below.

National manifesto commitment	Comment
A $10 billion space sector by 2030	An ambitious goal that will likely require interventions beyond National's manifesto commitments.
Establish high-performing regulatory regimes	Streamlining efforts are underway for the space and high-altitude regulatory regime. Accountability could be a function of a new regulation ministry.
Establish the Prime Minister's Prize for Space	The prize can be established quickly to build on existing education and outreach initiatives.
Welcome high-performing talent to New Zealand	Important for aerospace workforce development, but not an aerospace-specific initiative.
Establish dedicated high-performance testing zones	This will require amending legislation, short-term alternatives to achieving similar outcomes are being explored.
Improve government data procurement and sharing	Initial work is underway in this area, but Ministerial levers are needed for meaningful progress.

4. Portfolio responsibilities

Overview

102. In addition to reducing barriers to sector growth as described above, effective management of risks is critical to supporting sector growth and will be an important part of this portfolio.

Space activity has implications for New Zealand's national security and national interest

103. Space systems are critical for national security, enabling more than 90% of the New Zealand Defence Force's military capability. Space systems are a prerequisite to maintaining an effective, efficient, combat-capable and flexible force.

104. New Zealand's reliance on space assets also makes us vulnerable to threats that would disrupt these services. The Government's approach to managing threats to or from space through regulation, partnership, and international rules and norms, enables the advancement of common interests.

105. New Zealand's National Security Strategy identifies space security as a core issue. The Government's approach is focused on enabling New Zealand and New Zealanders to maximise the benefits of innovation, while managing any threats and disruptions it might bring.

106. Under OSHAA, the Government Communications Security Bureau (GCSB) and New Zealand Security Intelligence Service (NZSIS) undertake a National Security Assessment on each licence or permit to be issued for activities in New Zealand or to New Zealanders conducting activities overseas and provide a briefing to the Minister responsible for the GCSB and NZSIS. Ordinarily, this facilitates consultation between the Minister for Space and the Minister responsible for the GCSB and NZSIS, as you hold both portfolios, we will provide you with further advice on an appropriate process.

107. The national interest test acts as a final safeguard in OSHAA and allows you to decline to grant a licence or permit if you are not satisfied that the proposed operation is in the national interest. MBIE officials assess whether there are national interest factors that warrant a national interest analysis for every licence or permit and provide you with advice based on this in licence and permit briefings.

Space safety and sustainability are critical

108. In addition to risks to the Earth environment, the safety and sustainability of the space environment is a key consideration. The proliferation of space debris is a very serious problem and threatens the usability of Earth orbit for the space-enabled services that we rely on.

109. Several spacecraft, both crewed and uncrewed, have been damaged or destroyed by space debris. The number of functional satellites in low Earth orbit (LEO) has more than doubled since early 2019 which, coupled with a growing space debris population, has led to congestion. Space safety and sustainability is paramount to prevent further debris generation. You can only grant a payload permit where these is an orbital debris mitigation plan that meets prescribed requirements.

Space is an international domain

110. Space activity is governed internationally by a series of treaties negotiated between 1967 and 1979, in particular the Outer Space Treaty. Although these instruments provide the legal framework for space activity, the global space context has evolved in the decades since the agreements were reached, through the growing number of countries and commercial operators active in space, the development of new space technologies and the rapid increase in the amount of space activity.

111. As global initiatives develop to address the changing space context, as well as issues such as the growing risk of orbital debris, the Government engages internationally to advocate for a space environment that is peaceful, sustainable, safe and secure. This includes engagement at the UN Committee on the Peaceful Uses of Outer Space, various disarmament bodies, as well as other groupings such as the US led Artemis Accords.

112. New Zealand is also a member of two international space security initiatives led by the Ministry of Defence and the NZDF. Joint Commercial Operations provides space domain awareness by monitoring objects in orbit, analogous to radar monitoring of air traffic. Combined Space Operations is a military space initiative (which includes the Five Eyes countries plus France and Germany) that shares information about space operations and activities and coordinates efforts.

113. Other states' approaches to space regulation are also relevant. We consider the recognition of overseas regulatory authorisations to reduce the regulatory burden for applicants. Acceptance of US authorisations is the most important current recognition.

There are social licence challenges and risks

114. A major theme of the Space Policy Review, a public consultation held in 2022, which led to the National Space Policy released in May this year, was New Zealand's role in the launch of payloads with national security applications. These payloads have regularly been launched by Rocket Lab since it commenced commercial operations.

115. The National Space Policy definitively confirmed New Zealand's approach to considering permits for such payloads to date. New Zealand's national interest is assessed on a case-by-case basis for all payload permit applications. The Government explicitly considered – but rejected – a ban on all payloads with national security applications as not being consistent with New Zealand's national interest – including national security, economic, international relations, and disarmament interests.

116. This position remains controversial for a small but vocal minority. Small protests at Rocket Lab's facilities in Auckland and Mahia have occurred. During the recent New Zealand Aerospace Summit, a statement was issued by the Facebook group 'Rocket Lab Monitor' suggesting physical violence may be necessary to further their objective of stopping such activities in New Zealand. No violent protests or incidents relating to space activities have yet occurred.

Legislative responsibilities

117. As the Minister for Space, we expect you will be the decision maker for applications under the Outer Space and High-altitude Activities Act 2017. The table below sets out the types of licences and permits under OSHAA. Further information on your regulatory role is provided in Annex 1.

Type of authorisation	What the authorisation covers
Launch facility licence	Fixed or mobile facility or place from which it is intended to launch a launch vehicle and includes all other facilities necessary to launch a launch vehicle (for example, mission control facilities).
Launch licence	Any vehicle, the whole or any part of which reaches or is intended to reach outer space or carries and supports the launch of (or intends to support the launch of) a payload.

Type of authorisation	What the authorisation covers
High-altitude licence	Any aircraft or any other vehicle that travels, is intended to travel, or is capable of travelling to higher than flight level 600 (around 60,000 feet) or the highest upper limit of controlled airspace under the Civil Aviation Act 1990.
Payload permit	Any object that is carried or placed, or is intended to be carried or placed, in outer space.

Key policy and strategy

118. The **National Space Policy outlines New Zealand's values and objectives on space**. The Policy informs space policy development across government and is the touchstone for all official engagements on space in New Zealand and offshore.

119. The values set out in the National Space Policy are stewardship, innovation, responsibility, and partnership. The Policy also sets out objectives for progressing the Government's interests in space:

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

120. **The Aerospace Strategy is an innovation, research and development focused strategy** to support the growth of the space and advanced aviation sectors. It was published in July following public consultation in 2022.

121. The Aerospace Strategy comprises three foundational pillars to underpin the success of the sector:

- *Unlocking aerospace potential* – creating strong economic foundations that meet the needs of the sector.
- *Future-facing Government* – building aligned and supportive government-led initiatives.
- *Aerospace nation* – strengthening engagement in the aerospace sector and marketing to the world.

122. The pillars underpin five goals for the sector by 2030:

- Establish a sustainable air passenger journey.
- Safely integrate autonomous aerial vehicles.
- Be at the forefront of sustainable space activities.
- Actively support exploration in space.
- Enhance decision-making using aerospace-enabled data.

123. A staged action plan outlines the work required to deliver the vision for the sector in 2030. Limited re-allocated funding was announced alongside the Strategy (Annex 3). The modest overall scale of this funding will likely prevent the Strategy alone from having a significant impact on sector growth.

Key stakeholders

124. The regulatory system and sector development efforts have an impact on and are of interest to a broad range of stakeholders. A list of key stakeholders is attached in Annex 2.

Major links with other portfolios and agencies

125. There are two key mechanisms for cross-agency management of space and advanced aviation issues. The **Regulatory Stewardship Governance Group** for space and advanced aviation has met informally for the last 18 months and is in the process of being formalised through a Terms of Reference. It comprises the Chief Executive of MBIE, Director of the CAA, Chief Executive of MoT, Deputy Chief Executive for System and Regulatory Design at MoT, and Head of NZSA.

126. The **Space Senior Leadership Group**, which was set up in 2018, takes a strategic oversight, guidance and coordination role in relation to New Zealand's civil, commercial, defence/security and international interests in space. The Group is chaired by the Head of the New Zealand Space Agency and the core membership comprises Tier 2 representatives of government agencies with interests in both the risks and opportunities presented by the Space portfolio including:

- Ministry of Business, Innovation and Employment
- Te Manatū Waka Ministry of Transport
- Ministry of Defence
- Ministry of Primary Industries
- Ministry of Foreign Affairs and Trade
- New Zealand Intelligence Community (represented by the Joint Office)
- Department of the Prime Minister and the Cabinet
- Ministry for the Environment
- New Zealand Defence Force
- Toitū Te Whenua Land Information New Zealand

127. We use these mechanisms to connect across a range of portfolios, as outlined in the table below:

Portfolio	Relevant interest
Agriculture, Biosecurity, Forestry, Rural Communities, Oceans and Fisheries	The use of space technologies to benefit New Zealand's primary industries.
Defence	Space security policy and the use of space-based assets to enable the efficient and effective performance of the NZDF, in close co-operation with international defence partners.
Digital economy and Communications	Radio spectrum management – a requirement for satellite systems or ground-based space infrastructure that use radio frequencies.
Economic development	Trade facilitation and industrial policy.
Education	Education policy and delivery related to Science, Technology, Engineering, and Mathematics (STEM).
Environment and Climate Change	Environmental and climate impacts of space activities including the Space and Earth environments and the potential for space-based assets to address environmental and climate challenges.

Foreign Affairs	Development of international space policy, including engagement on space security, from space debris to the weaponisation of space, through United Nations space fora and engagement with international partners.
Immigration	Immigration settings for workforce development.
Land Information	The use of space technologies to inform land information and management.
Māori Crown Relations	Māori-Crown engagement in space policy development.
Māori Development	How the interests of whānau, hapū and iwi are reflected in space policy development.
National Security and Intelligence	National Security assessments under the OSHAA; ensuring national security interests are reflected in space policies.
Research, Science, and Innovation	The Research, Science, and Innovation system provides funding, personnel, and infrastructure to support space research, science, and innovation activities.
Transport	Aviation system policy and regulation; co-regulation of high-altitude and space vehicles where the vehicles are also aircraft.

5. How MBIE assists you

Our primary ways of engaging with you

128. We engage with you primarily through the following mechanisms:

- Meetings between yourself and MBIE officials, based on your preference.
- Fortnightly update reports on key policy and operational issues in the portfolio.
- Regular briefings providing you with advice.

129. We are happy to adjust any of these based on your preferred ways of working.

130. Depending on the size and scope of the Space portfolio, MBIE and/or MoT can provide support to your Office.

Key MBIE officials

131. The table below sets out the key MBIE officials who will support you in this portfolio.

Contact	Role	Contact details
Carolyn Tremain 	**Secretary and Chief Executive, Ministry of Business, Innovation and Employment**	Privacy of natural persons
Nic Blakeley 	**Deputy Secretary, Labour, Science and Enterprise (LSE)** LSE helps boost the New Zealand economy through advising on labour market, immigration, industry, investment, science, tourism, health and safety at work, and accident compensation policy. LSE supports major events, just transitions, leads the science and innovation system, and invests significant public funds. LSE works through international partnerships in its trade remedies, innovation, and space regulation functions. LSE also leads MBIE's monitoring arrangements for its related Crown entities.	Privacy of natural persons

Iain Cossar 	**General Manager** Science, Innovation and International Branch and **Head of the New Zealand Space Agency** The Science, Innovation and International Branch works to maximise the value from the science, innovation and enterprise systems and trade policy. It aims to ensure that policy teams are connected with business and that businesses have the ability to innovate and commercialise new knowledge.	Privacy of natural persons

Key MoT officials

132. The table below sets out the key MoT officials who will support you in this portfolio.

Contact	Role	Contact details
Audrey Sonerson 	**Chief Executive, Te Manatū Waka Ministry of Transport**	Privacy of natural persons
Bronwyn Turley 	**Deputy Chief Executive, Regulatory Group,**	Privacy of natural persons

Key CAA officials

133. The table below sets out the key CAA officials who will support you in this portfolio.

Contact	Role	Contact details
Keith Manch 	**Chief Executive, Civil Aviation Authority**	Privacy of natural
John Kay	**Deputy Chief Executive, System and Practice Design**	Privacy of natural persons

6. Upcoming actions and issues to be aware of

134. This section details workstreams that require your immediate attention and those you should be aware of.

Current MBIE workstreams that will require your immediate attention

Programme	Description	Action/next step
Confidential advice to Government		
Airspace Integration Trials Program	The AITP aims to position New Zealand as a location of choice for the safe development, testing and market validation of advanced uncrewed aircraft and support the commercialisation of novel drone and adjacent technologies. The programme includes 12 industry partners and runs to mid-2024.	You will be provided with future advice on potential continued industry support post mid-2024.
Tāwhaki Joint Venture	Development of Space launch facilities and an Aerospace R&D complex at Kaitorete. Tāwhaki recently secured government funding for a sealed runway and hanger to be constructed on the Spit to enable advanced aviation companies to test new technology.	You will receive further advice on Tāwhaki shortly with further details about the joint venture itself, its governance, and forthcoming business case.
Aerospace Strategy	The Aerospace Strategy is an innovation, research and development focused strategy to support the growth of the space and advanced aviation sectors. It was published in July following public consultation in 2022.	Agencies are confirming actions to improve the ability of the aviation regulatory system to facilitate advanced technology innovation and commercialisation. Transfers of MBIE-held funds will require relevant Ministers approval.
Making use of third-party expertise in the space and high-altitude regulatory regime	We are developing a system for making use of external third-party expertise for assessing the safety and technical aspects of future launch licence applications – the urgency is to ensure we are ready to consider non-US applications.	Work is underway and you will be provided with further advice on this shortly.
Amending the orbital debris mitigation requirements in the Regulations	Improving clarity regarding orbital debris mitigation requirements in the Outer Space and High-altitude Activities (Licences and Permits) Regulations 2017.	Policy work is near completion. Subject to your agreement we will seek Cabinet's agreement to policy for an amendment to the Regulations early next year.

BAU payload permitting decisions	As the regulatory decision maker for the Outer Space and High-altitude Activities Act 2017 you will regularly receive advice on permit and licence applications. You will need to make decisions on several recent payload permit applications.	MBIE has an unofficial target of 12 weeks for processing decisions on payload permit applications, including your consideration. Payload permit briefings are ready now and will be continuous thereafter.

Current MBIE workstreams you should be aware of

Programme	Description	Action/next step
Implementing the recommendations from the statutory review of OSHAA, including amendment of OSHAA.	The technical statutory review of OSHAA was tabled in the House in 2022. The most substantive points focused on the licensing regime for high-altitude activities. Addressing the recommendations will require substantial policy work and an amendment to OSHAA.	Several lines of policy work are underway or required. Following policy decisions, a draft amendment bill will be prepared to take through the legislative process.
Improving regulatory efficiency	The National manifesto commitments outline streamlining of rules and delegation of decision making. This is aligned with work underway on improving the efficiency of the space and high-altitude regulatory regime.	Work is underway on streamlining the payload permitting process. We can provide you with advice on this along with options to delegate some ministerial decision-making responsibility to officials.
Supporting the development of an aerospace capable workforce	Work focused on workforce and skills is underway, following publication of the Aerospace Strategy, including the continuation of the New Zealand Space Scholarship programme supporting New Zealand students to intern at NASA research centres over the last several years.	Applications for the New Zealand Space Scholarship are closed, and assessment is underway to select 2024's proposed candidates for NASA internships. Engagement with Immigration officials as needed regarding sector intelligence on skills shortages.
Inspiration and outreach	Largely ad hoc inspiration and outreach activity, the largest of which has been funding and supporting the Tūhura Tuarangi – Aotearoa in Space showcase.	We will provide you with further advice on establishing the Prime Minister's Space Prize as per the National manifesto commitment.
Establishing high performance testing zones for aerospace	As per the National Party manifesto, the establishment of testing zones for space and advanced aviation with reduced compliance barriers.	We will provide you with advice on advancing the establishment of testing zones and options for interim or alternative initiatives. The advice will include legislative considerations across the Civil Aviation Act, the Resource Management Act, and OSHAA.

Key performance indicators and independent monitoring of regulatory functions	As per the National manifesto commitment, the establishment of key performance indicators and independent monitoring of regulatory regimes.	Officials at MBIE and MoT can provide you with advice for options across the space and high-altitude, and civil aviation regulatory regimes.
National Space Policy follow-on workstreams	Cabinet agreed to the following workstreams that were informed by public feedback: clarifying national interest regulatory processes, gathering information to address environmental concerns, ongoing engagement with Māori, considering the role of an independent advisory function, and ongoing public communications.	Implementation of the workstreams that were informed by public feedback is underway – separate briefings will be provided to advise on progress for these.
Catalyst funded international science and technology partnerships	MBIE has Catalyst-funded international science and technology partnerships with the German Aerospace Centre (DLR, begun in 2020) and NASA (begun in 2023). These partnerships allow New Zealand researchers to partner with world leaders in space, accelerating the development of our local sector.	Confidential advice to Government
Managing the MethaneSAT partnership	In 2019, the Government announced a partnership with the Environmental Defense Fund – a US environmental NGO – on MethaneSAT, an innovative satellite to monitor methane emissions from oil and gas facilities. New Zealand is standing up the mission operation control centre to operate the satellite and has also funded NIWA to run an associated science programme looking at the application of the satellite to agricultural emissions.	Launch is currently scheduled for February 2024. You will be provided with more information on MethaneSAT in a future briefing.
National security co-lead for space	Following the publication of the National Security Strategy, which includes space security as one of 12 core issues, MBIE, Ministry of Defence, and the NZDF have agreed to co-lead space security.	An initial report back from MoD and NZDF to the chief executive-level National Security Board is happening in December 2023. A more detailed work programme will be developed, including for example resiliency issues related to Positioning, Navigation and Timing.

Relevant workstreams led by the CAA and MoT you should be aware of

Programme	Description	Next steps
Enabling Drone integration	This package of activities will lay groundwork for the regulation of drone operations in New Zealand.	A Cabinet paper is due to be considered by Cabinet soon.
Uncrewed traffic management (UTM)	UTM is a complex and technical area that has been the subject of early thinking as part of the wider regulatory work programme on drones.	MoT will shortly start targeted engagement to test early thinking with select stakeholders across government, the aviation sector and drone users on UTM as a possible framework to integrate drones into the civil aviation system.
Sustainable aviation	Leading the private-public Sustainable Aviation Aotearoa (SAA) partnership and key policy work on emissions reductions for the aviation system. The Reduced and Zero Emissions project is intended to identify and progress necessary work in the regulatory system required to progress sustainable aviation technologies including alternative propulsion, fuels and related regulated activities, resources and designs.	MoT will soon stand up three industry working groups. The SAA leadership group and working groups will be developing New Zealand's International Civil Aviation Organisation state action plan for aviation.
Implementing the Civil Aviation Act 2023	The new Act will be in force in April 2025.	A programme of work is underway to deliver secondary legislation, transition to the new Act, and set up the Ministry to deliver new functions. CAA is remaking the whole set of civil aviation rules, to align with the new Civil Aviation Act.
Air Navigation System Review	This review found that the system is safe and has been well regarded but change is needed to deal with advanced technologies and new threats, and to ensure the system is fit for the future.	Scoping next steps to deliver on the recommendations of the independent review panel, Confidential advice to Government

Emerging Technologies Programme	The Strategic Aim of the CAA Emerging Technologies Programme is to act as a bridge between the CAA and our emerging technologies aerospace and aviation stakeholders, to provide the most effective ongoing regulatory interface possible, to enable the safe and effective integration of emerging technologies into the civil aviation system.	MoT will continue to support the development and expansion of the Emerging Technologies Programme to meet industry demand.
Alternative Propulsion Rules project	Aiming to identify Civil Aviation Rules which unnecessarily prohibit or inhibit the development, uptake, or deployment of emerging alternative propulsion technologies (electric aircraft, hydrogen, sustainable aviation fuels) into New Zealand's civil aviation system.	The CAA is working with internal subject matter experts to identify the rules that may be affected as part of this project.

Annex 1: Regulatory decision-making for space and high-altitude activities

Overview of payload permitting

1. Under OSHAA, you are the decision-maker for all permits, licences, and variations. You have signalled that you would like to delegate routine, low risk decisions to officials. We will provide you with further advice on this.

2. Payload permit decisions will comprise the majority of your OSHAA regulatory workload. Currently Rocket Lab is launching once or twice a month from New Zealand. Commercial Information

3. To date 109 payloads permits have been granted, some permits covering multiple payloads. The vast majority of these payloads have been launched from Mahia but OSHAA also regulates overseas launch by New Zealanders. MBIE has so far not recommended declining any permit applications nor have previous Ministers chosen to decline any applications against Ministry advice.

Process

4. MBIE's approach is to assess applications as quickly as possible, while still ensuring risks are managed. The Ministry has set itself an informal (and unpublished) target of three months to process a payload permit from receipt of the application to a Ministerial decision, which compares favourably internationally. We are implementing improvements to make the process faster and clearer for applicants, including where an operator has recently been permitted for a similar payload. We will also improve reporting on process timeframes.

5. As the cadence of launches increases, consideration of applications may need to speed up even further, with some advice likely to come to you very close to proposed launch dates. While MBIE has processed some permit applications well within three months, others have taken considerably longer where there are complicating factors such as the use of novel technologies or involving new and complex policy issues. Delays also come from waiting for applicants to submit all information required to assess orbital debris risk in line with international standards.

6. The process for reaching a decision on a payload permit is as follows:

    i. MBIE accepts a complete application from the payload owner/controller. Additional information may be sought while the application is assessed.
    ii. The application is forwarded to the NZIC who undertake a national security assessment. OSHAA requires the Minister responsible for the NZSIS and GCSB to be consulted on all payload permits.
    iii. MBIE undertakes an assessment of all statutory criteria (outlined below), consulting with other agencies as needed.
    iv. MBIE briefs you on our recommendation whether or not to grant the permit based on the statutory criteria along with any conditions to impose.

v. As part of this briefing, we provide a draft letter for you to consult with the Minister responsible for the NZSIS and GCSB. The Minister will sign and return this letter to you indicating whether they have any concerns.

vi. Once you receive the Minister's response, you will decide whether to grant the permit (and, if approved, sign the permit itself).

vii. MBIE will then advise the applicant of the outcome.

7. In the interest of transparency, MBIE proactively releases summaries of all licences and permits approved each quarter.

Factors in granting a payload permit

General criteria

8. To grant a payload permit under OSHAA, you must be satisfied that:

- the applicant will **safely** manage the operation of the payload
- that the applicant has an **orbital debris mitigation plan** that meets prescribed requirements (to ensure, amongst other things, the payload does not create debris or collide with other objects in orbit).
- that the proposed operation is consistent with New Zealand's **international obligations**
- any other prescribed requirements (no others have been set at this point).

9. In each payload application, we will advise you of our assessment of these elements.

National interest

10. OSHAA provides that, even if the above criteria are met, you may decline a licence or permit application if you are not satisfied that the proposed activity is in New Zealand's national interest.

11. Factors relevant to determining New Zealand's national interest are outlined in OSHAA and include economic or other benefits; risks to national security, public safety, international relations or other national interests; whether conditions can mitigate these risks; and any other matters you consider relevant.

12. In December 2019 [Ref CBC-19-MIN-0048 refers] Cabinet agreed to several principles which MBIE uses to guide analysis of New Zealand's national interest:

- **Responsibility**: promoting an orbital environment where users avoid causing harm or interference with the activities of others.
- **Sustainability**: preserving the benefits of space for future generations.
- **Safety**: not jeopardising the safety of people on the ground or in space.
- Space activities authorised by the Government should reflect **New Zealand's values and interests**, as well as being aligned with broader policy settings.

13. Cabinet also agreed that there were certain categories of payloads which are not in the national interest to provide guidance to applicants. These include:

- payloads that contribute to nuclear weapons programmes or capabilities
- payloads with the intended end use of harming, interfering with, or destroying other spacecraft, or systems on Earth
- payloads with the intended end use of supporting or enabling specific defence, security or intelligence operations that are contrary to government policy

- payloads where the intended end use is likely to cause serious or irreversible harm to the environment.

14. In addition to providing guidance to applicants, these principles and guidelines also serve to reassure the New Zealand public that our space sector reflects New Zealand's values. Free and frank opinions

15. To date, we have not recommended that the Minister decline any applications based on national interest considerations. We have, however, identified potential national interest concerns in some applications which have been managed by way of conditions on the permit.

Factors in granting other kinds of licences

16. The other regulatory decisions under OHSAA are for:

    - facility licences (currently Rocket Lab's Launch Complex 1 in Mahia)
    - high-altitude activity licences
    - license and permit variations

17. While these licences have their own requirements under OSHAA, there are similar tests that need to be met. When MBIE receives these applications the advice briefing will detail the legislated requirements.

18. We note that with all types of licences there is an ability to decline an application on national interest grounds. This enables officials to advise you of any risks that were not anticipated at the time of drafting the legislation.

Aircraft regulated by the Civil Aviation Authority

19. The Civil Aviation Authority (CAA) has regulatory responsibility for the safety for all aircraft, including those that operate at high-altitude (eg a high-altitude drone) or space (eg a space plane). As a result these craft are regulated by both agencies. We expect to see more applications that will fall under both regulatory regimes as the aerospace sector grows, and indeed much of the activity regulated under OSHAA must pass through controlled airspace.

20. OSHAA requires you to receive confirmation from the Director of Civil Aviation that an aircraft applying for a high-altitude licence holds all appropriate permits prior to granting the licence and to take account of any advice or information provided by the Director of Civil Aviation in relation to the safety of the operation of the aircraft at high-altitude.

21. In order to facilitate this consultation, MBIE has a Memorandum of Understanding with the CAA and the Director's confirmation will be included in the advice briefing you receive on any high-altitude licence.

Annex 2: Key stakeholders

Organisation	Description	Point of Contact	Contact details
Aerosearch*	Developing remotely piloted aerial vehicles.	**Michael Pervan,** Managing Director	Privacy of natural persons
Aerospace Auckland	Aerospace Industry body.	**Jason Reeves** Chair	
Aerospace New Zealand/Aerospace Christchurch	Aerospace industry body.	**Mark Rocket,** President	
Argo Navis Aerospace	Manufacturing and sub-orbital launch (under development).	**Dr Malcolm Snowden,** CEO	
Dawn Aerospace*	Space manufacturing and development of a reusable space plane.	**Stefan Powell,** CEO	
Envico Technologies*	Developing remotely piloted aerial vehicles.	**Cameron Baker,** CEO	
Kea Aerospace*	Developing an uncrewed high-altitude platform to collect aerial imagery.	**Mark Rocket,** CEO	
Massey University^	Te Pūtahi-a-Toi – School of Māori Knowledge.	**Dr Pauline Harris,** Associate Professor	
Merlin Labs*	Developing autonomous aerial vehicles.	**Shaun Johnson,** CEO Merlin Labs NZ	
OneReg	Regulatory compliance software for aviation	**Clint Cardozo,** CEO	
Paihau—Robinson Research^	Engineering and applied physics research institute based at VUW.	**Prof Nick Long,** Director	
Pyper Vision*	Developing remotely piloted aerial vehicles to clear airport fog.	**Emily Blythe,** CEO	
Rocket Lab	Space manufacturing and launch services.	**Peter Beck,** CEO	
SpaceOps NZ	Ground segment service provider for space activities.	**Robin McNeill,** CEO	
Rongomaiwahine Iwi Trust	Iwi authority for 4,500 people who whakapapa to the Mahia Peninsula	**Paul Ratapu,** Chair	
Swoop Aero*	Developing drone-powered logistics.	**Richard Adams,** Regional Director	
Tāwhaki Joint Venture	Multi-use aerospace testing facility.	**Linda Falwasser,** CEO	
Te Pūnaha Ātea Space Institute^	Space research institute based at the University of Auckland.	**Prof Guglielmo Aglietti,** Director	
University of Canterbury^	A range of space research is undertaken at the University.	**Dr Sarah Kessans,** Senior Lecturer	
Wisk*	Developing electric, autonomous air taxis.	**Catherine McGowan,** Vice President of the Asia Pacific Region	
Zenno	Developing novel satellite systems.	**Max Arshavsky,** CEO and CTO	

*Airspace Integration Trials Programme Partner

^The universities all have multiple space stakeholders; we have included examples only

Annex 3: Government aerospace funding allocations under the Aerospace Strategy

Note: funding is indicative and final amounts are subject to further Ministerial approval.

Aerospace Strategy investments announced in September 2022 (Aerospace Strategy consultation announcement)

Investment	Amount ($ million)	Source (allocation from existing sources, no new money appropriated)	Aerospace Strategy goal
Establishment of the CAA's Emerging Technologies Program	3.7	Economic Development appropriation (Tourism)	Goal 2 – Safely integrate autonomous aerial vehicles
Research projects under the Airspace Integration Trials Programme	3	Research, Science, and Innovation appropriation (Innovative Partnerships)	Goal 2 – Safely integrate autonomous aerial vehicles
Research partnerships with NASA	9	Catalyst: Strategic	Goal 4 – Actively support exploration in space Goal 5 – Enhance decision-making using aerospace enabled data

Aerospace Strategy Investments announced in July 2023 (Aerospace Strategy publication)

Investment	Amount ($ million)	Source (allocation from existing sources, no new money appropriated)	Aerospace Strategy goal
Supporting policy and regulatory stewardship in the CAA and MoT	5	RSI appropriation (Innovative Partnerships)	Goal 2 – Safely integrate autonomous aerial vehicles
Workforce development – expanding aerospace scholarships and internships program and other workforce initiatives	3	RSI appropriation (Innovative Partnerships)	Cross-cutting
Space R&D funding to build national capabilities	3.5	RSI appropriation (Innovative Partnerships	Goal 4 – Actively support exploration in space
Studies on Māori interests and participation in aerospace	0.25	RSI appropriation (Innovative Partnerships	Cross-cutting
Economic study on the aerospace sector	0.25	RSI appropriation (Innovative Partnerships	Cross-cutting

Total across both announcements: $27.7 million