



CONSULTATION DOCUMENT

Developing the Aotearoa New Zealand Aerospace Strategy

SEPTEMBER 2022



Ministry of Business, Innovation and Employment (MBIE) Hīkina Whakatutuki – Lifting to make successful

MBIE develops and delivers policy, services, advice and regulation to support economic growth and the prosperity and wellbeing of New Zealanders. MBIE combines the former Ministries of Economic Development, Science and Innovation, and the Departments of Labour, and Building and Housing.

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Have your say

We welcome your input to develop the content of the Aotearoa New Zealand Aerospace Strategy (the Aerospace Strategy).

Your views will inform the final Aerospace Strategy, which aims to support the further growth of an internationally competitive Aotearoa New Zealand aerospace sector that is thriving, innovative and safe.

Ministers' Foreword

It is our pleasure to release this consultation document on New Zealand's first national Aerospace Strategy.

The Government has set ambitious goals to build a more productive, sustainable and inclusive economy that works to improve the lives of all New Zealanders and addresses our long-term challenges. The aerospace sector can play a key role in this growth over the coming years, increasing the number of highly paid and skilled jobs right throughout New Zealand, and improving our productivity through world leading research and development. New Zealand can further develop its agile regulatory system to become a leading place to test, trial and adopt aerospace technologies. We can use technologies and solutions developed by the sector to respond to issues like climate change, management of natural resources, and to meet our emissions targets.



Hon Stuart Nash

Hon Stuart Nash: "The New Zealand aerospace sector has seen significant growth in recent years and is now a key contributor to our economy. In 2019, the estimated contribution of the space sector alone was \$1.69 billion. Through this Strategy we can solidify that position and catalyse new growth to make aerospace a multi-billion dollar New Zealand sector by 2030.

This Strategy builds on the ground-breaking and world leading economic activity that is already happening in New Zealand. Key to this has been companies like Rocket Lab and Dawn Aerospace. Rocket Lab is now an end-to-end space company delivering reliable launch services, complete spacecraft design and manufacturing, satellite components, flight software, and more. They employ over 600 staff in New Zealand in high-value manufacturing and research and development roles. Dawn Aerospace is providing fully-green propulsion options to the global satellite market, and is developing a same-day, reusable space launch vehicle that will improve access to space. Rocket Lab and Dawn are examples of highly innovative companies currently leading the world from New Zealand.

The Government has enabled space actors like these to operate through the ongoing development and evaluation of an agile space regulatory environment. We have also forged international partnerships with other leading space nations to ensure that New Zealand can participate in the international space economy."

Hon Dr Ayesha Verrall: "Research, Science and Innovation is vital to the success of the aerospace sector, which undertakes significant research and development as part of their day-to-day commercial activity.

There is now a strong cohort of highly innovative companies operating in the New Zealand aerospace sector, right through from start-up to scale-up. We have an active aerospace research community in universities and other institutions which continues to provide the technological and skills foundations we need to enable us to keep innovating and growing. We can take action through this Strategy to make New Zealand a globally recognised place for aerospace research and development.

The aerospace sector is benefiting from the enabling environment for innovation that has been developed by this Government through measures like the Research and Development Tax Incentive, the Airspace Integration Trials Programme, and funding the Government has provided for international space research partnerships."



Hon Kieran McNulty

Hon Kieran McNulty: "The aerospace sector is now developing and adopting new technologies that will make low and zero emissions flights happen in New Zealand. There are transport options of the future being developed and trialled, particularly for autonomous flight. A priority of this strategy is furthering our efforts to provide enabling regulations for aerospace. This will ensure New Zealand is a world leading destination for aerospace activities, while safely integrating new technologies into our skies."

As Ministers with responsibility for aerospace, we have set out in this Strategy the Government's plans and aspirations for the New Zealand aerospace sector.

This document includes a draft future state for 2030, three pillars that underpin the Strategy, and five ambitious goals that we want to work with the sector to achieve. The Government will also develop an action plan in collaboration with the sector, to establish a pathway through which we can collectively achieve our vision.

We are particularly interested to hear whether the Strategy is framed in a way that will support your planned activities out to 2030, and whether it will enable New Zealand to build on the competitive advantages we have already developed to become a globally recognised aerospace nation.

We welcome your input on this document, and look forward to working with you over the coming months and years to collectively take the actions needed to achieve our ambitions for the future of aerospace in New Zealand.

Hon Stuart Nash
Hon Dr Ayesha Verrall
Hon Kieran McNulty



Hon Dr Ayesha Verrall



What is in this consultation document

This document gives an overview of the areas that will make up the Aerospace Strategy. Alongside this, key questions are asked.

Aerospace is a dynamic sector that combines space and advanced aviation activities. The Aerospace Strategy will focus on innovation and economic development drivers and set the overall broad direction for the sector, align activities across the government and the sector, and inform policy and regulatory development.

We want to hear your views on developing the content for the following areas of the Aerospace Strategy:

- › Overview of the Aerospace Strategy
- › A strategy for building our aerospace sector
- › Building strong foundations (Three Pillars)
- › Goals for the 2030 Future State
- › Pathway to the 2030 Future State.

We encourage anyone with an interest in the New Zealand aerospace sector to make a submission.

How to make a submission

Please fill out the submission form attached to this consultation document and send the completed form to aerospacestrategy@mbie.govt.nz by **12 October 2022**.

Use of information

Your submission may be made public, or the content included in a summary or other report about this consultation process. By making a submission, we consider you have consented to this use, unless you clearly specify otherwise in your submission.

Release of information

Release of submissions is subject to the Official Information Act 1982. Please tell us as part of your submission if you have any objection to the release of any information in the submission, which parts you consider should be withheld, and include your reasons for withholding the information (for example, commercially sensitive material). We will consider any objections you note and consult with you when responding to requests under the Official Information Act 1982. Please indicate on the front of your submission if it contains confidential information and mark the text accordingly. If you wish to make a submission which includes confidential information, please send us a separate version excluding the relevant information for publication on our website.

Private information

The Privacy Act 2020 applies to submissions. Any personal information you supply to MBIE in the course of making a submission will only be used for the purpose of assisting in the development of policy advice in relation to this issue. Please clearly indicate in your submission if you do not wish your name, or any other personal information, to be included in any summary of submissions that MBIE may publish.

Overview of the Aerospace Strategy

Our nation’s history has long been intertwined with the sky and stars. For Māori and Pacific peoples, voyaging and celestial navigation have deep cultural and historical roots that led to incredible feats of innovation and exploration. The Maramataka (Māori lunar calendar) tracks the movement of the sun and the moon and has traditionally aided the planning of activities throughout the year, such as the timing of harvests.

Later arrivals of people to New Zealand in the 19th century also navigated using the stars as their guides. Richard Pearse became an aviation leader through his work on powered ‘heavier than air’ flight. Jean Batten is one of the world’s greatest aviators and is celebrated for her heroic solo flights during the 1930s.

We continue to build upon this knowledge of aerospace from our ancestors, creating an aerospace sector that is uniquely New Zealand. We use our ingenuity and determination to be at the leading edge of aerospace, such as ElectricAir’s world-record breaking electric flight across the Cook Strait. Our connections to aerospace are important for protecting our culture and identity for future generations to come, while building a sustainable and competitive industry for New Zealand. We can also use aerospace to maintain and care for our natural environment through practices such as kaitiakitanga (guardianship).

Why do we need an Aerospace Strategy?

This Government has set ambitious goals to build a more sustainable and inclusive economy that works to improve the lives of all New Zealanders and addresses our long-term challenges. The development of the Aerospace Strategy will provide the foundation on which we can grow a globally competitive aerospace sector, while ensuring we keep New Zealanders, our livelihoods, and our national interests safe.

The aerospace sector is a prime example of the kind of innovative, high-value, research and development (R&D) intensive industry that can deliver on these goals. Globally, aerospace is big business, worth over \$600 billion and growing.¹ Aerospace has value beyond economic development in enabling environmental and social outcomes that improve the wellbeing of all New Zealanders.

Our aerospace sector currently has the foundations of a highly skilled workforce, well-connected research system, and safe and enabling policy and regulatory environment. However, a clear direction for the future of aerospace is needed for the sector to unlock its true potential.

The Aerospace Strategy will set a path to accelerate sector growth, provide strong foundations for fast-paced change and develop a distinctly New Zealand approach to aerospace. By doing so, we can carve out New Zealand’s niche on the global stage while also strengthening our connections to the global aerospace economy. By 2030, we want to have a strong and resilient aerospace sector that is coordinated in its activities, leverages shared strengths and seizes new opportunities. We want a sector that is acknowledged as world-leading in key areas of aerospace technology.

¹ The Space Report 2020 Q2, The Space Foundation (July 2020)

What is the Aerospace Strategy?

The Aerospace Strategy will outline the foundations and a framework that will drive sector development towards an ambitious 2030 Future State. The government has an important leadership role to play in growing an internationally competitive aerospace sector that is thriving, innovative and safe. The Aerospace Strategy will align government activities, investments and other initiatives while growing ambition in the sector.

We are seeking input into developing the Aerospace Strategy. We are interested in your thoughts on the four areas summarised in the table below. These areas are detailed further in this consultation document with specific questions for your consideration.

Areas	Description
① A strategy for building our aerospace sector	Details what the current New Zealand aerospace sector looks like, and the 2030 Future State the Aerospace Strategy aims to achieve.
② Building strong foundations (Three Pillars)	Details the foundational Three Pillars of the Aerospace Strategy that underpin the ambitions of the 2030 Future State, which are: <ul style="list-style-type: none"> › Unlocking Aerospace Potential › Future-Facing Government › Aerospace Nation.
③ Goals for 2030	Details the Goals for the Aerospace Strategy that will help achieve the 2030 Future State, which are: <ul style="list-style-type: none"> › Build a sustainable air passenger journey › Safely integrate all forms of autonomous aerial vehicles › At the forefront of global sustainable space activities › Actively support a permanent human presence in space › Critical decision-making made easy through aerospace-enabled data, tools and applications.
④ Pathway to the 2030 Future State	Details how the Aerospace Strategy will be delivered through an Action Plan.

Questions – Overview of the Aerospace Strategy

1. Do the four areas above provide the right basis for the Aerospace Strategy?
2. What are the critical factors that you see for aerospace sector development?
3. How would an Aerospace Strategy help you?



Defining Aerospace

Aerospace in New Zealand covers a wide breadth of space and aviation activities, from transport, advanced manufacturing and fabrication, design, and engineering services through to technical consulting and professional services. Aerospace services also provide essential data and information across the economy, from Earth imaging to navigation systems.

The sector is actively engaged in research and development, manufacture and testing of flight vehicles, space launch vehicles, spacecraft and non-aerospace products and systems that make use of aerospace technology, including sustainable fuel alternatives.

Aerospace also encompasses downstream technologies that harness aerospace data, including ground stations or aerospace-enabled services such as technical analysis and data storage. It includes satellites and all data-derived satellite services and the design and manufacture of satellite subsystems.



Area One – A strategy for building our aerospace sector

The Aerospace Strategy will set a 2030 Future State for New Zealand’s aerospace sector. The purpose of the 2030 Future State will be to clearly set the ambitions and direction of the sector. The Aerospace Strategy will be structured around the 2030 Future State to help realise this vision.

The below box includes the current draft 2030 Future State. This vision is still being refined, so we are interested to hear what you think and whether the 2030 Future State aligns with the ambitions of the sector. The draft 2030 Future State was designed to grow aerospace to support New Zealand’s economic and social aspirations.

Draft 2030 Future State

Aerospace in New Zealand is a diverse and inclusive sector that is thriving, supporting tens of thousands of high-wage jobs.

The sector is safe, innovative, and productive, made up of hundreds of research and development intensive firms with international connections.

This multi-billion dollar industry leads the world in disruptive aerospace technologies. New Zealand is acknowledged internationally as a place with strong comparative advantage for undertaking aerospace activity, including through partnerships with Government.

Aerospace activities actively contribute towards improving our environment through reducing greenhouse gas emissions and enhancing sustainability across the New Zealand economy.

Technology development is enabled through iterative hardware and flight-testing capabilities that can transition seamlessly between low-altitude, high-altitude, sub-orbital and orbital operations.

Aerospace technologies are incorporated into government services and systems, and support New Zealand’s national interests and national security.

We want to create an aerospace sector that supports the values, ambitions and aspirations of Māori. Māori are an active part of the aerospace sector, from involvement in launch and testing activities, to space medicine and biology, to downstream uses of aerospace technology and data, such as agritech. We seek to further enhance Māori engagement in the aerospace sector, ensure opportunities for Māori leadership and realise benefits to Māori from the sector's growth.

We are interested to hear how we can collectively develop the future aerospace sector in New Zealand and how Māori interests in the sector could be enabled by the Aerospace Strategy.

Questions – A strategy for building our aerospace sector

4. Is the 2030 Future State set out in a way that enables New Zealand to build on its existing advantages to develop a leading place in the global aerospace economy?
5. Will the 2030 Future State support your ambitions for growth and participation in the sector?
6. What barriers are there to optimising sector growth?
7. How could the government and the sector work together to achieve the 2030 Future State?
8. How can the Government enable Māori ambitions for the sector?



Area Two – Building strong foundations (Three Pillars)

The 2030 Future State will be built on three foundational pillars. We have identified the Three Pillars below as the critical parts of the aerospace sector that need to be strengthened. We are interested in your thoughts and ideas for these pillars.

PILLAR ONE – Unlocking Aerospace Potential

This pillar will focus on growing this knowledge-intensive and innovative sector to create more value and productivity for the economy through high-value exports and services, and growing the number of high-wage, high-skilled jobs. Our aerospace sector encompasses a wide variety of activities in advanced aviation and space that already deliver significant economic and social benefits to New Zealand. This pillar will help us reach our aerospace potential by growing these activities, fostering collaboration and creating new opportunities.

This pillar will support the scaling up of commercial and research activity based on existing strengths across all parts of the aerospace value chain (from manufacture through to end use), while also developing New Zealand leadership in high-growth and emerging technology areas. To build a strong aerospace ecosystem in New Zealand, we need to ensure that the sector has access to essential infrastructure and investment. We seek to actively support economic and regional development, encouraging new start-up activity and attracting innovators and investors.

PILLAR TWO – Future-Facing Government

This pillar will focus on the enabling environment for aerospace technologies, encouraging their uptake and integration into current systems. This includes effectively aligning policy across government with a role in supporting the aerospace sector and ensuring fit-for-purpose regulatory systems. It will be important to balance opportunities for the sector alongside identified risks, considerations of safety, and New Zealand's national security and national interests.

The potential for applications and downstream uses of aerospace technologies by the government is significant. The government will strive to be an early adopter and investor in aerospace technologies and a user of aerospace-derived data to solve problems. We will need to build government skills and capability in essential areas, such as data management and cyber security, to make the most of these opportunities.

PILLAR THREE – Aerospace Nation

This pillar will focus on embedding aerospace into our national identity. Aerospace and its technologies are creating exciting opportunities for New Zealanders through enhancing wellbeing and transforming the way we live and work. However, many people are unaware of the critical role these technologies play. We need to build a positive narrative that demonstrates the everyday relevance of the sector and clearly communicates the benefits of aerospace technologies.

This pillar will promote the value of the sector, foster greater engagement and interest in aerospace, and help New Zealanders embrace the sector's growth. The initiatives which support this pillar will help to ensure we have a workforce that is skilled, innovative and meets the capability and capacity needs of the sector. We also need to encourage broader participation in aerospace education, trades training and the workforce to create a more diverse, safe and welcoming sector.

Questions – Building strong foundations (Three Pillars)

9. What do you think of the Three Pillars and do you think they will support the 2030 Future State?
10. What else would you like to see in the Three Pillars?
11. What actions and initiatives could the sector focus on to support the Three Pillars?



Photo: Ball Aerospace

Area Three – Goals for 2030

The Aerospace Strategy will set bold Goals for 2030 to position our aerospace sector at the global frontier. Through the Goals, we can align sector activities with Government priorities, policy and regulation to address important social and environmental challenges.

We have developed the five draft Goals below for the Aerospace Strategy. As we continue to shape and change these Goals, we want to know what you think of their scale and scope. We are also interested to know how you can support the implementation of the Goals.

The Goals were selected based on feedback from the sector on areas of ambition combined with an assessment of how aerospace can address government priorities and where there are developing opportunities with sector partners. Each goal is an area that New Zealand can take a leadership role in, building on domestic science, research and development strengths. The Goals cut across the entire aerospace sector to address challenging issues while strengthening sector connections and growing innovation, R&D and capability. As the sector develops, and as new technologies and areas of competitive advantage for New Zealand emerge, the goals can be revised to ensure they remain fit for purpose.

GOAL ONE – Build a sustainable air passenger journey

We have an opportunity to leverage New Zealand's environmental credentials, such as high levels of renewable energy resources, to take aviation technologies to new heights and enable low-emission flight alternatives. By 2030, New Zealand can be a leader in trialling and adopting emerging low emissions flight alternatives and developing their supporting infrastructure.

GOAL TWO – Safely integrate all forms of autonomous aerial vehicles

One of the biggest challenges on the horizon for advanced aviation is how to safely integrate autonomous aerial vehicles into existing aviation systems. These are vehicles with artificial intelligence and on-board sensors that can detect their surroundings and react accordingly. Significant work has already been undertaken to establish New Zealand's leadership in this area, which we will progress further for 2030.

GOAL THREE – At the forefront of global sustainable space activities

The proliferation of space debris will be a growing challenge for the aerospace sector with increasing collision risks. New Zealand already has a good international reputation in sustainable space activities which we can capitalise on and grow.

GOAL FOUR – Actively support a permanent human presence in space

Aotearoa New Zealand could tap into the global space economy through our support for a sustained off-Earth human presence. This will involve continuing to leverage current launch activity, and supporting the development of a sector that is active in orbit. It will involve working alongside international efforts to achieve results we cannot alone. This would also have wider benefits for scientific discovery and technology advancement, with many direct applications back to key areas of interest for New Zealand.

GOAL FIVE – Critical decision-making made easy through aerospace-enabled data, tools and applications

Aerospace technologies produce data which improves critical decision-making by the Government and within New Zealand's economy and society. New Zealand has an opportunity to generate and better use this data to drive productivity and develop new products and services. We also have an opportunity to transform the way we respond to environmental issues, generating valuable sources of information and enabling a whole-of-system view of the environment through connecting critical datasets.

Questions – Goals for the 2030 Future State

12. What do you think of the Goals for 2030?
13. Are the goals framed in a way that will enable New Zealand to build on its strengths and comparative advantages to achieve the 2030 Future State?
14. What activities and milestones can help us achieve these Goals?
15. Where do you see yourself in realising these Goals?



Area Four – Pathway to the 2030 Future State

An Action Plan for the Aerospace Strategy will set the course for the government and sector to work together to implement the ambitions of the strategy. The Action Plan will include a summary of initiatives currently underway and the new initiatives that will be implemented in our work towards the 2030 Future State. As the Aerospace Strategy is an all-of-government strategy, the Action Plan will detail the agency responsible for each initiative and any supporting partners.

We are interested to hear from you on what the Action Plan should look like, including what initiatives would support implementation of the Aerospace Strategy.

Key overarching initiatives in the Action Plan will include:

- › Creation of a sector-government taskforce to help with the delivery of the Aerospace Strategy
- › An annually published statement reporting on the progress of initiatives
- › A strategy refresh in 5 years' time.

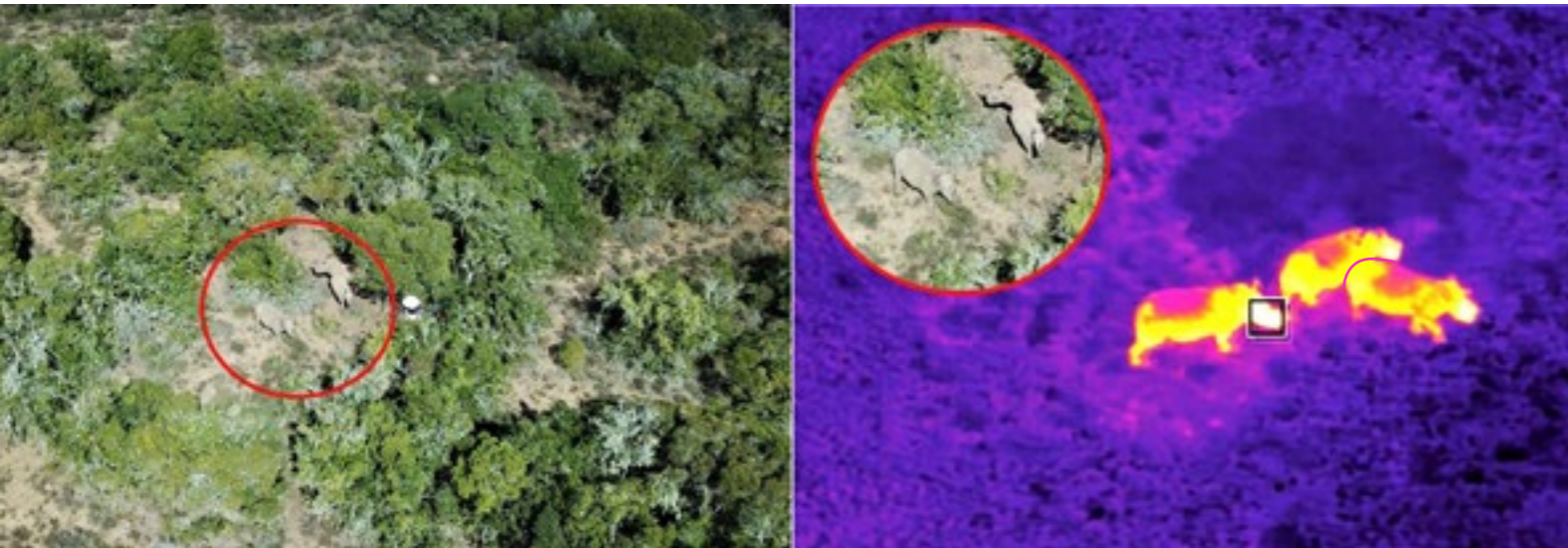
The Action Plan will build on the initiatives the government has already implemented to help grow the aerospace sector, including:

- › Innovative and responsive regulatory and policy approaches, such as the Airspace Integration Trials Programme (AITP) that was created to support the safe testing, development and market validation of advanced uncrewed aircraft.
- › Building partnerships to create niche New Zealand offerings, such as the Tāwhaki joint venture partnership between Te Taumutu Rūnanga and Wairewa Rūnanga (together as Kaitōrete Limited) and the Crown. This partnership has a dual kaupapa to heal and rejuvenate the unique whenua on Kaitōrete in Canterbury, and to advance New Zealand's aerospace industry.

- › Significant aerospace R&D investments, such as the MethaneSAT mission and the joint New Zealand-German Aerospace Centre (DLR) partnership.
- › Education and promotional initiatives, such as the New Zealand Space Scholarship and aerospace-enabled data challenges and hackathons for students.

Questions – Pathway to the 2030 Future State

16. What policies, ideas, actions, and/or initiatives would you like to see in the Action Plan to help achieve the ambitious 2030 Future State?
17. What would be the benefits of these actions and how would they help grow the New Zealand aerospace sector?
18. How would you like to be involved in the delivery of the Aerospace Strategy?





Te Kāwanatanga o Aotearoa
New Zealand Government