HE AROTAKE I TE PŪNAHA TERE-RANGI

AIR NAVIGATION SYSTEM REVIEW

AIR NAVIGATION SYSTEM REVIEW

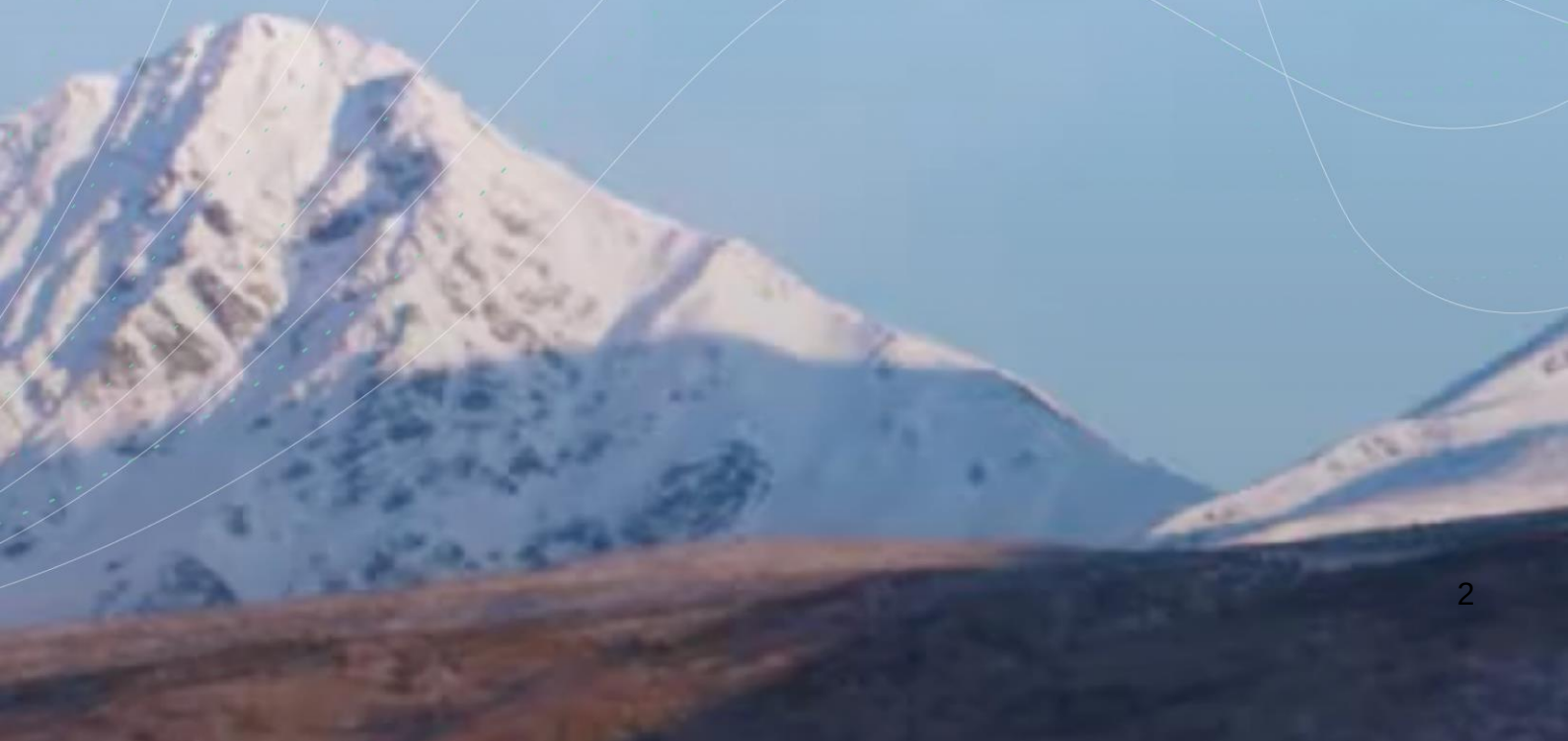
PHASE 1 REPORT

September 2022

The air navigation system is critical for keeping Aotearoa New Zealand safe, connected, and growing.

The system has served us well, but it is not fit for the future.

The system must transform to seize the opportunities and meet the challenges of change.



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MESSAGE FROM THE CHAIR

Tuia i runga, tuia i raro, tuia i roto, tuia i waho, tuia ki te ao mārama, tihei mauri ora.

By sewing together the essence from above to the earth below may we all be bound together inside and out, may we bring understanding in all that we are and all that we do through togetherness, and the breath of life.

Tēnā koutou katoa

New Zealanders, while they may not know it, have every reason to be proud of this country's air navigation system. It has served us well to date, driven by people with expertise, energy, and above all a commitment to safety. But times are changing.

The global aviation environment is moving from analogue to digital, from a reliance on rules to include concepts of dynamic risk and risk-based regulation that cross domains. Our stakeholders talked about climate change, geopolitical shifts, and increasing cyber-based threats in a world where so much of what we do – including flight – is reliant on signals from positioning satellites.

COVID-19 revealed fundamental weaknesses in the system here and internationally, and we know this type of 'black swan' will occur more frequently in future. Here in Aotearoa New Zealand, we were never more conscious of the importance of the connections enabled by the air navigation system than when our borders were closed.

Change and challenge also bring opportunity and important lessons. In this initial phase we have heard how innovation can improve safety, reduce emissions, and enable greater access to essential services. A productive aviation industry and skilled workforce is already boosting economic development.

We see a strong case for a clear shared vision and system-wide leadership to make the most of the opportunities the system can offer. As the system integrates novel aircraft systems, it will need new ways of thinking, matching technological progress with innovation in the ways we regulate, deliver services, monitor, and set and measure outcomes.

This is also an opportunity for a more inclusive future, reflecting what is unique about us. We can plan a new flight path informed by te ao Māori perspectives, supporting equity, and honouring the Māori knowledge built over centuries that has led us to where we are today.

This report builds on input from our stakeholders and international commentators. I acknowledge their generous sharing of their time and expertise. I would also like to thank my colleagues on the Panel: Howard Fancy, Ed Sims, and Danny Tuato'o, and the review secretariat for their support.

Hei konā mai

Debbie Francis
Chair, ANSR Panel

EXECUTIVE SUMMARY

In 2021 Minister of Transport Michael Wood commissioned a high level, first principles review of the air navigation system in two phases:

- Phase 1: consider what Aotearoa New Zealand needs and wants from the air navigation system and the principles and objectives that should guide a future state

- Phase 2: recommend options for strengthening the policy and regulatory, institutional, and funding settings to ensure the system is fit for the future.

This Phase 1 report summarises what the Panel has heard to date, and signals the focus areas for Phase 2.

The air navigation system comprises the infrastructure, information and services required for safe flight. The system is complex, delivered by a range of agencies, authorised according to domestic and international standards, and used to guide and manage aircraft ranging from small recreational drones to international cargo aircraft and rockets.

The system is a critical part of Aotearoa New Zealand's national infrastructure. It delivers social and economic benefits and provides access to essential services. It maintains our connections with each other and the world. Our system is safe and well regarded. A strong foundation is important: innovation in aviation and wider social, geopolitical and climate changes are rapidly changing the landscape.

The Panel's assessment is that the current policy and regulatory, funding, and institutional settings are not fit for the future. The settings will not enable the system to address the challenges and maximise the benefits of a system undergoing rapid change.

The Panel's view is that the immediate issues are primarily systemic rather than structural.

Unlike comparable states, Aotearoa New Zealand does not have a vision and strategic direction for the future of the air navigation system. It lacks system-wide leadership, and agencies work in silos without effective incentives or accountabilities to drive long term investment and outcomes.

The Panel's view is that incremental, single agency and issue-specific interventions are not an adequate response. There is a need for transformational change.

In the future system, partnership will be key to realising Māori aspirations and including te ao Māori perspectives. The system also needs to engage with New Zealand's increasingly diverse communities about their future aviation needs.

A more deliberate and planned investment in the future system will also be required. We assume that while the user pays model will continue, there is also a need to consider more sustainable and equitable funding and charging approaches, including the extent to which the air navigation system infrastructure provides a nationally important public good.

This report identifies the areas where the Panel will focus its work in Phase 2:

- establishing **system wide leadership and stewardship**
- introducing **te ao Māori** perspectives and building opportunities for **Crown/ Māori partnerships**
- boosting **regulatory agility**
- recognising the **national interest** in the air navigation system
- seizing the opportunities in the **international context**
- strengthening **workforce capability and capacity**
- examining the **funding requirements** of the future system.

The Panel will deliver its Phase 2 report in April 2023.

THE CURRENT SYSTEM AND THE CASE FOR CHANGE

Why the air navigation system matters

The air navigation system is a critical part of Aotearoa New Zealand's core infrastructure, enabling the safe operation of aircraft through all phases of flight.

The core system components include physical and digital infrastructure and services. These include communications, surveillance and navigation, meteorology, airspace design, air traffic management, aerodromes, aeronautical information services, and aeronautical information management.

Not all flights need all parts of the system; however, Aotearoa New Zealand has a comprehensive system to provide for the full range of conventional airborne operations. The Civil Aviation Authority (CAA) is the regulator responsible for system safety oversight. Airways Corporation of New Zealand Limited (Airways) is the nation's air navigation system provider (ANSP).

Annex 1 sets out the system components in more detail.

Annex 2 describes the key system organisations that provide, authorise, regulate, and monitor the system's infrastructure and services.

Safety

The system's primary purpose is ensuring the safety of aircraft and protection of people in the air and on the ground. The credibility of the aviation sector rests, to a large extent, on the system's safety performance and the effectiveness of its regulatory oversight.

Aotearoa New Zealand's aviation safety record is excellent for both air navigation system provision and commercial passenger operations. Airways consistently provides air navigation services at 99 percent availability and is an active participant in international safety improvement initiatives.

A safe system is not without risk. As the complexity of aviation operations has increased, so too has the need for more dynamic approaches to identifying, managing, and monitoring risk.

The air navigation system is critical infrastructure

The geography of this country means air transport links provide the fastest connections between regions, particularly those that are remote and have limited and vulnerable road connections. Our location means air links provide essential connections for social and economic benefit. Ninety-nine percent of visitors to Aotearoa New Zealand arrive by air.

In 2019, 27 million domestic and 14 million international passengers passed through airports in this country.[1]

The air navigation system provides access to essential public services like healthcare. It is also an enabler for civil defence and emergency response, and search and rescue operations across the nation and the wider Pacific region, including operations provided by the New Zealand Defence Force.

The Government recognises the importance of the system for national resilience, though there is no formal statement of a minimum national infrastructure or service level. For example, twenty-one airports are designated lifeline utilities under the Civil Defence and Emergency Management Act 2002. In 2021, in recognition of the importance and non-commercial nature of the infrastructure, the Government invested in five ground-based navigation aids to ensure the system can continue to function (albeit at a reduced level) should satellite-based systems fail.

The system enables economic development

The system supports regional business connections and national economic development. In 2019, the International Air Transport Association (IATA) estimated that the direct contribution of air transport to Aotearoa New Zealand's economy was around US$3.7 billion.

IATA further estimated the total air transport industry and its supply chain's contribution to our economy was worth US$8.8 billion.[2] COVID-19 illustrated the importance of aviation-enabled tourism spending. In the 2020/21 year border closures reduced tourism spending by 91.5 percent from $16.2 to $1.5 billion.[3]

The aviation system is innovative, productive, and growing

The aviation and aerospace industries are growing in Aotearoa New Zealand, contributing over $1.7 billion to our economy each year.[4] Significant innovation has occurred in the last decade. Most notably RocketLab has completed 29 missions, deploying more than 100 satellites into orbit. Drones are increasingly common. Te Manatū Waka's 2019 Drone Benefit Study estimated the potential value of the drone industry to be up to $7.9 billion over the next 25 years.[5]

Aviation sector innovation contributes to economic development in two principal ways: empowering productivity improvements and spurring the market entry of new businesses or activities that create new value. For example, electric vertical take-off and landing systems (e-VTOLS) are poised to drive a new era of low noise, low emission air services. These systems are proliferating across Asia, the UK and Australia.

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[1] NZ Airports Association, *NZ Airports: Building Communities and Connecting People. NZAA, 2020.*
[2] IATA *The importance of air transport to New Zealand,* IATA, 2019.
[3] Ministry of Business, Innovation and Employment (MBIE), *Latest Tourism Satellite Account December 2021*, MBIE, 2021.
[4] MBIE, *Project Tāwhaki – a unique partnership for Kaitōrete*, MBIE, nd.
[5] Te Manatū Waka *Te Rangahau Painga mō ngā Matapoa Drone Benefit Study,* Te Manatū Waka, 2019.

The importance of aviation innovation is clear to the Government. The Ministry of Business Employment and Innovation (MBIE) is currently consulting on a draft Aotearoa New Zealand Aerospace Strategy, including goals and a pathway to a 2030 future state. The Strategy builds off existing industry and government partnerships.

MBIE is also responsible for the Airspace Integration Trials Programme (AITP), supporting the safe testing and development of advanced uncrewed aircraft in New Zealand. Te Manatū Waka Ministry of Transport is developing a policy framework for the integration of drones, and the Government recently released $3.7m to the CAA to establish an emerging technologies unit. Strengthening the regulatory capacity and capability is essential for the safe integration of new technologies and supporting economic development.

The case for system transformation

With the advent of new technologies and entrants into the aviation system the challenge has now become centred on realising the benefits of innovation and improving safety. This lies at the heart of the need for system transformation.

The importance of the air navigation system is recognised by Government through support for specific initiatives and agencies; however, it is not subject to the same system-wide lenses applied to other forms of transport. The system has tended to develop incrementally.

The most recent policy statement, the National Airspace Policy for New Zealand, was published in 2012. It was specifically designed to provide for a national airspace and air navigation programme, implemented as New Southern Sky (NSS). Led by the CAA, NSS took a cross-agency, collaborative approach and successfully facilitated the move to satellite-based navigation and a modern surveillance system, among other advances.

NSS is now effectively complete and will formally close in 2023. The end of NSS leaves no obvious locus or focus for system wide collaboration, and a corresponding loss of momentum.

The Panel's view is that there is an urgent need to develop a whole-of-system approach to develop a shared direction and agreed accountabilities for system and national level outcomes.

The global context

The International Civil Aviation Organization's *Global Air Navigation Plan* (2019) states: "There is much at stake for the global economy and citizens if modernisation of the global air navigation system does not continue."[6]

The case for change for this country is inextricably linked with the regional and global environment. As a small and isolated nation, Aotearoa New Zealand needs systems that are credible and aligned to those in the wider regional and global environment.

[6] ICAO, *Global Air Navigation Plan, 6th Edition*, ICAO, Nd.

In 2021 Australia released the National Emerging Aviation Technologies (NEAT) Policy Statement.[7] Earlier this year the UK released its ten-step strategic framework for the aviation sector to 2030 and its national air navigation system provider released its long-term safety strategy.[8] The Civil Air Navigation Services Organisation (CANSO) has brought together leading providers from around the globe to develop a new vision for the industry.[9]

We can see our international partners quickly moving to transform global air navigation systems. Aotearoa New Zealand can build on our reputation for agility and collaboration to influence international developments in our interests.

At the same time, innovators and investors will be looking for enabling environments and systems that are safe and that facilitate progress and development. There is a sense of real urgency in other states to develop, attract and retain high value industry and an expert workforce. We must keep up.

Drivers for change in Aotearoa New Zealand: strengthening the system and seizing opportunities

The navigation systems of the future will use digital infrastructure and artificial intelligence to safely manage more complex and congested airspace involving a much wider range of aircraft and operations.

Digitisation will support better environmental outcomes. Flexible use of airspace and precision navigation can reduce fuel burn and noise burden. Efforts toward decarbonisation of aviation are catalysing the development of new aviation fuels, aircraft types, operating systems, processes, and procedures. All measures that need an enabling regulatory framework.

Climate change is also driving new thinking about future infrastructure, such as charging networks for electric aircraft. Climate change will also demand adaptation to extreme weather events, the threat of inundation of low-lying airports, and retaining the social licence to operate a system largely dependent on fossil fuels.

There are novel and increasing risks related to cyber security. Reliance on the global navigation satellite system creates single points of vulnerability. Integrating new aviation technologies includes different and more complex concepts of risk and safety.

These changes do not comfortably align with a system designed for conventional crewed aviation, human-centred service and information delivery, and assumptions of the system that reflect the past more than the future.

Furthermore, stakeholders here and overseas see future changes placing considerable pressure on the workforce. The skills and expertise to inform sound decision-making are changing from those used in the past and becoming increasing specialised and scarce.

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[7] Department of Infrastructure, Transport, Regional Development, Communications and the Arts, *NEAT Policy Statement,* 2021.
[8] Department of Transport, *Flightpath to the Future*, DfT, 2022. NATS: *The NATS Safety Strategy for 2030: The Future of Safety in the ATM*, NATS, 2022.
[9] *CATS Global Council launches its roadmap to deliver the skies of 2045 CANSO, 22 June 2022. Accessed here: https://canso.org/cats-global-council-launches-its-roadmap-to-deliver-the-skies-of-2045/*

There are New Zealand specific issues that need solutions. Te ao Māori perspectives are absent from the system. System leaders need to proactively partner with iwi/Māori to bring these perspectives to the system's design and operation. This review and its ongoing work offer a genuine opportunity to start building enduring Māori / Crown relationships around the equitable access to the benefits that the air navigation system can enable.

Annex 3 outlines the process by which we developed the case for change.

Principles and objectives

The review's terms of reference required that the first phase will develop principles and objectives that will guide how the system should perform now and into the future.

Strategic objectives: in future the system will be:	Guiding principles: future decisions guided by:
Safe	
Unified and collectively accountable	Stewardship
Capable and resourced	Systems thinking
Efficient	Equity
Open, integrated and accessible	Risk and evidence based
Financially sustainable	Partnership with Māori
Environmentally sustainable	Interoperability and harmonisation
Adaptive and innovative	Transparency
Connected	
Secure and resilient	

The proposed strategic objectives and principles are intentionally broad to capture the full scope of the system and its benefits.

Annex 4 outlines stakeholder perspectives on the current system and the shifts that they see necessary for a future-fit system.

Annex 5 describes the objectives and principles in more detail.

THE FOCUS FOR PHASE 2

It is the nature of this complex system that its services, components and underlying settings are interconnected and dynamic. As a result, the focus areas span the three settings and the work of multiple system agencies.

The principles and objectives we have developed with the support of stakeholders will guide our Phase 2 review process.

1. Establishing **system-wide leadership and stewardship**;
    - embed a shared strategic vision and set of outcomes
    - clarify roles, responsibilities, and accountabilities across the system
    - identify work required to move from agency-specific to system-wide measures of success
    - build collaborative relationships and a commitment to co-design.

2. Introducing **te ao Māori** perspectives and opportunities for Crown/Māori partnership across the system;
    - support and reflect tikanga and mana, iwi/Māori priorities, interests and aspirations
    - ensure equity of access to resources and opportunities
    - explore the concept of kaitiakitanga with respect to airspace and its management.

3. Boosting **regulatory agility**;
    - capture the benefits and managing the risks that come from a rapid rate of change
    - apply a systems thinking lens across related regulatory frameworks
    - attract and retain high value investment and industry
    - enable rapid introduction of emissions-reducing initiatives.

4. Recognising the **national interest** in the air navigation system;
    - strengthen security and resilience related to existing and new threats to the system across Aotearoa's sovereign realm and partnering states
    - support essential connections: domestic, regional, and international
    - identify funding mechanisms for national interest infrastructure and services.

5. Seizing the opportunities in the **international context**;
    - influence and position in our national interests on the regional and global stage
    - make informed strategic decisions on priorities and partnerships
    - identify opportunities to position New Zealand to develop, attract, and retain innovators and investors.

6. Strengthening **workforce capacity and capability** in the system to support continual transformation;
    - develop, attract and retain people and organisations with the critical skills and expertise
    - identify the cultures, values, behaviours, and relationships needed for future success

- engage with industry to inform and co design strategic thinking and complex decision-making.

7. Examining the future system's **funding requirements**;
    - reflect the requirements and operating models of existing and new users
    - consider funding for research and development
    - assess options for funding nationally critical services and infrastructure
    - identify options for sustainable investment in high cost, intergenerational infrastructure.

Change management

There are significant opportunities to be realised through change. The Panel acknowledges that the aviation sector is under pressure as it recovers from COVID-19, responds to new technologies, deals with capacity and capability shortages, and makes critical infrastructure decisions.

But the issues raised here are urgent and the risks of doing nothing are significant.

In Phase 2 we will consider the change leadership challenge and options for prioritisation and sequencing. Change must be sustainable, and those involved need to understand and be confident that the change is feasible, worthwhile, and will be enduring.

Phase 2 timeline

The Panel will deliver its final report to the responsible Minister on 28 April 2023.

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For more information on the review, visit www.ansr.transport.govt.nz

ANNEX 1: SYSTEM COMPONENTS

CNS – communication, navigation, and surveillance

Communication refers to communication between two or more aircraft, the exchange of data or verbal information between aircraft and air traffic control and the ground-based communication infrastructure of the air traffic management network. Navigation is the planning, recording, and controlling the movement of an aircraft from one place to another by providing accurate, reliable, and seamless position determination capability. Navigation includes the use of dedicated ground and satellite technology and performance-based navigation (PBN). Surveillance systems are used by air traffic control to determine the position of aircraft. Systems on the ground communicate with equipment on board the aircraft to determine the position and other details of each aircraft.

ATM – Air traffic management

ATM is the integrated management of air traffic and airspace. ATM comprises the following components: air traffic services (ATS), airspace management (ASM) and air traffic flow management (ATFM).

Meteorological services for air navigation

System providers internationally provide aviation weather services through the distribution of aviation weather reports and forecasts for route planning and for use by controllers. MetService is the primary provider of aviation forecasting in New Zealand.

Aeronautical information services/Aeronautical information management

AIS/AIM is the integrated management of aeronautical information services through the provision and exchange of quality-assured digital aeronautical data. This provision and exchange of data ensures the flow of information necessary for the safety, regularity, and efficiency of international air navigation.

Aerodromes and ground aids (AGA)

Aerodrome infrastructure is a key component that influences air traffic flows and system capacity. AGA includes the following elements: aerodrome certification, visual aids for prevention of runway incursions, visual aids for denoting wind turbines, advanced aircraft docking systems to improve apron safety, rescue and firefighting provisions, wildlife strike hazard reduction, and heliports.

Airspace design

Aotearoa New Zealand includes airspace design as part of the domestic system for planning purposes. Technological developments, including those in the core system, require airspace design and designations to be continuously reviewed to accommodate increasing traffic, new types of aircraft and more direct and efficient flight paths.

ANNEX 2: AIR NAVIGATION SYSTEM AGENCIES

Te Manatū Waka Ministry of Transport (MoT)

MoT is the government's principal transport advisor. MoT helps government form national navigation system policy. Its role involves setting policy objectives for the system and providing principles to guide decision making by system agencies. MoT is also responsible for key legal frameworks and funding and charging setting across the system.

A major part of its role is providing advice to the Minister of Transport on achieving the system's desired outcomes via different regulatory, institutional, and funding settings. It has transport sector leadership roles across these important dimensions of public policy. MoT is also responsible for monitoring the performance of transport Crown entities including the CAA.

The Civil Aviation Authority (CAA)

The CAA is the regulator of civil aviation. At the international and national level, CAA and MoT manage Aotearoa New Zealand's engagement with ICAO, the United Nations agency responsible for setting global standards and recommended practices. At the domestic level it regulates the entry, operation, and exit of certificated participants in the aviation system. The CAA charges aviation stakeholders a range of fees and charges for its regulatory functions and services. It receives around 90 percent of its funding this way.

The CAA led the development and implementation of the New Southern Sky Programme 2014 (NSS), a ten year, three stage programme to modernise Aotearoa New Zealand's air navigation system. It gave effect to the government's national airspace policy and ICAO's Global Air Navigation Plan.

Airways Corporation of New Zealand Limited (Airways)

Airways is Aotearoa New Zealand's only air navigation service provider. It provides air traffic control services, flight information services, and owns and manages surveillance (who is where in the sky) and navigation system infrastructure. Airways is a state-owned enterprise operating on fully commercial lines and is funded through service charges to system users.

In addition to its air navigation system services, Airways also provides training to domestic and international students. Aeropath is a subsidiary company of Airways providing flight path design. Airways also has an international consulting arm providing services to around 65 countries.

Airports and aerodrome operators

Aerodrome operators ensure the provision of the necessary infrastructure and facilities for safe and efficient aircraft operations. They are obliged to ensure the provision of aerodrome air traffic services where required by the Director of Civil Aviation, and place limitations or requirements on services that impact on airspace in the vicinity of, and at, aerodromes. Aerodrome operators accordingly play an important role in system

operation. The Aotearoa New Zealand Airports Association (NZAA) represents 42 airports and is an active advocate for its members.

New Zealand Defence Force (NZDF)

NZDF regulates its own military aviation assets and activities. It owns aviation infrastructure (Woodbourne, Ōhakea and Whenuapai aerodromes) and pays for some of the ground-based navigation infrastructure. NZDF is a critical provider of air-based emergency response services in Aotearoa New Zealand and into the Pacific, and search and rescue throughout Aotearoa New Zealand's 30 million square kilometre search and rescue region.

Meteorological Service of Aotearoa New Zealand Limited (MetService - Te Ratonga Tirorangi)

MetService is a state-owned enterprise, providing aviation forecasting and weather information to domestic and foreign operators. It has service contracts with Airways to this end. MetService also works with CAA to represent Aotearoa New Zealand at the World Meteorological Organization (WMO). MetService is also involved with the provision of the Aotearoa New Zealand-based component of ICAO's global Volcanic Ash Advisory Centre. The centre monitors ash that may be a hazard to aviation.

Toitū Te Whenua Land Information Aotearoa New Zealand (LINZ)

LINZ links to the air navigation system through its responsibilities as the national position and timing authority. LINZ has been a partner in the implementation of the satellite-based augmentation system (SBAS), which improves the accuracy of GPS signals with flow-on effects to aviation safety and capability. LINZ is a government department funded through a mix of direct Crown funding and a range of fees and charges for its products, functions, and services.

The Treasury

The Treasury has multiple roles in the system as the government's lead economic and financial advisor. Its vision to lift living standards for all New Zealanders means that it has a direct interest in the system's overall safety and efficiency objectives, and its wider contribution to intergenerational wellbeing. The Treasury is the Crown monitor of Airways, MetService, and Air New Zealand.

The Treasury's functions also include providing advice on, monitoring, and managing the Crown's financial investment in the air navigation system. It advises on charging frameworks used by Crown entities including the CAA.

Ministry of Business, Innovation and Employment (MBIE)

MBIE hosts the Aotearoa New Zealand Space Agency, the regulatory agency responsible for the Outer Space and High-altitude Activities Act 2017 (currently under review). Its Innovative Partnerships team is working on the Airspace Integration Trials Programme (AITP) supporting testing and introduction of advanced remotely piloted and autonomous aircraft in Aotearoa New Zealand. MBIE is also developing an Aerospace Strategy to drive innovation and realise the economic benefits of high value aerospace activity.

ANNEX 3: REVIEW PROCESS

We adopted a systematic process

Guided by Cabinet's expectation for a high level, first principles review, we adopted a systematic approach to Phase 1, conscious that the air navigation system comprises a complex range of agencies, systems, processes, infrastructure and highly skilled people. The process the Panel used involved:

- building local and international stakeholder relationships to fully understand the system's current performance and its potential for future development
- utilising experts in air navigation systems and public sector economics to inform our assessment of the system's current state and case for change
- collaborating with stakeholders to design strategic objectives and principles for the future system, based on our collective understanding of the system's strengths, weaknesses and the opportunities to maximise its contribution to the nation
- making important first steps to ensure our work upholds the principles of Te Tiriti and is shaped and informed by te ao Māori views
- testing our case for change with stakeholders and developing our focus areas for Phase 2 of the review.

This approach has involved stakeholder briefings to the Panel and its secretariat, meetings and workshops with the review's supporting reference group and one-to-one meetings with New Zealand and international stakeholders and experts.

Shaped and informed by aviation stakeholders

Stakeholder relationships, intelligence and knowledge underpin this report's case for change and its principles and objectives. A dedicated reference group of aviation stakeholders provided ongoing input and support to the review. This reference group includes key system agencies, major industry organisations and system users across private and public sectors. Annex 6 outlines the organisations on the group.

Partnering with Māori and upholding Treaty principles

The review's terms of reference require partnership with Māori to uphold the principles of Te Tiriti o Waitangi. We have sought advice to help us understand iwi/Māori interests in the system and how best to engage with iwi and hapū on our work.

We are conscious that the review will end in April 2023 and yet these conversations are just beginning. The Panel is looking at opportunities to support a framework to strengthen the wider Māori Crown relationship, enduring well beyond the end point of this review.

ANNEX 4: STAKEHOLDER PERSPECTIVES

The Panel has met with a diverse range of system stakeholders on the current state. We have heard the views of system policy makers, regulators, service providers and users.

The table below summarises stakeholder perspectives on the current state and the shifts necessary for a future-fit system.

From…	**…To**
Lack of clear strategy, leadership and stewardship	A coordinating vision and strategy for the future
Agencies working in silos, competing drivers and planning in isolation	Roles, responsibilities and shared accountabilities linked to system strategy.
Essential / lifeline system components assumed	Essential infrastructure and service levels defined and appropriately valued.
Focus on agency and operator outcomes	Focus on system-level and national outcomes.
Reliance on legacy practice and compliance	Risk-based, proportionate, and dynamic approaches to safety and regulation.
Focus on drones and challenges of emerging technology	A focus on benefits of new technologies and innovation, including refinement of existing systems and practices to attract retain and protect IP and capability.
A closed, cyclical and reactive system	A system that is inclusive, adaptive, and anticipatory.
Lack of diversity; silent on Te Tiriti	Recognition of te ao Māori perspectives and principles of Te Tiriti o Waitangi, including meeting requirements in relevant legislation.
User-pays Inconsistent investment from Government	User-pays plus**:** equitable charging and mechanisms for sustainable funding of core components and inter-generational investment. Sustained funding for research and development and integration of new technologies.
A short-term investment and planning based on commercial drivers	Long-term investment and planning to support commercial and national interest outcomes
System struggles for capacity and capability	A diverse workforce, supported by a development ‘pipeline’ and partnerships with industry

ANNEX 5: PRINCIPLES AND OBJECTIVES

System principles

The following principles will guide the Phase 2 assessment of current settings.

Stewardship	Decision makers take a medium to long term view of the system to support enduring approaches and solutions.
System thinking	Decision makers apply a whole-of-system view that incorporates all relevant connections and impacts, including public good outcomes and national interests.
Equity	The system settings are designed and applied fairly. They consider all relevant system stakeholders and the communities, sectors and essential services dependent on and/or benefiting from the system.
Partnership with Māori	System agencies recognise their obligations under Te Tiriti to partner with Māori, and consider te ao Māori perspectives and aspirations.
Transparency	Decision-making processes are clear, justifiable, and include mechanisms for consultation and scrutiny.
Interoperability and harmonisation	System design is consistent with international standards and guidelines and support the global rules-based system.

System objectives

The Phase 2 recommendations will target the following objectives. They are designed to ensure the continued safety of aviation and fully realise the value of this system to the nation.

Safe Safety is the primary system objective. The concept of safety is dynamic, proportionate, and takes account of associated benefits, costs, and risks. Aotearoa New Zealand is a leader in air navigation system safety monitoring. There is system-level accountability and assurance for safety outcomes.
Unified and collectively accountable The system is driven by a shared direction of travel. System leaders work together in a clear governance and leadership structure. The system's performance is monitored against agreed metrics that include but are not limited to aviation system outcomes.
Capable and resourced The system has the people with the skills, experience, and expertise required to make safe, timely, and balanced decisions. The system attracts, develops, and retains talent it needs now and into the future. The system culture values collaboration, partnership, diversity, and whole of system thinking.
Efficient The air navigation system facilitates the efficient operation of aircraft within Aotearoa New Zealand airspace. It is an enabler of economic growth, improved safety and enhanced environmental performance.
Open, integrated and accessible The system is open and accessible to all airspace users operating in accordance with the rules. The system components operate seamlessly and support safe integration of new and emerging technologies.
Financially sustainable System agencies take a long-term, coordinated approach to funding and investment in air navigation system infrastructure, service provision, innovation, and oversight. Pricing and charging regimes are fair, reasonable, and transparent for all users of the air navigation system. Funding mechanisms include active consideration of national interest/public good outcomes.
Environmentally sustainable The system actively prioritises decisions to meet environmental objectives and imperatives including carbon neutrality by 2050.

Adaptive and innovative The policy and regulatory settings anticipate system developments and respond rapidly and appropriately to emerging threats and opportunities. Aotearoa New Zealand's air navigation system is recognised as a forward-looking system with clear competitive advantages. The system fosters and attracts innovation and investment to deliver benefits.
Connected The system enables the movement of people and freight, the sharing of information, and delivery of services across domestic and global networks. Regional, national, and global connections are maintained and enhanced to enable economic and social outcomes.
Secure and resilient The system is protected against threats and vulnerabilities. Strategy, planning, and funding recognise the system as a critical part of national infrastructure and its role in security and emergency response in the Pacific.

ANNEX 6: SECTOR REFERENCE GROUP

Airways

MetService

Civil Aviation Authority

Air New Zealand

Aviation New Zealand

New Zealand Aviation Federation

Christchurch Aerospace

New Zealand Airports Association

The Treasury

Ministry of Business Innovation and Employment: Innovative Partnerships Team and New Zealand Space Agency

The New Zealand Defence Force

Land Information New Zealand

National Emergency Management Agency

Ministry of Transport

Auckland Rescue Helicopter Trust

New Zealand Airline Pilots Association

Aviation Federation

Board of Airline Representatives New Zealand

Christchurch International Airport

Fire and Emergency New Zealand

Rotorua Airport

Transport Accident Investigation Commission

UAVNZ

Wellington Airport

Wisk

ANNEX 7: PANEL BIOGRAPHIES

Debbie Francis (Chair)

Debbie is an independent consultant specialising in strategy development, organisational culture and change management. She has held executive roles in PwC New Zealand's Government and People and Change consulting practices, the New Zealand Correspondence School and as a two-star General equivalent in the New Zealand Defence Force. Debbie was a lead reviewer for the State Services Commission and has undertaken several similar reviews of private sector companies and public agencies, most recently of the New Zealand Police and New Zealand Parliamentary workplaces. She lives on a truffle farm in Waipara, has six children, six grandchildren and three cats.

Howard Fancy

Howard has extensive experience at the centre of government in the formulation, delivery, and operation of policy as well as stakeholder engagement, including partnering with iwi/Māori. He brings a strong strategic and systems focus, having led a wide range of major reforms and reviews that have redesigned institutional arrangements, capabilities and relationships and positioned agencies for future change and opportunities. He served as the Chief Executive of the Ministries of Commerce, Education and Environment and is currently a member of several public sector audit and risk committees. Howard lives in Wellington with his family.

Ed Sims

Ed has an extensive background and brings a depth of knowledge in aviation, air navigation service provision and airline management operations. He was CEO of Airways (2011-2017), an executive committee member and then Chair of the global air traffic control governing body CANSO (2012-2017), a member of the Air New Zealand executive team (2006-2010) and has recently returned from running Canada's second largest airline WestJet for the last five years. Ed has held governance roles in the New Zealand tourism sector, has sat on public sector agency audit and risk committees and is a member of the Business Council of Canada. He lives in Auckland with his family.

Danny Tuato'o

Danny Tuato'o (Ngāpuhi) was admitted as a barrister and solicitor of the High Court of New Zealand in 2005. In addition to his legal expertise, Danny has significant leadership experience as a business owner in New Zealand, a director in the public and private sectors and as a senior manager in law and education. He is currently a Partner in a Northland provincial law practice and a member of the boards of Fire and Emergency New Zealand and Maritime New Zealand. Proficient in te reo Māori, Danny also volunteers for the Coastguard New Zealand Board and is actively involved in Kiwi recovery and pest control projects in Northland. He lives with his wife and four children in Whangārei.

HE AROTAKE I TE PŪNAHA TERE-RANGI

AIR NAVIGATION SYSTEM REVIEW

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