



NOT GOVERNMENT POLICY – NOT FOR DISTRIBUTION

SCIENCE SYSTEM ADVISORY GROUP

PAPER NUMBER	SSAG-MBIE-025; and SSAG-MBIE-026	DATE	13/06/2024
TITLE	SI&T and Māori New Zealanders		
RESPONSIBLE MANAGER	Willy-John Martin		
AUTHOR/S	Nathan Hobrough		
PURPOSE	Provides background on the current settings of the New Zealand science system in relation to Māori New Zealanders (part 1); then, an overview of how MBIE approaches Mātauranga Māori in SI&T and how the Vision Mātauranga policy is given effect in the SI&T funding system (part 2).		

SI&T and Māori New Zealanders

INTRODUCTION

This paper provides background on the current settings of the New Zealand science system in relation to Māori New Zealanders. It includes foundational information on Māori New Zealanders for international members of the Science System Advisory Group (SSAG) who may be unfamiliar with Māori communities and their science, innovation and technology (SI&T) interests.

The information provided is intended to help address the following interests related to the SSAG:

SSAG, Terms of Reference:

How can the funding system better serve under-represented and under-served communities, such as Māori and Pacific Peoples, and increase diversity within the science, innovation and technology workforce?

How can opportunities and solutions for Mātauranga be better realised within the system?

SSAG, key questions in phase one of the public consultation process:

How should the science, innovation, and technology system embrace and reflect the growing diversity of culture and peoples in New Zealand and the contributions of Māori as reflected in the Treaty/te Tiriti?

How should investment into Māori research priorities be determined?

How should research involving the study of or the application of mātauranga Māori be managed and funded?

This paper is introductory. An accompanying slide deck (SSAG-MBIE-026) has been provided with further detail on how MBIE approaches mātauranga Māori in SI&T and gives effect to the Vision Mātauranga Policy via the SI&T funding system.

MĀORI NEW ZEALANDERS

Māori New Zealanders are a significant and growing cultural and economic group

Māori are the Indigenous people of Aotearoa New Zealand. 19.6% of the population have Māori ancestry. 17.8% affiliate with Māori as an ethnic group and this is predicted to reach 20% by 2038, by which time one third of children will identify as Māori.

Since the second half of the 20th century, Māori culture and enterprise has increasingly flourished. The Māori economy¹ has been estimated to have an asset base of around NZD \$70 billion, and is growing at a faster rate than the non-Māori economy. Some of this asset base is owned by economically active, iwi (tribal) entities. The ten economically largest iwi entities are worth more than \$8 billion and are anticipated to continue growing. Meanwhile, Māori firms are more active exporters and undertake more innovation than non-Māori firms.²

¹ Net assets held by Māori firms and households, including collectively held assets in iwi organisations.

² : New Zealand Productivity Commission (2021). New Zealand firms: Reaching for

Despite this growing economic base, significant socioeconomic disparities exist between Māori and the rest of New Zealanders. For example, in the age band of 40 to 60 years old, the average Māori New Zealander earns \$10,000 less per year than the average New Zealander;³ and, in 2017-2019, the gap in life expectancy at birth for Māori versus non-Māori was 7.3 years for females and 7.5 years for males, a broad indicator of a number of reported health disparities.⁴ These disparities are projected to narrow, but on current trajectories will take more than 100 years to close entirely.⁵

There are distinctive Māori worldviews and key values

Māori New Zealanders, and their communities across New Zealand, are diverse. Nevertheless, there are some distinctive worldviews and values that are consistent across te ao Māori/the Māori world.

Embedded within Māori worldviews is a high prioritisation of family groups and identities, including **whānau** (extended families), **hapū** (sub-tribes or whānau groupings) and **iwi** (tribes). The foundation of these is **whakapapa** (genealogy and kinship), which includes consideration for kinship with the **whenua** (land) and the whole environment. There continues to be interest in actions taken by, and impacts upon, these social, familial groupings and environmental connections.

Commensurate with these priorities, there is an elevated interest in approaches that are holistic or connected, and processes and approaches that have multifactorial impacts upon the physical, cultural, emotional, spiritual, and intellectual, simultaneously. The long-term, legacy effect of actions and interventions on future generations and environment is regularly emphasized and considered, as well as referencing and orienting to decisions of ancestors and predecessors.

Te Ao Māori commonly promotes culturally informed behavioural norms, or **tikanga** (correct procedure), and values such as **manaakitanga** (respect and generosity), **kaitiakitanga** (guardianship) and **whanaungatanga** (relationships). Values such as these have shaped behaviour and commonly underpin prioritisation and decision-making. Such values have been reflected in Māori economic partnerships for generations and continue in Māori business.

Mātauranga Māori is knowledge that is distinctly Māori

Māori knowledge or mātauranga Māori refers to the evolving body of distinct thought, technologies, skills, language, practices and ways of being that are built from historical Māori experience, and further advanced or developed through contemporary Māori experience.

This knowledge is considered a taonga (treasure) for Māori, and has immense value in how Māori communities operate, interact with the physical world, and make decisions:

Mātauranga Māori is extraordinarily valuable, particularly to Māori. It can inspire and sustain positive transformations and empowerment in the lives of individual Māori and in their communities. It informs both the construction of iwi communities as well as their everyday lived culture and practices. It also bequeaths to them values and beliefs and an orientation to the world. – Te Ahukaramū Charles Royal.⁶

the frontier, final report. <https://www.treasury.govt.nz/sites/default/files/2024-05/pc-inq-nzfrff-final-report-frontier-firms.pdf>

³ Berl (2017). Change Agenda: Income Equity for Māori. <https://berl.co.nz/sites/default/files/2019-11/Tokona%20te%20Raki%20-%20Income%20Equity%20for%20Maori.pdf>

⁴ Bridie Witton (2021). Māori will take a century to catch up with Pākehā for life expectancy, new report finds. Stuff. <https://www.stuff.co.nz/national/politics/126512059/mori-will-take-a-century-to-catch-up-with-pkeh-for-life-expectancy-new-report-finds>

⁵ Ibid.

⁶ Charles Royal (2019). Mātauranga Māori, an introduction, a 'think piece' report written for the Ministry of Education. <https://static1.squarespace.com/static/5369700de4b045a4e0c24bbc/t/620f520dce32c03bd5a0c854/1645171216120/Ma%CC%84tauranga+Ma%CC%84ori+CRoyal+Final+Version+23.8.2019.pdf>

Mātauranga Māori encompasses not only *what* is known, but *how* it is known. It includes a way of perceiving and understanding the world, and the values and systems of thought that underpin and provide foundation for those values.

Historically, mātauranga Māori was marginalised and sometimes suppressed by public policies, including in health, education and research.

The Treaty of Waitangi

The Treaty of Waitangi/Te Tiriti o Waitangi (The Treaty) is one of the major sources of the New Zealand constitution. The Treaty was signed between some Māori chiefs and a representative of Queen Victoria in 1840, and continues as a core element of New Zealand's constitutional framework. The Treaty has three articles or sections. Respectively, the articles deal with the right of the Crown to govern, the rights of Māori to enjoy ownership of their taonga, and the duty of the Crown to ensure Māori will enjoy the same rights and privileges as other citizens.

Much has been said about the Treaty, the circumstances of its creation, the differences between the English and Māori texts and its implications in the modern day. Māori will refer to the Treaty or 'Te Tiriti' (often preferring reference to the Māori text version), where in their view, government policy and actions runs counter to Treaty commitments.

Modern legal theory holds that mātauranga Māori is a type of taonga with associated rights under Article Two of the Treaty. These rights are met with a duty of active protection by the Crown. The policy treatment of mātauranga Māori also has implications for evaluating the Crown's performance of its duty under Article Three to ensure equity for Māori as a subset of New Zealand citizens.

MĀORI NEW ZEALANDERS HAVE SI&T INTERESTS

Māori New Zealanders as iwi, collectives, business entities, SI&T experts and stakeholders, (Iwi/Māori) have diverse perspectives and interests in SI&T. They engage in the roles of practitioners, partners, funders, participants and users.

An analysis undertaken by MBIE in 2023 of 202 Māori organisations (mainly iwi and national-level bodies) identified the following areas to be consistently of strategic importance to Iwi/Māori:

- Environment - climate change, biodiversity, restoration, conservation, air, freshwater, marine, water, land and resource management.
- Identity and culture - te reo Māori (Māori language), tikanga (customs) and taonga (treasures), mātauranga Māori and intellectual property.
- Social, health and wellbeing – providing service to individuals, whānau and communities.
- Economy - growing businesses, sustainability and intellectual property.
- Education – ensuring access to education, training programmes and further study.

The analysis identified some regional specificity of priorities, particularly in environmental domains. For example:

- Ngāti Tahu / Ngāti Whaoa, based between Rotorua and Lake Taupō, has a focus on geothermal.
- Ngāti Whānaunga, based in Mahurangi Harbour, Bay of Plenty has a focus on fisheries and the ocean.

Larger iwi are more likely to have dedicated strategies looking to the future, which highlighted priority areas that we consider relevant to SI&T. Nevertheless, there are iwi and hapū organisations with SI&T priorities. For example:

- Ngāi Tahu have an Education and Climate Change Strategy.

- Ngāti Toa Rangatira have a Housing Strategy; an Education and Employment Strategy; and an Environmental Plan.
- Maungaharuru Tangitū Hapū (Hawkes Bay) have a collaborative project with NIWA - He Kāinga Taurikura o Tangitū: Treasured Coastal Environment.
- Ngāti Whakaue has priorities relating to forestry.
- Ngāti Awa has geothermal priorities.

There is a joint Māori-Government strategy for Māori economic growth, *He Kai Kei Aku Ringa*, launched in 2013 and refreshed in 2023, that includes objectives which are highly relevant to Māori interests in SI&T:

- Mana Tauutuutu: Supporting economic prosperity as a key enabler of community and whānau sustainability.
- Te Taiao: A low emissions, circular and climate resilient Māori economy as a prerequisite for Māori wellbeing.
- Mana Āheinga: Māori are enabled to chart their own course for the future.
- Mana Whanake: Building foundations for the future.
- Mana Tuku Iho: Māori identify in the economy enables Māori success.

THERE IS LOW REPRESENTATION OF MĀORI IN THE SI&T WORKFORCE

In contrast to the strength of Māori SI&T needs and aspirations, there is a low representation of Māori within the SI&T workforce. This is a broader topic than SI&T; perhaps the points of greatest leverage to lift relatively low Māori SI&T workforce participation are in education, particularly STEM initiatives in early schooling.

Opportunities for greater Māori SI&T workforce participation are discussed in academic literature,^{7 8} and further confirmed in surveys commissioned by MBIE. Surveys carried out in 2022 found underrepresentation of Māori at all career levels of SI&T and poor workforce retention of Māori researchers in SI&T.⁹ Although Māori New Zealanders make up 17.8% of the population, only 11% of the research workforce in tertiary education institutions identify as Māori, 5% in other research organisations, 1% in businesses; and, across the entire research workforce, Māori hold 7% of senior leadership positions. A majority of Māori researchers at tertiary education institutions work in Arts, Social Science and Health Science (59%) whereas a majority of Māori researchers in other research organisations work on science research (63%). In STEM, Māori make up less than 2% of the workforce.

VISION MĀTAURANGA HAS INFLUENCED FUNDING PROCESSES SINCE 2007

Vision Mātauranga is the main policy framework used to grow Māori-related activity in SI&T. Stewarded by MBIE, Vision Mātauranga aims to unlock the science and innovation potential of Māori knowledge, resources, and people for the benefit of New Zealand (See Annex One: Vision Mātauranga Policy).

⁷ Tara G. McAllister, Sereana Naepi, Elizabeth Wilson, Daniel Hikuroa & Leilani A. Walker (2020) Under-represented and overlooked: Māori and Pasifika scientists in Aotearoa New Zealand's universities and crown-research institutes, *Journal of the Royal Society of New Zealand*, DOI:10.1080/03036758.2020.1796103

⁸ Sereana Naepi, Tara G. McAllister, Patrick Thomsen, Marcia Leenen-Young, Leilani A. Walker, Anna L. McAllister, Reremoana Theodore, Joanna Kidman & Tamasailau Suaaliia (2019) The Pakaru 'Pipeline': Māori and Pasifika Pathways within the Academy, *The New Zealand Annual Review of Education*, [S.I.], v. 24, p. 142-159, mar. 2020. ISSN 1178-3311. DOI:10.26686/nzaroe.v24i0.6338.s

⁹ MBIE (2022). *Tā te Rangahau, Pūtaiao me te Auahatanga Pūrongo Ohu Mahi o ngā Whakahaere: Research, Science and Innovation Workforce Survey of Organisations Report*. <https://www.mbie.govt.nz/assets/research-science-and-innovation-workforce-survey-of-organisations-report-november-2022.pdf>

Vision Mātauranga has four themes: Indigenous Innovation, Environment (Taiao), Health (Hauora), and Indigenous Knowledge (Mātauranga).

The policy was published in 2007 and has since been integrated across most areas of SI&T investment, including in the Core Purpose Statements of Crown Research Institutes.

A funding proposal aligns to the policy if it demonstrates one or more of the following, to any extent:

- Māori researchers or students (most common)
- Māori partnerships or end-users
- Mātauranga relevant to the sector and the proposal.

MBIE administers funds targeting Māori SI&T development as well as general SI&T funds. In grant applications, alignment to the Vision Mātauranga policy is only a requirement in funds targeting Māori SI&T development, specifically, the Vision Mātauranga Capability Fund and the Expanding the Impact of Vision Mātauranga funds.

In general funds, such as Endeavour, Vision Mātauranga is encouraged if relevant to a proposal, but is not a requirement. Most funding rounds have successful proposals that align to Vision Mātauranga. There are always a large proportion of successful proposals in Endeavour where Vision Mātauranga is not relevant. Successful applications to funds are typically a mix of weak alignment, strong alignment, and no alignment at all, to Vision Mātauranga.

In general funds there is no requirement to hit a specific level of alignment to be successful, and no requirement for any application to include mātauranga Māori.

Mātauranga is a theme of Vision Mātauranga

Mātauranga is one of the four themes of the Vision Mātauranga policy. The purpose of this theme is to discover the distinctive contribution that indigenous knowledge can make to SI&T.

For the past 17 years, MBIE SI&T policy settings and processes have been developed to invest in mātauranga only when it aligns with SI&T. This includes subtypes of mātauranga Māori, such as mātauranga pūtaiao (science knowledge) and mātauranga taiao (environmental knowledge). With regard to the themes of the Vision Mātauranga policy, these kinds of mātauranga fall within the areas of innovation, land and sea (taiao), health and social wellbeing (hauora/oranga), and also includes examples where there is an interface between mātauranga and science.

Currently, the alignment of relevant mātauranga with SI&T is handled through using appropriately skilled assessors that have a dual understanding of mātauranga Māori and the SI&T System.

Investment in mātauranga Māori is consistent with international recognition of indigenous knowledge. For example, in 2022, the United States of America issued a presidential statement and guidance in support of indigenous knowledge.¹⁰ And, earlier this year, the New Zealand Minister of SI&T endorsed the European Union Ministerial statement on multilateral principles and values for international collaboration in science, that included “recognition, consideration, inclusion, and application of local knowledge and indigenous knowledge, in consultation with the associated Indigenous community.”¹¹

¹⁰ Executive Office of the President (2022). Guidance for Federal Departments and Agencies on Indigenous Knowledge. Office of Science and Technology Policy, Council on Environmental Quality. <https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-ik-Guidance.pdf>

¹¹ EU Directorate-General for Research and Innovation (2024). Multilateral dialogue on principles and values for international cooperation in research & innovation. https://research-and-innovation.ec.europa.eu/document/download/3c569c60-93bf-45c1-82a3-b52301baaf7b_en?filename=ministerial-statement-principles-and-values-2024.pdf

ANNEX

Ministry of Research, Science and Technology (2007). Vision Mātauranga – Unlocking the Innovation Potential of Māori Knowledge, Resources and People.

<https://www.mbie.govt.nz/dmsdocument/1269-vision-matauranga-unlocking-the-innovation-potential-of-maori-knowledge-resources-and-people>



**MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT**
HIKINA WHAKATUTUKI

**NOT GOVERNMENT
POLICY
NOT FOR DISTRIBUTION
SSAG-MBIE-026**

Giving effect to the Vision Mātauranga Policy in the SI&T funding system

Information for the Science System Advisory Group, to accompany SSAG-MBIE-025

Nathan Hobrough, Senior Policy Advisor, Innovation Policy



Introduction

Purpose

- Provide an overview of how the Vision Mātauranga policy is given effect in the SI&T funding system.

Scope

- Funding with the science, innovation and technology (SI&T) appropriations administered by MBIE, the Health Research Council, and Te Apārangi.
- SI&T funds that target outcomes for Māori and build Māori capability to participate in SI&T system either as researchers or users of research.
- Excludes information on funding provided via Vote Education, for example the Centres of Research Excellence.



MBIE groups objectives for Māori SI&T into three areas

There are three key objective areas in SI&T relating to Māori New Zealanders that are often conflated but should be considered as distinct:

Workforce – Māori in SI&T

Meaning, Māori SI&T participation including in the conventional workforce (in universities, Crown Research Institutes, private firms performing R&D), especially in STEM and in senior positions, as well as activities outside of such institutions e.g. community-level activities. We note the education system plays a significant role in the upstream development of the future SI&T workforce.

Sector Relevancy - SI&T activity with benefits for Māori

The degree to which we see SI&T activity that offers beneficial outcomes for Māori communities, Māori engagement or partnership on SI&T projects, and Māori input into SI&T institutions and decision-making processes. In addition, the orientation and ability of the SI&T system to grow economic opportunities via and with Māori businesses and the growing Māori asset base.

Mātauranga Māori - Distinctly Māori SI&T

Activities that draw on the distinct resources of Māori New Zealanders, are carried out by Māori researchers and firms, that generate economic and other benefits for New Zealand, especially when those activities are carried out in ways that involve mātauranga Māori.

These interrelated objectives influence policy development and the Vision Mātauranga Policy, through its influence across MBIE and non-MBIE funding programmes. Vision Mātauranga is the key lever through which the system gives effect to objectives, however its delivery to each area is variable.

The MBIE approach differs across the funding system; targeted vs general funds

As discussed in SSAG-MBIE-025, Māori are under-represented in the SI&T system as researchers and users. Due to system design and lack of capability in MBIE, Māori do not benefit equitably from SI&T programmes.

MBIE administers funding programmes that have a primary or secondary objective of supporting Māori capability.

With Vision Mātauranga acting as a central anchor for policy development, MBIE continues to test and innovate funding design across several types of funds:

- SI&T navigation funds;
- Māori led research project funds; and
- Iterating our approach to Vision Mātauranga across non-Māori-specific funds.

MBIE have also experimented with setting allocations for Māori (and Pacific Peoples) in workforce programmes, such as research fellowships.

Mātauranga Māori in SI&T

SSAG-MBIE-025 describes how, for the past 17 years, MBIE science policy settings and investment processes have been developed to invest in mātauranga Māori that aligns with science and research.

Research supported tends to align with Australian and New Zealand Standard Research Classification (ANZSRC) Group codes such as:

- 4509 - Ngā mātauranga taiao o te Māori (Māori environmental knowledges)
- 4510 - Te hauora me te oranga o te Māori (Māori health and wellbeing)
- 4512 - Ngā Pūtaiao Māori (Māori Sciences)

Other types of mātauranga Māori align with other subject areas outside the ambit of SI&T, such as language, history, art, performance, spirituality, and education, which we do not fund, unless connected to relevant research work. For example, little is funded in these research areas:

- 4507 – Te ahurea, reo me te hītori o te Māori (Māori culture, language and history)
- 4508 – Mātauranga Māori (Māori education)
- 4511 – Ngā tāngata, te porihanga me ngā hapori o te Māori (Māori social, cultural emotional and spiritual wellbeing)

Currently, the alignment of mātauranga with SI&T is determined through assessors that have a dual expertise in relevant mātauranga Māori and the SI&T System.

Vision Mātauranga across SI&T funds

Māori-targeted Competitive Funds

Funds targeting Māori aim to build capacity through funding small projects, primarily partnered.

MBIE has two Māori-targeted funds. The longest standing is the **Vision Mātauranga Capability Fund** while **Expanding the Impact of Vision Mātauranga** was launched more recently. All eligible proposals in targeted funds are assessed by an independent assessment panel, whose panel members, by default, have a dual understanding of mātauranga Māori and the SI&T system.

General SI&T Funds

General funds cover priority research areas and scientific infrastructure. Across general funds, a proportion of successful proposals contribute to Vision Mātauranga.

Proposals that self-identify as aligned to the Vision Mātauranga policy, and which are confirmed by MBIE to be aligned with the policy, are allocated to an adequate number of assessors that have a dual expertise in mātauranga Māori and SI&T. Such assessors are, for the most part, Māori academics that belong to the College of Assessors. In most cases, applications that give effect to the policy are cross-disciplinary and, consequently, have a mixture of assessors, both in terms of science subject matter and Vision Mātauranga.

Further detail on targeted funds



The Vision Mātauranga Capability Fund is the main targeted fund

Launched in 2010, Te Pūnaha Hihiko Vision Mātauranga Capability Fund is a \$6 million per year investment. The fund supports projects that strengthen capability, capacity, skills and networks between Māori and the science, health, and innovation system. \$4 million is administered by MBIE and \$2 million is devolved to the Health Research Council per year to support hauora (health) related projects.

In 2023, a total of \$3.9 million was funded by MBIE towards 16 projects. In the 2023 investment round, \$9.4M was sought from 40 proposals. The fund continues to be oversubscribed. Up to \$4 million is available for investment over the next two years. From 2020 to 2023, the Health Research Council funded 80 Māori Health Research Career Development Awards, to the value of \$7.86M. Over the last five years, over half of recipients of this award have progressed their careers with another Health Research Council-provided opportunity.

Examples of funded projects - Vision Mātauranga Capability Fund

In 2022, Rangitāne o Manawatū (a tribe based in the lower South and upper North Islands), Massey University and New Zealand Institute for Plant and Food Research Limited received funding to explore the genetic and food processing factors in developing karaka (an evergreen tree endemic to New Zealand) as a commercial enterprise and engage Māori more broadly regarding new uses of karaka.

In 2022, Ngāti Whātua Ōrākei Whai Māia (an Auckland-based tribe) and Koi Tū: The Centre for Informed Futures (a think tank based at the University of Auckland) received funding to build research capacity within the tribe, including data analysis and research governance. The project intends to generate transdisciplinary knowledge with applications for the benefit of the whole tribe.

‘Expanding the impact of Vision Mātauranga’ is the latest targeted fund

Our most up-to-date perspectives on funding Māori SI&T are reflected in a new initiative, launched in 2020, called ‘Expanding the impact of Vision Mātauranga’.

The new funds and programmes rolled out from this initiative are distinct from other funds for the specificity of their objectives: they are small-scale funding programmes that are more directly targeted at Māori talent and Māori organisations, enable Māori to navigate the complexities of the SI&T System, and invest in Māori-led SI&T.

Baselined initiatives

- ***Expanding the impact of Vision Mātauranga - He tipu ka hua programme fund***
Launched in 2023, He tipu ka hua is a high impact fund designed to enable Māori leadership of research and research capability development programmes. It is intended to fund around three research programmes/platforms from a fund of up to \$30 million over a five-year period. [Currently pending approval from Minister SI&T to proceed]
- ***Expanding the impact of Vision Mātauranga - He aka ka toro navigation fund***
Launched in 2023, He aka ka toro is a focused, capability development fund designed to enable Māori organisations to develop their research capability and engagement with the SI&T system in line with their own priorities. This fund invests up to \$4 million annually over a five-year period.
- ***Expanding the impact of Vision Mātauranga - Kanapu (Capability Programme)***
Launched in 2023, Kanapu aims to grow and connect Māori talent in SI&T and enable Māori to navigate the complexities of the SI&T System. A total of \$6.5 million is provided to Ngā Pae o te Māramatanga (based at the University of Waikato) from years 2022 to 2028 to deliver this initiative.

‘Expanding the impact of Vision Mātauranga’ is the latest targeted fund [...continued]

One-off initiatives funded in 2023

- ***Expanding the impact of Vision Mātauranga - Ngā Puanga Pūtaiao STEM Fellowships***

Launched in 2023, Ngā Puanga Pūtaiao Fellowships invest \$19.3m in early and mid-career Māori and Pacific researchers working primarily in STEM fields at eligible New Zealand research organisations. It is a one-off investment developing a cohort of 21 future STEM researchers. The successful fellows were announced in December 2023.

- ***Expanding the impact of Vision Mātauranga - Te Ara Pōtiki***

Launched in 2023, Te Ara Pōtiki is a global Māori agritech knowledge exchange programme. Te Ara Pōtiki will place Māori innovators (particularly STEM experts) in world-leading technology businesses in the U.S for up to 12 months. MBIE awarded seed funding of \$796,000 over three years for establishment and piloting of the programme.

- ***Extreme weather science response – Māori determined needs***

Launched in 2023, these grants enable Māori communities to access science-related resources to aid recovery after extreme weather events in the North Island in 2023. A total of \$2.1 million was allocated across the East Coast, Bay of Plenty, and Hawkes Bay regions as a one-off funding initiative.

Other relevant funding

- ***Aotearoa New Zealand Tāwhia te Mana Research Fellowships***

Launched in 2023, these Fellowships seek to develop early, mid and late career researchers into future leaders of the SI&T system. The Fellowships include an objective to improve equity and diversity within the SI&T system by increasing opportunities for Māori, Pacific Peoples and women. These Fellowships are worth \$130 million over 7 years.

Further detail on general funds



Vision Mātauranga across general funds – Endeavour

The Endeavour Fund is an example of a general fund. The Endeavour Fund encourages researchers to sample a diverse range of ideas and conduct excellent research with transformational potential across a range of economic, environmental, and societal objectives, and give effect to Vision Mātauranga.

Examples of a funded project - Endeavour Fund

In 2023, Massey University was awarded just under \$8 million over five years to research new types of concrete using Aotearoa-NZ pumice as a cement replacement, as cement is a major source of carbon emissions and concrete consumption is increasing.

The programme will also ascertain properties needed for other applications, e.g., architectural paints, filtration, mesoporous technologies. A detailed inventory and characterisation of the resource will be established.

The research is expected to catalyse and reinvigorate historic pumice mātauranga to be reinterpreted with the emergence of new cultural products, as well suggest applications that are widely beneficial in New Zealand and elsewhere.

Vision Mātauranga across general funds – Strategic Science Investment Fund

The Strategic Science Investment Fund (SSIF) supports strategic investment in research programmes and scientific infrastructure that have long-term impacts on New Zealand’s health, economy, environment and society. SSIF is guided by an Investment Plan (2017-2024) outlining the structure, investment signals (including strategic intent, impact, excellence, horizon balance, capability, collaboration and Vision Mātauranga) and a set of guiding principles.

For each SSIF investment, there is a Platform Plan which contains a Vision Mātauranga statement. All statements have been assessed by a panel, approved by MBIE, and are consistent with the overarching SSIF Investment Plan and the Vision Mātauranga Policy.

A core SSIF principle is to give effect to the Vision Mātauranga Policy and **the design of SSIF enables a bespoke, flexible approach to Vision Mātauranga for each proposal**. For example, this can present an opportunity for research providers to build a partnership with Māori based on engagement towards shared outcomes, focus on capability development, or knowledge dissemination relevant to the interests of Māori partners.

Example of a funded project – SSIF Programmes

The Data Science Platform: A language programme for multilingual Aotearoa “Papa Reo” was awarded \$13 million over 7 years (2020-2027) to revitalise minority and indigenous languages and explore the indigenisation of digital devices worldwide. The programme is by Te Hiku Media, an entity owned by upper North Island tribes Ngāti Kuri, Te Aupōuri, Ngāi Takoto, Te Rārawa and Ngāti Kahu; and brings together world-leading data scientists from Cambridge and Oxford Universities, Māori communities and Mozilla. Te Hiku more broadly aims to grow the capability of Māori in data science and computer science, and support the movement of Māori students into science, technology, engineering, arts and mathematics.

There is room for improvement in how we approach SI&T funding for Māori New Zealanders



Performance of SI&T funds for Māori New Zealanders is a frequently-expressed concern for stakeholders

Stakeholders tell us that the science system under-invests in subjects of interest to Māori, or in knowledge transfer approaches that lead to change for Māori communities.

To assess this, MBIE commissioned MartinJenkins to:

- analyse SI&T funds data provided by MBIE and other agencies across 2018, 2019 and 2020 data;
- conduct in-depth interviews with funding recipients; and
- discuss with other government departments how they approach funding for Māori

Part of the MartinJenkins report is included in Annex 2.

The funds were:

1. Vision Mātauranga Capability Fund (VMCF)
2. Endeavour
3. National Science Challenges (NSC)
4. Strategic Science Investment Fund (SSIF)
5. Marsden
6. Catalyst
7. Callaghan Innovation Project Grants
8. Callaghan Innovation Student Grant

Analysis of the status quo shows inequity in research investment

The MartinJenkins report's findings reinforced issues raised by the sector: **there has generally been low levels of funding of Māori SI&T activity** or of research that could be expected to be relevant to Māori communities and end-users.

Of the eight funds studied, only 2% of funding went to projects that said they were run according to Māori methods and processes (Kaupapa Māori). Where ethnicity information was available, only 9% of key researchers identified as Māori. **Even in the longest-running fund targeting Māori SI&T, the Vision Mātauranga Capability Fund, only 23% of participants in projects identified as Māori in 2019-2020.** The area with the biggest opportunity for improvement was in business R&D funding via Callaghan Innovation, where only 2% of funds went to firms that self-identified as Māori firms.

The report also noted that **different approaches to data collection and assessment across funders resulted in incomplete and inconsistent data on funding relating to Māori SI&T.** Unhelpfully, there are a variety of ways that different funding programmes define relevant terms and question applicants. For example, some funds ask applicants to describe what the project will do for Māori development or advancement; other funds ask about the relevance of the project to the themes of Vision Mātauranga, adding to a total of 100%; while another fund requires applicants to select alignment to just one theme. This is the result of an inconsistent interpretation of the Vision Mātauranga policy across funding organisations and research domains.

There are nuances in applicant responses to Vision Mātauranga in general funds

In 2024, an internal MBIE analysis of data on funded and unfunded applications to the Endeavour Fund indicates:

Confidential advice to Government



There are nuances in applicant responses to Vision Mātauranga in general funds [...continued]

Confidential advice to Government



International approaches indicate some avenues for improvement

Confidential advice to Government



Annex Two: Use of Government Research, Science and Innovation Funds for Māori

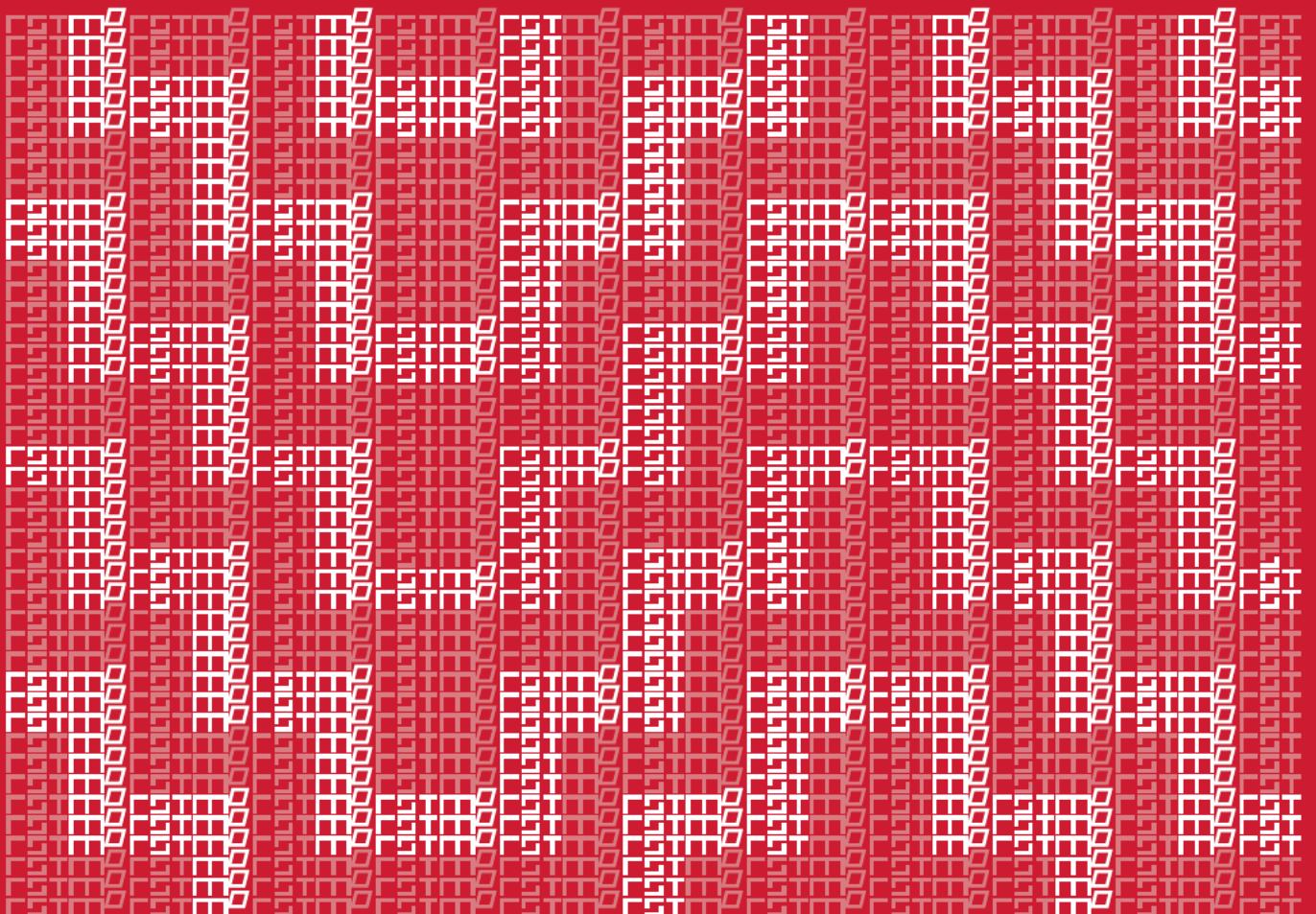


MINISTRY OF
RESEARCH
SCIENCE +
TECHNOLOGY



Vision Mātauranga

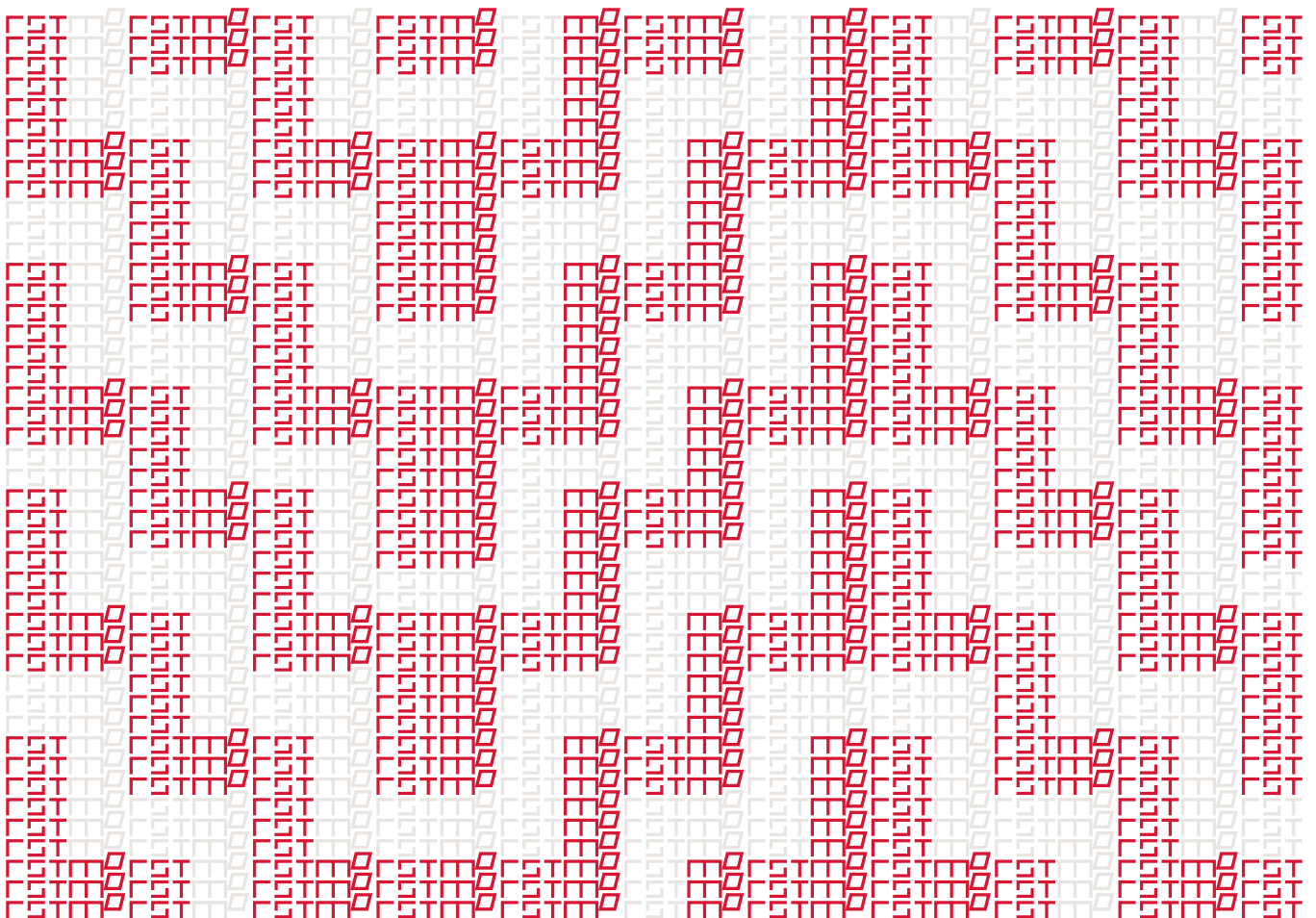
Unlocking the Innovation Potential of Māori
Knowledge, Resources and People



Vision } To envisage, to look forward, to consider new possibilities

Mātauranga } Knowledge, to know, a knowledgeable person

Vision Mātauranga } To envision knowledge, to think about new ways of doing things, to find answers, to solve problems



Tukutuku Design: Poutama, or Stairway to Heaven, is a design that can be interpreted to symbolise the climb of the hero Tawhaki to the heavens to obtain the three baskets of knowledge from the supreme being, Io. Poutama generally represents striving for betterment and the quest for enlightenment and knowledge. MoRST's Māori name, Te Manatū Putaiao, means 'the Ministry for Science'.

ISBN: 978-0-478-06219-1
Publication date: July 2007

The Vision of
the Ministry of Research, Science and Technology

{ Science and technology transforming New Zealanders' lives.

The Mission Statement of
Vision Mātauranga

{ To unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

We are geared toward innovative and revolutionary thinking, and practical and sustainable solutions.

Sir Paul Reeves
Hui Taumata, 1 March 2005

Summary

All New Zealanders wish to live in healthy and sustainable communities and in harmony with our environments. We seek a good standard of living and hope that we may pass on a healthy and vibrant Aotearoa New Zealand to succeeding generations.

Research, science and technology (RS&T) is a set of knowledge creation and application activities that addresses the needs of our nation. RS&T also makes important contributions to national economic growth and sustainable environmental outcomes.

There are many opportunities for Māori communities to make distinctive contributions to research, science and technology. These opportunities lie in the innovation potential of Māori knowledge, people and resources. Vision Mātauranga is a policy framework whose mission is:

to unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

It was created to provide strategic direction for research of relevance to Māori, funded through Vote Research, Science and Technology.

Vision Mātauranga: Unlocking the Innovation Potential of Māori Knowledge, Resources and People:

- is a creative and exciting thread that will be woven into Vote Research, Science and Technology over a period of some years
- is concerned with discovering the distinctive contribution that Māori knowledge, resources and people can make to RS&T
- is a policy framework that provides strategic direction for research of relevance to Māori, funded through Vote Research, Science and Technology
- describes four distinctive research themes of importance to our nation
- advocates for innovation potential and opportunity – many people will be involved in the research designed to produce and apply the knowledge envisaged by Vision Mātauranga
- is about creating an environment in which distinctive activities and products of which the nation can be proud are fashioned from the materials of the Māori world – its knowledge, resources and people.

Vision Mātauranga has relevance for all New Zealanders. Whilst this framework concerns distinctive issues, challenges and opportunities arising within Māori communities, Vision Mātauranga encourages research whose outcomes make contributions to New Zealand as a whole.

Vision Mātauranga is about innovation, opportunity and the creation of knowledge.

Contents

4	1.0 Vision Mātauranga: An Overview
5	1.1 What are We Trying to Achieve?
7	1.2 What is Vote Research, Science and Technology?
8	2.0 Vision Mātauranga: Four Research Themes
9	2.1 <i>Indigenous Innovation</i> : Contributing to Economic Growth through Distinctive R&D
11	2.2 <i>Taiao</i> : Achieving Environmental Sustainability through Iwi and Hapū Relationships with Land and Sea
13	2.3 <i>Hauora/Oranga</i> : Improving Health and Social Wellbeing
16	2.4 <i>Mātauranga</i> : Exploring Indigenous Knowledge and RS&T
18	3.0 Innovation Potential: Building and Maintaining Research Capacity and Capability
18	3.1 Excellence
18	3.2 Outcomes Sought for the RS&T System
18	3.3 Diverse Research Scenarios
19	3.4 Māori-Relevant Research Centres, Programmes and Organisations
20	3.5 New and Emerging Capacities and Capabilities: Research Conducted by Māori Organisations
20	3.6 The Circumstances of Māori Enterprises
22	4.0 Appendices
22	4.1 Research and Development (R&D)
22	4.2 Funding and Investment Agents: The Funders of Research
23	4.3 Distinctive Aspects of Māori Research
24	4.4 Glossary of Terms
25	4.5 References

1.0 Vision Mātauranga: An Overview

Vision Mātauranga: Unlocking the Innovation Potential of Māori Knowledge, Resources and People is a policy framework that was implemented into Vote Research, Science and Technology in July 2005. It was developed by the Ministry for Research, Science and Technology in consultation with research funders, researchers and research users including Māori communities. The framework is designed to assist research funders, researchers and research users when they consider research of relevance to Māori – particularly its distinctive aspects – and how this might be supported through Vote Research, Science and Technology.

This policy framework will guide research investment decisions made by Vote RS&T funding and investment agents.

Mission Statement:

To unlock the innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future.

Purpose:

To provide strategic direction for Vote RS&T funding for research of relevance to four themes:

- **Indigenous Innovation: Contributing to Economic Growth through Distinctive R&D.** New Zealand needs its businesses and for-profit enterprises to perform at an optimum level and contribute to economic growth. This theme concerns the development of distinctive products, processes, systems and services from Māori knowledge, resources and people. Of particular interest are products that may be distinctive in the international marketplace.
- **Taiao: Achieving Environmental Sustainability through Iwi and Hapū Relationships with land and sea.** Like all communities, Māori communities aspire to live in sustainable communities dwelling in healthy environments. Much general environmental research is relevant to Māori. Distinctive environmental research arising in Māori communities relates to the expression of iwi and hapū knowledge, culture and experience – including kaitiakitanga – in New Zealand land and seascapes.
- **Hauora/Oranga: Improving Health and Social Wellbeing.** Distinctive challenges to Māori health and social wellbeing continue to arise within Māori communities. Research is needed to meet these on-going needs.
- **Mātauranga: Exploring Indigenous Knowledge and RS&T.** This exploratory theme aims to develop a body of knowledge, as a contribution to RS&T, at the interface between indigenous knowledge – including mātauranga Māori – and RS&T.

The Creation and Application of Knowledge

Vision Mātauranga focuses on the creation and application of knowledge. It identifies a range of needs and opportunities, and seeks to inspire researchers and research providers to respond to them.

Innovation Potential

The concept of innovation potential has three facets:

- Vision Mātauranga aims to discover the distinctive contributions and creations relevant to RS&T that may arise from Māori knowledge, resources and people.
- We wish to form good relationships between Vote RS&T and Māori communities that emphasise their creativity and innovation potential.
- We envisage that many diverse individuals and groups will be involved in the themes of Vision Mātauranga. We encourage innovation in all relationships. Vision Mātauranga is designed to inspire researchers to find innovative responses and solutions to the opportunities, issues and needs facing our nation.

Realising the Innovation Potential

Like all communities, Māori communities possess creativity and innovation potential. Māori wish to contribute to their nation in ways that are distinctive and meaningful to them. The Ministry recognises the distinctive innovation potential within Māori communities and wishes to respond to this appropriately, particularly where it is relevant to research, science and technology. This will involve a diverse range of research scenarios and research providers, both organisations and individuals. Vision Mātauranga research involves any combination of Māori knowledge, resources and people that generates distinctive contributions to RS&T.

In building and maintaining capacity and capability in relation to these research themes, Vision Mātauranga takes a broad view of who might conduct relevant research and where that research might take place. The framework envisages diverse research scenarios. Many people will be involved in the production of this knowledge including, of course, Māori individuals, organisations and communities. The Ministry encourages the innovation potential of all those involved.

1.1 What are We Trying to Achieve?

The Ministry for Research, Science and Technology is articulating a number of research goals relevant to Māori as matters of national significance. We advocate research priorities that contribute to the national interest and invest in research activities that benefit New Zealand.

Responding to Distinctive Needs, Issues and Challenges

Like all communities, Māori communities have their own issues, challenges and needs. They share some of these with their fellow New Zealanders, and some appear in Māori communities in distinctive ways. The Ministry wishes to support research that concerns distinctive issues and needs arising within Māori communities.

Research is a Creative Activity

We see research as a creative activity that helps make New Zealand a creative and innovative nation. We wish to instil a spirit of innovation, creativity and opportunity with respect to research of relevance to Māori, and to present research themes that are important to our nation. We want the nation to embrace these goals because of the potential and actual contribution that these activities can make to New Zealand.

We want our research to discover:

- *distinctive products, processes, systems and services* arising from Māori knowledge, resources and people
- *distinctive and successful approaches to environmental sustainability* through an exploration of iwi and hapū relationships with land and sea, and kaitiakitanga – an emerging approach to environmental management
- *successful (including distinctive) approaches and solutions* to Māori health and social needs, issues and priorities
- *a distinctive body of knowledge* at the interface between indigenous knowledge and RS&T, which is applied within RS&T.

As outcomes of these research activities, we wish to see:

- R&D activities assisting Māori businesses and other enterprises to uplift productivity and performance, enabling them to make real and sustainable contributions to national economic growth
- increased understanding of how the New Zealand land and seascape is distinctively experienced and explained by iwi and hapū, and of the contribution this can make to achieving sustainable environmental outcomes and healthy communities
- real gains in health and social wellbeing for Māori from investments in a range of researchers and scientists, including Māori
- a deep exploration of indigenous knowledge – both its traditional applications and its epistemology – in order to understand how indigenous knowledge can add value to RS&T.

Māori Responsiveness – Māori Participation and Outcomes for Māori

Māori responsiveness is a policy designed to increase Māori participation within Vote RS&T and ensure that it responds to Māori issues, needs and aspirations (outcomes for Māori). Vote RS&T will remain responsive to Māori, particularly where there are distinctive issues, needs and challenges that must be addressed.

Vision Mātauranga supplements this approach by exploring the contribution that Māori knowledge, resources and people might make to Vote RS&T as a whole. Māori knowledge, people and resources have much to offer New Zealand, and Vision Mātauranga is concerned to realise this innovation potential.

Hui Taumata 2005

The Hui Taumata was launched in 1984 to prescribe a 20 year vision of cultural, educational and economic achievement for Māori. In 2005, more than 450 people came together at the second Hui Taumata to reflect on these achievements and to forge a vision for the next 20 years and beyond.

With the settlement of Treaty of Waitangi claims – together with other investments and management – new capital is flowing into Māori organisations and businesses, including iwi entities such as rūnanga. In recent times, Māori have made important entries into the fishing, forestry and farming industries, and many initiatives are in place to improve the performance of these bodies.

The 2005 Hui Taumata issued a number of challenges to expand Māori enterprises in a range of business sectors, such as the creative industries. The theme of diminishing dependence upon the Government was made clear, alongside calls to create a culture of success and the need to continue to upskill Māori in a range of disciplines and fields of study. The Hui Taumata was a watershed event. Vision Mātauranga explores its themes of creativity and independence in the context of Vote RS&T.

1.2 What is Vote Research, Science and Technology?

Vote Research, Science and Technology is the share of the Government's annual Budget that is dedicated to supporting research. Whilst research is also conducted through other parts of the government, this framework concerns Vote RS&T only. The Minister of Research, Science and Technology is the Government Minister (member of Cabinet) with overall responsibility for the operations of the Vote. The Ministry of Research, Science and Technology is a government department that works with the Minister to oversee these operations. The Ministry develops and sets policies for research, science and technology. The funding and investment agents are organisations that invest in research. They request proposals for research and enter into contracts with research organisations.



2.0 Vision Mātauranga: Four Research Themes

Vision Mātauranga presents four research themes:

- ***Indigenous Innovation***: Contributing to Economic Growth through Distinctive R&D
- ***Taiao***: Achieving Environmental Sustainability through Iwi and Hapū Relationships with Land and Sea
- ***Hauora/Oranga***: Improving Health and Social Wellbeing
- ***Mātauranga***: Exploring Indigenous Knowledge and RS&T.

Research conducted within these themes may be supported through Vote Research, Science and Technology. In presenting these themes, the Ministry suggests these should be areas of future research investment for the RS&T system. The Ministry is not proposing discrete funding mechanisms for each theme.

Distinctiveness

The Ministry recognises that much general New Zealand research is as relevant to Māori as it is to other New Zealanders. For example, all New Zealanders benefit from general research into health problems such as cancers, heart disease and diabetes. Similarly, all New Zealanders benefit from the research and development activities in Crown Research Institutes that lead to technological innovations in a variety of fields.

In presenting these research themes, the Ministry wishes to describe distinctive themes that are not only about how the RS&T system might respond to distinctive issues and needs for Māori (outcomes for Māori), but also about how Māori communities in partnership with Vote RS&T might make contributions to the nation as a whole. Vision Mātauranga focuses on the distinctive contributions that might arise from the innovation potential of Māori knowledge, resources and people (any combination) as well as responding to needs and issues that are distinctive to the Māori community.

Research of Relevance to More than One Theme

In presenting these four themes, the Ministry recognises that many research projects will be of relevance to more than one of them.

2.1 Indigenous Innovation: Contributing to Economic Growth through Distinctive R&D

Theme Purpose

To realise the contribution of Māori knowledge, resources and people to economic growth through distinctive R&D activities.

Theme Objective

To create distinctive products, processes, systems and services from Māori knowledge, resources and people through distinctive R&D activities.

Towards Distinctive R&D Activity

Many Māori businesses and enterprises are located within conventional sectors of the New Zealand economy, such as agriculture, fisheries and forestry. These entities are eligible to apply for support for R&D activities in the usual manner, and these research investments may yield innovations within these sectors.

Here, we are concerned with the distinctive contribution that Māori knowledge, people and resources might make to the economy. Of particular interest is the discovery of distinctive products, processes, systems and services that might arise from the innovation potential of Māori knowledge, people and resources.

Where Might Opportunities for Innovation Be Found?

Contained within iwi and hapū pools of knowledge and experience are themes, concepts, ideas and materials that could be used to fashion distinctive products, processes, systems and services. Some of this knowledge concerns tangible objects such as fabrics, perfumes, cosmetics, building materials, cuisine, art objects, medicinal plants and marine engineering. Researchers could explore the traditional technologies of iwi and hapū communities and make this knowledge and experience the starting point for new discoveries.

Traditional knowledge also includes conceptual knowledge that might inform the design of products, processes, systems and services. For example, principles for building and landscape are represented by traditional Māori buildings and built heritage. Design principles drawn from traditional knowledge might be applied to R&D activities using a range of resources. The adaptation of these principles to newer resources might be a source of innovation.

Research and development activities might also be conducted in new ways. Many Māori businesses and for-profit enterprises operate in unique and distinctive circumstances (see Section 3.6 below). Hence, R&D activities may take place in distinctive ways. In addition, traditional knowledge contains unique perspectives on aspects of knowledge creation such as posing questions, solving problems, the creative moment in which a realisation or understanding takes place, the way in which research is communicated, and the very concept of knowledge itself.

The Innovation Potential of Māori-Owned Resources

Many iwi- and hapū-based entities own and manage a range of resources, including those of the market economy – for example, pastoral farming, forestry and fishing. Indigenous biodiversity might also be utilised to create distinctive products. The distinctive set of resources potentially available to a Māori enterprise might encourage innovation. These include:

- indigenous resources such as mineral deposits, natural gas, geothermal fields
- unique land features or qualities (for example, micro-climate, soil types)
- lakes, rivers, coastlines and seabed
- native flora and fauna
- traditional knowledge, intellectual or cultural property
- customary rights (for example, seasonal access to muttonbird).

A key issue for Māori economic development is how to ensure that innovation becomes a pervasive feature of all Māori institutions, while protecting the base of traditional cultural values.

MĀORI ECONOMIC DEVELOPMENT: TE ŌHANGA WHANAKETANGA MĀORI, NEW ZEALAND INSTITUTE OF ECONOMIC RESEARCH, 2003

2.2 Taiao: Achieving Environmental Sustainability through Iwi and Hapū Relationships with Land and Sea

Theme Purpose

To discover the potential contribution of iwi and hapū relationships with land and sea to environmental sustainability.

Theme Objective

To discover distinctive and successful approaches to environmental sustainability by exploring iwi and hapū relationships with land and sea, and kaitiakitanga – an emerging approach to environmental management on the basis of traditional values, principles and concepts.

Discussion

The state of the environment has concerned Māori for many years. From actions taken in the 19th century – such as protests over the felling of forests and the extinction of the huia – to late 20th century claims to the Waitangi Tribunal, Māori have been prominent in advancing issues designed to ameliorate environmental degradation and resource management.

Like all New Zealanders, Māori aspire to live in sustainable communities located in healthy environments. This requires quality urban and rural planning, sound and sustainable resource management practices, flood protection, the protection of endangered biodiversity, and more. Because so many Māori live in cities and towns, many of their aspirations are similar to those of all New Zealanders.

The Ministry for the Environment believes that:

Many of the big environmental issues for New Zealand in the first decade of the 21st century are also economic and public health issues. More sustainable use of water, managing marine resources, reducing waste, and improving our energy efficiency are all essential for creating wealth and quality of life as well as for environmental sustainability. However, the decline of our unique plants, animals and ecosystems is New Zealand's most pervasive environmental issue.

New Zealand's low population and limited industrial base means that our environmental issues are generally less severe than those in many other industrialised countries. However, we need to make progress with these issues if New Zealanders are to have the healthy environment and quality of life they want.¹

This research theme aims to discover the potential relevance of iwi and hapū relationships with land and sea to the issues discussed by the Ministry for the Environment.

1 www.mfe.govt.nz/issues/

Distinctive Iwi and Hapū Environmental Research

Because of the length of tenure of iwi and hapū in New Zealand, the ‘footprint’ of Māori culture on the New Zealand landscape is both broad and substantial. This footprint includes both naturally occurring features – such as forests and waterways – and built features such as pā sites, canoe landing areas, urupā (graveyards), astronomical sites, locations for higher learning (wānanga), gardens and, of course, marae. Such sites reflect and express a unique perspective on the nature of New Zealand’s landscape and thus inform Māori notions of environmental sustainability.

Furthermore, living heritage areas, such as forests, waterways, mountains and caves of particular significance to iwi and hapū, also offer a view of the landscape and inform views on environmental sustainability. Iwi and hapū seek to protect and perpetuate the historical footprint through:

- heritage protection
- indigenous biodiversity
- ecosystem restoration
- sustainable resource management
- urban and rural planning.

Kaitiakitanga

Iwi and hapū envision the environment through indigenous knowledge – mātauranga Māori. This way of seeing and experiencing the environment has given rise to the concept of kaitiakitanga, an emerging approach to environmental management arising from traditional principles, perspectives and worldviews. The concept has captured attention in a variety of quarters, including the Resource Management Act 1991, which makes provision for kaitiakitanga, which it defines as ‘the exercise of guardianship’. It is the combination of Māori communities and kaitiakitanga protection and enhancement that makes this ‘space’ distinctive.

2.3 Hauora/Oranga: Improving Health and Social Wellbeing

Theme Purpose

To increase understanding of the determinants of health and wellbeing by exploring distinctive challenges to health and social wellbeing arising in Māori communities.

As part of this theme, the Ministry of Research, Science and Technology is interested in building a research community capable of undertaking research that will help to address the aforementioned challenges to health and social wellbeing. The Vision Mātauranga framework acknowledges that both Māori and non-Māori researchers will contribute to delivering the desired outcomes.

Theme Objective

To discover successful (including distinctive) approaches and solutions to Māori health and social needs, issues and priorities.

Māori Health Research Strategies

In 2002, the Ministry of Health published *He Korowai Oranga: Māori Health Strategy* with the overall aim of achieving whānau ora: 'Māori families supported to achieve their maximum health and wellbeing'. In 2005, the Ministry of Health published a Strategic Research Agenda for He Korowai that again emphasises whānau ora. This agenda outlines three objectives that will contribute to the achievement of whānau ora:

- On-going building of an evidence base
- Investments in high-quality research and evaluation
- Building of Māori health research capacity.

Each objective includes the development of 'more effective service delivery for Māori and improved health and disability outcomes for whānau'.

The Health Research Council has published *Ngā Pou Rangahau Hauora kia Whakapiki Ake Te Hauora Māori: The Health Research Strategy to Improve Māori Health and Wellbeing 2004–2008*. The aim of this plan is:

to invest in a range of research activities that will enhance the ability of the health sector to:

1. *extend the life span and increase the quality of life for Māori;*
2. *improve tangata whenua access to quality health services;*
3. *improve health service provisions to tangata whenua; and*
4. *decrease morbidity and mortality of Māori from preventable diseases and health conditions.*

This strategy includes the following Mission Statement:

To improve Māori health through funding and supporting high-quality health research, which is driven by Māori health priorities and needs, consistent with tikanga Māori, and which generates mātauranga that is highly valued and used by tangata whenua and government agencies.

Vision Mātauranga supports whānau ora as the overall goal for Māori health and the aims articulated by the HRC for Māori health research. Whānau ora is in harmony with the 'health and independence' aspects of the Social Goal of Vote RS&T.

A Developmental Response

There is substantial evidence for disparities between the health status of Māori and that of the general population. These disparities represent a national need that must be addressed by a distinctive and sustainable response – Māori health research. The strategies of the Ministry of Health and the Health Research Council are developmental responses in that they articulate aims for whānau and Māori communities and position Māori health research within them.

In supporting Māori health research, Vision Mātauranga also looks for distinctive contributions that might arise from the innovation potential of Māori knowledge, resources and people.

Māori Social Research

In 2004, the Ministry of Social Development published *Opportunity for All New Zealanders*, described as the 'first time any New Zealand Government has sought to develop and publish a summary statement of its strategies to improve social outcomes'. This substantial document articulates a range of issues and concerns. The Government's vision for social policy is:

An inclusive New Zealand where all people enjoy opportunity to fulfil their potential, prosper and participate in the social, economic, political and cultural life of their communities and nation.

In pursuit of this vision, the Government has two overarching goals:

- Achieving and sustaining improvements in social wellbeing for all New Zealanders
- Reducing disadvantage and promoting equality of opportunity for all New Zealanders.

Opportunity for All New Zealanders identifies five critical issues:

- Improving educational achievement among low socio-economic groups
- Increasing opportunities for people to participate in sustainable employment
- Promoting healthy eating and healthy activity
- Reducing tobacco, alcohol and other drug abuse
- Minimising family violence, and abuse and neglect of children and older persons.

With respect to Māori and social policy, *Opportunity for All New Zealanders* makes the following statement:

The disproportionate levels of unemployment, poor health, low educational attainment and poor housing among Māori must be of concern to any government. Making life better for all New Zealanders can never be achieved if New Zealand's indigenous people are left behind as a marginalised community, permanently worse off than everyone else.

Important outcomes for Māori include what everyone else values as well, like good health and a high standard of living. A further outcome for Māori is to be able to live as Māori. Beyond physical needs, Māori need their culture to survive and develop. Māori culture and language has no home other than New Zealand. If Māori culture dies here, it dies everywhere. It is in this sense that Māori are tangata whenua. And for these reasons, government has policies and programmes that explicitly address the needs of Māori as people who are indigenous to New Zealand.

Vision Mātauranga supports these statements by encouraging research in these broad areas that can contribute to the outcomes articulated in these documents. In addition, Vision Mātauranga suggests that important contributions to these goals can be made through the innovation potential of Māori knowledge, resources and people.

2.4 Mātauranga: Exploring Indigenous Knowledge and RS&T

Theme Purpose

To discover the distinctive contribution that indigenous knowledge can make to RS&T – particularly its potential to create knowledge and help develop inventive and entrepreneurial people.

Theme Objective

To develop a distinctive body of knowledge at the interface between indigenous knowledge and RS&T that can be applied to aspects of RS&T. This theme will explore ways to accelerate the creation of knowledge and the development of people, learning, systems and networks.

Discussion

The concept of indigenous knowledge has been incorporated into RS&T systems around the world. It arises from a recognition that many indigenous communities are seeking to restore their traditional knowledge bases as a dimension of their on-going development. Further, some RS&T systems recognise that indigenous and traditional knowledge may be able to contribute to the economic development of those communities and the nations within which they dwell. The World Intellectual Property Organisation has established a standing committee to explore intellectual property mechanisms relating to the use of traditional knowledge and indigenous biodiversity for commercial purposes.²

This theme will explore the nature of indigenous knowledge in the New Zealand setting, and how this body of knowledge may contribute to research, science and technology. Mātauranga Māori – distinctive knowledge traditionally held within Māori communities – has developed in New Zealand over at least 600 years. Brought here by Polynesian ancestors, this oral-based knowledge responded to life in these islands. It changed during encounters with European in the 19th and 20th centuries when colonisation endangered mātauranga Māori in many substantial ways. However, all was not lost. Mōrehu (remnants) of mātauranga Māori – notably the Māori language – remain today and are catalysing a new creativity in Māori communities and beyond. Scientific knowledge has superseded traditional Māori knowledge in many ways, however, mātauranga Māori contains suggestions and ideas that may yet make a contribution to RS&T. Indigenous knowledge includes three themes that are woven together:

Better relationships with the natural world

The quest for better relationships between human societies and the natural environments in which they exist.

Knowledge weaving

The weaving of knowledge across different domains, in a cross-disciplinary and cross-cultural style.

² See 'Traditional Knowledge, Genetic Resources and Folklore', World Intellectual Property Organisation. Website: www.wipo.int/tk/en/

Revitalisation of the traditional knowledge bases of formal indigenous cultures

The quest to revitalise the traditional knowledge bases, values and worldviews of formal indigenous cultures.

In advancing this theme, the Ministry is encouraging the positioning of mātauranga Māori within the international cross-cultural theme in knowledge and philosophy known as indigenous knowledge. The Ministry is also encouraging study of the way in which mātauranga Māori explains the world. This will include the development of models of analysis drawn from pre-existing mātauranga Māori, and a discussion of how these models might be applied to real-world issues.

In presenting this theme, we are enlarging a partially established space within Vote RS&T whereby the RS&T system may engage, in an appropriate way, the cultural knowledge of iwi, hapū and whānau. We seek to create the circumstances whereby the RS&T system can support researchers who are attempting to further aspects of the traditional knowledge bases of those communities.

What is Meant by the 'Interface'?

The idea of an 'interface' was suggested by Professor Mason Durie of Massey University. This is a space in which mātauranga Māori (in relation to indigenous knowledge) and RS&T may come together to explore matters of mutual interest. The interface enables investment in research that involves mātauranga Māori. It does not seek to appropriate mātauranga Māori in its entirety but rather those aspects of it that scientists and practitioners of mātauranga Māori are comfortable with exploring and advancing in this way, and which are relevant to RS&T. The interface respects the integrity of each knowledge system and allows for appropriate cross-over discussions.

Principles of the Interface

1. The Integrity of Traditions

This activity does not water down science or develop pseudo-science. The interface space respects the integrity of the two knowledge traditions.

2. Creative Possibilities: Synergies

An interface space exists to create knowledge, not merely to describe pre-existing knowledge.

3. Divergence and Diversity

It is recognised that there are differences between science and mātauranga Māori.

3.0 *Innovation Potential*: Building and Maintaining Research Capacity and Capability

Vision Mātauranga presents four research themes as ways of thinking about the distinctive contribution that Māori knowledge, resources and people might make to RS&T. In doing so, the Ministry recognises that research relevant to Māori is already taking place within the RS&T system. In implementing Vision Mātauranga, the Ministry recognises the research and related activities currently taking place on which it wishes to build.

3.1 Excellence

The Ministry recognises that New Zealanders are capable of world-class research and encourages all sectors of the RS&T system to achieve excellence whenever possible. To achieve this goal, all parts of the system must perform to their potential, including those areas relevant to the innovation potential of Māori knowledge, resources and people. Vision Mātauranga is about achieving the best possible outcomes for all through research that unlocks the innovation potential of Māori knowledge, resources and people.

3.2 Outcomes Sought for the RS&T System

The Ministry has four strategic priorities:

- Sharpening the agenda for science
- Engaging New Zealanders with science and technology
- Improving business performance through research and development
- Creating a world-class science system for New Zealand.

Vision Mātauranga seeks to make contributions to each of these strategic priorities.

3.3 Diverse Research Scenarios

Vision Mātauranga presents four research themes that enable a wide range of research. The Ministry envisages that many different kinds of researchers, scientists, research organisations and providers – Māori and non-Māori – will be engaged to conduct research of relevance to these themes. Whilst much research throughout RS&T is of general relevance to Māori, Vision Mātauranga is focused on particular and distinctive opportunities that we suggest reside within the innovation potential of Māori knowledge, resources and people.

Research of relevance to the themes articulated in Vision Mātauranga is conducted by a range of research providers, including universities and Crown Research Institutes. However, it also includes emerging research conducted by iwi entities such as trust boards and rūnanga, private sector providers as well as the three Crown-funded wānanga. These are locations in which an engagement with the ‘innovation potential of Māori knowledge, resources and people’ is likely to occur.

3.4 Māori-Relevant Research Centres, Programmes and Organisations

A range of Māori-relevant centres, programmes and organisations exist within CRIs and the tertiary sector. Vision Mātauranga research already takes place within some publicly funded entities.

They include:

- Māori health and other research centres within universities
- Ngā Pae o te Māramatanga: National Institute of Research Excellence for Māori Development and Advancement (a Centre of Research Excellence located at the University of Auckland)
- Māori research programmes within the Crown Research Institutes
- research activities within the three Crown-funded wānanga.

The Ministry envisages that Vision Mātauranga will find expression in the activities of these research providers. Where Vision Mātauranga research is taking place, the Ministry seeks the following outcomes:

- Greater synergy, connection and coordination among these sites of research activity
- Greater synergy, connection and coordination between these sites and the wider RS&T system.

It is people – whether they are employees, owners, governors, managers or kaumātua – and whether they act individually or collectively – who are the cornerstone of Māori economic development. The most significant contribution to Māori economic development is likely to come from improving the education and skills of Māori people.

JOHN WHITEHEAD AND BARBARA ANNESLEY, NEW ZEALAND TREASURY, 'THE CONTEXT FOR MĀORI ECONOMIC DEVELOPMENT'

3.5 New and Emerging Capacities and Capabilities: Research Conducted by Māori Organisations

Recently, Māori communities, businesses and other organisations have commenced research activities based on a desire for Māori to be involved in research, particularly, research of relevance to Māori. This includes iwi-based research and research conducted by the three Crown-funded wānanga. Vision Mātauranga envisages that Māori participation in research will grow as research themes with particular relevance to the innovation potential of Māori knowledge, resources and people emerge. Vision Mātauranga research conducted by Māori communities and organisations (including iwi, hapū and whānau) will flourish because this is where the innovation potential of Māori knowledge, resources and people is most likely to reside.

3.6 The Circumstances of Māori Enterprises

Numerous enterprises exist within Māori communities for various economic and social purposes. Examples include iwi-based rūnanga and trust boards. More recently, for-profit enterprises have been established following, for example, the settlement of Treaty of Waitangi claims. Many of these enterprises – which are critical to Māori economic and social development – operate in specific circumstances that include iwi expectations, relationships and accountabilities, the legislative framework, the kinds of resources available to them, and the cultural dimensions – tikanga Māori – to which they seek to give expression.

There are, however, some institutions that are unique to Māori, or which have a particular effect on Māori... For example, tikanga Māori provides a set of norms and values that organise and structure the relationships and behaviours of Māori people and their organisations in particular contexts. Iwi and hapū are important structures for many Māori... the momentum is clearly towards using these structures as ways to engage collectively with Māori, and as vehicles of economic participation and development. The Treaty of Waitangi... affects Māori in particular ways. The settlement of historical Treaty claims, for example, can provide a useful gateway to Māori economic development.³

3 John Whitehead and Barbara Annesley, 'The Context for Māori Economic Development', New Zealand Treasury, 2005

Some Māori for-profit enterprises operate in unique circumstances. Iwi-based enterprises may be asset rich but cash poor, because they possess collectively owned and inalienable assets. They have difficulty raising investment capital and loans against assets that cannot be sold, or sometimes because of their ownership structure.

The Government has placed an emphasis upon exploring ways in which research and development activities can assist the growth of New Zealand industries and business sectors. The Ministry is interested in encouraging R&D within Māori-owned enterprises, including creating the preconditions where these enterprises invest their own resources into R&D activities.

Vision Mātauranga recognises that iwi-based enterprises already undertake R&D activities of the type envisioned by this framework. These enterprises are well placed to realise and act upon the innovation potential of Māori knowledge, resources and people. Vision Mātauranga encourages:

- the creation of distinctive products, processes, services and systems through R&D activities
- the discovery of distinctive approaches to environmental sustainability
- the development of successful and distinctive approaches to Māori health needs and issues
- the development of a distinctive body of knowledge that rises at the interface between indigenous knowledge (including mātauranga Māori) and RS&T.

In addition, Vision Mātauranga seeks:

- an increase in R&D activities within Māori-owned for-profit enterprises, particularly iwi rūnanga, trust boards and their companies
- an understanding of how R&D can add value to a for-profit enterprise and why it should invest funds to support R&D.

4.0 Appendices

4.1 Research and Development (R&D)

Research and development is a set of activities in which science intersects with business enterprise. R&D is the place where creative thinkers focus on key issues, problems and creative possibilities. It is here that the researcher locates sites of innovation – how to turn a raw resource, such as a fibre or a fluid, into something that can then be used to create a product, such as fashioning a cleansing agent from fish oil. This is the domain of research in R&D. At a key point in the process, an idea emerges that leads to a product or a process that may have commercial potential. This is where entrepreneurial and business minds intersect with the research process.

The benefits of investing in R&D include:

- encouraging a spirit of creativity and enterprise by seeking to understand present circumstances in order to discover what might be possible in the future (rather than merely understanding the present for its own sake)
- encouraging an investment ethos
- expanding a notion of investment beyond merely financial implications to include investments in knowledge and people
- expanding and deepening notions of time in relation to investment and planning processes
- encouraging a different approach to ‘risk’ – many organisations approach risk primarily through fiscal obligations and a concept of what they have now; R&D activity is forward-looking, enabling a balancing of present risk against future gains in knowledge and productivity
- enabling clearer intellectual property arrangements.

4.2 Funding and Investment Agents: The Funders of Research

Research funding from Vote RS&T is administered by the following funding and investment agents.

Foundation for Research, Science and Technology

15–17 Murphy Street
Level 11, Clear Centre
PO Box 12-240
Wellington
New Zealand
Phone: 64 (0)4 917 7800
Fax: 64 (0)4 917 7850
Web: www.frst.govt.nz

Health Research Council of New Zealand

Te Kaunihera Rangahau Hauora o Aotearoa
Level 3, 110 Stanley Street
PO Box 5541, Wellesley Street
Auckland
New Zealand
Phone: 64 (0)9 303 5200
Fax: 64 (0)9 377 9988
Web: www.hrc.govt.nz

Royal Society of New Zealand

4 Halswell Street, Thorndon
PO Box 598
Wellington
New Zealand
Phone: 64 (0)4 472 7421
Fax: 64 (0)4 473 1841
Web: www.rsnz.org

4.3 Distinctive Aspects of Māori Research

The notion that Māori involvement in research has distinctive features has recently been explored in discussions about research of relevance to Māori (and research generally). What is the nature of Māori research and how does it differ from research conducted by others? Questions of distinctiveness are complex but can be grouped into two themes:

- Applications and use of research
- Methodology.

Discussions about distinctiveness focus on both the nature and the usage of the tool (research). The applications and use of research involve:

- setting research priorities – Who gets to say what is researched? What is the purpose of the research?
- the location of the research – Where is the research being conducted?
- the environment in which the research takes place – In what conditions is the research carried out?
- the use of research outcomes – Who gets to use the research outcomes? Who benefits from them? How are these outcomes accessed?

Recent initiatives to increase Māori involvement in research have usually centred upon these kinds of questions. Māori recognise that research is a powerful tool that can be wielded for a variety of purposes. As with all tools, its users are empowered through its use.

Recently, however, deeper discussions about the tool itself have commenced. Attention is now paid to the methodologies by which research is conducted. A methodology is a process that leads to the creation and application of knowledge by:

- posing research questions – By what process is a question or problem posed as the topic of study or research? How is a question posed?
- positing hypotheses
- testing hypotheses
- drawing conclusions and fashioning research results.

These are elements of the various processes by which knowledge is created through research. Questions pertaining to the potential contribution of the Māori world to methodology have catalysed discussion and interest in mātauranga Māori – the distinctive knowledge historically present within the Māori world. What might be the mātauranga Māori approach to the creation of knowledge? Here, questions of distinctiveness inevitably arise.

Attached to these central issues pertaining to the nature and use of the tool are a range of other key issues and questions:

- The role of technology in a scientific methodology and in a mātauranga Māori-inspired methodology
- Contrasting the scepticism of science with the notion that mātauranga Māori is a heritage-inspired knowledge system
- The nature of the individual and the collective in both knowledge systems
- The ownership of knowledge
- The relationship between the workings of the rational and non-rational mind.

There are many more questions. Recent initiatives have recognised the need to create space for these fundamental questions to be addressed. These initiatives include ‘The New Frontiers of Knowledge’ theme that has been articulated for Ngā Pae o te Māramatanga: The National Institute for Research Excellence in Māori Development and Māori Advancement, in which these discussions will take place. In addition, Professor Mason Durie of Massey University delivered a paper on the interface between indigenous knowledge and research, science and technology at the 2004 APEC Science Ministers’ conference held in Christchurch.

4.4 Glossary of Terms

Epistemology – the theory of the method or grounds of knowledge.

Indigenous knowledge – a term used internationally to denote knowledge traditionally held by indigenous communities. Mātauranga Māori is one such body of knowledge.

Innovation – the processes by which marketable products are developed through R&D, commercialised and made available to the marketplace. All market economies value innovation.

Kaitiakitanga – an emerging approach to environmental management based on traditional Māori principles, concepts, values and views of the environment.

Research capability – the ability of an organisation, group or individual to conduct a research activity, usually in a particular discipline or field of inquiry.

Research capacity – the amount of research capability possessed by an individual, group or organisation.

Mātauranga – knowledge in general, as distinct from mātauranga Māori.

Mātauranga Māori – a body of knowledge that was first brought to New Zealand by Polynesian ancestors of present-day Māori. It changed and grew with the experience of living in these islands. Following encounter with the European in the late 1700s and early 1800s, it grew and changed again before becoming endangered in many substantial ways in the 19th and 20th centuries. The elements that remain today – including the Māori language – have catalysed a renewed interest in this body of knowledge.

Post-settlement entities – organisations, enterprises and companies established (or already in place) following the settlement of a significant Treaty of Waitangi claim and which are charged with developing commercial activities utilising assets arising from the settlement.

R&D – research and development.

Vote Research, Science and Technology (RS&T) – the share of the Government’s annual Budget dedicated to supporting research.

4.5 References

Hui Taumata

References to the Hui Taumata were taken from guest presentations and keynote addresses. These can be found at:

www.huitaumata.maori.nz

Further information can be found in:

Hui Taumata 2005: Summary Report, Wellington, 2005

Hui Taumata Steering Committee

Whitehead, John and Barbara Annesley: *The Context for Māori Economic Development: A Background Paper for the 2005 Hui Taumata*

The Treasury, Wellington, 2005

Further references

Durie, Mason: 'Exploring the Interface between Science and Indigenous Knowledge'

An unpublished paper presented to the 5th APEC Research and Development Leaders Forum, convened during the 4th APEC Ministers' Meeting on Regional Science and Technology Cooperation (10–12 March 2004)

He Korowai Oranga: Māori Health Strategy

Ministry of Health, Wellington, 2002

Māori Economic Development: Te Ōhanga Whanaketanga Māori

New Zealand Institute of Economic Research, Wellington, 2003

Ngā Pou Rangahau Hauora kia Whakapiki Ake Te Hauora Māori: The Health Research Strategy to Improve Māori Health and Wellbeing 2004–2008

Health Research Council of New Zealand, Auckland, 2004

Opportunity for All New Zealanders

Ministry of Social Development, Wellington, 2004

Strategic Research Agenda for He Korowai Oranga

Ministry of Health, Wellington, 2005

Use of government research, science, and innovation funds for Māori

1 A SNAPSHOT OF FUNDING BEING AWARDED TO MAORI

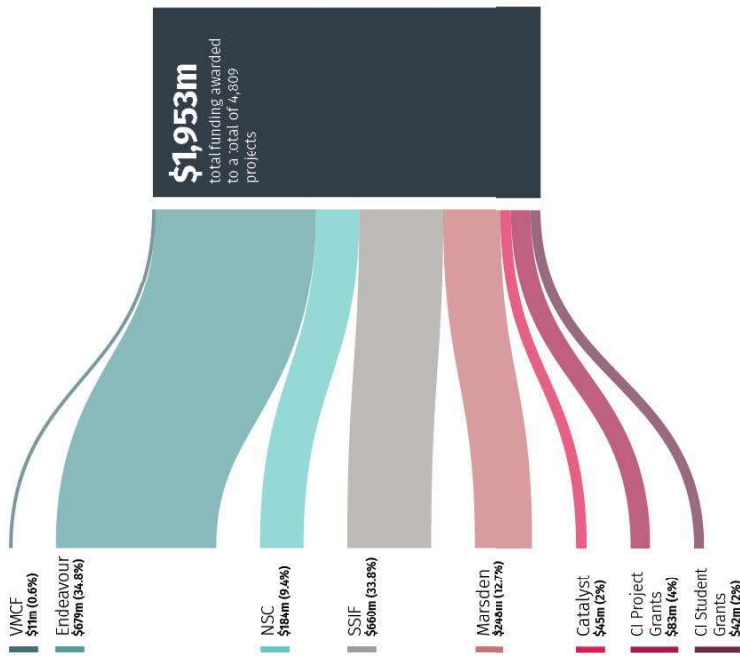
This snapshot provides insights to how investments made by selected government research, science and innovation funds are being awarded to Māori-led projects, distinctively kaupapa Māori projects, and projects designed to have a positive impact on Māori well-being. The snapshot captures the quantum of funding going to projects that indicate relevance for Māori, number of Māori researchers, and explores the nature of projects indicating they will make a significant difference for Māori, or that are aligned to the themes or principles of Vision Mātauranga.

The snapshot has been built from administrative data for eight government funds for the 2018, 2019, and 2020 funding rounds (or equivalent years). These funds account for around 40% of government RSI funding available each year. The quality of the insights that can be drawn from administrative data is influenced by data limitations including lack of data, and inconsistency in data collection and definitions. Note also that the data used in the analysis is self-reported information.

Notes and key definitions on this page
 This information is drawn and analysed from administrative data held and provided by MBIE, Callaghan Innovation and The Royal Society. Dollar values are the amounts awarded to projects in the 2018-2020 funding rounds (or equivalent), not exact money spent. The dollar value of projects that indicated relevance to Māori does not necessarily equate to the amount of money spent on or impact created for Māori.
 Kaupapa Māori research projects are those that indicate that 50% or more of the project is kaupapa Māori research as defined in MBIE's funding profiling categorisation questions. Only four funds collect this categorisation information. The number of kaupapa Māori projects may be underestimated in VMCF as data on project categorisation was only available for 2018 and 2019 (not 2020, at the time of this analysis). Researchers are all key personnel listed on an application—key individuals', researchers' or similar.
 Māori researchers are those who self-identified as individuals of Māori ethnicity. Only three funds had this ethnicity information.

1.1. The big picture—many projects indicate relevance to Māori RSI or alignment with Vision Mātauranga, but only a small proportion were described as kaupapa Māori research. Much is still unknown and poorly identified

Figure 1. Total funding awarded by alignment breakdown, 2018-2020



Across the Vision Mātauranga Capability Fund (VMCF), Endeavour, National Science Challenges (NSC), Strategic Science Investment Fund (SSIF), and Marsden Fund, there were a total of 1,824 individual projects. Of these 1,087 (or 60% of) projects noted they had some relevance to Māori research, science, and innovation, or alignment with Vision Mātauranga. Collectively these projects were awarded \$1.02 million across 2018-2020—57% of the total

\$52 million—3.4% of the \$1.5 billion awarded across these funds (and just 2.6% of all funding awarded). Much still remains unknown about the relevance to Māori RSI for key funds. Even within funds where this information is asked for, significant inconsistencies in question interpretation and data collection remain.

Only a small proportion of projects that had alignment to Māori RSI are noted as kaupapa Māori research. These projects across VMCF, Endeavour, NSC, and SSIF were worth



1.2. Low numbers of Māori researchers playing a key role in projects awarded funding 2019 and 2020

This compares to the total of 1,132 individual researchers in these funds. Projects where Māori researchers were noted as key personnel were worth a total of \$277 million. The proportion of researchers that are Māori in this data, is similar to findings from recent RSI workforce surveys. Māori are generally underrepresented in the RSI workforce compared to the overall Māori population share of 17%.

Note: Researchers may appear across multiple funds in the same time period. Between 0-15 Māori researchers are estimated to be involved in more than one fund on distinct projects.

amount awarded for these funds and 52% of all funding awarded across the eight funds presented here.

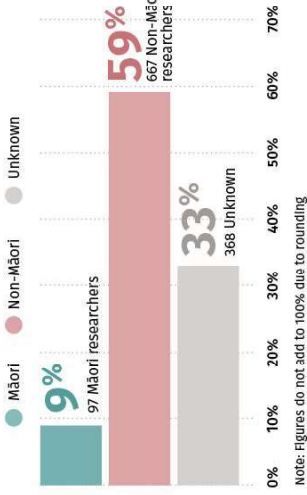
This is a high proportion, however closer analysis reveals that this relevance is not necessarily evidenced or clear.

Only a small proportion of projects that had alignment to Māori RSI are noted as kaupapa Māori research. These projects across

VMCF, Endeavour, NSC, and SSIF were worth



Figure 2. Proportion of individual Māori researchers in VMCF, Endeavour and Catalyst funded projects, 2019-2020



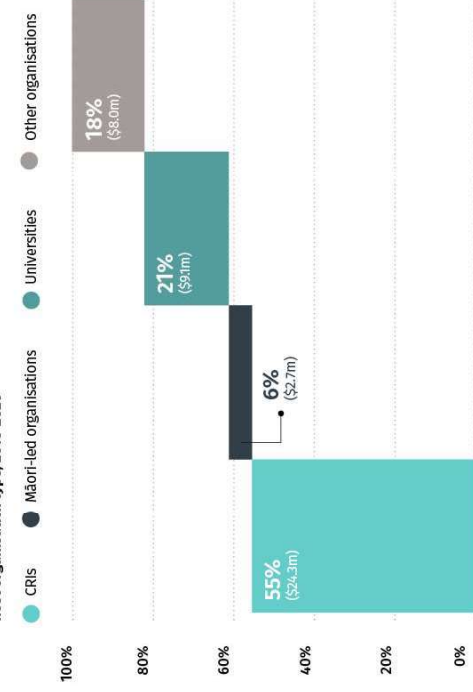
Use of government research, science, and innovation funds for Māori

2

FOCUS ON KAUPAPA MĀORI RESEARCH — INFORMATION AVAILABLE FOR NSC, ENDEAVOUR, AND VMCF FUNDS

2.1. 74 projects or 11% of projects across NSC, Endeavour, and VMCF were described as predominantly kaupapa Māori research

Figure 4. Value of kaupapa Māori research projects across NSC, Endeavour, and VMCF—breakdown by host organisation type, 2018–2020



Note: The organisations referred to here are those that hold the funding contract with MBIE. Other partner, or subcontractor organisations may carry out mahi as part of the research project, but these are not captured here. Organisations are classified by type as part of the analysis, based on their characteristics.

- 55% (\$24.3m) went to projects where the main funding contract was held by Crown Research Institutes (CRIs)—the majority (\$14.3) was for three projects hosted by GNS Science, including one project of very high value (a \$33.2m Endeavour project).
- 21% (\$9.1m) went to projects where the Universities of Otago and Auckland were key contract holders.
- 6% (\$2.7m) went to projects hosted by Māori-led organisations—six organisations had one project each, with the majority going to one project of very high value (a \$2.2m Endeavour project led by Tu Tama Wahine o Taranaki).

Note: the number of kaupapa Māori research projects may be underestimated for VMCF as data was only available for 2018 and 2019 (not for 2020, at the time of this analysis).

2.2. Projects in VMCF tend to be more Māori centred and aligned with kaupapa Māori research than in NSC and Endeavour

Across the three funds, VMCF has the highest proportion of projects indicating the project is kaupapa Māori research. Individual projects within the VMCF also tend to take more of a kaupapa Māori approach, and are much more Māori centred. Less effort and alignment is noted for each project against categorisations where Māori are simply 'involved' or where the project has 'specific relevance to Māori'. This is expected given the purpose of VMCF.

Projects funded through Endeavour are on average much less focused on kaupapa Māori approaches, and tend to have high portions of projects of no relevance to or involvement with Māori.

Projects within NSC are much more variable in terms of their alignment, with a spectrum of approaches and relevance to Māori. There is a large proportion of projects which do not align with kaupapa Māori research, but strong alignment of effort at a project level when they do.

2.3. Kaupapa Māori research projects focus on producing positive outcomes for Māori using a partnership approach

- A focus on producing positive outcomes for Māori, for example:
- value for whānau, hapū and iwi
 - place-based research
 - kaitiakitanga of taonga, traditional resources and knowledge.

"[The project aims] to strengthen the whānau within [the iwi], lift the well-being of its people and rebuild a vibrant community/region."

"[The research] will empower local hapū to bring about landscape rehabilitation and ecological restoration."

- Use of kaupapa Māori approaches:
- using or investigating mātauranga Māori, traditional knowledge and practices
 - research designed and conducted in partnership with mana whenua
 - sharing or transferring knowledge.

"The objective... is to enable solutions that work for Māori... by nurturing research that is by, with and for whānau, hapū, iwi and Māori communities."

"We will integrate local/traditional/iwi knowledge and integrate new teo and Māori values into improved natural hazard resilience strategies for all New Zealand communities."

"The proposed kaupapa led project supports research that promotes the assertion of independence and autonomy by kaupapa who desire lives of longevity, quality, and equity in positive ageing."

"This co-created project intends to provide [the iwi] with robust information about its tamariki (0-4 years) in order to develop evidence informed programmes to improve the health, wellbeing and prosperity of whānau and their tamariki."

"...noh-centric case studies to ensure mātauranga Māori can interface, inform and transform our resilience within communities..."

"This research will bring together mātauranga Māori and western science to investigate habitat connectivity as it applies to the unique social, cultural and ecological context of the harbour."

2.4. Projects 'involving Māori' span areas of recognised importance to Māori, but the integration of Māori values and principles are not common

In comparison to the projects that took a kaupapa Māori approach, those that referenced simply 'involving Māori':

- do not often mention any Māori values, principles and approaches, though do speak to cultural appropriateness, and drawing on existing frameworks such as Waka Taurua Framework and Te Mana o te Wai
- speak mostly about 'engaging with stakeholders, iwi and hapū, and community groups', 'facilitating' and 'working with' and 'sharing learnings with Māori, rather than collaborating.

Source: quotes from applications.

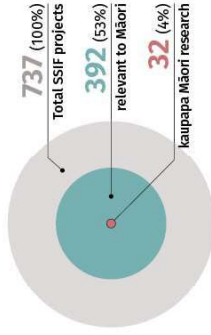
Use of government research, science, and innovation funds for Māori

3

FOCUS ON KAUPAPA MĀORI RESEARCH AND VISION MĀTAURANGA ALIGNMENT — INFORMATION AVAILABLE FOR SSiF AND MARSDEN FUNDS

3.1. Over half of SSiF projects said they were relevant to Māori, only 4% were described as kaupapa Māori research

Figure 5. SSiF projects indicating relevance to Māori and kaupapa Māori research, 2018-2020



392 (53%) out of 737 SSiF funded projects indicated relevance to Māori. These projects were worth a collective \$335 million. Of the 392 projects, 32 projects (4.3%) worth \$7.6 million said the kaupapa Māori research category best describes the project (2018-2020 data)—all projects were led by two Crown Research Institutes.

Common themes in project descriptions of projects hosted by Manaaki Whenua Landcare Research include:

- using indigenous knowledge and mātauranga Māori as evidence
- projects led in partnership or based on co-design, and
- projects intended to produce positive outcomes for Māori.

"We developed a cross-cultural forest monitoring system using plot-based survey measures developed by scientists, and a set of community-based survey indicators developed by Māori."

"This project aimed to record tangata whenua perspectives on pest control tools, their development and application in the environment."

"A kaupapa Māori restoration assessment was also developed to inform and drive restoration decision-making from hapū and iwi perspectives."

In contrast, project descriptions for the projects hosted by NIWA focussed on project deliverables: development of tools and options for marine taonga and Māori business and community (note that the projects' actual methods were not analysed).

Source: quotes from applications.

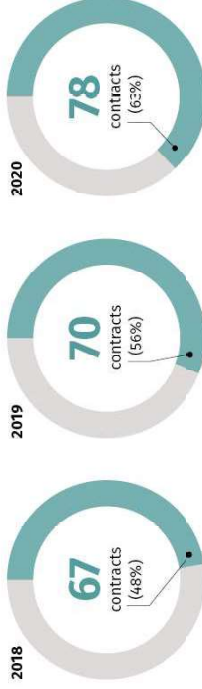
Table 1. SSiF projects—host organisations that described their projects as kaupapa Māori research, 2018-2020

Host Organisation	\$ Funding awarded	Project count
Manaaki Whenua Landcare Research	\$5.9m	24
NIWA	\$1.7m	8
Grand Total	\$7.6m	32

Note: Host organisations are those that hold the main contract with MBIE and are responsible for an SSiF programme. Other partner, or subcontractor organisations may carry out specific research projects undertaken as part of an SSiF programme.

3.2. Over half of all Marsden contracts indicate an alignment with the Vision Mātauranga themes, and this proportion has been increasing

Figure 6. Number of Marsden contracts indicating an alignment with one or more of the four Vision Mātauranga themes, 2018-2020



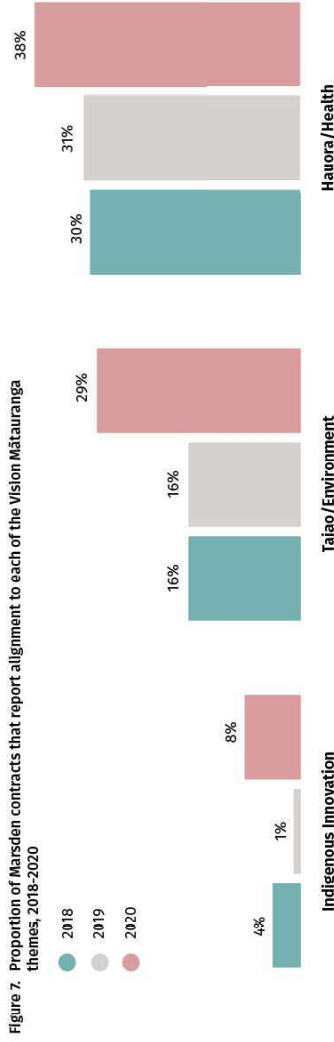
Marsden contract holders are asked whether the research project aligns with one or more of the four themes of Vision Mātauranga. They can select all that are relevant.

215 contracts were aligned with Vision Mātauranga, worth \$139.6 million (56% of the value of all funds awarded).

388 contracts worth \$247.7 million were awarded over this time period.

3.3. Marsden contracts report strongest alignment with two themes: Hauora/Health and Mātauranga

Figure 7. Proportion of Marsden contracts that report alignment to each of the Vision Mātauranga themes, 2018-2020



Few contracts note an alignment to the theme of Indigenous Innovation, while at least a third of contracts awarded within the Marsden fund each year note an alignment with the theme of Hauora/Health.

3.4. Māori-led* contracts are a small proportion of Marsden contracts

Figure 8. Count and value of Māori-led Marsden contracts, 2018-2020



75% of all new contracts awarded in 2018-2020, are estimated to be Māori-led—this proportion holds true for the value of contracts awarded.

*Here Māori-led is defined as at least 20% of the key applicants in the project identify as Māori.

i

Vision Mātauranga Themes:

- 1. Indigenous Innovation:** Contributing to economic growth through distinctive research and development.
- 2. Taiao/Environment:** Achieving environmental sustainability through iwi and hapū relationships with land and sea.
- 3. Hauora/Health:** Improving health and social well-being.
- 4. Mātauranga:** Exploring indigenous knowledge and science and innovation.

Use of government research, science, and innovation funds for Māori

4 EXPLORING THE VISION MĀTAURANGA CAPABILITY FUND —A FUND DIRECTLY FOCUSED ON SUPPORTING MĀORI RESEARCH, SCIENCE, AND INNOVATION

4.1. The small Vision Mātauranga Capability Fund (VMCF) has seen numerous projects funded between 2013-2020 to strengthen the capability, capacity, skills, and networks between Māori and the science and innovation system

Te Pinaha Hikiko—Vision Mātauranga Capability Fund is one of the smallest RSI Funds (allocating approximately \$2 million to new proposals each year).

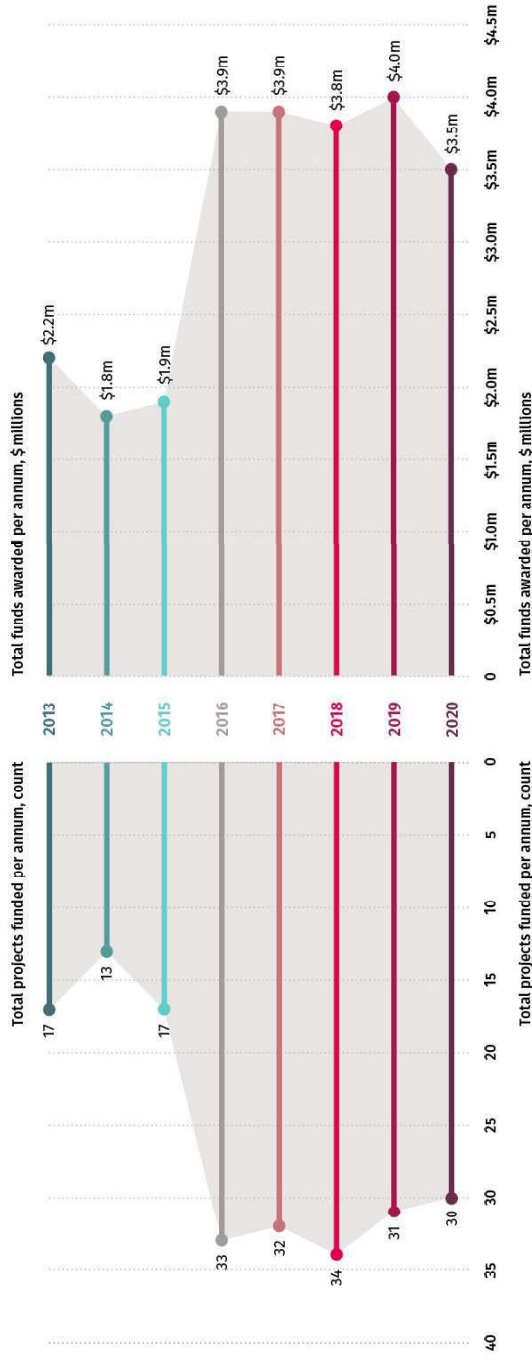
It invests in the development of skilled people and organisations that plan to undertake, or are undertaking, research that supports the themes and outcomes of the Vision Mātauranga policy.

The maximum funding per successful proposal is \$250,000 (excluding GST). From 2013 to 2020 there was a total of 207 projects funded in the VMCF, worth \$25 million.

A distinct feature of VMCF projects is that they are predominately Māori centred and kaupapa Māori research. For example, over the period 2018-2019, 29% of VMCF projects that were awarded funding indicated at least 50% of the project was Māori centred research, 23% of projects indicated that at least 50% of the project was kaupapa Māori research.

207 VMCF projects awarded funding 2013-2020
\$25m Total value of projects awarded 2013-2020

Figure 9. Total awarded and the number of projects VMCF funded in each funding round, 2013-2020



4.2. 48 Māori researchers played a role in VMCF projects awarded funding in 2019 and 2020

Ethnicity data was only consistently collected from 2019—this covers 61 of the 207 VMCF projects from 2013-2020 above.

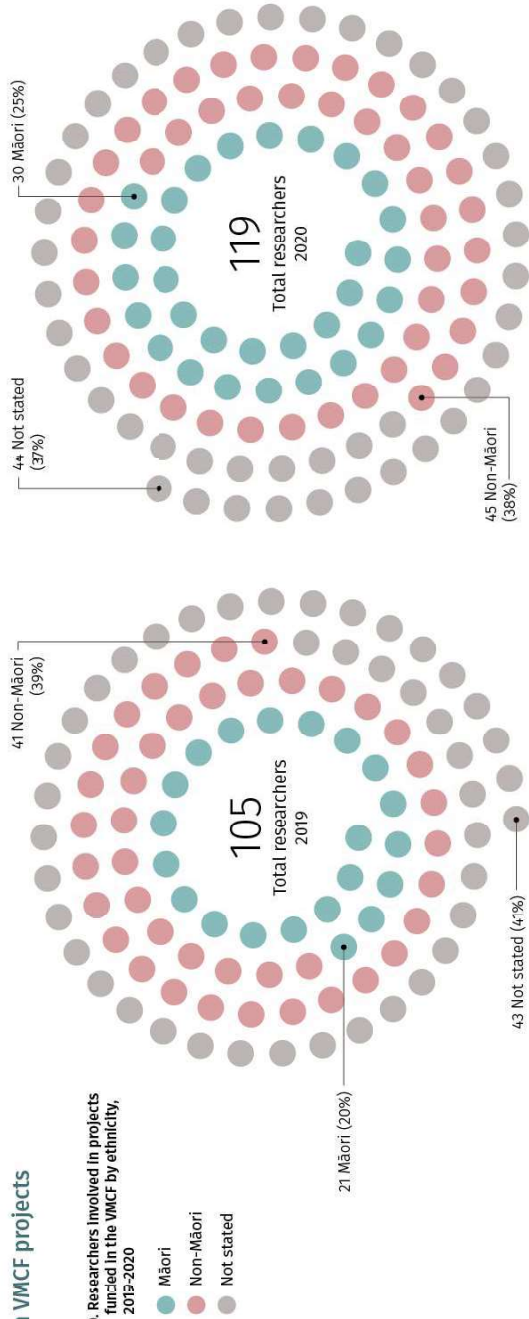
There was an estimated 48 individual Māori researchers listed as holding a key role in the 61 projects in VMCF for 2019 and 2020.

We estimate that no more than 15 Māori researchers are involved in VMCF projects across both years.

The 48 Māori researchers made up 23% of the 209 individual researchers listed in the VMCF projects across 2019 and 2020.

Note: 'Researchers' is again broadly defined here, to include all those listed as holding a role on the project. Māori researchers are those who self identified as individuals of Māori ethnicity.

Figure 10. Researchers involved in projects funded in the VMCF by ethnicity, 2019-2020



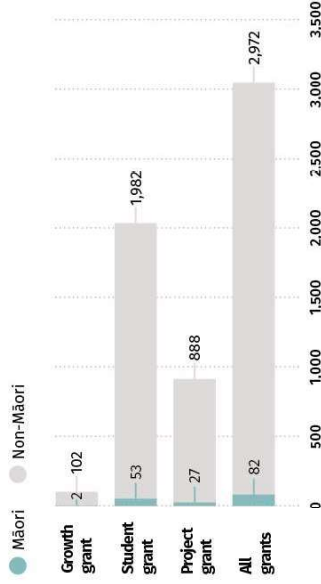
Use of government research, science, and innovation funds for Māori

Specialist picture—insights to the wider RSI funding landscape

5 FUNDING TO DEVELOP BUSINESS R&D CAPABILITY—CALLAGHAN INNOVATION, STUDENT, AND PROJECT GRANTS

5.1. Low numbers of grants were awarded to Māori businesses between 2018–2020

Figure 11. Proportion of Callaghan Innovation grants awarded to Māori and non-Māori businesses, 2018–2020

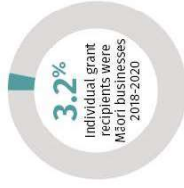


Note: Growth and project grants are historic grant schemes, no longer accepting new applications

On average just 2.7% (82 of the 3,054) of grants awarded between 2018 and 2020 were awarded to Māori businesses.



Grants were awarded to 51 individual Māori businesses. This was 3.2% of all businesses, where a total of 1,571 individual businesses received grants.



17 Māori businesses over this period received more than one grant. Most received one or more student grants, and often a project grant.

5.2. Māori businesses have a similar experience to non-Māori businesses in the grant process—mainly positive with some administrative frustrations

Information held by Callaghan Innovation indicates that businesses who held growth, student and/or project grants in 2018–2020 had similar experiences to those of Māori businesses holding grants. Average Net Promoter Scores across these grants for Māori and non-Māori businesses match, at 9.6 out of a top score of 10.

A short review of this user experience feedback shows all grant holders value an efficient, effective, and connected grants systems which sets all parties up well to advance R&D.

6 RSI FUNDING FOR HEALTH RESEARCH—HEALTH RESEARCH COUNCIL FUNDS: INCLUDED AS AN EXAMPLE FOR COMPARISON

6.1. The Health Research Council invests in Māori health research across a number of mechanisms

This analysis did not review the activities of the Health Research Council (HRC) to substantiate its performance, however publicly available information shows that the HRC demonstrates a commitment to advancing Māori health research and outcomes. We have included the HRC's publicly available information and data, without further analysis. The HRC actively monitors and reports on its spend and efforts on this commitment, across each of their six key funding mechanisms.

A significant proportion of the money that is awarded by HRC is invested to advance Māori health research, researchers, and outcomes. This is likely a direct reflection of the well-defined, well structured, and well communicated funding mechanisms and policies that HRC has in place.



6.2. 35% of research in major grant types funded by the HRC in 2020/21 had relevance to Māori advancement

In the 2020/21 financial year 35% of the \$81 million invested through HRC's major grant types, was spent on research relevant to Māori Development and Māori Advancement.



This relevance is assessed by HRC staff in line with criterion developed by an Expert Advisory Panel over 25 years ago, and consistently applied to major grant types since.

6.3. 14% of research funded by the HRC in 2020/21 was Māori-led

In the 2020/21 financial year (to June) HRC paid out \$118 million, across 826 active contracts. Of this, \$16.7 million (14.4% of total spend) was invested in research that has a lead investigator who identifies as Māori, representing 152 active contracts, with a total allocated budget of \$90.6 million.



Figure 12. Proportion of Māori-led HRC funded research, 2020/21

Key features of the HRC's funding mechanisms are outlined below.

- The existence of a statutory Māori Health Committee who recommend research projects to be funded by the HRC. The committee is responsible for distributing funds dedicated to Māori health research and career development.
- Funding mechanisms that are entirely Māori-led, with some of these especially for community led projects, providing iwi, hapū, and other Māori organisations opportunities to conduct research that has a direct impact on their community.
- Investing 10% of \$12 million of total HRC investments in the Rangahau Hauora Māori funding stream. This stream is aimed at advancing Māori health and wellbeing and achieving health equity.

These features indicate that HRC funding mechanisms encourage and support Māori research, outcomes for Māori health, and researcher capability development, and that performance is actively and openly reported on. The guidance, aims, and criterion of HRC funding mechanisms are clear and aligned with Vision Mātauranga Policy, He Korowai Ora (the Māori Health Strategy), the New Zealand Health Research Prioritisation Framework, and the New Zealand Health Research Strategy 2017–2027 to support effective investment decisions.

Use of government research, science, and innovation funds for Māori

7 OVERVIEW OF METHODOLOGY

7.1. Overview of method

Analysing key research questions through data analysis required an iterative approach, capturing dollars awarded, project counts, and Māori researcher and entity involvement:

- A series of key research questions were framed, and a select number of funds were included in scope to match needs and resources.
- Information and data were sourced taking an iterative approach to identify what insights could be pulled from the funding data. MBE facilitated the sharing of raw data, responding to a series of data requests.
- Excel and R was used to clean and analyse the data in line with the key research questions, and data available.

Key research questions for this data analysis: How much RSI funding is awarded to projects that explore the following?

- People—funding Māori workforce/s, building the capacity and capability of the Māori RSI workforce
- Knowledge—Mātauranga Māori (including kaupapa Māori) and topics that support positive outcomes for Māori.

What gaps are there in our monitoring? What should be collected and how should the information be used?

Sources of information:

- MBE's Internal Information Management System (IMS)
- Reports provided by the Royal Society, Callaghan Innovation, and the Health Research Council
- Callaghan Innovation's User Product Experience Dashboard
- relevant funding websites
- direct data requests.

Years in scope:

The 2018, 2019 and 2020 funding rounds. Application, funding, and reporting years differ slightly across funds, but generally, and for the purposes of this analysis are:

- 2018 funding round = 1st July 2018 to 30th June 2019 = FY19
- 2019 funding round = 1st July 2019 to 30th June 2020 = FY20
- 2020 funding round = 1st July 2020 to 30th June 2021 = FY21

7.2. Method for analysis

The number and value of projects awarded funding

VMCF, Endeavour, NSC, SSIF, and Catalyst—MBE funds: Data was sourced from MBE's funding administrative data (collected

through the MBE's Integrated Management System).

For each fund, unique projects and the associated amount awarded was found for each funding year. Note that the money may have been awarded in a particular year but the project itself runs over multiple years. The project is only counted in the year it was first awarded money (within the 2018-2020 scope).

SSIF and NSC funds are contracted differently to other MBE funds. Projects may run over many years, but funding is sought each year with a new project ID created. For fair comparison with other funds in scope of this analysis, a unique project count was created (using the 'original ID'), and the amount that was funded across the 2018-2020 years for each unique project was aggregated. The project and amount awarded over 2018-2020 is then only shown in the year that the project first appears.

Growth, Student, and Project Grants—Callaghan Innovation: Data was sourced direct from Callaghan Innovation, using their funding administrative data.

Grant counts are by 'Contract ID', assuming each unique contract ID corresponds to a unique grant awarded. 'Start date' was taken as the date for which the grant was awarded, and this was allocated into equivalent funding round years. To enable fair comparison with MBE funds, the 'Forecast Value' figure for the contract was taken as the amount awarded for each new grant (though in practice this might have been expensed over a number of years for the project).

Marsden—Royal Society: Figures were taken from the Royal Society New Zealand Data Report files for the report years 2019, 2020, and 2021 (which are for the 2018, 2019, 2020 funding rounds, respectively). These reports were provided by MBE and the Royal Society.

Specifically, data on the 'MR DR' sheet from the excel workbook that forms part of the report packages was used for the analysis. The number of 'new' contracts for the relevant year was taken. For consistency with other funds, the 'total contracted' figure was used to give the amount awarded for each new contract, for the funding year (even though the project or contract might run over a number of years).

Māori researchers involved in projects awarded

Overview: Ethnicity data has been sourced from MBE funding-related administrative data, where some funds seek ethnicity information from contract holders (though responses are optional).

For the purposes of this analysis, Māori researchers captures any individual who self identifies as being of Māori ethnicity, and plays a key role in the project as listed in 'role' data. Individuals may be of Māori ethnicity but not deem themselves to be a Māori researcher. Researchers who do not identify their ethnicity as Māori but are considered a Māori researcher, are not identifiable in the data.

The number of Māori researchers was found by linking people and ethnicity data with project identification data, which was linked back to funds and years. Individuals self-identify their ethnicity (selecting one or more ethnicities), or they may choose not to. By default, if one of the ethnicities selected by an individual was 'Māori' this analysis deemed them to be Māori.

Ethnicity data started being collected in 2018, and this data collection became more consistent from 2019. Depending on the fund, between 22%-33% of people listed as having a role on projects, across 2019-2020, did not have ethnicity data. Unless directly obvious, it has been assumed that the same names appearing multiple times are the same individual.

VMCF and Endeavour—the ethnicity of 'key researchers', 'key individuals', and 'science leaders': was grouped into 'non-Māori', 'Māori', and 'not stated', and linked to projects (using the original project ID). Where individuals appeared more than once, the string of data that indicates ethnicity was taken if the other data string did not. If both indicated ethnicity, the most recent identification data was used.

Catalyst—the same method was followed as above, but due to role definitions differing, 'Māori researchers' are 'Lead or co-lead', 'Collaborator' 'Other contributors', 'Technician' and 'Supporting staff'.

SSIF and NSC—the same key method and in definitions would have been applied as in the Catalyst fund. However, ethnicity data for individuals in the SSIF and NSC funds is not collected so this analysis does not present ethnicity data for these funds.

Identifying 'unique' researchers: spell cleaning was used to identify unique individuals – removing those that exist in a year, and a fund, and are on multiple projects to ensure these individuals are only reported once, as appropriate to the insights being presented.

Projects indicating relevance to Māori RSI, or an alignment with Vision Mātauranga

VMCF, Endeavour, and NSC: In these funds, applicants are asked about the project's/programme's relevance to Māori, noting the proportion (out of 100) of the project that falls into the following categories:

- research not involving and not specifically relevant to Māori
- research specifically relevant to Māori
- research involving Māori
- Māori-centred research
- kaupapa Māori research.

Sometimes there is a preceding question asked: 'Will this project make a significant difference to Māori research and innovation?' A 'yes/no' answer is available to be selected.

To find the projects indicating relevance to Māori, each of the projects that selected 'no' to

the above question were removed from the data set. Any project that noted 'yes' to the preceding question but had allocated '100%' of their project relevance into the 'research not involving and specifically relevant to Māori' category was also removed, as this selection is deemed to mean that the project is not truly relevant to Māori.

With some further analysis to identify unique projects, the remaining count gave the individual number of projects of relevance to Māori RSI. As a following step, a closer analysis was undertaken to identify projects that noted 50% or more of their project had relevance to kaupapa Māori research (as defined in MBE's funding profiling categorisation questions). Key details about the projects, such as project title, description, lead organisation, and contract value, were analysed to provide additional insights on the projects that indicated they took this approach.

No profiling categorisation data was available at the time of this analysis for VMCF projects in 2020, so the number of kaupapa Māori projects in the VMCF is likely underestimated over the 2018-2020 period.

Note: Projects were only captured in the year they were first seen in the 2018-2020 snapshot, for consistency with the rest of the analysis on project numbers.

SSIF—The SSIF asks the same profiling questions around contracts/projects making a significant difference to Māori research and innovation' as in the VMCF, Endeavour, and NSC funds. However, instead of being able to allocate a percentage effort to each category, SSIF contract holders are asked, 'Which Vision Mātauranga category [from the 5 categories] best describes the project?' They are only able to select one category. This has given the number of SSIF projects aligned with each profiling category, including kaupapa Māori research projects.

Marsden: Marsden contract holders are asked whether the research project aligns with one or more of the four themes of Vision Mātauranga. They are able to select, none or more than one. Data on each new contract and their VM alignment selections were drawn from the Royal Society New Zealand Data Report files for the report years 2019, 2020, and 2021 (which are for the 2018, 2019, 2020 funding rounds, respectively).

Unable to analyse—we weren't able to quantitatively analyse alignment for the following funds as they do not ask specific profiling questions as in the other MBE administrative funds. Open text alignment would be required to provide a picture of alignment or relevance for these funds.

Marsden contracts that are Māori-led

Marsden: Data was sourced directly from the Royal Society through data requests. The number of Māori-led projects for new contracts awarded in the 2018, 2019 and 2020 funding years was sought. This number has been calculated by the Royal Society, based on a definition of Māori-led as 'at least 20% of the key applicants (provider institutions) in the project identify as Māori.'

VMCF 2013-2020

The same method used to provide insights on the VMCF over the 2018-2020 period was simply extended to provide insights over a longer time frame, from 2013 to 2020.

Māori businesses involved in Callaghan grants awarded

Callaghan Innovation project, growth, and student grants: Data was sourced directly from Callaghan Innovation, and through their User Experience Dashboard.

Callaghan Innovation collects information on the types of businesses that apply and are awarded R&D related grants. Entities include: A Limited Partnership registered under the Limited Partnerships Act 2008, a Māori Incorporation or Trust established under Te Ture Whenua Māori Act 1993, a Trust established on behalf of Māori claimants to receive and manage assets as part of the settlement of a claim under the Treaty of Waitangi, a Māori statutory body, and a business that is controlled by one or more of the above types of Māori entities.

Callaghan provided a list of contracts and noted against each whether it was awarded to a Māori business or a non-Māori business. This figure was then counted across the funding years, and grant types. Businesses that were awarded multiple grants across the years in scope were identified, to give individual business counts.

Callaghan Innovation only recently started collecting data on Māori/non-Māori businesses through the Customer Navigation function, so some data may be underreported for the 2018-2020 period for this analysis.

Experience information was explored using Net Promoter Score information and general comments provided by Māori and non-Māori businesses through Callaghan's User Product Experience Dashboard, which notes whether a customer/client (and for the purposes of this analysis, successful grant holder), is a Māori business or not.

Note: the administrative contract data, and the experience information from the UPE dashboard were not linked or matched as datasets as part of this analysis.

HRC data—example for comparison purposes

Health Research Council grants: Data was sourced from HRC; we did not do any further analysis. The report provided an overview of the research HRC had funded in the 2020/21 financial year and the research that had relevance to Māori.

Data was drawn from figures presented in tables and summaries in the report, alongside key points on the website. Conclusions have been drawn from the data and supporting information. This analysis did not review the activities of the HRC to substantiate their performance.

