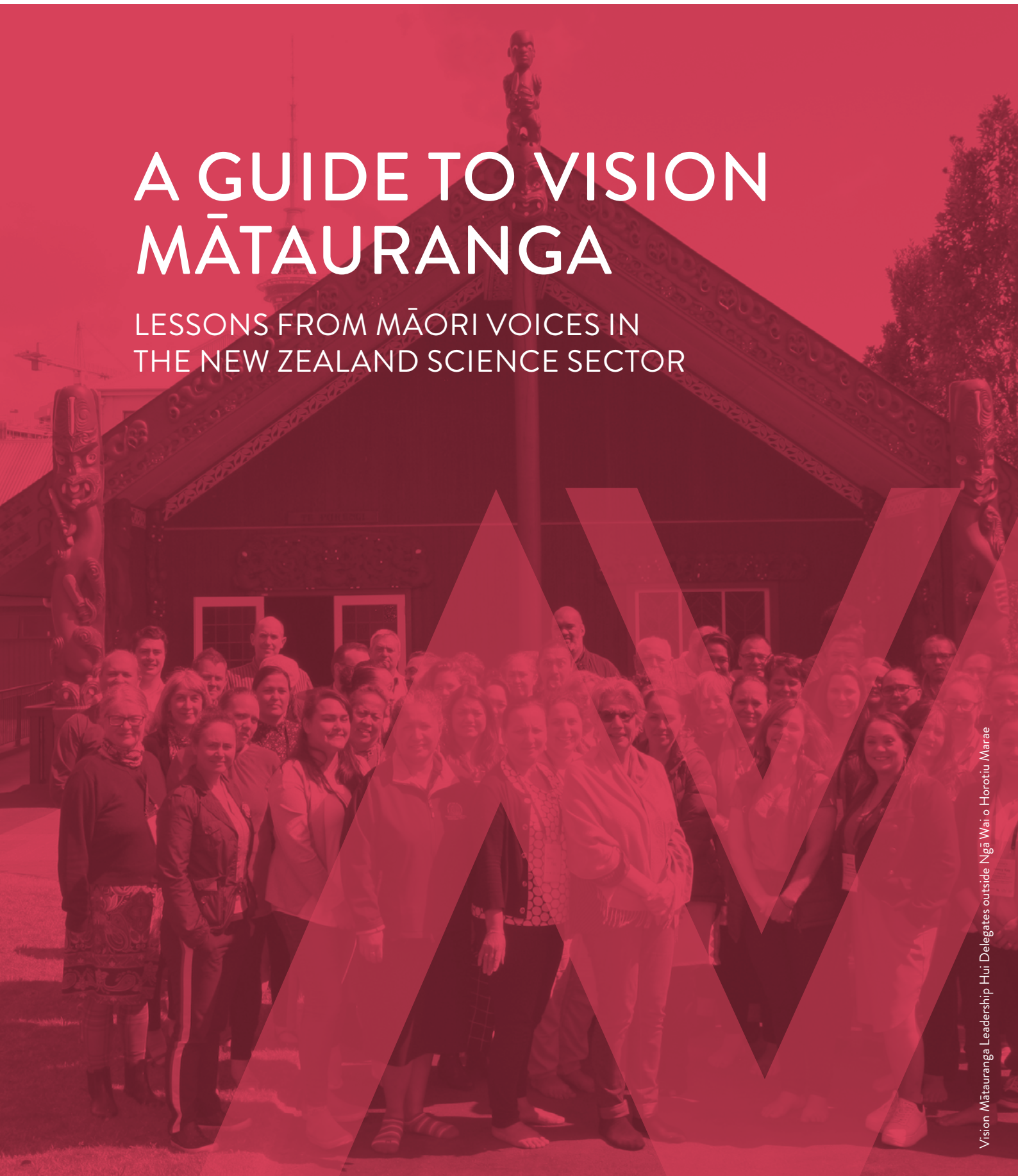
RAUIKA MĀNGAI

A GUIDE TO VISION MĀTAURANGA

LESSONS FROM MĀORI VOICES IN THE NEW ZEALAND SCIENCE SECTOR



Vision Mātauranga Leadership Hui Delegates outside Ngā Wai o Horotiu Marae

SPECIAL THANKS TO:

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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E Tipu e Rea

National Science Challenges
AGEING WELL
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Kia kotahi mai – Te Ao Pūtaiao me Te Ao Hangarau

National Science Challenges
SUSTAINABLE SEAS
Ko ngā moana whakauka

National Science Challenges
THE DEEP SOUTH
Te Kōmata o Te Tonga

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ABOUT THE RAUIKA MĀNGAI

The Rauika Māngai

Rauika Māngai is a term that means, an 'assembly of representatives'. These representatives of the 11 NSCs and Ngā Pae o te Māramatanga are Māori scientists, research leaders and programme managers at the national forefront of Vision Mātauranga implementation.

Through a collective effort across the National Science Challenges, the Rauika Māngai works for the wellbeing of whānau, hapū, iwi and diverse Māori communities in ways that uphold tikanga and wairuatanga and extends the mātauranga continuum.

Purpose of the Rauika Māngai:

- Share and extend best practice approaches to Vision Mātauranga
- Seek opportunities for alignment across NSCs
- Build collective knowledge that contributes gains and benefits to whānau, hapū, iwi, and diverse Māori communities from NSC engagement
- Provide a collective Māori voice on NSC matters

Objectives of the Rauika Māngai:

- Innovate and advance Mātauranga Māori
- Accelerate research, science and innovation for the benefit of Aotearoa New Zealand
- Influence science policy to deliver wide ranging benefits to whānau, hapū, iwi, and diverse Māori communities.

MEMBERS OF THE RAUIKA MĀNGAI

Acushla Sciascia
Resilience to Nature's Challenges | Kia manawaroa - Ngā Ākina o Te Ao Tūroa

Andrew Sporle, Matire Harwood
A Better Start | E Tipu e Rea

Andrew Sporle
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Sandy Morrison
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Our Land and Water | Toitū te Whenua, Toiora te Wai

Shaun Awatere
Ngā Pae o te Māramatanga

Willy-John Martin (Dep. Chair)
Science for Technological Innovation | Kia kotahi mai - Te Ao Pūtaiao me Te Ao Hangarau

SECRETARIAT SUPPORT

Ryan Rangiwhetū
Science for Technological Innovation | Kia kotahi mai - Te Ao Pūtaiao me Te Ao Hangarau

GLOSSARY

Aotearoa	New Zealand
Awa	River
Awhi	Embrace
Hapū	Sub-tribal group or groups
Haukāinga	Local people of the marae
Hinengaro	Mind
Hongi	To press noses in greeting
Hui	Meeting, gathering, assembly
Iwi	Tribal group or groups
Kāinga	Home
Kaitiaki	Guardian, steward, trustee, custodian
Kaitiakitanga	Guardianship, stewardship, trusteeship, custodianship
Karakia	Prayer
Kaumātua	Elder or elders, male or female
Kaupapa	Topic, matter, purpose, agenda
Kaupapa Māori	See page 46
Koha	Gift, present, offering, donation, contribution
Kōrero	Discussion, story, account, statement, talk
Korowai	Cloak
Kuia	Female elder or elders
Mahi	Work, activity
Mana	Authority, control, power, status, influence
Mana whenua	Power from the land, authority over land or territory
Manaaki	To support, take care of
Manaakitanga	Hospitality, kindness, generosity, support
Manuhiri	Guests, visitors
Marae	Traditional meeting places
Mātauranga	See page 46
Mātauranga Māori	See page 46
Maunga	Mountain
Moana	Ocean
Ngahere	Forest
Oranga	Wellbeing, health, living
Pūtahitanga	Confluence, junction, joining place, convergence
Rangatahi	Youth

GLOSSARY CONTINUED

Rangatira	Chief, leader, noble, esteemed
Rōpū	Group
Tā	Sir
Taiao	Environment, nature
Takiwā	Territory, Region
Tangata whenua	Local people, indigenous people
Taonga	Treasure, anything prized
Tapu	Sacred, set apart
Tāwhiowhio	To spin, rotate
Tawhito	Ancient
Te Ao Māori	The Māori world
Te Reo	The (Māori) language
Tikanga	Correct procedure, practice, custom
Tinana	Body
Tino rangatiratanga	Self-determination, autonomy, sovereignty
Tū	Stand
Tuakana-teina	Mentor-mentee relationships
Pākehā	New Zealander of European descent
Papatūānuku	Earth, Earth mother
Wā kāinga	True home, home base
Wāhi tapu	Sacred places
Wāhine Toa	Courageous Women
Waiata	Sing, song
Wairua	Spirit
Wairuatanga	Spirituality
Wānanga	Conference, discuss, deliberate
Whaikōrero	Oration
Whakaaro	Thought or thoughts
Whakairo	Carvings
Whakamana	Validate, empower, give prestige to
Whakapapa	Lineage, genealogy
Whakapapa Māori	Māori lineage, Māori genealogy
Whakawhanaungatanga	Building and managing relationships
Whānau	Family or families
Whanaungatanga	Relationships
Whenua	Land

ABBREVIATIONS

APEC	Asia-Pacific Economic Cooperation
FTE	Full Time Equivalent; 1 FTE = 1 Full time unit
MBIE	Ministry of Business, Innovation & Employment
MPI	Ministry for Primary Industries
NSC	National Science Challenge
IP	Intellectual Property
RMA	Resource Management Act
RS+T	Research, Science and Technology
VM	Vision Mātauranga

INTRODUCTION

Jessica Hutchings and Willy-John Martin

E kōrihi atu nei ngā reo pōwhiri ki ngā manu-kai-miro,

e pīkoko mai nā ki te kai i te mātauranga:

Timo kai mai, horomi kai mai, apo kai mai!

There is no better voice to describe how to bring the greatest success from Vision Mātauranga, than the one that has experienced it deeply, has lived and breathed it, has jumped in elbows and knees-deep, has suffered and succeeded, and has examined and reflected on it over many, many years. Here, we present a chorus of these voices, from an experienced ensemble of Māori researchers and facilitators who work at the interface between the Māori and Scientific worlds.

This Guide is a collection of their perspectives and recommendations gathered at the Vision Mātauranga Leadership Hui, 30-31 October 2019. Over 100 attended the two-day event held at Ngā Wai o Horotiu Marae, AUT. It was the first time in more than 10 years that Māori researchers, criss-crossing science disciplines, have been able to hui en masse as expert practitioners for a focussed discussion on Vision Mātauranga.

We were all welcomed with thrilling waiata and masterfully entertaining whaikōrero from the haukāinga. Old friends greeted each other with warm awhi, kihi, and hongi, while the rising generation of early researchers weaved seamlessly into the rōpū, enlivening it with new energy.

On the first day, we were treated to a stellar line up of Māori science leaders and a sprinkle of National Science Challenge directors, who informed, challenged and stimulated the hui. On the second day, the hui set about discussing the Vision Mātauranga policy, its history and relevance in the science system, and the larger issues and aspirations for Māori. Many attendees were battle worn, hurt, frustrated and exhausted. There was a sense that, for some, this was the first major forum in which their experiences could be shared and understood. This was troubling given the length of time that the Vision Mātauranga policy has been in play.

With these wounds came a wealth of experience, and attendees offered an absolute bounty. The hui was initially intended to be about Vision Mātauranga Leadership and examples of good practice in Vision Mātauranga; but the harvest of insight led us to burst those bounds to cover further dimensions and address a larger audience across the science system.

The discussions from the hui are distilled into three sections, each of which addresses a different audience.

SECTION 1: VISION MĀTAURANGA LEADERSHIP DEVELOPMENT

This section is for **Māori researchers**, currently the main catalysts for Vision Mātauranga. This section features presentations from Māori luminaries and leaders in the science sector. The presentations explore what it means to navigate the intersection between Mātauranga Māori and the science sector, and how to advance this innovative frontier as active leaders. For non-Māori, it is a tantalising peek into the Māori world of science, and the discussions that currently have prominence.

SECTION 2: BRINGING VISION MĀTAURANGA TO LIFE

This section is for **all researchers**, particularly those who are new to working with aspects of the Māori world. Fundamental concepts underpinning Vision Mātauranga are explained, enhanced by the rich contributions of attendees who described the elements that prepare Vision Mātauranga projects for success, or for failure. Among its offerings, this Guide presents new terms and tools for considering the effective power-sharing, resourcing and impact-orientation of scientific endeavours. While this seeks to be enabling, these explanations are also a beguiling effort to liberate the time of Māori researchers who frequently must forgo morsels of research time to explain these concepts to others, time and again.

SECTION 3: EMPOWERING THE FUTURE

This section is for **government agencies** and **research organisations**. Good seeds grow best in fertile ground. For science initiatives with Māori knowledge, people and resources to thrive, the power structures and organisations that host and nourish these initiatives must be arable, not horrible. Hui attendees drew on experiences spanning 40 years in the science system to outline what successful settings look like.
They described how system changes could facilitate a leap to higher levels of success, applying a vision that extended beyond the Vision Mātauranga policy.

With the help of the Rauika Māngai, we have also made an effort to explain some of the fundamentals that attendees, as aficionados, had no need to discuss but are important for setting a foundation for the newly initiated to understand the discussions that follow.

This Guide is by no means extensive on topics of Mātauranga Māori and the Māori world, but we believe that it extends and supports the current national discussion from Māori working across the National Science Challenges. We hope that this contribution can help catalyse the kinds of change we hope to see: greater success from Vision Mātauranga in the short term, and a system change in the longer term.

We extend our sincere gratitude to our hosts, AUT and Ngā Wai o Horotiu Marae for their manaaki rangatira; our outstanding speakers who enlivened our minds and spirits; Karen Clarke for her brilliance in facilitation; Ngā Pae o te Māramatanga for their enabling logistical support; our fellow members of the Rauika Māngai who designed, promoted, and facilitated the success of this hui; and to all of the hui attendees who offered their time and expertise to this valuable conversation.

E ngā manu, nō tātou te ao.

Dr Jesicca Hutchings and Dr Willy-John Martin
Chair and Deputy Chair of the Rauika Māngai

EXECUTIVE SUMMARY

This Guide describes principles of good practice for Vision Mātauranga in the National Science Challenges and across the science sector. The recommendations are proposed to help the sector to leap to the next level of science excellence, impact and success. These can be summarised as movement from poor to excellent practice, as follows.

EMPOWER MĀORI KNOWLEDGE

Only Western science legitimised	**Mātauranga Māori & Western science valued**
Mātauranga Māori merely acknowledged	**Mātauranga Māori activity resourced**
Taken from Mātauranga Māori experts	**By and with Mātauranga Māori experts**
Non-Māori as primary Vision Mātauranga experts	**Māori as primary Vision Mātauranga experts**
Cultural expertise of Māori Researchers overlooked	**Cultural expertise valued**
Scientific expertise of Māori Researchers side-lined	**Scientific expertise recognised**

EMPOWER MĀORI PEOPLE

Consulted for projects, programmes & organisations	**Māori-led and co-led projects, programmes & organisations**
Advice sought to tick the 'VM box'	**Advice sought for research value and followed**
Informed about the decisions made	**Involved as decision makers**
Projects about Māori	**Projects by and with Māori**
Māori rare in the sector	**Many Māori in the sector**
Cultural labour is unpaid or underpaid	**Additional labour is resourced**
Māori researchers responsible & isolated	**Māori researchers supported & developed**

EMPOWER MĀORI RESOURCES

Academic aspirations alone	**Māori & academic aspirations**
Academic publication the most important goal	**Publication & benefit for Māori people**
IP benefit retention by academic institutions	**IP benefit sharing or Māori ownership**
Only Western scientific measures of excellence, impact and success	**Māori worldview of excellence, impact and success is included**

EMPOWER THE FUTURE

Recommendations to government and research organisations for a thriving science system

- Employ an engaged Treaty relationship in the science sector
- Undertake a mapping of Vision Mātauranga activities and their impacts
- Establish minimum cultural competencies for researchers working with Māori
- Establish minimum standards for assessing Vision Mātauranga
- A minimum standard for Vision Mātauranga assessors to be Māori
- Embrace measures of science excellence that include Mātauranga Māori
- Mātauranga Māori should be under the authority of Māori
- Establish an expert council for a Mātauranga Māori/science sector review
- Convene an independent Mātauranga Māori commission to formulate and oversee a national Mātauranga Māori agenda
- Create dedicated Mātauranga Māori or Māori science initiatives, e.g. Mātauranga NSC or SSIF
- Pro-active Māori workforce development in the science sector

Nā te huruhuru te manu i rere ai

We acknowledge, with gratitude, the financial and logistical support from the following organisations.

NATIONAL SCIENCE CHALLENGES:

A Better Start | E Tipu e Rea

Ageing Well | Kia eke kairangi ki te taikaumātuatanga

Building Better Homes, Towns and Cities | Ko ngā wā kāinga hei whakamāhorahora

Healthier Lives | He Oranga Hauora

High-Value Nutrition | Ko Ngā Kai Whai Painga

New Zealand's Biological Heritage | Ngā Koiora Tuku Iho

Our Land and Water | Toitū te Whenua, Toiora te Wai

Resilience to Nature's Challenges | Kia manawaroa - Ngā Ākina o Te Ao Tūroa

Science for Technological Innovation | Kia kotahi mai - Te Ao Pūtaiao me Te Ao Hangarau

OTHER ORGANISATIONS:

Ministry of Business, Innovation and Employment

Ngā Pae o te Māramatanga

Te Ara Poutama and Ngā Wai o Horotiu Marae, AUT

The MacDiarmid Institute

AUTHORS:

Dr Willy-John Martin and Jo-Anne Hazel

Reviewed and edited by the Rauika Māngai

REFERENCE FOR THE VISION MĀTAURANGA POLICY

MoRST. (2007). *Vision Mātauranga: Unlocking the Innovation Potential of Māori Knowledge, Resources and People*. Wellington, NZ: MoRST.

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SECTION 1

VISION MĀTAURANGA LEADERSHIP DEVELOPMENT

HE KUPU WHAKATAKI: SETTING THE SCENE

Dr Jessica Hutchings - *Rauika Māngai, Chair - MBIE Science Board, Member - Building Better Homes, Towns and Cities, Tumu Whakarae*

Jessica Hutchings

The survival and expansion of Mātauranga Māori will be determined by our ability as Māori, whānau, hapū and iwi to contribute to its continuing development as a living, vibrant and dynamic knowledge system that shapes our lives. It is our right as Indigenous people to ensure that our living Indigenous knowledge systems survive and thrive in the throes of everyday colonisation; a right that is upheld in both the Declaration of Independence and Te Tiriti o Waitangi.

Along with the protection and expansion of Mātauranga, these rights have been advocated by Māori over the decades and have coalesced in Treaty claims such as Wai 262. These rights are frustratingly complex to enact within the machinery of government. Science strategy, policy and investments have positioned many Māori within the science system as needing to continually advocate and agitate for change across all levels and institutions of government. These existing conditions restrict the expression of tino rangatiratanga and the flourishing of Mātauranga.

This hui is a moment in time that marks the thinking and experiences of Māori within the science sector in Aotearoa New Zealand. Here, we take an important look back at the original intention of the Vision Mātauranga policy and the subsequent behaviours it has incentivised. These intentions have not always been in the best interests of Māori, Māori science or Mātauranga.

There has been an escalating call for the science system to be based on Treaty partnership in a way that places Mātauranga within Māori hands, to caretake and develop. It is not the role of the Crown to regulate and shepherd our Indigenous knowledge system through the lens of Western science strategy, policy and investments. This management needs to be led by Māori, adequately resourced, evaluated and designed appropriately.

This hui is an opportunity to take stock of our four to five decades of experience in science as Māori; to appraise the challenges; and underscore the many opportunities in front of us for favourable change. It is the first time in my three decades in science that a wānanga of this nature, with a focus on Vision Mātauranga has been convened by Māori, and for Māori.

At the heart of this kaupapa, and of the Rauika Māngai, is the wellbeing/oranga of Māori researchers and scientists. Many Māori in science only just survive in the system. They are relentlessly called upon - often on a daily basis - to perform a double duty of cultural labour within their science and research institutions. They are often isolated in these roles. Many speak of the structural barriers, forms of institutional racism, demands for unpaid cultural labour, and lack of investment mechanisms to support Māori-led science. Together, these issues perpetuate everyday forms of ongoing colonialism within the science system. A science system that aspires to seek new knowledge, innovation and transformation for society should not find it acceptable to break our people along the way.

I am emboldened with hope through this coming together to hui with those I have looked up to as leaders in science and research, and with those whom I work alongside as colleagues. I am inspired by the passion for transformation and innovation that early career Māori hold for their science work.

This hui will create clear pathways forward in science as determined rightly by Māori. The need for Treaty partnership approaches to science is at the essence of this kōrero. Māori ought to be granted their right to exercise tino rangatiratanga through the science system, to develop Māori-led research, to design a fit-for-purpose science and innovation strategy, to formulate an investment plan that is well resourced, and that makes amends for the decades of under-funding from successive governments.

These discussions are an offering from the Rauika Māngai to seek new horizons in science that offer structural change and shifts in the current and enormous imbalance of power. They will be a guide for the wider sector to assist in thinking about Vision Mātauranga.

My heartfelt thanks to the insightful Māori leaders who offer their kōrero at our hui and the hui participants who speak truth to power in the hope of a science system that allows both our Mātauranga and those Māori working inside the science system to flourish.

My final thanks to the members of the Rauika Māngai from across the 11 National Science Challenges for their commitment to collective processes for systems change, leadership and hard work in bringing this kōrero to the fore.

Ehara i te toa takitahi, engari he toa takitini.

It is not the strength of one but the strength of many.

Charles Royal

VISION MĀTAURANGA: UNLOCKING THE INNOVATION POTENTIAL OF MĀORI KNOWLEDGE, RESOURCES AND PEOPLE

Charles Royal - *Independent Researcher*

As the primary author of Vision Mātauranga, Charles described the historical settings and original intent of this policy[1]. He observed that its implementation has been problematic over the 15 years that followed, for a wide range of reasons. Yet, Vision Mātauranga remains a strong topic of interest for Māori. Some elements are still relevant, while others will require adjustment or additions to adapt to current settings.

ORIGINS

Charles accepted a job offer from the Ministry of Research, Science and Technology (MoRST) in 2003 after a productive few years with Te Wānanga-o-Raukawa. It was his first time working in government, and the learnings were huge. In particular, Charles recognised the prevailing notions of the time were steeped in a deficit view of Māori.

In the early 2000s, Māori-relevant policies within RS+T were largely either about increasing the number of Māori in training as scientists, or remedying Māori health outcome disparities. There was minimal vision around Māori opportunities or the potential for a positive future.

Charles wanted to advance a positive and aspirational kaupapa within MoRST.

"'Māori' was not regarded positively, and any Māori-specific policy, at that time, was only about addressing Māori problems. I was offended by that because I'd just come from a situation where being Māori was so positive – my uncle thought we should create a wānanga and so we did it. I wanted to change the story. I started to foster the idea of seeing Māori as a 'Net National Opportunity'."

There were immense challenges. Don Brash delivered his infamous Ōrewa speech in 2004, and while that was bad enough, the government's response was worse: initiating the State Services

[1] Charles noted that he does not represent the New Zealand Government nor speak on its behalf. This presentation comprises his own understanding and perspectives. For an official Government position, contact the Ministry of Business, Innovation & Employment.

Commission Review of Ethnically Targeted Programmes. For 18 months, a team examined all state sector funding to remove any programme targeted to any ethnicity, including Māori. This effectively ended the ability of MoRST to prioritise Māori recruitment into the sciences, to fund any research project with a Māori-relevant focus, or facilitate any Māori-specific initiatives.

Just after the Ōrewa speech, Charles gave a briefing to Pete Hodgson, then Minister of Research, Science and Technology, and received an apology for the speech. Charles' response was to say, "thank you Minister, it is appreciated, but we've got a job to do." Importantly, Minister Hodgson agreed to support Māori Research, and this provided the impetus for the Vision Mātauranga policy to be developed.

Around this time, APEC science ministers were meeting in Christchurch to discuss how to set science priorities for the region. This influenced the direction of New Zealand Research, Science and Technology (RS+T) in the years to follow, and eventually led to the creation of the Science Challenges.

Charles wrote the first version of Vision Mātauranga while flying home from that APEC meeting.

"You'll notice that the language of Vision Mātauranga does not speak to outcomes for Māori, it refers to national outcomes given the political environment, but we are really meaning positive outcomes for Māori, and this is the equivalent to a national benefit. Perhaps the current political environment would allow us to use more specific wording around Māori outcomes."

GOALS

Charles' original goals for Vision Mātauranga were:

- To create a Māori-relevant policy within RS+T that could be supported by any Government.
- To create a policy which enables a much larger vision for the Māori dimension of RS+T, greater than increasing participation and addressing needs.
- To create a policy that speaks to positive Māori development and growth, one that sees Māori as a 'net national opportunity' not a 'net national problem'.

Taking things of deep origin and of great importance to our people and introducing them to a contemporary creative process.

INTENDED BENEFITS OF VISION MĀTAURANGA

There were three areas that Vision Mātauranga was intended to enable, for the benefit of Māori and New Zealand as a whole:

1. Economic Development

Treaty settlements and the reorganisation of Māori assets were well underway at the time. New Māori organisations were being established, including wānanga, representative iwi groups and Māori health providers. In 2003, at a time when many people saw the treaty settlements as costly to the nation, the New Zealand Institute of Economic Research introduced the notion of a Māori Economy as a net national contributor rather than a net national burden. Charles sought to unlock this growing economic potential for the benefit of New Zealand.

2. Environmental Sustainability

"Iwi and hapū have extensive and lengthy relationships with the natural environment, this is what makes indigeneity. What makes tangata whenua is an intimate relationship with the natural environment, and this is the wisdom that lies at the heart of our indigeneity. Our humanity is experienced and articulated through our relationship with specific geographies, with our maunga, with our awa."

Charles wondered whether there could be some way of delving into this particular dimension of Māori knowledge and community to solve challenges of environmental sustainability facing New Zealand. This naturally flows benefits through to economic development, and health and wellbeing.

3. Health and Social Wellbeing

There was an ongoing need to address Māori health, social needs and disparities, and a desire to incorporate Mātauranga Māori views of health and wellbeing, of sickness, healing and recovery. For this to happen, it was important that Māori play a critical role in research and decision-making.

TWO PRINCIPLES

Vision Mātauranga is underpinned by two principles, with a third idea remaining in the background. These need to be well understood if we are to review the policy in such a way that it can meet contemporary Māori aspirations. Do they still resonate, and should new founding principles be added?

Principal 1: Distinctiveness

Distinctiveness became a feature of Vision Mātauranga as a direct response to the Don Brash speech and the subsequent government review. It was an alternative rationale to persuade the government to invest public monies in Māori-relevant research.

"If they weren't going to agree to make investment on the basis of increasing Māori participation in this research, what was the alternative? The alternative was getting the government to agree to invest in research that addressed issues of distinctiveness to Māori communities and of contributions that you cannot get from any other source inside New Zealand society and culture. Distinctiveness is the easiest argument that the government could run with."

Distinctiveness provided a way to garner support for research of benefit to the nation that could only be conducted through utilising the unique assets, resources, organisations, cultural knowledge and perspectives of Maori. This is what is meant by 'the innovation potential of Maori knowledge, resources and people'.

"What distinctively can Māori communities bring to these arenas that cannot be sourced from anywhere else. That's why distinctiveness rather than participation is the foundational idea of Vision Mātauranga."

Principle 2: The Interface between Western Science and Mātauranga Māori/Māori Experience and Knowledge

"The word 'mātauranga' is used in Vision Mātauranga for all kinds of knowledge that might be utilised in Vision Mātauranga and not just our traditional knowledge, what we often refer to as 'Mātauranga Māori'."

The policy is entitled Vision Mātauranga (not Vision Mātauranga Māori) and it refers to a wide variety of knowledge that is required for Vision Mātauranga research to be successful. This includes traditional knowledge as well as knowledge that Māori communities create almost daily through establishing and maintaining enterprises and organisations - such as kōhanga reo through to whare wānanga, or when advancing Treaty claims and establishing new organisations and more.

The policy also reflects the fact that research is constantly producing new knowledge, and so there has to be a descriptor and a flexible approach to this practice of knowledge creation. The term 'interface' came from Mason Durie who suggested it for describing two bodies of knowledge coming together in this way.

The hugely popular movie of the time, Whale Rider, provided an excellent base for communicating what Vision Mātauranga authors were trying to achieve. The film takes a piece of very old knowledge, which goes back to when Māori lived further abroad in Polynesia. It draws on a particularly important story to Ngāti Porou. Witi Ihimaera wrote a book for his daughters about a young heroine based on the Whale Rider story, and then, in collaboration with Niki Caro, produced the movie.

"This was analogous to what Vision Mātauranga was trying to achieve: taking things of deep origin and of great importance to our people and introducing them into a contemporary creative process, and collaborating with people who are helpful in this process to produce something of value that we could be proud of as a result. It's a way of envisioning what we are trying to achieve with Vision Mātauranga going forward."

The implied principle of Māori Involvement in Research

It was never envisaged that Vision Mātauranga would capture and support all the many kinds of Māori relevant research that could be conducted within research, science and technology. This is why Vision Mātauranga can be frustrating for research initiatives that are not particularly distinctive but nonetheless have Māori involvement.

Nevertheless, high Māori involvement in research that is relevant to Māori is advocated for via the policy because it is not possible to unlock the Māori dimension unless Māori people are participating. Hence, high Māori involvement is implied in Vision Mātauranga on the basis that the outcomes sought from the policy could not be achieved without Māori involvement and leadership.

Over the past 15 years we have seen Māori leadership for Vision Mātauranga projects and some stronger relationships with communities as participants rather than just subjects. This has created empowerment for Māori communities to determine what research priorities ought to be, what research questions ought to be proposed, and how research should be carried out.

"I think RS+T should be investing in increasing numbers of Māori involved in research, but this wasn't acceptable to the government at that time. We have a different government now, and if there is a favourable political mood to add in the participation principle, then I suggest we ought to have that alongside distinctiveness."

THE CHALLENGE OF IMPLEMENTATION

Vision Mātauranga has been implemented in a very patchy way across the science sector since 2005. There have been some interesting projects under Vision Mātauranga, but also much frustration that the policy has made less impact within RS+T than intended.

"It has not had the amount of activity, inspiration or spirit I initially envisaged."

One of the key reasons for the slow progress is the weakness of the incentives. Typically, there are two types of incentive: punitive – change instigated through punishment of poor behaviour within the science system; or reward - through investment, in supporting good actors in Vision Mātauranga. Unfortunately, Vision Mātauranga has had neither option supporting it.

Charles hopes that the government, together with the whole RS+T sector, revisits the Vision Mātauranga policy, makes any changes necessary, and then gives it stronger incentives to ensure genuine and fruitful implementation over the coming years.

QUANTIFYING MĀORI PARTICIPATION IN THE NEW ZEALAND SCIENCE SYSTEM

Gary Evans - *MBIE Chief Science Advisor*

Reviewing policies and their impact is vital for improving systems. Existing frameworks within New Zealand's science system are not working well in terms of Māori participation. Quantifying the status quo is a useful step towards developing a pathway forward.

THE STATUS QUO

The research tells us that when it comes to education, more Māori than ever are studying at the tertiary level. Currently, Māori constitute 11% of all Bachelor-level students. Even with this promising growth, Māori remain under-represented, and even this group is not progressing from higher research degrees into senior research roles. Just 5% of researchers working in universities and CRIs are Māori, and an important contributor here is that only 7% of PhD graduates are Māori.

Further, Māori academics are more likely to be employed within their institution's Māori faculty rather than in their subject area of expertise. As a result, they cannot progress as far in their career, for example, into Head of Department roles. Research also shows that Māori may experience academia as a hostile environment, with significant reports of implicit and unconscious bias, harassment, and institutional racism. Important enablers of career progression include mentorships based on tuakana-teina relationships, reciprocity, and working with Māori staff.

Importantly, Māori often report their motivations for doctoral-level study are centred on effecting transformational outcomes for Māori, rather than progressing their own academic career.

Other structural barriers can be observed in terms of funding for Māori-related research, which exacerbates the lack of equity. Research and development funding in this country has long relied on competitive funding rounds. More recently, the National Science Challenges have had the freedom to experiment with more creative approaches. This is a positive move which is expected to drive transformative science and potentially address existing inequities.
We have the opportunity to learn from these experiments and adopt new practices within the general funding system.

By 2038 Māori will make up 20% of the total New Zealand population compared with 16% in 2013, while the share of 'European or Other' will decrease to 66%, compared with 75% in 2013.

"Diversity is the future of research. The demographics are changing and as our population changes, the participation by different ethnic groups in the science system has to grow."

WHY EQUITY IN THE SCIENCE SYSTEM IS IMPORTANT

From MBIE's point of view, there are a number of reasons why we should care about improving diversity within the science system:

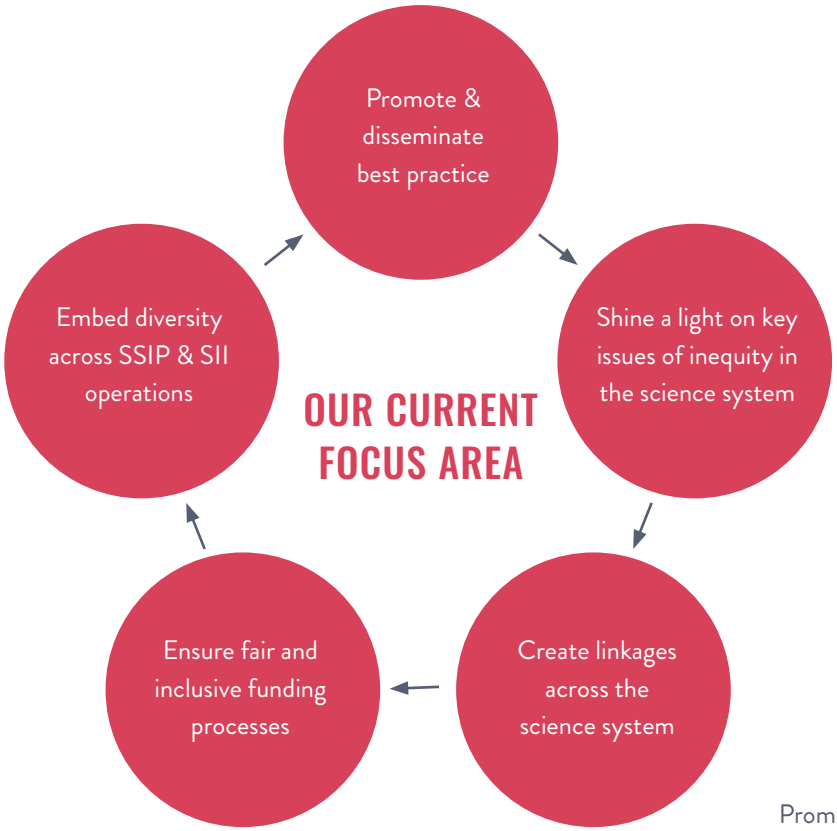
1. Benefits to society will result from a diverse stable of researchers who create new knowledge that has relevance to all New Zealanders. Further, work by Māori and Pasifika researchers increases community engagement with research, science and innovation, leading to more positive outcomes for those communities and for all of Aotearoa New Zealand.
2. It makes good economic sense to include Māori, Pasifika and women; excluding these groups costs

our economy billions of dollars. Transforming the status quo could put $2.6 billion per year into Māori households, and move Māori from predominantly low-skilled sectors into high-skilled jobs.

3. It drives excellence. The argument about diversity diluting excellence does not hold up, and in fact, diversity adds value in multiple ways, including challenging biases and adding new perspectives and knowledge into the research mix.
4. Te Tiriti o Waitangi is about partnership – we are in this together, so we need to collaborate. Ensuring equity and diversity in the science system is one way of doing this.

WHAT ARE WE CURRENTLY DOING TO INCREASE THE DIVERSITY IN NEW ZEALAND SCIENCE?

The MBIE is focusing on a number of areas in a bid to achieve greater equity for Māori in the science system. Researchers are having their experiences within the system recorded to help quantify the status quo. Additionally, $6 million is being invested in equity, diversity and inclusion initiatives. Minister Megan Woods is committed to making positive change in this space, and is sponsoring development of a Research, Science and Innovation (RSI) Strategy for New Zealand that has the potential to transform Māori participation in the RSI system.



Promoting Diversity, MBIE.

TE PŪTAHITANGA; RESEARCHING AT THE INTERFACE

Sir Mason Durie

"We've heard a lot already today about increasing the number of scientists who are Māori … the other question is 'do we have Māori who are scientists?' You might want to ponder that possibility for a while. Between the two of them there's an interface, and where are you in the spectrum? The point is: you are both. The difficulty is, when do you employ each? When is it better to look for a Mātauranga Māori approach? And when do you look for a science approach, remembering that you are somewhere at the interface and you've got to juggle both because you can't really integrate them."

Tā Mason spoke to the delegation about working at the interface between Mātauranga Māori on the one hand, and science in its broader sense on the other. He signalled the importance of this 'interface' for audience members, "A number of you work right in the middle. There are lots of problems, but lots of opportunities as well."

It was acknowledged that there is a body of work already undertaken by pioneering Māori researchers of the 20th century:

- **Sir Apirana Ngata** wrote Ngā Mōteatea (1929), which explored the importance of retaining language and custom.
- **Te Rangi Hīroa (Sir Peter Buck)**, in 1938, explored cultural foundations and indigenous connections between New Zealand and the Pacific Islands.
- **Dr Martin Theodore Te Punga**, in the following decade, advanced knowledge about dating geological change.
- **Dr Maharaia Winiata** wrote The Changing Role of the Leader in Māori Society (1954), which investigated a changing indigenous society.
- **Sir Hugh Kawharu**, four decades ago, documented the significance of land for Māori, exploring laws that contradict indigenous custom.
- **Professor Eru Pomare** published a series of papers on Māori standards of health during the 1980s, which drew attention to the disparities in the health outcomes of Māori compared with non-Māori.
- **Dr Erihapeti Murchie**, in the first large scale example of Kaupapa Māori research, carried out a major health research program addressing contemporary indigenous lives, publishing Rapuora: Health and Māori Women in 1984.

Tā Mason Durie

"A number of you work right in the middle. There are lots of problems, but lots of opportunities as well."

Tā Mason noted that all of this past research has provided important lessons for today's Māori researchers:

"None of us is starting from scratch, there is a huge number of researchers that have gone before us. We live in the traditions that they have started for us."

Sir Mason shared a story with delegates about a series of clinical interactions between a young house surgeon and the koro of a 14-year old patient suffering from behavioural changes, headaches, visual hallucinations, seizures, and neck stiffness. While a diagnosis of viral encephalitis was made, discussions with the grandfather revealed a number of factors from the girl's home environment that were important, both for understanding the causes of her malaise and for bringing her back to good health. The doctor learned important lessons about health, and the insufficiency of a purely Western approach:

1. Mental and physical health cannot be separated from one another
2. The environment is a determinant of well being
3. Whānau is important for health and intergenerational transfers
4. Spirituality is part of the journey to wellness
5. Different bodies of knowledge are important

"Koro was looking outwards, he had a centrifugal way of looking. He understood what was going on with his granddaughter, not by what was inside her, but what the environment was that led to her sickness. The house surgeon was looking inwards, looking for the virus."

The two different bodies of knowledge referred to - Mātauranga Māori and Western science - have distinctive characteristics. For example, where Mātauranga Māori is holistic and highlights similarities, Western science is analytical and focuses on difference. Both have their own integrity, but they have very different ways of looking at the world.

MĀTAURANGA MĀORI	SCIENCE
Holistic	Analytical
Accepted truths	Skeptical
Based on environmental encounters	Measurement & replication
Centrifugal thinking	**Centripetal thinking**
Highlights similarities	Highlights differences
Practitioners older	Practitioners younger
Time enhances knowledge	Time ages science
Steadily evolving	Knowledge constantly changing

Contrasting attributes of Mātauranga Māori and Western science, Mason Durie.

There are two important principles of Mātauranga Māori:
Whanaungatanga refers to interdependency between people and our environments, and can be seen for example through knowing people by the links that go beyond them as individuals, and this same idea extends into the natural world.

"While each species is unique, there is nonetheless a relationship between all species within the natural world. They are linked by time, inter-dependency and common needs."

Tāwhiowhio relates to how we learn from looking outside of and beyond ourselves. For example, *"people know you through your people and your mountain; what is behind you and what you've come from is the most important."* This is very different to the centripetal approach of searching for meaning by analysing the parts that make up the whole, upon which Western science is founded.

"Meaning comes from an outward (centrifugal) flow of energy; life is best understood by the relationships that exist beyond people and their environments."

When we look to the future, we might envisage a new era of Māori progression. Tā Mason suggested the construction of *"models of development where economic, social, cultural and environmental priorities can be identified and integrated into a holistic framework which accords with iwi and Māori aspirations, contemporary realities, the national good, and global trends."*

This future would be founded on Māori leadership holding decision-making ability, where Mātauranga Māori is a key contributor and community aspirations are prioritised. Ultimately, linked programs and policies would lead to best outcomes for Māori (to live as Māori) and for Aotearoa.

In order to achieve this more positive future for Māori, a number of distinct challenges must be addressed, these relate to: sufficient Resources (including financial and human); Realignment of focus (taking a 'future' rather than 'grievance' orientation, with a basis in both iwi priorities and whānau aspirations); and strengthening Relationships (within Te Ao Māori, and with government and private sectors, among others).

Sir Mason proposed a new Māori Science Research Agenda:

- **Research that is relevant to Māori.** Research should address Māori priorities, and support Māori aspirations rather than focusing on what is important to researchers. Both English and Te Reo should be used, and a range of factors such as the past, present and future, and sustainability should be integrated into projects.
- **Research that is delivered by Māori.** Building Māori capacity to undertake research will be needed, including bringing more students into tertiary study. Further, it is important to ensure Māori scientists have the opportunity to help shape science policy.
- **Research that is linked to Māori leadership.** Leaders can be found in universities across disciplines, and within Māori communities. Relationships and active collaborations between and amongst these environments will be highly beneficial.

"We're talking about two different bodies of knowledge. Each has their own integrity … Don't mess them up, but use them to work together."

- **Research that is informed by the two worldviews.** Mātauranga Māori and Western science are both important, and researchers who have knowledge of both, who are aware of other cultures, who understand the relevance of Mātauranga Māori and who know when to use it (and not), will contribute to best science outcomes.
- **Research that is holistic and comprehensive.** Movement away from silos will be critical, while greater collaboration between disciplines should be enabled, leading to multiple knowledge pathways.

"You can't understand science through the tools of Mātauranga Māori, and you can't understand Mātauranga Māori through the tools of science. They're different bodies of knowledge, and if you try to see one through the eyes of the other, you mess it up. They might be aiming at the same thing, but going there in different directions."

Tā Mason raised the potential for establishing a Māori Science Research Institute (MSRI), possibly within Nga Pae o te Māramatanga. Such an institute might foster a consistent approach to conducting research that is informed by Mātauranga Māori as well as Western science and other disciplines. There is a role for an organisation that provides better access to research capacity for iwi and Māori communities, allowing the investigation of relevant complex problems. This is an idea that warrants further exploration.

Ultimately, benefits will result from Māori scientists working at the interface between Western science and Mātauranga Māori. How might this work in practice?

- Looking inwards and looking outwards
- Measuring differences and measuring similarities
- Evidence derived from replicable findings and evidence derived from lived experience
- The language of science and the language of Te Ao Māori
- Analysis and synthesis
- Economic impacts and cultural implications
- Approved methodologies (science) and customary protocols (Mātauranga Māori)
- Scientific understandings and understandings through Mātauranga Māori

GROWING AS MĀORI LEADERS IN SCIENCE

Willy-John Martin – *Manager Vision Mātauranga and Capacity Development, Science for Technological Innovation - Deputy Chair, Rauika Māngai*

Willy-John shared a personal experience of leadership as Māori in the science world and the challenges that this can present. He also provided some advice for researchers seeking to maximise positive impacts while staying safe and avoiding burnout.

There are a number of ways to think about leadership. One way to be a leader is to be the first, and this applies to many of those who attended the hui. Being the first Māori researcher in a particular subject area, or being the first scientist in the family are both examples of this kind of leadership.

"When you are first in an area, you often don't have a person to guide you, especially in the area of science. People can tell you how to do science, but they can't tell you how to be Māori in science."

Another way to be a leader is to have people follow you; this is the most powerful and sometimes the most difficult. Māori researchers often have the experience of trying to explain to others how to work with Māori and Māori communities. Additionally, there is often a push to explain to whānau, iwi and hapū what the science sector is trying to achieve.

Given the leadership dimensions that Māori researchers often encounter and assume by default, Willy-John advocates for taking a purposeful approach to deciding how to spend one's limited time, energy, and effort.

"It's important for us to have the leadership discussion because the sooner we can understand how we are leaders in the science space, the sooner we can set into those spaces with deliberation and with power."

Willy-John recounted his own experience of the stress inherent in being a new leader in unfamiliar territory. Between 2011 and 2016, he was based in Melbourne at the Walter and Eliza Hall Institute of Medical Research (WEHI). Despite the institute's 100-year history Willy-John was recruited to establish the very first work for Aboriginal and Torres Strait Island people at the institute that had a staff of 1000.

Willy-John Martin

"If you are clear on your priorities, you can say 'yes' to more powerful things."

"I was having to get people to listen to why we needed to speak with Aboriginal and Torres Strait Island people, why we needed to engage, why cultural capacity was important at the institute, as well as carry out the science."

Attempting to make change in a large organisation was a significant and compelling challenge. There were several successes achieved. But in navigating both the cultural and scientific leadership roles, the personal cost was high.

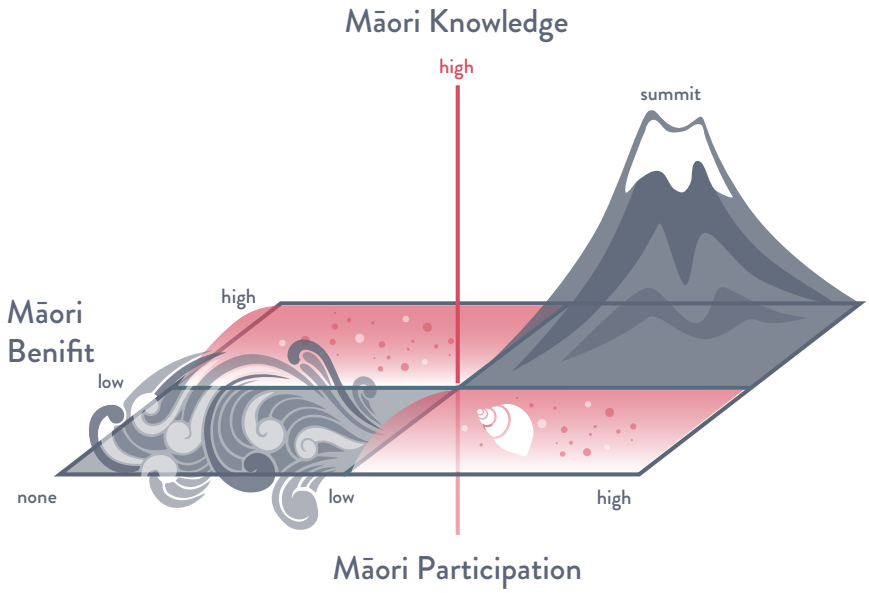
"I got burnt out, juggling all of these challenges and responsibilities. I made it up as I went along like many of us do when we are the first person we know to encounter a particular challenge."

Using that experience as a learning opportunity, Willy-John has since asked himself how he could have approached the situation differently. The Success Matrix offers a useful framework for looking at the relationship between effort and progress.

Assessing and then prioritising opportunities is an important skill that can help Māori researchers to achieve and progress while still allowing self-care. When people try to chase too many different goals, they can be working very hard but not making progress. Other people work hard and do make progress; and we think of them as deserving, dedicated and successful. But as Willy-John pointed out, the ideal space to occupy would be to choose activities that require a lower effort but achieve powerful outcomes. Decisively choosing those kinds of activities and setting strategic priorities lower our energy costs to more manageable levels and raise the potency of our leadership.

Given how many requests Māori researchers have on their time, how can we decide when to say 'yes', and when to say 'no'? Willy-John offered a list of questions to help researchers identify high priority opportunities:

- Is this kaupapa something I enjoy and believe in
- Is this working both to my strengths and my interests
- Are there people in the team who are great to work with
- Does it have adequate or ample funding attached
- Is there a champion of the work at the senior level of the organisation
- Is it clear what the success of the work should look like
- Can great success be achieved with as little effort as possible (i.e. high returns)



Te Tihi o te Maunga model of Vision Mātauranga, Science for Technological Innovation.

- Do I have the required skills to accomplish the task or can I access others who do
- Am I networked with others who can act as mentors.

Given the diverse kinds of projects that are possible, how can we tell how well a project is aligned to Māori interests? Science for Technological Innovation has created a model that illustrates a way of thinking about wider Māori priorities in the science system (above). We arrive at the new whenua (Māori Science), where many projects may start to incorporate Māori people, and benefit to Māori. That is a good start, but at this stage, they are still on the shore. The aim is to increase these aspects, and fold in Māori knowledge as well, wherein they begin to scale greater heights of excellence. The summit (top right) is where Māori knowledge, participation and benefit are at their greatest expression.

Again, there are several elements to consider in making this journey that can help Māori researchers decide how to prioritise their involvement in research projects. First, what kind of participation do Māori have in the project? A key indicator might be whether Māori are represented within the leadership. Second, how is the initiative benefitting Māori?

Priority projects are those that speak to an area of high interest, high need and high benefit to Māori. Third, how well is Mātauranga Māori incorporated into the work? Unless Māori are involved and unless Māori will benefit, Mātauranga Māori is not being well incorporated. Answering these questions can provide something of a compass.

Willy-John invited the audience to explore several of the hui themes, especially during the following day when they would spend time together in small discussion groups. These themes include:

- Priorities: Choosing powerful priorities will lead to powerful impacts. Make sure each of us is thinking about and highlighting powerful priorities.
- Leadership: Skilled decision-making in leadership is skilled leadership
- Rangatahi: Learning earlier is better – how can we empower Rangatahi to be science leaders earlier, especially when the work environments they are moving into may not be supportive?
- Connections: We are stronger together – collectively we can find solutions.

Melanie Mark-Shadbolt

GROWING MĀORI POTENTIAL THROUGH LEADERSHIP

Melanie Mark-Shadbolt - *Co-Director/Director Māori, Biological Heritage National Science Challenge*

Melanie's career history to date has highlighted the differences between working in a Kaupapa Māori organisation as opposed to a mainstream workplace. Moving from a Ngāi Tahu subsidiary tasked with designing research and education programmes to raise aspirations and post-settlement achievements, Melanie took on a new, environment-focused role with Lincoln University:

"Nature in all her beauty gives us everything we need, but I was very aware that the human impact on the world was irreversibly impacting the environment and I wanted to be part of the change. So, I moved over to Lincoln. It was a huge shock to me. I was part of the bioprotection centre in the leadership team where I was the only female, the only Māori, and the only social scientist."

The lack of diversity itself was a problem, but there were other systemic issues at play. Melanie's time was very fragmented due to working across multiple organisations in her Vision Mātauranga leadership capacity; a competitive rather than collaborative culture was encouraged; and institutional racism was obvious. Similar experiences are shared by many Māori scientists. Melanie felt that as a colonised institution, Lincoln put money before the environment and before people, and even the way science excellence was defined was problematic.

"I was in a system that I'm feeling frustrated with, feeling isolated, I haven't saved anything, and I'm really angry about it."

It was around this time that the National Science Challenges were being developed. There was initially no Māori inclusion in the initiative, but Ngā Pae o te Māramatanga organised a hui and subsequently sent a petition to the government demanding the situation be rectified or court action would be taken. Despite the less than ideal start, Melanie decided to give this new initiative the benefit of the doubt, and eventually came into the Biological Heritage Challenge.

Melanie continues to be frustrated about the fragmentation inherent in New Zealand's science system; this also relates to her own Challenge.

"Looking at the investment in Biological Heritage, we have multiple research projects happening in multiple areas, but we have no idea how they're connected, whether they're overlapping, whether we're duplicating.

[2]Hosted by Massey University, the MANU AO Academy operated from 2008 to 2011 with three main objectives: Accelerating Māori leadership; Strengthening the links between Māori Academics and Māori Professionals and Advancing Māori scholarship.

And when we ask MBIE or other organisations what's happening in our space, we can't get a clear picture."

Within this context, Melanie decided to change the way she works as an attempt to effect change around her. She shared three specific strategies she has employed:

1. Starting a programme to support networking
2. Working alongside organisations with aligned values
3. Working with people she likes.

Starting a programme to support networking, looking for solutions and ways to change, and bringing in allies

Leadership can be well supported by good advice, a good cohort of friends, and surrounding yourself with great people. Melanie acknowledged the MANU AO programme[2], which was an effective resource for enabling networks and supporting Māori leadership.

"It has been really important for myself and others to start conversations about how we as leaders support each other. It's important to have colleagues we can vent with, but also those who can help us look for solutions and ways to change. Allies are vital."

Working with organisations that share my values

The Biological Heritage Challenge has a set of values that are purposefully not translated into English. One reason is that there is effort involved for people to try to understand them, and there are also different meanings in terms of how the Challenge interprets them.

Working in projects and with people I like, and on things I want to do

"For me that's about being Kaupapa Māori-driven and working with organisations, people and environment."

Melanie expressed her gratitude for having been adopted by kaumatua who support her research endeavours, and for having the chance to carry out work in the ngahere with people such as Hemi Waiwai. This has resulted in two-way knowledge sharing. These types of projects have also allowed the sharing of resources and decision-making opportunities. For Melanie, resources and decision-making should be extremely important considerations for scientists.

Equally important is how success is measured, particularly because this determines perceived outcomes for Māori. While the science system can continue to use standard metrics, such as 'how many Māori are participating in projects', 'financial resources spent', or 'levels of satisfaction', a better approach would be to use Māori aspirational goals as a reference point, enabling more inspirational stories to be told.

Promoting co-publication with Māori is also impactful, and this is an expectation within the Biological Heritage Challenge:

"We recognise that because our time is fragmented, our CVs are fragmented and don't stack up comparatively to non-Māori, it's much harder for us to secure research bids, to get promotion and to get those leadership positions. So, ensuring that our knowledge and contributions are recognised by those publications is one way of starting to change that system."

Melanie's final point related to system change and system leadership. Current Māori leaders must create spaces for the next generation of new leaders to succeed. To do this, greater care around language is needed, and doors must be actively held open. It is all too easy to be influenced by negative stereotypes about Māori communities not understanding science, but these are beliefs stemming from colonisation which need to be rejected and dismantled. Terms such as 'diversity' and 'inclusion' should not be allowed to be substituted for 'Treaty Obligations'.

"It's really important that when we think about system change and system leadership, that we are dismantling those stereotypes so that we can dismantle the colonised system, and we're changing the language the system is using."

"Māori are the only ones who should be controlling all aspects of its retention, its transmission, its protection. But to what extent do we actually control it?"

CONTROL AND OWNERSHIP OF MĀTAURANGA MĀORI

Aroha Te Pareake Mead - *Research Director*

"Everything we need to navigate is in nature, the question is, can you see it?" Nainoa Thompson, *Pacific Navigator and Voyager*

This quote from Nainoa is often cited. His question relates to those times when voyagers are at sea and the clouds have covered the skies, hiding the light from the moon and the stars. Can they still see? Are they still heading in the right direction; are they able to use all their other senses to keep on the right path? When the seas are very rough, sometimes the crew have to lash themselves to the mast until they get to the other side of the storm where the sea is calm, and they can readjust. In those times, can they still see the horizon? Can all their senses still guide them in the right direction?

"The point I'm making here is that Navigators never go out on a waka without confidence that they have the skills to get themselves and their crew to where they want to go. If we think of Mātauranga as a waka and we are part of the crew, can we see where we are going? Are all our senses tuned into steering our Mātauranga waka in the right direction? Or are we just out there on the sea enjoying the ride? Others have created a pathway for us, and we are in calm seas now, not having to weather the storm. I would suggest that as advocates of Mātauranga perhaps we have lost sense of the direction we should be heading towards. What are the goals of this generation for Mātauranga? For integration? For trying to prove Mātauranga is a science? Should every New Zealander understand Mātauranga or just Māori?"

Aroha has worked for the Crown, as well as in academia. At the international level she was on the Governing Council of IUCN (the International Union for Conservation of Nature) for 16 years. At the national level she had the privilege of being an office holder in the National Māori Congress (Co-Convenor, Foreign Policy Committee). From such diverse spheres, Aroha described being strongly and positively influenced by many of the leaders of the National Maori Congress. Her wide-ranging career allowed her to comment on the development of Vision Mātauranga, and she also offered some advice on navigating a positive way forward.

"The National Māori Congress was a visionary organisation. In the 1990s Congress was advancing plans for a Māori Bank; a Māori Qualifications Authority; an international personality for Aotearoa New Zealand that informed a range of Foreign Policies; and throughout these discussions we talked a lot about Mātauranga, the essence of our unique identity as Māori."

When Vision Mātauranga was being formalised by the Crown, the Māori Congress was highly critical and sceptical. Congress was concerned that something as all-encompassing as Mātauranga would be captured by one sector. Mason Durie produced a paper for the Congress in 1996 in which he wrote:

"Mātauranga Māori should be under Māori control. At present, and for reasons which may appear to have a degree of plausibility, Mātauranga Māori is being increasingly incorporated into Crown protocols and policies. Education curricular, science and research goals, and environmental education make liberal use of Mātauranga and do so in a manner which runs the risk of distorting both content and context."

Tā Mason made the point that Mātauranga is the essence of who we are, and that this is what makes us unique in the world. It is a living knowledge system; it is not a subject; it is a system. With this in mind, Aroha made the assertion that:

"Māori are the only ones who should be controlling all aspects of its retention, its transmission, its protection. But to what extent do we actually control it?"

Regarding the Wai 262 claim, the Tribunal has made specific comments that are relevant to the focus of this hui. In particular they noted that without access to the environment and species that shaped Māori language, and cultural values and practices, our values and traditions will be lost. When those are lost, we ourselves will be lost.

Aroha Te Pareake Mead

"Without Mātauranga, we are not Māori, it's as simple as that. So, we have to be on that waka steering it in the right direction."

The Tribunal also made the point that at times the Crown has been hostile towards Māori. For the Tribunal to use the term 'hostile' is a very strong statement to make, but they make it unequivocally. Pointedly, the chapter in their report which relates to Mātauranga Māori is entitled 'When the Crown controls Mātauranga Māori'.

A key issue with Vision Mātauranga and the Crown's approach to Mātauranga is that there is no overarching policy or set of objectives, and as a result, the government's role in supporting Mātauranga Māori has never been discussed or negotiated with Māori. Without an agreed foundation, even with a Vision Mātauranga Fund and a lot of attached activity, it is not possible to accurately assess the extent to which all that activity has actually strengthened Mātauranga. Yet the Crown reports to international conventions that Vision Mātauranga has been positively impactful on Mātauranga.

By comparison, the Crown has a policy on the repatriation of Māori ancestral remains with the clearly articulated objective of returning remains from overseas collections to New Zealand. This provides a message to museums all around the world that New Zealand wants them back. The policy also sets out a series of priorities such as which collections are important, and that no money is to be transferred.

"You can see why the Crown is involved – the Crown funds this space, it's a helpful space, and this work continues to this day. But in the Mātauranga Māori space there isn't that overarching objective, and this is a huge problem moving forward."

In a similar vein to establishing Te Taura Whiri i te Reo Māori to support Māori language, Aroha advocates for an independent, high level Mātauranga Māori Commission to sit across all government sectors, of which science is but one. The Commission's purpose would be to make high level decisions about strategies and the way forward. Once this Commission is operating, a parallel piece of work would be for the Crown to develop a Mātauranga Māori policy statement in consultation with Māori. The main role for the Crown may well be in providing protection through new laws and regulations, but also to have a systematic review that could unlock policies, practices and legislation that are currently inhibiting the transmission and use of Māori knowledge.

FOUR DECADES IN SCIENCE; GROWING MĀORI AND SCIENCE POTENTIAL

Garth Harmsworth - *Senior Scientist, Environmental Planning, GIS Applications, Māori Research and Issues, Landcare Research*

"My kōrero today is about embracing all that we know inside and outside of this marae and extrapolating it to everything nationally and globally: because that's where we are now. It's not just local and national issues, it's global issues. Māori-led research has a huge amount to contribute."

As a child, Garth had books about science next to one side of his bed, e.g., astronomy, geology, biology, and chemistry, and about Te Ao Māori on the other e.g., Te Rangi Hīroa's books. It is no surprise that, throughout his career, he has developed strengths from both the Te Ao Māori and Te Ao Pākehā sides.

Despite his ability to draw from two worlds, navigating the New Zealand science system has been very difficult.

"I've survived through tenacity and adaptation through the whole system."

Garth observed while studying at university in the early 1980s that there was no indigenous research base to work within, so he focused on science and excelled in it. The same gap was evident when he started a career commencing with the Ministry of Works at a Science Centre, then DSIR, and now Manaaki Whenua – Landcare Research.

"There was no policy framework around us to support Māori research. We had to keep justifying why we were even going out working with iwi, hapū or anyone else."

It was not until he took on a role as a scientist within a Crown Research Institute (CRI), that interventions like the Vision Mātauranga policy emerged in New Zealand's contestable science funding system to enable some changes to be made within institutions. Garth has always seen Vision Mātauranga as a policy that attempted to fix the problem of very low numbers of Māori entering and participating in the New Zealand science system at all levels from students, researchers, to scientists.

While Garth's career has not followed a smooth trajectory, he has taken a thoughtful approach to leadership. Building networks has been important for providing support along the way. He has gone beyond building capacity just within the artificial borders of his workplaces by

"I've survived through tenacity and adaptation through the whole system."

Garth Harmsworth

purposefully partnering with iwi, hapū and whānau, various communities, and with researchers across organisations.

"My leadership has been about trying to set examples for other people through my projects."

Mātauranga Māori in the Science System

Mātauranga Māori has many definitions, but in essence, it is a progression from the ancient times (e.g., tawhito), to the traditional (e.g., taonga tuku iho i ngā mātua tūpuna - knowledge successively handed down from ancestors), to the contemporary, including knowledge that describes aspirations for the future.

"Recent definitions highlight that Mātauranga Māori is dynamic and evolving, it's complex, and didn't stop in 1840. We draw on it, and its values, along with modern aspirations. We use it to comprehend and make sense of our environment (taiao) that we work and live in. It describes frameworks, principles, and concepts we use to make sense of everything in our world."

Much work has been carried out to bridge the space between Mātauranga Māori and Western science while attempting to maintain the integrity of those two knowledge systems over time. This interface - the meeting of (w)holism and reductionism as Mason Durie describes it - has been an important place for Garth as he built integrated projects based on collaboration, co-design, and co-development.

In terms of (w)holism, Garth has positioned much of his environmental work over the years within Māori models of health, which include broader models and frameworks such as Te Whare Tapa Whā, describing the four dimensions of wellbeing: hinengaro (mental), tinana (physical), wairua (spiritual) and whanaungatanga (relational) wellness. This has been a logical approach given that these models express how Māori view the relationship between the environment and human health and wellbeing.

This (w)holistic view of the world, of course, has long been at odds with how mainstream organisations view science, which is more compartmentalised and reductionist; and this tension has required some creativity to overcome constraints and gain funding. Garth recounted an early research funding application for a project focused on Māori Values for Land Use Planning. It was 1993, and at the time, the Foundation for Research, Science and Technology (FRST) did not know how to classify and assess this kind of Te Ao Māori work, including where it could be funded from. It was eventually funded under social science. This, says Garth, is an example of how he has battled the system for so many years.

Vision Mātauranga	Definition
(1) Research with no specific Māori component	• Science led project not involving or specific to Māori but could be of interest to Māori.
(2) Research relevant to Māori	• Science project regarded as relevant to Māori along with other end users, Māori not generally involved in the design/development of project or methods, outputs/outcomes can be designed for a broad range of end-users, stakeholders, Māori.
(3) Research involving Māori	• Dominantly science-based project but could involve Māori as minor players, Māori could be involved in the work as participants or users, research is often relevant to Māori and could contribute to Māori aspirations/outcomes or address critical issues.
(4) Māori-centred research	• Generally addressing Māori issues, Māori are key players, uses collaborative Māori co-design, co-development, methods, frameworks, can be Māori led, and builds Māori capacity and capability next to science; • Uses mātauranga Māori next to science; • Māori are often key end-users of the research, focussed on a Māori problem or issue; • Delivers to Māori aspirations, outcomes.
(5) Kaupapa Māori research	• Māori led, research for Māori by Māori guided by Māori values/principles, Māori design, Māori methods, uses central mātauranga Māori throughout, focussed at Maori aspirations/outcomes, builds Māori capacity and capability; • High Māori participation (communities/iwi/hapū/marae/individual); • Focused on Māori outputs, issues, aspirations, outcomes.

Māori Research Classification, *Garth Harmsworth*.

Garth developed a Māori Research Classification in 1999 which has now been refined from four to five main categories (above) and expanded to be used across all science organisations to classify Māori research opportunities. The classification showed the unique features of each type of Māori research project that could be included in the science system.

"Within the New Zealand science system, many of us were trying to show areas for building Māori research and capability across institutions and identify where kaupapa Māori and Māori relevant research fitted."

It has since been used to increase the amount of Māori-relevant and Maori-centric research inside CRIs, and Manaaki Whenua in particular, and gives effect to Vision Mātauranga. It also created opportunities for Māori-led kaupapa Māori research – for Māori by Māori – and showed the specialist nature of these projects next to Western science projects. Typically, kaupapa Māori projects are embedded in Māori communities.

Fast forward to the current time, and Garth continues to move his team's research further into Māori-centred research and seeks to include kaupapa Māori projects wherever possible.

"I take great delight when I can achieve more of a kaupapa Māori type project because it's very hard sitting in a science organisation within our science system trying to do kaupapa Māori work. Occasionally I'm given

"My leadership has been about trying to set examples for other people through my projects."

the space to operate in, and it's Māori-led, Māori methodologies, Māori-relevant. It's probably not even understood by scientists, but we bring some of that information across to the science. We don't just give it to the scientists – we are very, very careful with information derived from Māori projects and look after it under tikanga."

A Global Community

Māori communities are contending with a range of issues of their own, so it is unrealistic for a researcher to come along and ask if they want to work on climate change, biodiversity, or any other ecological project. The best approach is to try to learn about the current and historic issues a Māori community is facing, from their point of view, and only start bringing research into their world when appropriate.

"I know they're dealing with a raft of issues [...] You cannot just turn up tomorrow and say, 'let's just drop all that stuff and we'll work on a science project around stream health'. We have to embed what we do inside of what these communities are struggling with."

Garth reflected that the earth (Te Ao, Taiao, Papatūānuku), is under huge stress and pressure, and is struggling to survive under the impact of the human population, which has already reached 7.5 billion people and is projected to rise to 10 billion by 2050. We desperately need to find integrated solutions to complex problems to sustain and care for the planet (Te Ao Tūroa). This is a major issue the global community faces right now. Understanding indigenous perspectives and using Mātauranga Māori is even more important now and can make a huge contribution to global challenges. In terms of climate change, finding solutions that allow us to move away from petroleum-based industry and towards a low carbon economy and renewable energy is not easy, and will only be possible by drawing on a range of knowledge systems. Now is the time to focus on desired global outcomes and bring knowledge systems together to find solutions. We do not have another 100 years to start achieving this.

"Fundamentally we can't keep sitting here saying 'let's get a little bit of Māori research here and there'. As Māori we have a major part to play globally in the 21st century and beyond in terms of how we bring our knowledge systems and Mātauranga Māori into science and alongside Western science. So, we have to engage with many other people with different perspectives, and be proud of the fact that we have this wonderful, unique knowledge that we can contribute."

RANGATAHI TŪ RANGATIRA: GROWING YOUNG MĀORI POTENTIAL THROUGH LEADERSHIP

Jacqueline Paul - *Māori Landscape Architect and Lecturer at the School of Architecture at Unitec Institute of Technology*[3]

"I'm here to share my journey within this space so you may think about how you might manaaki other Rangatahi."

Jacqueline Paul

Jacqueline used her session to showcase her journey so far, while acknowledging the investment made in her personal and professional development and the flow-on benefits it enabled.

Her involvement in the Building Better Homes NSC began in 2017, while she was completing her dissertation, Urban Wā Kāinga, which explores how the concept of kāinga can contribute to future developments of medium density housing within urban centres.

Several Wāhine Toa (courageous women) have supported Jacqueline in her research endeavours over the past several years, including Dr Diane Menzies at Unitec, Associate Professor Ella Henry at AUT's Te Ara Poutama: Māori and Indigenous Development, and Professor Jenny Lee-Morgan at Ngā Wai a Te Tūī (Māori and Indigenous Research Centre) based at Unitec.

Working under the korowai of these amazing Wāhine Māori has provided a robust foundation for Jacqueline to engage in research, which is an opportunity most young people will not have access to. Fittingly, given her strong focus on Māori housing and urban planning, Jacqueline was involved in kaupapa Māori research assessing the urban regeneration programme in Tāmaki, and Kāinga Tahi, Kāinga Rua (KTKR).

More recently, lecturing in Landscape Architecture and Planning has helped Jacqueline explore what leadership means for young Māori in education. Entering a place that does not represent you - where lecturers and tutors do not look like you, sound like you or think like you - can make it very difficult to understand where you fit in. Her

[3] At the time of printing, Jacqueline Paul had taken up a position at Ngā Wai a Te Tūī, Māori and Indigenous Research Centre, Unitec.

conclusion is that understanding things from a Māori perspective is foundational to thriving in such systems:

"It's a new space for me, but also around this notion of unlearning, especially within a very Western approach to landscape architecture. Through this practice in education it has allowed me to heal as well – this is really important and grounds me in terms of what we're trying to do for Māori."

Alongside her research activities, Jacqueline has sought out youth leadership experiences; she shared what she has learned from these:

- **Funded by MBIE to attend the UN Youth Assembly in New York.** This event exposed Jacqueline to international delegates and caused her to ask: 'Where do I fit?' and 'Do our indigenous voices matter?'

  "It really shaped my vision in terms of realising how privileged I am, so how do we start opening doors for other rangatahi to have this exposure and to know what is beyond the borders of South Auckland?"

- **Co-founded the Innonative Collective.** This initiative was inspired by Jacqueline's attendance at the UN Youth Assembly and brings together a group of young people who want to focus on social enterprise, growing young leaders, and fostering community change.

  "Our pilot is around soft money. Nothing has been more rewarding than working in this space."

- **Member of US-NZ Youth Council of the US Embassy.**

  "Being in that situation is challenging as they think we have similar values. Being uncomfortable in those spaces has really challenged me but I understand our value as Māori. They've got a lot of work to do!"

- **Part of the TUIA Programme.** This programme is hosted by the Mayors Taskforce and Local Government New Zealand (LGNZ). Candidates from Tāmaki Makaurau and beyond partner with a Mayor or local board chair to learn about civics and leadership.

  "It is an awesome opportunity to network and wānanga with likeminded young Māori across the nation."

- **Rangatahi Climate Action Summit 2019.** The summit, held at Ruapotaka Marae in Glen Innes, aimed to bring together a group of passionate Māori and Pasifika rangatahi to discuss the impacts of climate change and ensure a strong rangatahi perspective is represented in the upcoming draft Auckland Climate Change Action Plan.

  "We can utilise our skills and knowledge to support and mobilise our young people in kaupapa that is important to them. Some amazing rangatahi and tamariki are coming through, so the future is hopeful."

- **Representative for Papakura on the Auckland Council Youth Advisory Panel.** Through this advisory group, young people have the opportunity to advocate on policy and planning. It was a huge learning opportunity for Jacqueline, allowing her to understand how the system works, what gaps need filling, and how current decision-makers might be supported through research.

  "It's not our responsibility to educate non-Māori in this space. It's exhausting, it's tiring, so I'm really trying to stay in my own lane now."

- **Representative on Papakura Youth Council.** Jacqueline served nearly two years in her local youth council with a mission to support and foster

young people to champion change in their local Papakura community. A highlight for Jacqueline was supporting young people who have been involved in the climate action strike, and responding to the plight of refugees.

"They have taught me so much, including my responsibility to manuhiri from overseas and how we support them. This is succession. I wanted to highlight the high-level stuff, the ripple effect this has had on our wider network."

- **Participation in the MAU Academy.** The MAU Academy is aimed at Māori and Pacific high school students who want to be involved in building positive social impacts through using their creative talents.

  "We are running an academy out of Makaurau Marae in Ihumātao for aspiring designers, creatives and architects and helping them get into university. We are trying to build local capability and capacity, but it's around leadership and is multidisciplinary."

The 'Protect Ihumātao' movement has been extremely important to Jacqueline, not least because she can relate it to her recent international travels when she visited other indigenous peoples: *"I was sharing this kaupapa in terms of the injustices we continue to face, and the story around trauma in our bones, and it flows through our blood. How do we break those cycles?"* Mason Durie's earlier comment to hui delegates about the importance of networking for indigenous peoples is so important here.

"I've never felt more proud of our people than through this movement. Now is the time for us as indigenous people to determine our own futures, especially for our generation. Ihumātao is an example of poor policy and decision-making processes that have affected our grassroots communities. This is why your mahi matters because this affects our lives, and how you can break the cycle and how we will no longer have to live in trauma and hurt while our people fight for justice and fight for Māoridom."

Mauri ora whānau.

"Now is the time for us as indigenous people to determine our own futures, especially for our generation."

PANEL DISCUSSION WITH NSC DIRECTORS

Facilitated by Sandy Morrison - *Vision Mātauranga Science Lead, Deep South*

National Science Challenge Directors describe their support of Māori and Vision Mātauranga. From left to right: Sandy Morrison, facilitator; Andrea Byrom, co-Director of Biological Heritage; Jim Mann, Director of Healthy Lives; and Sally Davenport, Director of Science for Technological Innovation.

KEY QUOTES

"Decolonising the system is really important." Andrea Byrom.

"We have a lot to learn, but 40% of our research is Maori-led, which shows the progress we've made to date." Jim Mann.

"We like to send researchers to events, so they are exposed to the power of what's happening in the Māori economy, and once they are, oh boy! It's a shame that we send researchers to international conferences, but we won't send them to local ones." Sally Davenport.

"We've moved to a co-governance model so partnership is embedded. We have a set of values that we try to live by, and these are written in Te Reo." Andrea Byrom.

SECTION 2

BRINGING VISION MĀTAURANGA TO LIFE

What does Vision Mātauranga science look like when executed well? The hui discussed a wide range of examples where Vision Mātauranga had been implemented both well, and poorly. Both good and bad practice presents an opportunity for learning, where good practice might be repeated and amplified; and poor practice recognised, addressed and transformed.

EMPOWERING KNOWLEDGE, PEOPLE AND RESOURCES

Vision Mātauranga aims to release the innovation potential of three dimensions of Māori capacity: knowledge, people and resources. Understanding each of these dimensions is a good way to understand how Vision Mātauranga can be activated in science, and how science can evolve to higher levels of excellence.

Importantly, when developed well, good Vision Mātauranga science understands from the outset how Māori will directly prosper from the undertaking, and is designed with this in mind. Whether prosperity gains are in wellbeing, skill, wealth, health, environmental sustainability, creative potential, or some other dimension, it is important that Māori enjoy the outputs of research activity, along with the rest of New Zealand.

EMPOWERING THE FUTURE

Vision Mātauranga also has the potential to help the science sector leap to higher levels of science excellence and success, depending on how well it is implemented. While this can be advanced by the quality work of individual researchers and research teams, this leap can be more powerfully enacted by elevating how Vision Mātauranga is addressed at governance levels, and by the institutions that support scientific endeavour. Attendees discussed some aspects and behaviours within the science sector that could be amplified, adjusted, introduced, or eliminated to bring greater effect and higher quality outcomes. Some ideas were offered in anticipation of what Vision Mātauranga could evolve into, or what may follow Vision Mātauranga in the future. While some of these aspects are discussed in this section, this will be explored more fully in Section 3.

This Guide provides some explanatory background on the foundational principles of Vision Mātauranga. The themes that follow in this section are:

- Empowering Māori Knowledge
- Empowering Māori People
- Empowering Māori Resources.

Each theme will explain and elaborate on each element of Māori potential, drawing on hui discussion of both good and bad examples of Vision Mātauranga science to do so. These examples point the way towards best practice and set a course for a more thriving future.

Facilitator Karen Clarke introduces topics for discussion

Vision Mātauranga has the potential to help the science sector leap to higher levels of science excellence and success, depending on how well it is implemented.

EMPOWERING MĀORI KNOWLEDGE

WHAT IS MĀORI KNOWLEDGE?

Opportunity and innovation can stem from Māori knowledge that is understood, valued, and resourced appropriately. Attendees reported that there was a lot of confusion in the New Zealand science system about what Māori knowledge is. There was also wide agreement on the need for Māori to define what Mātauranga Māori is, rather than the Crown.

The terms *mātauranga* and *Mātauranga Māori*[4] are sometimes used to describe Māori knowledge. Often used interchangeably, there are some formal distinctions between these terms:

> **Mātauranga** – *Knowledge (in general)*
>
> **Mātauranga Māori** – *The body of knowledge originating from Māori ancestors, including the Māori worldview and perspectives, Māori creativity and cultural practices.*
>
> *Te Aka Māori Dictionary, 2020.*

In practice, the word mātauranga is often used as a shortened version of Mātauranga Māori; so, it is important to clarify which mātauranga - general or Māori - is being discussed at any particular time. In the hui discussions, attendees tended to use the term mātauranga to refer to Mātauranga Māori. This usage will be indicated in the quoted statements of attendees by the capitalised: *Mātauranga*; while *mātauranga* will refer to knowledge, generally.

A common misunderstanding is that Mātauranga Māori only refers to ancient knowledge, perhaps because of its ancestral origins. On the contrary, it is a dynamic knowledge system in which new Mātauranga Māori is regularly created. Rich Mātauranga Māori is often developed from research that is driven fundamentally by Māori philosophy and executed using Māori research methodologies. This is sometimes referred to as Kaupapa Māori.

> **Kaupapa Māori** - *Māori approach, Māori topic, Māori customary practice, Māori institution, Māori agenda, Māori principles, Māori ideology - a philosophical doctrine, incorporating the knowledge, skills, attitudes and values of Māori society.*
>
> *Te Aka Māori Dictionary, 2020.*

Mātauranga Māori can also emerge from research that is not purely Kaupapa Māori. For example, new Mātauranga Māori might be discovered through: innovations that are created by applying traditional knowledge in a new way, for instance, on a non-traditional material; from a Māori worldview used in a new setting; through the development of Māori resources in a manner synthesised by iwi; or through a new discovery made by applying traditional Mātauranga Māori-based protocols together with international methods.

To summarise, Mātauranga Māori can be described as an expanding knowledge continuum containing both old and new Māori knowledge, building on a foundation of traditional wisdom and practices.

WHAT DOES MĀTAURANGA MEAN, IN THE VISION MĀTAURANGA POLICY?

The Vision Mātauranga policy provides its own definition for the term "Vision Mātauranga." 'Mātauranga' within the policy refers to all knowledge (general). The term, Vision Mātauranga, is not only inclusive of all knowledge systems, but seeks to explore new processes aimed towards desired outcomes:

[4]There are numerous descriptions of Mātauranga Māori. For further commentary, see Smith, L.T., Maxwell, T.K., Puke, H., Temara, P. 2016. Indigenous knowledge, methodology and mayhem: What is the role of methodology in producing indigenous insights? A discussion from Mātauranga Māori. Knowledge Cultures 4(3): 131–156.

> **Vision Mātauranga** - *To envision knowledge, to think about new ways of doing things, to find answers, to solve problems.*
>
> *Vision Mātauranga Policy, 2007.*

The policy specifically addresses Mātauranga Māori in one of its themes, where Mātauranga Māori is viewed as the basis for developing new knowledge:

> **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*
>
> *Vision Mātauranga Policy, 2007.*

In this way, Vision Mātauranga allows for the mobilisation of Mātauranga Māori in concert with other knowledge systems, to generate new innovations.

Opportunity and innovation can stem from Māori knowledge that is understood, valued, and resourced appropriately.

Hui delegates share their perspectives

EMPOWER MĀORI KNOWLEDGE

Only Western science legitimised	Mātauranga Māori & Western science valued
Mātauranga Māori merely acknowledged	Mātauranga Māori activity resourced
Taken from Mātauranga Māori experts	By and with Mātauranga Māori experts
Non-Māori as primary Vision Mātauranga experts	Māori as primary Vision Mātauranga experts
Cultural expertise of Māori Researchers overlooked	Cultural expertise valued
Scientific expertise of Māori Researchers side-lined	Scientific expertise recognised

DISCUSSION ON MĀTAURANGA MĀORI

DISCOVER AND ACKNOWLEDGE THE VALUE AND IMPORTANT STATUS OF MĀTAURANGA MĀORI

Delegates discussed how Mātauranga Māori is sometimes viewed wrongfully as having an inferior status to Western knowledge, rather than being a valuable knowledge tradition in its own right. Viewing Mātauranga Māori as an "add-on," rather than core to a science project, has created limitations to activating Mātauranga Māori in Vision Mātauranga projects.

"It's happening nationally and globally that people are thinking of Mātauranga as a subject, not as a knowledge system, not belonging to a culture, not being the foundation of who we are, and our responsibility to transmit it to future generations."

Treating Mātauranga Māori with the same status, care, and attention as the Western science aspects of a project will allow the benefits of Mātauranga Māori contributions to be realised.

Attendees envisioned a new future where both Mātauranga Māori and Western science hold equal footing and are well understood; where Māori experts are acknowledged and have the mandate to lead scientific endeavours in a way that brings cultural knowledge strongly to the fore.

SEEK OUT SETTINGS TO ENCOUNTER AND LEARN ABOUT MĀTAURANGA MĀORI

Researchers who are new to Te Ao Māori could seek out settings where Mātauranga Māori is actively being used, especially when research relationships are yet to be developed or established.

These learning opportunities are sometimes provided by individual NSCs, who hold or host Vision Mātauranga workshops and hui across the Challenges, with some also supporting foundational cultural competency courses and marae experiences. Some NSCs support their researchers to attend events that are outside of the research science system, but where Māori business and research activity are occurring, such as the Māori Seafood Conference, The Federation of Māori Authorities meetings, or Ahuwhenua awards. Researchers can gain a sense of the Māori sector in action, and the values that tend to emerge in discussions. When attending these hui and wānanga, it is good to remember that Vision Mātauranga is a research and science sector policy, familiar only to those who have interacted with the science sector. These hui will use or discuss Mātauranga Māori, but not address Vision Mātauranga directly.

It is also much easier than it ever has been for researchers to take the initiative and responsibility to introduce themselves to the Māori world. There are now copious on-line resources available where Mātauranga Māori is introduced informally; and these can be accessed free from on-demand sources like Māori TV, Te Hiku Media, and social media platforms such as Facebook.

RECOGNISE MĀORI AS THE PRIMARY EXPERTS ON VISION MĀTAURANGA

Māori are the traditional, current, and future holders of Mātauranga Māori, and as such are the most qualified to understand, interpret, assess and convey the quality of Mātauranga Māori and its application in Vision Mātauranga projects.

Attendees shared that a large number of Vision Mātauranga assessors and commentators across a diverse number of funding streams and organisations had no deep knowledge of Mātauranga Māori. This has created incorrect expectations for what Vision Mātauranga is, and the priorities it should address:

It was also noted that there were many Pākehā and international researchers who saw themselves as experts in Mātauranga Māori and Kaupapa Māori research. There was consensus that this view was incorrect.

> **"There is no consistency around getting Mātauranga experts to do the assessments."**

"I was at a conference where a Pākehā researcher described herself as a Kaupapa Māori researcher and she saw no irony in the fact that she stood there with her slide and explained that Kaupapa Māori is research for Māori, with Māori and by Māori; so of course there was no way she could be a Kaupapa Māori researcher."

One delegate was surprised to see that some Pākehā working within the science system appeared more confident about the meaning and purpose of the Vision Mātauranga policy than did some Māori. The researcher was at a recent conference with hundreds of other researchers, where the facilitator asked:

'Who here knows what Vision Mātauranga is?' "Pākehā thought they knew, but Māori didn't really know."

The key message here is that Māori, as a collective, hold the most informed and authoritative view on the use of Mātauranga Māori within science projects, and the quality of any work addressing Vision Mātauranga. Advice and assessment on these aspects should be sought from Māori.

EMPOWER MĀORI EXPERTS TO LEAD MĀTAURANGA MĀORI ASPECTS OF SCIENCE PROJECTS

Attendees pointed to a long historic mis-management of Mātauranga Māori by Pākehā and international scientists, and strongly advocated that the control of Mātauranga Māori within a project be under the control of Māori expertise, and that their recommendations for the use and protection of Mātauranga Māori be followed. This reinforces the principles of partnership with fair attribution of decision making and resourcing.

Delegates reported that there were many circumstances where, rather than working in partnership or in co-development, Pākehā and international researchers have acted as gatekeepers to projects, controlling what and how Mātauranga Māori is used, despite the researchers themselves not understanding Mātauranga Māori very well. This was sometimes accomplished by relegating Māori experts to a lower status within a project - such as stakeholder, advisor, or consultant – rather than as a fellow researcher or leader.

"Most people think we're newcomers to this whole area but some key individuals have been real pioneers in their discipline and doing amazing things for this country, and you never hear of them. We must allow them to shine while they're still alive."

"Vision Mātauranga is [currently] not really collecting Mātauranga because so many projects stop at the engagement stage, but with this corpus body of knowledge the actual aim is to transform."

Empowering Māori knowledge experts would allow Pākehā and international researchers a level of safety in understanding the cultural dimensions of the work, as Mātauranga Māori experts are equipped to manage both the uses and the risks of working with Mātauranga Māori. Mātauranga Māori experts may also be a primary relationship connection between the project and the Māori community allowing the relational dimension to be fostered appropriately as well.

REMEMBER THAT MANY MĀORI SCIENTISTS UNDERSTAND MĀTAURANGA MĀORI AND WESTERN SCIENCE

While Māori Scientists may be sought for their understanding of Mātauranga Māori, or their relationships with Mātauranga Māori experts, it is important not to ignore their Western scientific expertise.

"It hurts now sometimes when I'm asked to review something and I think it's because I'm a scientist, but they say, 'Oh no, we just want you to look at the cultural.' And I want to say, 'but I just noticed that your design is rubbish and that you've got no controls in your experiment,' but they say they've got other scientists to do that for us, thank you."

Group discussion at the hui

The implications of being skilful in both Mātauranga Māori and Western science, a phenomenon called Aronga Takirua, will be discussed further on page 56.

PROTECTION OF MĀTAURANGA MĀORI

Mātauranga Māori is classified as taonga – a treasure to Māori, or something that is precious. As a taonga, it needs to be treated and protected appropriately[5]. Similar to other ethical frameworks of data and records management, it is important to consider where and how data and information are stored, accessed and used, as well as deciding who the kaitiaki of cultural data should be. Consideration should also be given to whether/how Mātauranga Māori might be shared, managed or protected through legal mechanisms such as trademark, trade secret, copyright, and intellectual property rights, and so on. There is a growing acknowledgement that current legal tools do not provide adequate protection over many kinds of Mātauranga Māori, and that new mechanisms need to be sought and developed.

[5]For a discussion on the ownership, protection and management of taonga and Mātauranga Māori, refer to: Te Taumata (2020). Māori interests and geographic indicators. Submission to the Hon. Minister Nanaia Mahuta of Māori Development.
https://www.tetaumata.com/wp-content/uploads/2020/05/Te-Taumata-Maori-Interest-and-Geographic-Indicators.pdf

EMPOWERING MĀORI PEOPLE

WHO ARE MĀORI PEOPLE?

Someone who is Māori, has whakapapa Māori: a genealogical connection to Māori ancestors. They may know the details of their whakapapa Māori, or they may be aware that they have whakapapa Māori through their whānau or wider community without necessarily knowing the details themselves.

Whakapapa Māori is often viewed as sacred or very personal information; so, it is important to respect that Māori may want to keep the specifics of their whakapapa private. In a Māori worldview, the quantum or proportion of Māori ancestry is not important, in fact, it can be received as impolite to approach Māori identity from this perspective. It is also important to note that it is not possible to have only a single Māori ancestor, because any Māori ancestor – even one as far back as the signing of Te Tiriti o Waitangi - is preceded by many generations of Māori before them and succeeded by the Māori descendants that follow.

IDENTIFYING AS MĀORI

Although being Māori has its foundation in having whakapapa Māori, it is the discretion of any person who has whakapapa Māori to choose whether they would like to identify as Māori, or not.

There are a number of reasons why a person with whakapapa Māori might choose not to inhabit a Māori identity at a particular time. For instance, they may want to learn more about their cultural history and connections before they feel confident to claim their Māori identity. They may want to operate instead from a different aspect of their identity over the course of their work, for example, as a woman, a New Zealander, or a mathematician. They may want to keep a strong division between their home life (as Māori) and their work life (as one of the team). Or a Māori identity might simply not be important to them.

GUIDING PRINCIPLES TO UNDERSTAND WHO IDENTIFIES AS MĀORI

When working in the science system, three general principles should be considered when seeking to work with Māori in a way that is appropriate and ethical:

1. that they have whakapapa Māori,
2. that they self-identify as Māori, and
3. that they are happy to be identified as Māori (i.e. operate from their Māori identity) for the work being proposed.

In most cases, researchers will only need to ensure that the latter two considerations are met.

These three principles apply for Māori individuals, but can also help guide which groups and organisations might also be recognised as Māori.

EMPOWER MĀORI PEOPLE

Consulted for projects, programmes & orgs	**Māori-led and co-led projects, programmes & orgs**
Advice sought to tick the 'VM box'	**Advice sought for research value and followed**
Informed about the decisions made	**Involved as decision makers**
Projects about Māori	**Projects by and with Māori**
Māori rare in the sector	**Many Māori in the sector**
Cultural labour is unpaid or underpaid	**Additional labour is resourced**
Māori researchers responsible & isolated	**Māori researchers supported & developed**

DISCUSSION ON EMPOWERING MĀORI PEOPLE

SEEK A GENUINE ENGAGEMENT WITH MĀORI RATHER THAN TICK-BOXING

Attendees viewed that quality projects were built on strong and genuine relationships with Māori, where those relationships were approached as a partnership. These relationships were sought early, well before a grant application was considered.

An undesirable practice of "tick-boxing" Vision Mātauranga was mentioned frequently during the hui. This referred to scientists taking a very surface approach to working with Māori and Mātauranga. In these cases, the Vision Mātauranga criteria were seen to be used as a way to secure competitive funding by appearing to meet the minimum requirements, but with little genuine intention to work with Māori or Mātauranga Māori.

Examples include:

- Making a grant seem more Māori by using Māori terms but having no Māori involvement in the team,
- Adding names of Māori researchers and Māori knowledge experts to grants without informing them to seek their input and approval,
- Listing names of Māori contacts and organisations, without properly engaging with them,
- Counting a short phone call as consultation with Māori, without stating that the contact was intended as consultation, rather than as an informal discussion,
- Including Māori researchers and contacts as members of the team but not paying for their expertise and contribution.

Day 2 discussions

Delegates saw tick-boxing as a troublingly wide-spread tactic used to appropriate Vision Mātauranga funding to advance the careers of Pākehā and international scientists and subvert the need for the science to benefit Māori or Māori communities.

ENGAGE EARLY WITH MĀORI

Māori organisations and researchers report being inundated around grant season with requests from non-Māori scientists. These requests often came from researchers whom they had never met, and who appeared to be engaging to meet or strengthen the Vision Mātauranga criteria of a grant application.

Delegates noted that for Māori organisations, many iwi and businesses simply don't have the time to engage in these processes haphazardly, with one delegate wryly noting that hapū and iwi are not "just sitting around on our marae, just basking in the sun, just waiting to be co-created with."

In reality, co-creation is incredibly time consuming and costly for iwi.

"We're already swamped by MPI and our RMA obligations, te mea, te mea, [et cetera] so from a practical point of view co-creation is difficult. How do you do it, how do you resource it?"

Working with awareness of the time commitments of Māori groups and businesses to their core business (separate from their research interests) will allow expectations to be met within a realistic timeframe, rather than being driven simply from the deadline of a grant application. The earlier the engagement begins, and the more that researchers are informed of the interests of Māori communities and business when they approach them, the more likely a respectful and mutually beneficial relationship can begin.

Best practice for research organisations also includes taking a coordinated approach to engagement and consultation with Māori. This avoids overwhelming Māori organisations with copious requests to engage, and protects the willingness of Māori to engage.

ADEQUATELY SIZE AND RESOURCE THE CONTRIBUTIONS OF MĀORI

Hui attendees reported a widespread practice of projects under-resourcing the contributions from Māori. In general, the aspects that fit typical scientific activity tended to be allocated appropriate funding, while aspects regarded as Māori were expected to be contributed freely, at a small "koha", or as unpaid additional labour.

As a guide to allocating resources more adequately, the table below draws some relevant comparisons between roles and activities involving Māori that should sit near or on par in resourcing with similar roles and activities typically seen in the science sector.

Comparative table[6] of Mātauranga Māori and science sector roles and activities in Vision Mātauranga projects.

Māori Roles and Activities	Science Sector Roles and Activities
Skilled kaumātua and kuia	**Consultancy from domain experts with 40+ years of experience.** Experienced consultants are typically paid for their time, expertise, travel and accommodation fees where needed.
Researcher (Māori)	**Researcher + Consultant.** Care should be taken as to which role(s) is supporting the project. If both sets of expertise are expected to be utilised, then resourcing should accommodate both. For more information, refer to the section on Aronga Takirua, page 56.
Advisors from iwi and hapū organisations	**Researchers.** Like science sector researchers, representatives from Māori organisations can bring expert knowledge, critical thinking, and research methodologies as they relate to the Māori knowledge and the Māori world. **Business representatives.** Business representatives who are consulted on their knowledge will often be paid for their time and advice they spend away from their business, unless there is a clear and direct benefit to their business activity.
Marae events	**Venue costs.** An event typically has costs associated with venue hire and catering fees, including time and labour costs. Occasionally accommodation fees are included if the event is held at a hotel.
Hui and wānanga	**Conferences.** Venue costs are typically associated. Key presenters are often paid for their presentations, and travel and accommodation costs are covered.

[6] Table created by the authors of this Guide

BE AWARE OF ARONGA TAKIRUA: THE DOUBLE-SHIFT ROLES OF MĀORI RESEARCHERS

There was broad consensus across attendees that Māori Researchers are often expected to carry additional roles in their scientific projects and within their institutions, which are not expected from other researchers. These additional tasks and activities are often not properly addressed and resourced. It was agreed that these additional roles need to be recognised, acknowledged, and compensated appropriately.

Three aspects of this issue were reported:

1. Māori Researchers were expected to accomplish any additional "cultural" labour (required for the research to be feasible) for free, or within an FTE that had been allocated only to their typical scientific work
2. Inadequate FTE allocation had a roll-on effect, forcing Māori researchers to pull together a larger number of piece-meal, under-resourced FTE hours, effectively spreading them thin (fractionated) across too many projects, and
3. Māori researchers fielded obligations from their institutions and colleagues for activities that were often not captured in research FTE.

"We're all working longer than our official hours. All of us have 40 hours on the books, and 400 in real life."

"They are expecting mountains to be moved with 0.1 FTE."

Some of this spectrum of diverse labour included:

- Consulting with other Māori on behalf of the project or institution
- Performing project-to-Māori relationship management
- Acting as technical-cultural interpreter with their institutions and with Māori
- Responding to cultural questions from other researchers at their institutions, and
- Providing official welcomes, karakia, and waiata for visitors at the request of their institutions and colleagues.

"Doing research as a Māori researcher holds greater responsibility and takes more time, and everyone's calling on you. I am struggling in a tsunami of all this."

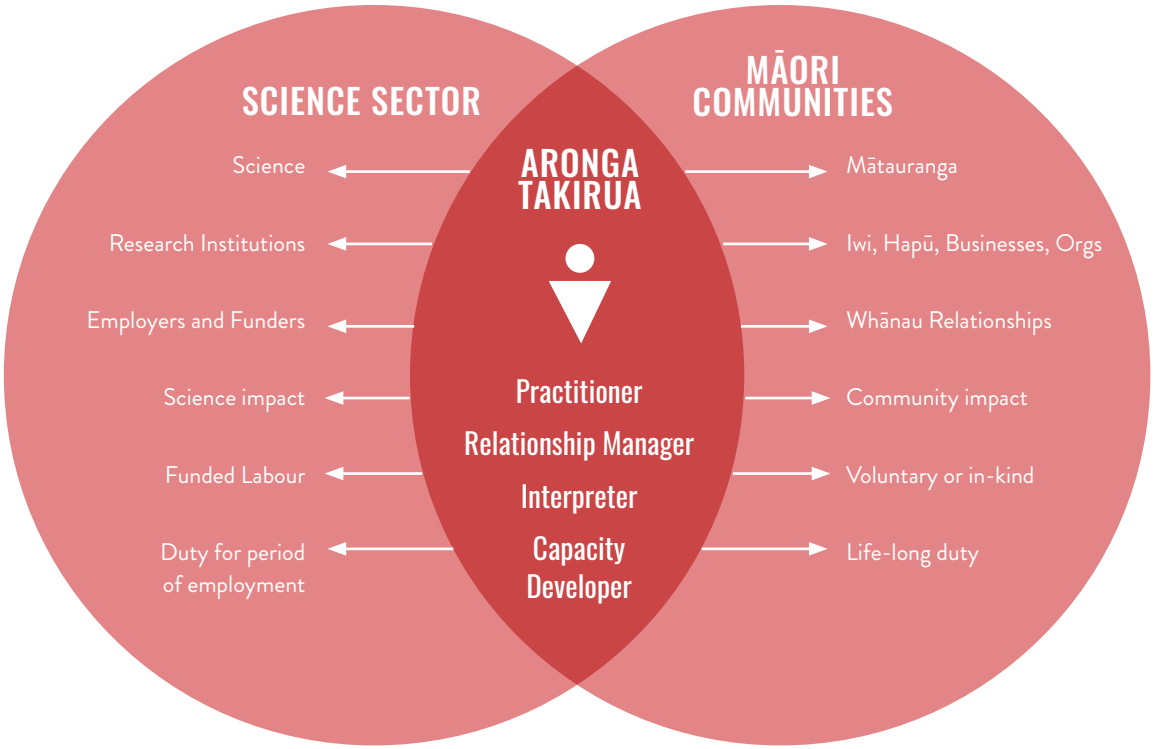
"I look after a team of researchers that are consistently bombarded by various opportunities but with minimum FTE available to respond. As a line manager I'm constantly warning off those opportunities, always trying to protect them."

One attendee highlighted that these are unique expectations of Māori researchers and not of other scientists. They recounted one story of being compelled to sing an impromptu waiata at a scientific conference with a fellow Māori Scientist, both of whom were Doctors in their own fields:

"Why is it okay for them to ask us to sing, when it would not be ok to ask any other scientist out there to get up and sing in front of hundreds of people? That happens to me all the time."

The phenomenon of having to carry two types of labour and expectations simultaneously – scientific and cultural - can be referred to as **Aronga Takirua**[7], a double-shift work role. Attendees described some of these roles and the facets that Māori researchers mediate in the scientific and Māori communities.

Aronga Takirua[8]. Double-shift roles, relationships and domains reported by Māori Researchers.



Attendees reported that inadequate FTE attribution and role fractionation had a serious impact on career advancement. As an example, where essential relationship management had not been factored into the FTE, time available for scientific activity was compromised.

Recognising which double-shift roles will be used in a project or workstream, and then assigning adequate time and resources to these activities, allows both the scientific and cultural responsibilities of the work to be uncompromised. Māori researchers will be empowered to meet the requirements of the work without having to shoulder extra labour during their personal time.

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[7]This term was penned by Assoc. Prof. Te Taka Keegan, Prof. Jarrod Haar, and Dr. Willy-John Martin.

[8]Figure created by authors of this Guide

Another career impact discussed during the hui was that cultural aspects of double-shift roles were not often acknowledged through authorship on resultant research publications, despite the cultural aspects being necessary to licence the scientific activity. This could be addressed by naming these researchers on the relevant publication. There is also a wider issue at play, where current metrics of success in the science sector do not adequately acknowledge and reward the skills and achievements of cultural double-shift activities. This latter issue should be addressed at the level of the institute and above. Together, these factors are a powerful barrier to promotion and advancement.

Adequate resourcing and acknowledgement of these roles is not only ethically robust, but brings the following benefits:

- Supports the wellness of Māori researchers and prevents burnout
- Encourages retention of Māori researchers in the workforce
- Scientific outcomes will not be compromised
- Reputational risks of researchers and their institutes with Māori communities will be minimised

ENSURE MĀORI RESEARCHERS HAVE THE RIGHT KINDS OF SUPPORT

Many hui attendees reported being amongst a few or even the only Māori researcher in their department or institution, with a number expressing that they felt isolated or siloed. Many Māori researchers are unique from other researchers in that they often navigate both cultural and scientific factors when carrying out their scientific work. Scientific collegiality and mentorship needs are met very well by their institutions; but advice, learning and support around the cultural dimensions of their work are often not available, and need to be sought elsewhere.

This tension can arise very early in the career of Māori researchers, who are approached by senior scientists for advice on the Māori world as it relates to the Vision Mātauranga policy:

"My students get asked a lot of Vision Mātauranga questions, but they're so junior, it's just too big of an ask – they're putting too much pressure on them."

Ideally more support will be put in place for students and scientists/researchers alike to help illuminate pathways to success, manage the double shift, and develop further Mātauranga expertise. Mentors were mentioned as being very helpful, although accessing them appears to be at the whim of luck.

"We need to mention explicitly [...] the importance of ensuring that Māori researchers have the experience, mana and mentoring to undertake the cultural role so that it is culturally safe for them to do so."

"It's a whole new learning curve that I'm loving, but at the same time it's a lot to do at all different levels. There's no guidance into it, you're just chucked in."

"Mentors are like the kaitiaki because they get in the way when people are trying to do the whole 'She's the Māori person, we'll go talk to her,' and they say, 'No, that's not the role she's paid for, we will not allow that. Go find somebody else, go through the proper channels.'"

Wherever possible, ensure both early and experienced Māori researchers have access to the kinds of support they need from other Māori researchers, colleagues, and mentors. This will help them to give the highest quality contribution to the goals of the work, and protect their future career opportunities.

EMPOWERING MĀORI RESOURCES

Attendees consider New Zealand's science system

Many Māori researchers are unique from other researchers in that they often navigate both cultural and scientific factors

WHAT ARE MĀORI RESOURCES?

There is an expansive range of resources that are owned, managed or protected by Māori, or in which Māori have an interest. Here are just a few examples.

Natural resources. These include land, ore, minerals, metals, plant materials and their extracts, fossil fuels, natural gas and energy, aquatic plants and animals, micro-organisms, water and waterways, ocean and atmospheric real estate.

Man-made resources. These include buildings, architecture, infrastructure, machinery, vehicles, instruments, tools, artefacts, recordings, archival records, music and art, technology, research, businesses, and Māori data including genetic sequence data.

Human resources. People, their skills, knowledge, and know-how, can also be considered as resources. These have been given focused consideration in the former sections, Empowering Māori Knowledge, and Empowering Māori People.

A resource may be managed by a trust or incorporation controlled by one or more iwi, hapū or whānau, (e.g. land, fishing quota) or may be managed or protected by a non-business entity of the iwi or hapū of the region. They may be state-owned, with iwi or hapū having an interest as kaitiaki. Others may be owned or managed by private businesses (e.g.

Knowing what kinds of success Māori might value from research activity is key to mutually beneficial outcomes.

tech companies, farms) that are owned and operated by Māori. Some may be owned entirely by individuals (housing, artwork, waka, or an invention). Whatever the case may be, it is important to understand which Māori individual, group, or groups have mana - the authority to make a decision – over how a resource will be used or developed as a result of the research activity being proposed.

MĀORI RESOURCES, SCIENTIFIC RESEARCH AND THE WAI 262 CLAIM

The 262nd claim submitted to the Waitangi Tribunal (Wai 262)[9], also known as the 'flora and fauna' claim, has enormous relevance for a number of Māori resources. The implications of the claim will likely result in changes within government organisations (agencies and departments) and the policies, regulations and sectors that they create, implement and oversee.

Because the claim itself includes areas that relate to scientific research, including Mātauranga Māori, genetics, and indigenous flora and fauna. It is helpful for researchers to have at least a cursory awareness of the Wai 262 claim. Such familiarity will help ensure that relationships with Māori are built upon values that ensure mutually beneficial partnerships, and a use of Māori resources that is resonant with the rights of Māori.

The Wai 262 claim was lodged in 1991. It focussed on the contemporary laws, policies and practices of more than 20 government agencies and departments as they related to:

"...te tino rangatiratanga o te iwi Māori in respect of indigenous flora and fauna me ō rātou taonga katoa (and all their treasures) including but not limited to mātauranga, whakairo, wāhi tapu, biodiversity, genetics, Māori symbols and designs and their use and development and associated indigenous cultural and customary heritage rights in relation to such taonga."

The claim asserted that iwi Māori have certain rights over their taonga (treasures); and that the government had an express responsibility through Te Tiriti o Waitangi/The Treaty of Waitangi to ensure that these rights be honoured. It claimed that the government had failed to protect taonga; had failed to protect Māori rights to express tino rangatiratanga

[9] For a Government summary of the Wai 262 claim and the current government response, see https://www.tpk.govt.nz/en/a-matou-kaupapa/wai-262-te-pae-tawhiti

and kaitiakitanga over those taonga; and had usurped the rights of Māori to those taonga through its own legislation and policies, and through various international agreements.

The Waitangi Tribunal issued its response to this claim in 2011 in a report called, Ko Aotearoa Tēnei (This is Aotearoa). It acknowledged that contemporary laws had fallen short of protecting and expressing the rights of Māori to their taonga. It recommended the reform of laws, policies and practices relating to a wide range of areas, including health, education, science and intellectual property.

The Tribunal also recommended an evolution of the Crown-Māori relationship:

"... into a twenty-first century relationship of mutual advantage in which, through joint and agreed action, both sides end up better off than they were before they started."

In August 2019, the Māori Development Minister, the Hon Nanaia Mahuta, announced that a whole-of-government approach, called Te Pae Tawhiti, was being developed to address the issues raised by the Wai 262 claim and the Ko Aotearoa Tēnei report. This development of Te Pae Tawhiti continues today.

EMPOWERING RESOURCES TO CREATE VALUE AND BENEFIT

Where research endeavours are successful, releasing the potential of Māori resources will lead to the development of new value. This might be a new product, compound, medicine, invention, or process; it might be new ways to manage resources better, restore environmental sustainability, or improve health outcomes. In addition to these potential benefits, research will more immediately create positive academic outcomes for researchers. While Māori resources activated through research activity stand to be of wide benefit to researchers, Māori and other New Zealanders, it is important that any consequential value creation is targeted towards Māori.

Where Māori are leading research and freeing the innovation potential of their own resources, Māori can directly design how they may benefit from the research being undertaken. Where Māori resources are contributing to a collaboration or partnership, a clear understanding of how Māori will benefit can be baked into the study goals from the outset. Knowing what kinds of success Māori might value from research activity is key to mutually beneficial outcomes.

Hui attendees discussed the importance of designing outcomes that would be of value to Māori. This is discussed in the next section.

EMPOWER MĀORI RESOURCES

Academic aspirations alone	**Māori & academic aspirations**
Publication alone	**Publication & benefit for Māori people**
IP benefit retention by academic institutions	**IP benefit sharing or Māori ownership**
Only Western scientific measures of excellence, impact and success	**Māori worldview of excellence, impact and success is included**

DISCUSSION ON CREATING VALUE

ACADEMIC ASPIRATIONS SHOULD INCLUDE MĀORI ASPIRATIONS AND BENEFIT TRANSLATION

In the same way that it is important to academic researchers that their time and efforts be rewarded with academic benefit such as publication, the input of time and resources from Māori should be rewarding to Māori as well, and in ways that are important to them.

Hui participants often returned to the basic tenet that research must have real world benefits, especially for Māori.

"How do we work with our systems to ensure that our impact is past, present and future."

Research that seeks to reduce disparities between Māori and non-Māori, such as in health and economic outcomes, are important and valuable. At the same time, projects do not necessarily have to address disparities. Prospects that pave new ways and create new opportunities have always been of great interest to Māori. These should also be considered and pursued.

Māori have a significant stake in bringing a Māori worldview to bear on how science excellence is defined, and how research practices can be improved. This worldview can inform what success looks like beyond academic outcomes alone. This is explored further on page 69, *Agencies and institutions should embrace measures of science excellence that include Mātauranga Māori.* While there has been no contemporary and effective opportunity for Māori to come together on a national scale to define collectively what science success looks like, groups of Māori (whānau, hapū, iwi, business organisations, societies, trusts, etc.) will each have a sense of what success looks like from the specific Māori world within which they operate.

SHORT-TERM BENEFITS SHOULD BE PRIORITISED WHILE LONG-TERM GOALS REMAIN IN VIEW

Research projects supported by grants have a finite lifespan of around two to five years. The research project itself will often support only part of a longer pipeline needed to progress a research idea from concept to its real-world impact.

As examples, a research project may:

- discover a molecular pathway in cancer patients that can be targeted to treat cancer, yet not immediately lead to a treatment
- identify a compound that has medicinal value, yet not immediately produce a therapeutic
- create a technology prototype, yet not a user-ready invention
- formulate a recommendation for a better health delivery to the elderly, while not yet have it translated into practice

Enduring relationships with Māori create an opportunity for researchers and Māori to be collaborators along the entire lifespan from concept to community impact. In an ideal situation, this would extend beyond the lifespan of a single grant, and follow on through to realising real-world outcomes.

There have been many reports from Māori communities that research relationships often end once a research grant is completed. In these cases, researchers have benefited from the short-to-medium term academic outcomes of the work (e.g. publications), while community benefits linked to the potential long-term delivery of the research concept are never realised.

For this reason, the long-term aspirations of the work should remain in view, and short-term benefits for Māori should also be designed into the work. These immediate benefits can be discovered through discussion with Māori individuals and representatives regarding what is both valuable to Māori and fair to the project. As examples, this could include:

- capacity development of Māori and/or Māori communities
- adequate resourcing that Māori can direct towards accomplishing their immediate business and community goals
- access to expertise, knowledge, technologies and networks that Māori involved view as beneficial
- an acceptable fee-for-service exchange
- Māori ownership or joint ownership of project IP.

The input of time and resources from Māori should be rewarding to Māori as well, and in ways that are important to them.

FORMULATE CONSEQUENTIAL OUTCOMES FOR MĀORI

Projects and proposals may present themselves as opportunities to activate Māori resources, knowledge and people, for the benefit of Māori and all New Zealand. The strongest projects for Vision Mātauranga have both a direct relevance and consequential outcomes for Māori. For example, research on the protection of Kauri on Māori land reserves has a direct focus on Māori interests (resources and priorities) and returning outcomes to Māori will be a natural consequence of the project's success.

Other projects may address topics that have an indirect relevance to Māori, who might incidentally benefit from the success of the project. For example, a project may be focussed on type 2 diabetes in the general population, within which Māori happen to have higher rates. Or, the project may focus on farm development, and there may be a high number of Māori farmers in the region. These projects are not focussed on Māori per se, but Māori may benefit indirectly (e.g. as patients, or farmers) from an area of focus where Māori incidentally have higher representation.

Generally, direct and consequential projects are much stronger as Vision Mātauranga projects than are indirect and incidental projects. A way to strengthen a project that has indirect relevance is to bring Māori knowledge, people and resources more fully into the project, so that they then become consequential recipients of the outcomes. For the examples above, this would mean that Māori patients with type 2 diabetes be actively recruited; and Māori farmland and farmers be actively included.

Matrix[10] of research relevance versus research benefit for Vision Mātauranga projects		Design of Research Benefit for Māori	
		Incidental	Consequential
Relevance of Research for Māori	Direct	• Deficit approach • Lack of co-creation • Appropriation of resources for researcher career advancement	• Strongest approach • Sweet spot for co-creation and Māori leadership
	Indirect	• Weak but has potential • Building relationships with Māori will highly improve this • Most commonly viewed as tick-box projects	• Strong approach • Deliberate inclusion of Māori • Built-in short-term outputs for Māori

Even in projects where there is no obvious relevance to Māori, consequential benefits may be built into the proposed plan, thereby creating Vision Mātauranga quality within the project. However, there is no compulsion that these kinds of projects all be Vision Mātauranga-relevant. Some may be in subject matters that Māori may not wish to prioritise at that time.

[10] This matrix was created by the authors of this Guide.

SECTION 3

EMPOWERING THE FUTURE

Research institutions and the Crown are crucial in creating the settings where meaningful Māori-relevant research can grow and thrive. Currently, the funding of research in the science sector mostly emanates from the Crown, which mandates and directs the scope and scale of national research. The research itself is largely housed or hosted in public and private research institutions, which have a large influence over whether Vision Mātauranga projects are supported. In this light, the cultural and organisational settings of government and research institutions were seen by hui attendees as creating an environment whereby the embers of Māori knowledge, people and resources could light into a flame, or be suffocated and extinguished.

With an eye to the future, attendees offered several provocations. There was a strong belief that these could greatly amplify the success of Māori, the science sector, and the Crown. Some of these offerings might be enacted immediately, while others would require careful development. Unlike in the previous section, these interventions sit at the level of research institutes and departments, Universities, CRIs, and the Crown.

The main themes that arose were:

Engaged Treaty Relationships	Minimum Cultural Competencies	Māori Vision Mātauranga Assessors	Māori Authority over Mātauranga Māori
Activity Mapping	Vision Mātauranga Assessment Standards	Mātauranga Māori = Science Excellence	Pro-active Māori Workforce Development

AGENCIES AND INSTITUTIONS SHOULD EMPLOY AN ENGAGED TREATY RELATIONSHIP IN THE SCIENCE SECTOR

While the Vision Mātauranga policy has sometimes enabled a greater activation of Māori knowledge, people and resources through research, hui attendees frequently raised the provocation to take a step back and review the research, science and innovation sector through the lens of Te Tiriti o Waitangi/The Treaty of Waitangi.

"What is the role of Mātauranga in the bigger context of the Treaty partnership, Wai 262: what does that look like? Vision Mātauranga is a holding pattern. It's something that we've got; and those of you who are old enough and grey enough to remember what it was like to work in the system without VM, you know that that actually was a harder road."

"I would rather be having a conversation about reviewing the way the partnership of Māori and the wider science system works because Vision Mātauranga is such a small part of that."

"The Treaty provides an overarching guidance for how we actually want to operate in this space."

There was some encouragement to take a holistic view, using guidance from the Wai 262 Review to understand how a whole-of-government approach could work.

"I think one of the responsibilities [the Crown] has to Māori through Te Tiriti o Waitangi is ensuring that, in the research and science sector, non-Māori recognise that we have our own indigenous knowledges that are on an equal footing with their knowledge systems; and that through that recognition, there is respect. And, that respect is seen in the devolvement of the resources into Māori spaces, places and people."

"It's the broader issues of our Treaty relationship with the Crown, with regards to research, science and innovation. The Wai 262 Review is a vehicle through which we can start to have that conversation. Vision Mātauranga will be part of that, but it won't be everything."

As was noted during the hui, structural problems require structural solutions. For Māori to be a true partner in New Zealand's science and innovation ecosystem, systemic change is necessary; the Vision Mātauranga policy will be one key aspect of this. Whether Vision Mātauranga should be reviewed or replaced was a topic of much discussion. The dated nature of the policy in the absence of a review, and the generation of perverse outcomes due to unskilful implementation across the system were signalled as the main drivers for change.

An enhanced partnership within the science system should, in the future, be explicitly founded on the principles of Te Tiriti o Waitangi, drawing on former successes in co-development.

"On the co-creation kaupapa, there's a lot of evidence from the [Resource Management Act] collaboration that provides some precedence of good processes for engaging with mana whenua that has resulted in some good examples of collaboration with communities. The Treaty provides an overarching guidance for how we actually want to operate in this space."

A MAPPING OF ACTIVITIES TO IMPACT SHOULD BE UNDERTAKEN

Vision Mātauranga as a policy has existed for nearly 15 years, yet as far as attendees were aware, there has been no comprehensive reporting to date describing how effective it has been. Even very fundamental questions remain unanswered, including:

- What resource allocation has been made to Vision Mātauranga
- What impact measures should be used to assess the effectiveness of Vision Mātauranga and its implementation

- Who and what have been the recipients of those investments in the science system
- How have those investments been tracked
- How have the investments released the potential of Māori knowledge, people and resources
- Which kinds of activities have been most effective
- Where it has not been effective, what could be learned
- What has the impact been on Māori and Māori communities.

Understanding the size of the investment and how it has specifically been used is not only a way to communicate how the Crown is fulfilling its Treaty obligations, but also provides an avenue for the science sector to learn from its activities. Where there is no public record, the science system effectively lacks memory. While mapping would help to surface and potentially amplify successful activities, it could also identify areas that have been overlooked or underserviced. Improved mapping and tracking are necessary to iterate increasing effectiveness from Vision Mātauranga.

Hui attendees also recognised that impact evaluation can provide another means to feed back to the communities that participate in research.

"If our science and Mātauranga is held in our community, how do we channel resources back into whānau, hapū, iwi? We are the conduit and the pathway to those relationships."

AGENCIES AND INSTITUTIONS SHOULD ESTABLISH MINIMUM CULTURAL COMPETENCIES FOR RESEARCHERS WORKING WITH MĀORI

Delegates agreed that in honouring Te Tiriti, and in line with an ethical duty of care, foundational cultural competencies should be obtained before researchers work with Māori in research projects.

"The term 'obligation', with reference to Te Tiriti, is really important in science. In particular, how do we measure or ensure Pākehā researchers have sufficient skills to work with Māori communities."

Attendees reported that there were common, repeated mistakes from non-Māori researchers in the past who have engaged or worked with Māori communities. It was agreed that this was due to a lack of cultural competency. These included researchers imposing or pushing their research idea on Māori without the adequate relationship building or considering the priorities that potential Māori collaborators may have.

"Iwi have a lot of competing issues, and it's important to understand these issues within a takiwā before you go into those communities to then design research around what their need is."

Caution should be taken that the burden of achieving this does not fall informally to individual Māori working in the science system, further exacerbating Aronga Takirua roles. As with all initiatives, adequate resourcing is a necessity.

AGENCIES AND INSTITUTIONS SHOULD ESTABLISH MINIMUM STANDARDS FOR ASSESSING VISION MĀTAURANGA

Attendees reported that across various organisations, NSCs and contestable grants, there has been a haphazard approach to establishing assessment criteria and key performance indicators for work sitting under the banner of Vision Mātauranga. In particular, there were concerns that in some streams,

projects containing very low levels of Mātauranga Māori or Māori involvement were deemed acceptable and that this leads to over-reporting of Vision Mātauranga activity across the science system. Also of concern, instances were noted of funding being allocated to projects involving taonga species and Mātauranga Māori where there was no clear mandate from Māori for the research to be conducted.

Delegates recognised a need to establish minimum standards that could be applied consistently across the science system. There was agreement that the NSCs created a great opportunity to discover minimum standards without being too prescriptive about more advanced kinds of Mātauranga Māori-science work.

"I like the level of flexibility we have in the Challenges to take a different approach and deal with things case by case, so once you start setting a policy or a framework or a rule to increase consistency, I worry that we will lose flexibility."

"Some minimum standards should be adopted that do provide flexibility. At the moment nothing exists. NSCs do present an amazing opportunity to invent some of these things, develop best practice. If it's going to happen anywhere, it will probably be inside the challenges."

The possibility of establishing an expert panel or group to establish assessment standards was also raised and will be discussed later in this section.

Hui break-out group talks about Vision Mātauranga

A MINIMUM STANDARD IS FOR VISION MĀTAURANGA ASSESSORS TO BE MĀORI

Perhaps because there is only a small pool of highly sought-after Māori experts, some organisations have expressed an intention to upskill non-Māori to assess the quality of Vision Mātauranga in scientific work, rather than attempt to access external Māori experts. This is problematic as these assessors are unlikely to gain sufficient understanding of Mātauranga Māori to support the best outcomes for Māori, nor will they have the reputation or mana with Māori for their assessments to have legitimacy. Attendees agreed that Vision Mātauranga assessors should be Māori, and that their perspectives should be given adequate weight in determining whether research projects should be funded.

While non-Māori can be supportive advocates, hui delegates widely agreed that where non-Māori had assessed Vision Mātauranga, the quality of assessment was compromised. In addition to lacking the nuance of the lived experience as Māori in Mātauranga Māori and science, there was some question as to whether non-Māori assessors were actually invested in the quality of Vision Mātauranga, or whether their assessments were simply another tick-boxing tool.

"I've seen bids with questionable Vision Mātauranga get funded, and some with amazing Vision Mātauranga missing out."

"The people currently sitting in governance roles don't have any fundamental understanding of Treaty relationships or obligations. We're still having the same conversations we were having 15 years ago – it's different people, but it's the same thing."

AGENCIES AND INSTITUTIONS SHOULD EMBRACE MEASURES OF SCIENCE EXCELLENCE THAT INCLUDE MĀTAURANGA MĀORI

Mātauranga Māori elevates excellence in a number of ways, including through relationship building, which leads to quality collaborations, and in seeking to address real world needs through a focus on impact and a priority on translational activities. Science excellence must be extended to include the values contained within a Mātauranga Māori worldview. Much like creating an accepted and widely adopted definition of Mātauranga Māori (more on this below), these measures of excellence should be developed by and with Māori.

"We have umpteen research about ourselves being done by us, now we need the opportunity to feed that whakaaro and kōrero into the policy settings so that Māori success actually increases, and funding should be allocated accordingly. We should be able to feed research outcomes (by/with/for Māori) into policy settings."

Including measures of excellence from Mātauranga Māori within assessment allows the quality of Vision Mātauranga projects to be valued and viewed in more equitable terms.

"We have to look at other ways of ensuring that it is an 'apples-for-apples' comparison because having a narrative type response to VM actually marginalises it. Having it ranked alongside some of the other areas that are assessed is really important."

Research excellence is based on accepted Western research practices and concepts. This is severely limiting.

Currently, research excellence is based on accepted Western research practices and concepts, and this is severely limiting not only for Mātauranga Māori but also for Western science as well. Several Mātauranga Māori perspectives were shared.

Example 1.
Several researchers recounted the frustration of Western science's silos. One referred to a tendency for land-focused Western science research to operate separately from water-focused research.

"I hear from our crew about the disconnect between land and water – anything that happens in the moana has come from the land so it's frustrating to not be able to connect the two."

Attendees asserted that a Mātauranga Māori view is more holistic, and uses systems thinking and trans-disciplinary expertise to build a much more complete picture on a scientific challenge. In contrast, reducing the boundaries of research to the level of the institution, resource (e.g. moana), or discipline (e.g. ocean science) – rather than to the kaupapa (research purpose) - sets up an intentional blindness that can create major oversights when transitioning to a real world application.

Example 2.
One Māori researcher working with plants is a strong advocate for protecting Mātauranga Māori. She reported having to take the initiative to develop tikanga around her research practice in the laboratory.

"I acknowledge that the cells I work with are tapu and important to keep safe, for example, saying a karakia in the lab. These types of things need to be embedded in health and safety. I also advocate the returning of any plant material not used back to Papatūānuku, but that is not taught in Western science. Sometimes you just have to do it yourself and lead by example."

In working with plant material, a Mātauranga Māori view does not entirely divorce the plant from its real-world context. Its use within the study attempts to honour its intrinsic value; and a plan is prepared so that it is used in a sustainable way and returned to the environment. If such practices were formalised as good and responsible science, individual researchers would not need to take the time to develop, explain and justify these protocols on a case-by-case basis.

Example 3.
A Māori researcher, whose research primarily involved Pākehā participants, had purposefully applied practices that she would naturally use in Kaupapa Māori research, such as: "providing feedback to those participating in our research and involving them in the decisions we make in interpretation of results. This is something of value we bring to projects, even when not working with Māori." Collaborating with research participants was widely regarded as best practice, and something that should be funded as a matter of course in research projects.

This was in line with another Māori researcher who, in their work with Māori, saw feedback as a mana enhancing exercise for communities.

"It's a bit of a whakamana back to our community that we work with - they aren't just a repository of knowledge for us to extract information from. It would give them more mana, give them more tools and more power. And it allows them to understand the impact."

A Mātauranga Māori view acknowledges the contribution of all collaborators and participants in the work. All are adequately looked after (manaakitanga) and protected (tiakitanga); and mana enhancement is sought for all involved. Creating closer connections between science and communities sets the foundation for a long-term relationship, where shared agendas evolve as scientific questions are answered, and community interests are fulfilled, leading to grander questions and ambitions. In this way, these science and community relationships can develop a long-term research "whakapapa" (journey, shared history) together.

Example 4.
An experience was recounted of a science sector review that only consulted with one Māori person. The review had enormous implications for hapū and iwi, but there was no opportunity for considerations from hapū and iwi to be included. As a result, a Pākehā perspective dominated. This level of engagement appeared to be acceptable to the lens of the science sector, but from a Mātauranga Māori point of view, it is lacking in quality.

Even many non-Māori would now agree that this kind of engagement with any stakeholder group would be unsatisfactory. From a Mātauranga Māori lens, a sector review would be informed by a number of principles that would have made this piece of work more meaningful. A few examples would include pono (sincerity, honesty) and whakawhanaungatanga (quality relationship management).

MĀTAURANGA MĀORI SHOULD BE UNDER THE AUTHORITY OF MĀORI

a) Māori to formulate a national definition for Mātauranga Māori in the science sector
There was widespread agreement at the hui that it is time for Māori to come together to agree and formally describe how Mātauranga Māori should be defined within the science system; and how it can best be integrated while maintaining its integrity.

Hui delegates agreed that scientists and the others operating in the science sector require assistance in understanding and integrating Mātauranga Māori into their purview, and that a nominated group of Māori should define that kaupapa.

"[The Crown] can house the conversation, but it should be written by people directly from here: Māori. And when we're talking about rewriting narrative, that it's in a really active way of ensuring we are putting our front foot forward and taking some action directly from this hui."

b) Establish an expert council for a Mātauranga Māori/ science sector review
Attendees raised the possibility of an expert council on Mātauranga Māori Science in the immediate term. Focusing on the scientific domain, this entity could help create minimum standards and consistency in

guidelines for how Vision Mātauranga and Mātauranga Māori are used, assessed and protected across the science sector, and help determine what science excellence is from a Mātauranga Māori perspective.

c) Convene an independent Mātauranga Māori commission to formulate and oversee a national Mātauranga Māori agenda

Attendees were of a general consensus that government ministries are not set up to understand, assess, or design policy for Mātauranga Māori, particularly where Mātauranga Māori extends beyond the scientific domain and into areas such as education and law. It was agreed that an independent commission could be formed as a way of addressing Mātauranga Māori from a long-term, all-of-government perspective. Appropriately, Māori should determine and lead how Mātauranga Māori is protected, used, developed and created out of such a Commission.

"Mātauranga is a high-level strategic area that should be handled by a Māori organisation."

A well-resourced, intellectually powered commission like this could also help spearhead important Mātauranga Māori-relevant issues that are faced across the sector, such as mechanisms of knowledge protection for Mātauranga Māori, and the implications of Wai 262 on the research, science and innovation sector.

d) Create dedicated Mātauranga Māori or Māori science initiatives, e.g. Mātauranga NSC or SSIF

While Mātauranga Māori capabilities should exist across the sector, attendees called for opportunities for focused initiatives dedicated to Mātauranga Māori science and Vision Mātauranga. For example, a Mātauranga Māori/Kaupapa Māori NSC, Māori Science Centre of Research Excellence (CoRE) or Strategic Science Investment Fund (SSIF) platform could enable Māori Science to generate outcomes that are new and significant. These could also serve as mechanisms to rise above the institutional silos.

"Why aren't we aiming for our own Mātauranga Māori NSC? We're all scattered amongst various science challenges, but why shouldn't we have our own? Shouldn't that be an aspiration?"

"Having our own Māori Challenges [...] we could cumulatively do something really amazing."

e) Move from co-design to leading design

Hui attendees expressed a desire not to be constrained to a position of co-design alone. There was a strong impetus to be given more power and opportunity to lead the design of work, especially when there had been a long failure of delivery by many scientists and the science policy. Empowering Māori to define their own success and trajectory was where attendees were interested to move.

Delegates Discuss Māori Leadership in New Zealand Science

"I don't want to co-create … I just want to create, and I don't know why we would let them do it. They want to co-create it with Māori, but if we are talking about the interaction, then we should be inviting them to co-create."

"We don't talk about co-creation, we talk about partnership, Treaty frameworks, about power and resource sharing."

THE MĀORI WORKFORCE SHOULD BE PRO-ACTIVELY DEVELOPED IN THE SCIENCE SECTOR

Attendees of the hui consistently expressed a desire to increase the numbers of Māori in the science sector workforce and in the STEAM pipeline more broadly. The current track record of post-study retention was seen to be a major barrier to this. Delegates noted that there are around 700 Māori PhDs, and most of these are not working in the system. Burnout, the negative impact of Aronga Takirua on academic career advancement, the lack of systems rewarding the Mātauranga Māori activities of researchers, and policies and practices that institutionalised racism were all seen as contributing factors.

These settings create an enormous problem for the science system and for Māori. Even as/if the numbers of Māori entering higher training in STEAM from high school increases, a science sector that is hostile and punishing for Māori will continue to repel this nascent talent. Many attendees were aware of Māori who had exited the science sector due to the factors above whom had gone on to have successful new careers elsewhere.

While it is reassuring that those exiting the science sector go on to other fulfilling professions, the constant redirection of Māori talent out of the sector raises a number of important questions: what is lacking within the science system and its culture that fails to attract Māori talent; what are the main factors that are leading to the attrition of Māori science talent from the sector; what benefit does the science system lose by streaming out Māori and Māori knowledge; and how can the science system honour the Treaty principles without an adequate Māori workforce and knowledge base in the sector.

These questions are all complex topics to be tackled by the Crown and science institutions, in partnership with Māori. Meanwhile, hui delegates highlighted a few easier factors that could be addressed by science organisations and the Crown to improve the recruitment and retention of Māori in the science sector.

a) Prioritising Wellbeing

Science institutions and teams could adopt a more ethical philosophy and framework of care for their workforces, through adopting approaches that support the wellbeing of Māori and scientists within the sector. This was seen as a way to increase retention and prevent burnout. Senior attendees at the hui had been starting to address this within their own teams.

"We need to build our own wellbeing into our programmes - for ourselves, our co-workers and our communities. We have to do it ourselves. We are thinking about this now in terms of our next programme applications - we will be building in some resourcing to maintain our own wellbeing because if you're not well yourself, you're not going to realise your own potential."

"I reflect on a conversation with kaumātua in one of our projects - here you are coming out to protect the environment when you can't even protect yourselves. He was talking about the burnout and fatigue and just the stress that we have."

b) Leadership Development

There are very few Māori in leadership positions within the science sector. Creating leadership positions for Māori and recruiting, promoting, and training them for these roles is a pressing need. The following were offered as ways in which research institutions can bolster opportunities to grow Māori leadership across the sector.

- Work from leadership models that include co-leadership and co-development with Māori
- Value, recruit and promote Māori and New Zealand talent within research institutes and departments, rather than preferencing international researchers
- Create permanent or protected positions in science institutes and science departments that are dedicated to Mātauranga Māori/Māori science undertaken by Māori researchers
- Continue to support Māori relationship roles in research institutes, such as Māori business managers,
  to free Māori researchers to focus on Māori science leadership
- Recruit and retain Māori researchers to permanent or long-term positions rather than ongoing short-
  term contracts
- Create performance indicators that recognise Mātauranga Māori research and Aronga Takirua activities, that will enable promotion and career advancement
- Create fellowships and scholarships to recruit and advance Māori Science talent
- Create opportunities to recognise and reward Mātauranga Māori activities on a national stage

Social activity at the hui

c) Leadership Networks

Given the relatively small number of Māori researchers working across the sector, often spread over a wide number of initiatives, a coordination is needed to ensure that efforts are not being duplicated, and that best practices can be shared as soon as they are developed. For science institutions, this can be achieved by creating and supporting fora and policies that connect Māori researchers within their institution, and across national institutions and organisations.

d) Active Career Development

"One thing I picked up yesterday was listening to Garth's talk. He's somebody who is a top researcher, I admire and use his work constantly. When someone like that describes his career as being a constant battle, it shows a lack of support."

Institutes can support the development of Māori researchers by actively understanding the pressures of Aronga Takirua (page 56) and supporting the career advancement of researchers by:

- recognising and rewarding their diverse accomplishments across Aronga Takirua roles
- adequately resourcing Aronga Takirua roles that are required for the work to be feasible (FTE, funding, and team member support)
- relieving Māori researchers to focus on the science by outsourcing some of the essential Aronga Takirua responsibilities
- supporting and funding different kinds of training that allow Māori researchers to upskill across the diverse skill set required (e.g. relationship management, team management, negotiation skills, influencing skills, project management)
- supporting the development of Māori researchers in building their cultural credibility (e.g. Māori leadership training, advanced Te Reo and Tikanga Māori courses, attendance at Māori government, business and research hui).

One major way to support the career development of Māori researchers is to establish an institutional position in which it is a requirement that all work arising from contributions of their Māori researchers to academic teams and research programmes is recognised in the authorship of those publications. Acknowledging these important contributions allows Māori researchers to build their academic track record appropriately, rather than being side-lined by the demotion of their contributions.

"Recognise that we have our own indigenous knowledges that are on an equal footing with Western knowledge systems; and through that recognition, there is respect."

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