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Addressing the Colonial Legacies of Science

a Crown research institute case study

Abstract

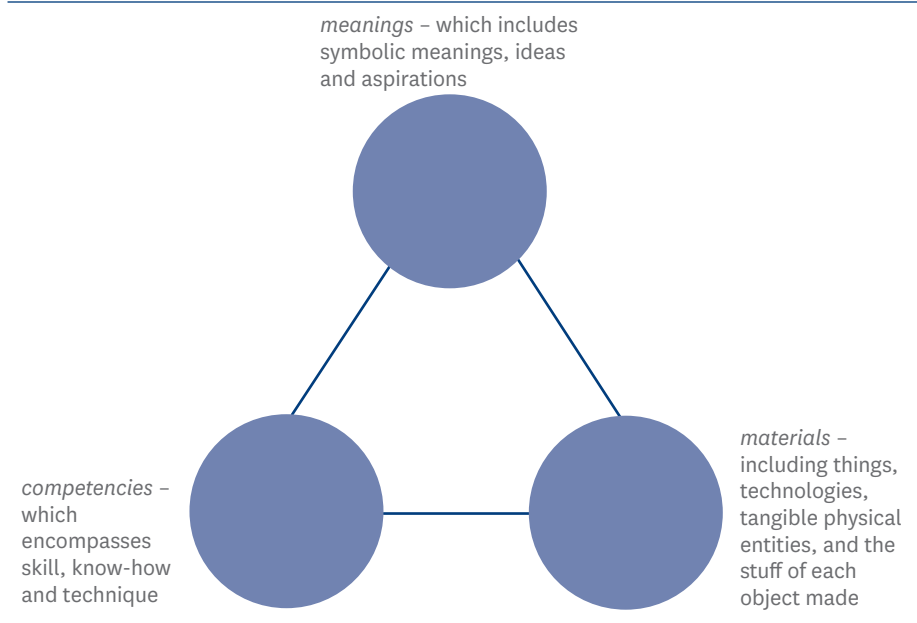
Science needs to address its colonial legacies. While the Te Ara Paerangi Future Pathways envisioned reforms of the research, science and innovation system has lost momentum, individuals and organisations across Aotearoa recognise, and are reaffirming, that the country's future prospects lie in embracing Tiriti-led policies and practices. In 2021 Manaaki Whenua Landcare Research (a Crown research institute mandated to ensure that the life force and vitality of the land is strong) committed to weaving the principles of te Tiriti o Waitangi into its fabric. As employees, we use social practice theory in this article to evaluate the changes our organisation is experiencing on its journey to being Tiriti-led, and assess the lessons, impacts, successes and failures. This case study highlights the values–action gaps currently evident across the science system and provides insights into the various elements required to enable transformative change and new social norms within knowledge production policies and practice.

Keywords te Tiriti o Waitangi, social practice theory, decolonisation, Crown research institute

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In order to advance the environmental, social, cultural and economic well-being of all of Aotearoa New Zealand, the research, science and innovation system needs to be Tiriti-led (Ministry of Business Innovation and Employment, 2022; Te Pūtahitanga, 2022). Recent research argues that for this to occur, the science system and science institutions need to first confront and address the colonial legacies of the system's cultures, norms and practices that continue to prioritise Western values, principles and processes as natural and universal (McAllister et al., 2022; Tadaki et al., 2022; Te Pūtahitanga, 2022; Hoskins and Jones, 2023; Moko-Painting et al., 2023). As Jackson (2016) reminds us, despite Western science's portrayal as such, 'there is no one superior knowledge ... there is no one superior knowledge system'. And, as Linda Tuhiwai Smith, explains, 'knowledge and the power to define what counts as real knowledge lie at the epistemic core of colonialism'. The challenge in addressing this colonial legacy 'is to simultaneously work with colonial and indigenous concepts of knowledge, decentering one while centering the other'. This, as Smith argues, requires an 'understanding [of] the complex ways in which the pursuit of knowledge is deeply embedded in the multiple layers of imperial and colonial practices' (Smith, 2021, pp.xii, 2).

Figure 1: Social practice theory elements and their links



Source: adapted from Shove et al., 2012

The Te Ara Paerangi Future Pathways reform programme envisioned a Tiriti-led research, science and innovation system (Ministry of Business Innovation and Employment, 2022); however, the new government has indicated that it plans to discontinue the reforms (Meduna, 2024). Thus, it is (currently) unresolved how – or if – the research and science system will look to address its colonial legacies. Despite the current political uncertainty, individuals and organisations across Aotearoa recognise, and are reaffirming, that the country’s future prospects lie in embracing Tiriti-led policies and practices (e.g., Kingdon-Bebb, 2024; Margaret, 2024; Massey University, 2024; New Zealand Association of Scientists, 2022; Norman, 2024; Otago Daily Times, 2024; Post Primary Teachers’ Association, 2024; Presbyterian Church of Aotearoa New Zealand, 2024; Public Health Association of New Zealand, 2024). Constructing a research, science and innovation system that supports Aotearoa’s dual knowledge systems (mātauranga Māori and Western knowledge) remains a critical part of stimulating environmental, social, cultural and economic innovation that delivers on those prospects. Creating a system that supports both knowledges requires a focus on sustaining practices that support Tiriti-led approaches and identifying those practices that are barriers and should be removed (Amoamo and Ruckstuhl, 2023). As a Crown research institute, Manaaki Whenua Landcare

Research’s experiences over the last five years provides a case study of what this can look like and highlights lessons for consideration by policymakers and organisations seeking to implement Tiriti-led initiatives within their own organisations or across the system.

In recognition of the history and development of its relationship with Māori, the board and executive of Manaaki Whenua Landcare Research committed to embedding biculturalism within its science and research practice by weaving the principles of Te Tiriti¹ into its fabric (Manaaki Whenua Landcare Research, 2021). Guided by its strategy, Te Āpōpōtanga, and supported by its cultural capability development programme, Kia Māia, Manaaki Whenua is working with the waka taurua metaphor and framework (Maxwell et al., 2020; Harcourt et al., 2022); ‘waka taurua’ refers to two single-hulled canoes connected by a temporary woven interface to form a double-hulled canoe. Within this framework, one canoe is a waka, which reflects Māori world views, values and knowledge (mātauranga Māori); the other canoe is a rowing boat, which reflects broader societal world views, values and the Western knowledge, often represented by the principles of government agencies and practised by civil servants (Maxwell et al., 2020). While Manaaki Whenua, its Māori staff and partners will conduct assessment processes to know that both ‘boats’ are working in sync, as social researchers within Manaaki Whenua we

have been using social practice theory to assess how the journey is progressing.

Social practice theory: indications that knowledge practices and performances are changing

Social practice theory focuses on practices (i.e., what people do, how they do it, why and with what), as opposed to the individuals who perform these practices. It is useful to think of a practice (e.g., writing a research proposal) as consisting of three connected elements: meanings, competencies and materials (see Figure 1).

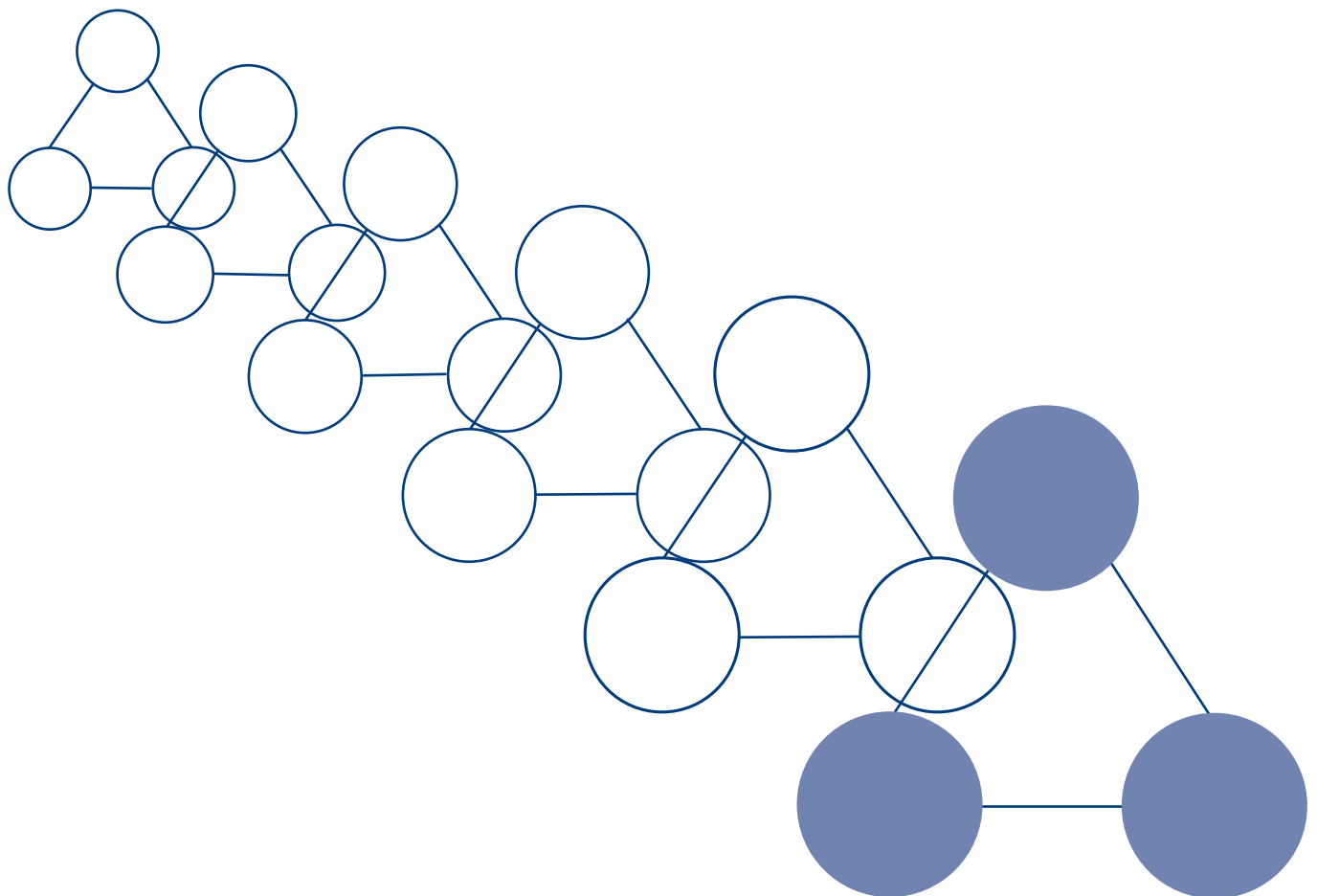
If we also think of practices as consisting of elements that are linked together in and through performance, we can see that ‘practices emerge, persist and disappear as links between their defining elements are made and broken’ (Shove, Pantar and Watson, 2012, p.21). Practices exist (as an entity) because they are performed over and over again (Warde, 2005; Shove, Pantar and Watson, 2012; Spurling et al., 2013) (Figure 2).

Knowledge production practices are defined by the shared meanings that are constructed and reproduced by practitioners. The repeated performance of research in the Western mode reinforces the idea of what research is. It sets the norms and boundaries of what is considered acceptable (Warde, 2005; Alkemeyer and Buschmann, 2017; Hui, 2017).

The constant reproduction of a practice through its performance creates a considerable inertia or persistence, reinforcing existing norms (Warde, 2005; Alkemeyer and Buschmann, 2017; Svennevik, 2021). This persistence or inertia has implications for shifting the science system to a ‘new normal’ (Spurling et al., 2013) – for example, one that supports dual knowledge systems (e.g., mātauranga Māori and Western knowledge) – as it reinforces the continued domination of the Western knowledge system over others.

Despite this, practices are not static and fixed. An important aspect of practice-as-performance is that each performance is slightly different each time. While the practice-as-entity forms a guiding structure, there is continuous internal variety within the practice-as-performance (Warde, 2005; Kuijer, 2014; Hui, 2017). Practices contain the seeds of constant change and innovation (Warde 2005), and this can ‘create new

Figure 2: Practice-as-entity (solid circles) is dependent on, and is a part of, the repeated performance of practice-as-performance over time/space (open circles)



potentials for expansive action that deviates from social norms, creating dissensus and transformative change within social structures' (Svennevik, 2021, p.11). Successfully shifting to a 'new normal' requires an understanding of both the inertia and the potential for change inherent in all practices.

Study design

Methods including document reviews and observation enabled exploration of science practices and knowledge making. We have drawn conclusions primarily from interviews with staff at Manaaki Whenua, but recognise that we have also situated ourselves as participant observers (Atkinson and Hammersley, 1994).

A combination of sampling techniques was used to select interview participants. An invitation to participate in the research was sent to four offices ($n = 170$). Targeted invitations ($n = 16$) were also sent to staff in a further two offices. The targeted invitations used a combination of criterion

and purposive sampling (Patton, 2015). We used the broad categories of 'research' and 'support' staff as the criteria for our targeted sampling, to ensure our data contained insights from across the different roles within Manaaki Whenua. Within these criteria, participants were selected based on the research team's knowledge of staff in research and support roles who were engaged with the organisation's aspiration of embedding biculturalism into its science and research practice.

Although some invitees declined to participate, expressing a wariness of being misinterpreted or deemed racist, 21 people agreed to be interviewed. Interviews followed a semi-structured approach and were conducted either in person or remotely via the Microsoft Teams video conferencing platform. All interviews were recorded with the consent of the participants, and the recordings transcribed by a professional transcription services company. Transcripts were managed using the computer software NVivo 12. Data was analysed using thematic

coding to identify key themes (drawn from social practice theory: meanings, competencies, materials) that enabled or constrained practices relating to meeting Manaaki Whenua's aspiration.

Study findings: weaving the principles of te Tiriti into our fabric

Three broad findings emerged from our interviews with staff. These findings, discussed below, help explain some of the inertia in adopting Tiriti-led practices, but also provide insights into the variations in practice-as-performance, highlighting critical areas for intervention by Manaaki Whenua to support and guide staff towards a meaningful and transformative change.

There is a high level of support for weaving the principles of te Tiriti into Manaaki Whenua

I think there is momentum. There is intent, ... there is increased prominence of aspects of tikanga in the way we do

things. So, I do think there's sort of a momentum in that direction, so I'm positive about that.

I just think there's just more general acceptance there, that Māori are Treaty partners, that our research needs to be relevant to them – also that they're not outside it – they should be inside the tent.

... a lot of people already felt that this was the right way to operate.

Although Manaaki Whenua has a long history of working with Māori, a deliberate shift is underway towards becoming a better Tiriti partner (Manaaki Whenua Landcare Research, 2021) and there is support for that shift from many Manaaki Whenua staff. For example, over 100 staff voluntarily gathered to connect to the first Tangata Tiriti Rōpū² hui for 2023.

Yet while there is strong support within Manaaki Whenua for change, it is increasingly recognised that the values and motivations of people alone will not necessarily lead to behavioural change (Hargreaves, 2011; Spurling et al., 2013; Svennevik, 2021). Known as the 'value-action gap', people's actions do not always match their values and beliefs because other factors can constrain, deflect or deter action (Shove, 2010; Shove et al., 2012; Spurling et al., 2013; Svennevik, 2021).

Action towards a 'new normal' involves taking account of the variations in practice-as-performance, and the trajectories of change, and working with them. Spurling et al. (2013) argue that we can only intervene in processes that are already underway. Therefore, there is a need to monitor and track shifts that are already occurring and intervene carefully, in ways that recognise history and context. Intervention requires the challenging and breaking of certain links and elements, which then need to be replaced and remade to ensure the practice is sustained (Hargreaves, 2011) and carried out in a way that supports a Tiriti-led science system. Social practice theory provides a means of identifying effective intervention strategies to help accomplish this replacing/remaking process.

Staff need to imagine what a 'new (bicultural) normal' means for their work

I think we kind of have a general understanding of why it matters, but I

Creation of spaces and learning resources for staff to engage in these discussions and with te ao Māori are ways identified in this study of challenging, breaking and remaking certain links and elements, leading towards the creation of new desired practices.

don't think that we have the vision yet for what it's going to look like.

I suppose in terms of bringing te Tiriti into our everyday work, I suppose I struggle with that in terms of the work that I do ... How do the Tiriti principles work in practice so how could they be applied? And I guess to me, that's quite a big grey area.

Lasting and transformative change requires imagining the future differently from existing practices and then steering those existing practices in more desirable directions (Spurling et al., 2013). Knowing the destination is important. While the 'end point' may move and evolve as you move along the journey, starting with an understanding of what being on the

metaphorical waka taurua means for each person will identify which interventions will have a lasting and transformative effect.

One way of achieving transformative change is by substituting practices (Spurling et al. 2013). This entails substituting current undesirable practice with alternatives. The advantage of this intervention approach is that the different variations of the practice that currently exist across the organisation can be substituted with a single desired version or reimagined future.

However, imagining and substituting a new Tiriti-led science future requires some uncomfortable conversations across the science system. These include conversations around white privilege, colonisation, racism and white fragility (Buchanan, 2007; Bridgman, 2017; Pailey, 2019; Oxfam, 2023). 'Despite the aversion to it, discussing colonisation without talking about privilege and racism is telling half a story – the half that talks only of the victim and makes invisible the unearned benefits that Pākehā reap from colonisation' (Margaret, 2019). Being a Crown research institute means Manaaki Whenua is faced with a particular challenge of operating as and being perceived as a representative of the Crown that has dishonoured its Tiriti o Waitangi commitments as a normal part of its functioning (Scobie et al., 2023). This is one of the first points for critical reflection all those working in Crown research institutes need to give attention to.

Creation of spaces and learning resources for staff to engage in these discussions and with te ao Māori are ways identified in this study of challenging, breaking and remaking certain links and elements, leading towards the creation of new desired practices. Growing the capability of non-Māori, of tangata Tiriti, to respond appropriately to Tiriti-led initiatives is being addressed by Manaaki Whenua through its Kia Maia cultural capability development programme.³ Through te Tiriti o Waitangi training, 'Being Manuhiri' workshops and a focus on tangata Tiriti responsibilities, Manaaki Whenua is beginning to break and remake links and elements and build capabilities for stronger relationships with te ao Māori. As part of this process, it has reflected on its relationships with tangata whenua and what

it means to be responsible manuhiri (guests and visitors). ‘Manuhiri’ refers to the values and etiquette associated with arrival at a marae (gathering space) or new place and conveys an encounter and relationship with tangata whenua through invitation and shared responsibility (Manaaki Whenua Landcare Research, 2023).

However, more work needs to be directed towards creating safe spaces for staff to engage in discussions and reflections about what it means to be tangata Tiriti, and the colonial legacies of the science system, as this comment indicates:

I have a number of colleagues who, when your invite came out for this, discussed among themselves as to whether they should put themselves forward for the interview. But then decided not to, because it’s a difficult space to be able to express your opinion as a Western scientist. I’ve heard people being called racist just for expressing their views as a scientist.

The need for a better articulation of what a Manaaki Whenua looks like with te Tiriti woven into its fabric is recognised by senior managers:

We know we want to move this way and we think there’s a better future, but none of us can very clearly articulate what that future looks like. And so, I think that’s probably the next step in the process for us, is to imagine into that possibility space a bit more ... and help us to see what the future model could look like.

Creating social change by substituting practices requires intervening in multiple elements (materials, competence and meanings) all at the same time. We need to think about all these elements when developing, articulating and implementing what the reimagined future looks like.

Centring mātauranga Māori without decentring Western colonial practices

... the pervasiveness of our way of doing things is quite omnipresent. [It] ... illustrates how our institutions and

... while building mātauranga Māori capability is essential in moving towards a dual knowledge base, equally essential is addressing the way colonisation has privileged, and continues to privilege, Western world views and governance structures over indigenous perspectives ...

our systems and all the way we do things, they’re so built around a Western way of thinking.

And just even from an objective perspective, power relationship balance, well, of course we still hold power, we hold financial power and so forth.

This study revealed that Manaaki Whenua’s focus is on centring mātauranga Māori, and the capabilities development has not yet moved to decentring Western science. Building mātauranga Māori capability is essential as part of moving to a science system that is Tiriti-led, and Manaaki Whenua has made significant commitments towards this. For example, it has created, and resourced with funding, senior research roles (kaihautū) to lead Māori research across the organisation and to ensure that kairangahau (kaupapa

Māori researchers) have adequate funding and support to develop their research. Manaaki Whenua has also been working with universities in Aotearoa to provide internships to encourage students into a kairangahau career at Manaaki Whenua. As previously mentioned, the Kia Māia programme also exists, developed to grow people’s bicultural competency.

However, while building mātauranga Māori capability is essential in moving towards a dual knowledge base, equally essential is addressing the way colonisation has privileged, and continues to privilege, Western world views and governance structures over indigenous perspectives (Whyte, 2016; Smith, 2021). Confronting, challenging and deconstructing this pervasive colonial legacy is a key component of ensuring that a shift to Tiriti-led science results in meaningful and transformative change. The asymmetrical power relations inherent ‘in how social institutions are structured and operationalised in ways that favour powerful and privileged populations’ (Whyte, 2016, p.159) largely goes unrecognised within white society (Margaret, 2019; Oxfam, 2023). While mātauranga Māori is portrayed aspirationally in the waka taurua framework as a waka sitting equally alongside the Western knowledge rowboat (Maxwell et al., 2020), the reality is a waka connected to a supertanker, because of the pervasiveness of how institutions and systems are built around and dictated by Western ways of thinking and doing. As Parsons et al. (2021) highlight, the state favours formats that fit its needs (world views and governance structures) rather than indigenous perspectives. Organisations need to critically reflect on the supertanker role their operating procedures, policies and structures (i.e., materials) play in maintaining practices that reinforce the continued domination of the Western knowledge system over others. Shifting people’s values and attitudes (meanings) and building their capability (competencies) with mātauranga Māori will, on their own, not result in meaningful practice changes.

[This] has huge implications for the structure of the organisation and the policies it has, which means spending

an enormous amount of time and effort on making those changes to the organisation to allow the researchers to then be able to do the research that way ... There are tools that the organisation could use to help map out how big a challenge that is and the kinds of things that might need to happen ... [But] if that's forgotten about, then the whole thing [fails]. And so, what can happen is the victim, which is us researchers, end up getting blamed for not doing this kind of research when our context won't let us.

Similar sentiments could be expressed for other Crown research institutes if this aspect is overlooked in any redesign of Aotearoa's science system. Unless the colonial legacies of the science system's cultures, norms and practices are addressed, Crown research institutes, despite their best intentions, will not be able to fulfil the ambitions of a Tiriti-led science system.

Disrupting current institutional and systemic racism, and the colonial legacy of the supertanker, requires simultaneously decentring Western practices that privilege this world view while building mātauranga Māori capability (Smith, 2021). One approach to this is through re-crafting practices (Shove, Pantar and Watson, 2012; Spurling et al., 2013). Re-crafting focuses intervention on phasing out or changing elements of unsustainable or undesirable practices with the aim of shifting the practice towards more desirable forms of performance. Within Manaaki Whenua, 'Being Manuhiri' resources (materials) are being developed to help re-craft settler- or colonial-centric elements and assist staff to build capability (competencies) in addressing them.

Another approach is to look at how practices interlock with one another and how interventions focused (or not) on those connections can (or cannot) cause change to ripple through those interconnected practices (Watson, 2012; Spurling et al., 2013). A key aspect of centring mātauranga Māori practices and decentring Western ones is that they occur simultaneously (Smith, 2021): each informs and enables change to ripple through to the other. Focusing on one over the other can inhibit change. For example,

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making Manaaki Whenua a great place for kairangahau to work is one driver of building mātauranga Māori capability within the organisation. But centring mātauranga Māori without decentring Western practices risks becoming 'inclusion', a model where the onus is largely on Māori to change and fit into existing ways (Moewaka Barnes et al., 2021; Hoskins and Jones, 2022). Not simultaneously addressing the colonial legacy of science jeopardises making Manaaki Whenua a place where kairangahau see themselves and want to belong.

Inclusion can let institutions off the hook by providing the appearance of addressing the issue without addressing the fact that they themselves are a significant part of the problem (Hoskins and Jones, 2022). In moving towards a Tiriti-led approach, organisations need to reflect

critically on whether they are truly addressing the supertanker or are in fact just following the well-worn path of inclusion. Building a dual knowledge system requires as much effort being put into this side of the process as goes into building mātauranga Māori capability.

Conclusion

[In] dealing with Māori partner organisations, ... nearly all of them have got a hell of a lot better institutional memory than we do. And they remember the picture in the round. They remember who was supporting them. They remember why. They remember the conflict. They remember the issues not resolved ... certainly they remember the people who went the extra mile, because I think we tend to lose sight of the fact that government waxes and wanes in its commitment to Māori. We might think that we are currently in a waxing period. Whether we are in a waning period in the future, we don't know, but the one thing that Māori organisations remember, who the fair-weather friends were and who were there in the foul weather as well.

Manaaki Whenua Landcare Research's journey of moving to a 'new normal' where te Tiriti o Waitangi is woven into its fabric is a challenge all science organisations will need to grapple with, in one way or another, if Aotearoa is to move to a science system that genuinely supports dual its knowledge systems (mātauranga Māori and Western knowledge). Our research provides some insights and highlights some lessons for consideration by policymakers and organisations seeking to implement Tiriti-led initiatives within their own organisations. Within Manaaki Whenua it is not the motivations or values of staff that are constraining Tiriti-led practices. Rather, it is aspects of the competencies and material elements that have the greatest influence on the performance of practices. Intervening in these elements would provide staff with the support and guidance needed to enable them to establish the norms, behaviours and practices consistent with a Tiriti-led science system. Creation of safe spaces for conversations and reflections on tangata Tiriti responsibilities,

‘Being Manuhiri’ learning resources that help re-craft settler- or colonial-centric elements and assist staff with building capability, and workshops provided by Manaaki Whenua to help staff critically reflect on their positionality and the colonial legacies of their science, have all been identified as ways to address this.

Although central government’s impetus to embed te Tiriti has lost momentum, there have been strong showings of support for te Tiriti publicly by both Māori and tangata Tiriti – for example, at Tūrangawaewae and at Waitangi Day events across the country (Delahunty, 2024; Margaret, 2024; McRoberts, 2024). Additionally, organisations across Aotearoa have been reaffirming their commitment

to te Tiriti (e.g., Kingdon-Bebb, 2024; Massey University, 2024). Stimulating environmental, social, cultural and economic innovation is critical to the future well-being of Aotearoa. Having a research, science and innovation system that supports Aotearoa’s dual knowledge systems (mātauranga Māori and Western knowledge) is a key component of this. Redesigning Aotearoa’s science system to achieve this will require significant organisational and individual changes in practice. Successfully shifting to a ‘new normal’ requires an understanding of both the inertia and the potential for change inherent in all practices. Social practice theory can provide this understanding. It can provide a guiding policy framework

to identify which combination of elements make up the practice-as-performance and where interventions are needed to overcome the status quo inertia that maintains and reinforces the continued dominance of the Western knowledge system over others.

- 1 Partnership, participation and active protection (Manaaki Whenua Landcare Research, 2021).
- 2 Tangata Tiriti Rōpū is a forum for non-Māori (tangata Tiriti) Manaaki Whenua staff to discuss and learn about what it means to be tangata Tiriti and Tiriti-based ways of working.
- 3 This programme has been developed to help all staff understand and develop the skills and competencies required to deliver on Manaaki Whenua’s Tiriti commitment. Baseline competencies include being able to deliver a pepeha, mihi, plus several waiata and karakia; having a basic knowledge of te Tiriti o Waitangi; and for staff who do not identify as Māori, what it means to be tangata Tiriti.

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