

Response to Te Ara Paerangi

Who we are and why we are making a submission

- a. This submission is from a small group of colleagues from diverse backgrounds and roles in research who have convened around a common theme of data in research. The submitters are part of a formative group looking to establish a cross-sector committee on data in research at the request of the Royal Society Te Apārangi. The committee on data in research aims to promote and connect across a broad and inclusive landscape, identifying the challenges, needs, opportunities, and initiatives which characterise Aotearoa New Zealand's current and future research ecosystem. The committee recognises the uniqueness of the Te Tiriti partnership as a guiding and innovative force, and aims to facilitate broader awareness of opportunities and connections within a global research ecosystem, including taking on a role of national membership within such bodies as [CODATA](#), [WDS](#), and [RDA](#).
- b. The submitters come from a range of research sector backgrounds and roles. We embrace an inclusive definition of research including Mātauranga Māori, which assumes governance, leadership, and priority setting in relevant spaces belongs with Māori.
- c. We're making this submission as we're recognising common interests around data in research despite our diverse situations and needs. These interests lie in exploring values and principles, addressing policies and practices, and promoting goals and investments across a wide range of communities and institutions within the research sector. As we embark, our vision for the future is somewhat constrained by a high degree of fragmentation across the sector - there is no holistic view of the research data landscape, nor a recognisable body that aspires to establish a vision for this essential aspect of a modern research sector. Aotearoa New Zealand is not advanced in the capability to exploit research data and therefore unable to maximise the value of research data as an asset/taonga, and ensure reuse of data or reproducibility to increase the trust in science.

Submitters

- Michelle Blake, University Librarian, University of Waikato
- Richard Hartshorn, Professor of Chemistry, University of Canterbury, and Secretary General of the International Union of Pure and Applied Chemistry
- Nick Jones, Director, NeSI - New Zealand eScience Infrastructure, University of Auckland
- Kristin Stock, Director, Massey Geoinformatics Collaboratory, Massey University
- Ilze Ziedins, University of Auckland
- Bapon Fakhruddin, Tonkin + Taylor
- Blair Hall, Measurement Standards Laboratory of New Zealand, Callaghan Innovation
- Maui Hudson, Te Kotahi Research Institute, University of Waikato
- Matt Williams, School of Psychology, Massey University
- Michael Plank, School of Mathematics and Statistics, University of Canterbury

This submission represents our views as individuals, and may not necessarily reflect the view of our employing institutions.

What does good look like?

- d. Our collective ambition for data in research is rich in potential:
- ethics and quality in the way data is incorporated into and applied within research, with a focus on being in service to the communities and environments it characterises and with a te ao Māori appreciation woven throughout;
 - description of data standardised in support of research integrity and accuracy, underpinning quality and reproducible research;
 - research skills, practice, and infrastructure that enable researchers to make data as open as possible and as closed as necessary, all the while embracing FAIR and CARE principles;
 - research institutions, policies, and funding which enable appropriate sharing of knowledge across horizons of research, including into practical application to enhance cultural, social, environmental, and economic outcomes;
 - Māori-led research data spaces, founded on co-governance and with autonomy on priority setting and investment.
- e. Research is increasingly interdisciplinary, as illustrated by global grand challenges of the kind embodied in the UN Sustainable Development Goals, the Sendai Framework (2015-2030), Paris Climate Agreement (UNFCC [2015](#)), and the Habitat III New Urban Agenda (United Nations Habitat III [2016](#)), and this requires the development of new connections between people and between organisations, particularly in the context of data and data management. Sharing best practice and building relationships, both nationally and internationally, will add value to the work that we do, and open up new opportunities for collaborative research with enhanced benefit to Aotearoa New Zealand.
- f. We see a prominent role for Aotearoa New Zealand in the global ecology of research data - innovation will stem in part from our human-centred approaches which empower people and their communities. We see partnerships with Māori communities driving towards distribution and delegation of control to individuals and groups, including place based initiatives such as is envisioned through the regional Māori knowledge hubs. Through these mechanisms we collectively build capability for more ethical use of data, and accelerate new research such as in precision medicine and targeted public health.
- g. It is vital that the integration of mātauranga Māori leads the approach to research data management. Work has already taken place in relation to Indigenous and Māori data sovereignty which highlighted the need for data schemas, methods and tools that can be applied to Indigenous data. Consideration needs to be given as to how any data schemas e.g. Traditional Knowledge Labels are utilised to ensure the use of CARE (collective benefit, authority to control, responsibility, ethics) principles as well as the FAIR principles. Consideration of Mātauranga Māori will allow community control and self-determination in relation to data stewardship. This will be enabled by support for the

development of standards relevant to Indigenous data (e.g. [IEEE Recommended Practice on Provenance of Indigenous Peoples' Data](#))

- h. We are advocates for a national approach to assist with skilled workforce shortages, for example, those that specialise in digital preservation and research data management and Māori data sovereignty. This would allow opportunities to be explored such as the creation of roles that could be shared across institutions to support research data management (this could be particularly useful for those in Art and Humanities areas where skills levels to support this are generally lower).
- i. Our vision is of a sector able to prioritise and invest into data spaces and platforms of high quality research data, which then act as catalysts for new research ideas, new methods, and greater degrees of interdisciplinary collaboration in addressing a wide range of needs. These platforms are empowered to operate beyond institutional boundaries, are co-designed with end-user communities and infrastructure partners all at the table, which through their work build a coherent framework across institutions for data sharing and discovery appropriate to delivery on their purpose or mission.
- j. These research data spaces become a core function, enabling the fulfilling of obligations for the retention of data and sharing it when it may be of use to others. As a sector we need ways in which research outputs and data can be leveraged to achieve more, or be useful in ways not envisaged at the time the research was done. Funding mechanisms need to operate outside of project funding structures, and incorporate interests beyond one organisation.
- k. We need data spaces as products that are supported from inception through to ongoing services, which then support and enable others with which they connect and collaborate. This embodies active encouragement to provide value for others and offers a route by which key inter-organisational infrastructure can be supported. This is particularly important in the context of data retention, management, and reuse. In this future, national infrastructure actively supports and builds on local repositories and nationally significant databases, becoming a dynamic ecosystem which responds to an evolving set of needs with time.
- l. To support end users to navigate this landscape, a national index or repository is needed to complement domain specific or local community or institutional repositories. This is particularly pertinent with providing services in managing and curating high volumes of research data output within and across disciplines. International examples include the [Research Data Australia](#) and the [UK Data Service](#). The UK Data Service also provides expertise in data skills training and data security, promoting FAIR principles and using high-quality data.
- m. We need a strategic approach to data in research, one which builds the capabilities of communities, institutions, and individuals, and maximises the impacts and outcomes of such an investment for Aotearoa New Zealand as a small self-sufficient nation.