

Towards an institution-wide Research Data Management Framework

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Research Data Management Project - drivers

Increasing domestic and international funder, publisher and ethics committee requirements e.g. MBIE, Royal Society, NEAC & HDEC

Responsiveness to and engagement with Māori

Research impact e.g. HRC

Enabling our researchers with the best tools and practices

- Privacy Act 2020
- [FAIR](#) and [CARE](#) data principles, and Māori Data Sovereignty
- University Strategy - becoming a Māori Data Sovereignty Organisation

Manage research data as a strategic asset - impact, resource allocation, forecasting & investment

Project scope

Stocktake

Stocktake of existing RDM Framework using appropriate data/capability maturity model

Q4 2020-Q1 2021



Results to inform ambitions, design principles, and options paper

Vision

Develop the vision, design principles, desired maturity levels and priorities for RDM at the University

Q2



Vision to inform options paper and implementation plan

Options

Options paper: incl. steps to becoming Māori Data Sovereignty organisation and updates to policy framework

Q3



Options endorsed by University Executive to inform implementation plan

Plan

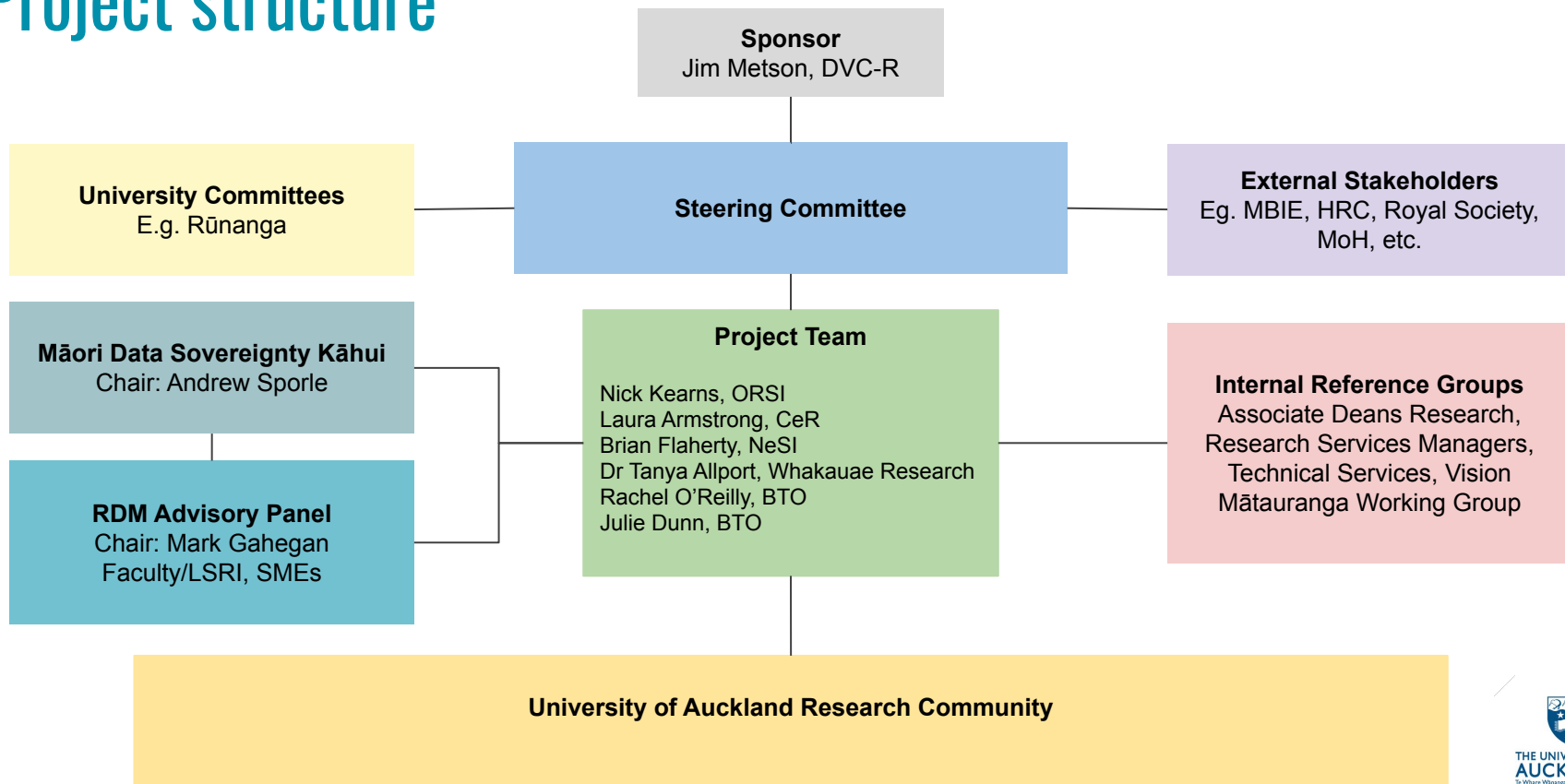
Long-term, fully-costed implementation plan for new RDM Framework

Q4



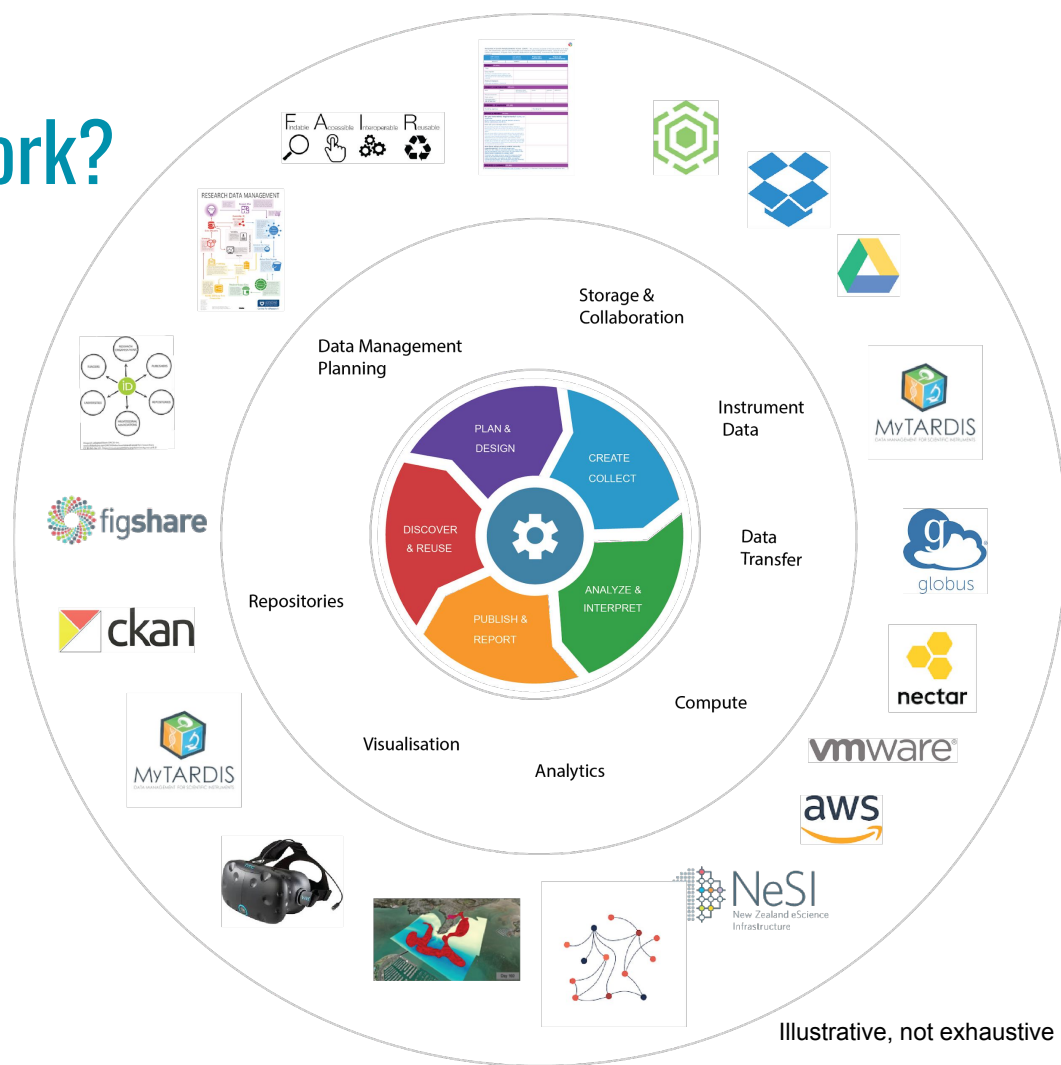
Plan to guide future investment in infrastructure and support services

Project structure



What is a RDM Framework?

- Research data?
- Current services (lifecycle) and practices, gaps and barriers
- Integrated RDM Framework - policies and processes, platforms, services and support



Illustrative, not exhaustive list.

NZ, professional & institutional policy

Research Charter for Aotearoa New Zealand

- researcher and institutional responsibilities for data+ “safe and secure storage, management and access for future use”, 2020

Royal Society Professional Code of Conduct

8. To develop, and implement so far as they are reasonably able [2], a management plan to ensure the integrity, retention, secure storage, appropriate and transparent use of data and samples gathered or developed during their activities

Taumata Teitei – Vision 2030 and Strategic Plan 2025

p4, “We will forge enduring partnerships that inform and guide our progress towards becoming a Māori Data Sovereignty organisation. This will see transformations across our education, research and engagement practice and in how we work as an organisation.”

Research Code of Conduct

4.5. Research Findings: Researchers should share data and findings openly and as promptly as possible, ...

5.4 Researchers should keep records of all research in ways that will allow verification and replication of their work by others... Original research data should preferably be kept indefinitely. ...Data should be stored in a safe and secure location and manner. ...

‘Stocktake’

- Current state assessment of RDM maturity (not audit)
- Roadshow - Faculties/Large-Scale Research Institutes and Schools
 - Raising awareness - drivers, FAIR, and Māori Data Sovereignty
 - Issues, questions
- Survey, interviews
- Maturity model



**MEDICAL AND
HEALTH SCIENCES**
SCHOOL OF MEDICINE

Ethical and responsible Research Data Management (RDM) in a health research context in Aotearoa New Zealand

Wednesday, 4 November at 1:00 – 1:45 pm

Zoom: <https://auckland.zoom.us/j/5073436453> (Meeting ID: 507 343 6453)

Speakers:

- Professor Alan Merry
- Professor Nathan Consedine
- Laura Armstrong, Centre for eResearch
- Brian Flaherty, New Zealand eScience Infrastructure (NeSI)



About the talk: Research Data Management (RDM) is a critical knowledge area for researchers as domestic and international funders, publishers and ethics committees introduce increasingly stringent requirements for the collection, storage, use and disposal of research data – particularly for health and Māori data. But what constitutes ethical and responsible RDM in a health research context in Aotearoa New Zealand? And how can we enable this as a research community at the School of Medicine? In this seminar you will hear about recent RDM developments and how to get involved in the development of an improved University RDM framework that addresses the needs of researchers in policy, infrastructure and support services.

Online survey

- Researchers, postgraduate research students, relevant research support.
- Emailed Qualtrics link, anonymous, Nov-Christmas. ~20mins
- 283+ survey responses
 - 1/2 healthcare/biomedical
 - 50% DMPs
 - Ethics/sensitive data - significant driver for DMPs and not publishing data
 - Data management practices - filenaming, README
 - Sharing
 - Long term stewardship

Issues



Researcher interviews (current work)

- 12-15 research groups
- Diversity of research data practices, disciplines, etc.
- RDM practices, awareness, barriers and enables -
 - Policy, incl. strategy, governance
 - Māori Data Sovereignty
 - Data management practices (active data) - organising, documenting
 - Data processes for sharing, curating, archiving, preserving
 - Infrastructure
 - Support services and skills

Data Maturity Model

CMMI's Data Management Maturity

Our Land & Water DMM

ANDS' Capability Maturity Model

Digital Curation Centre' RISE

FAIR Data Maturity Model

Data Orchard Data Maturity Framework

Te Mana Raraunga: Māori Data Audit Tool

OPERATIONALISING MDSOV... SUPPORTING BETTER PRACTICE

	weak	min	med	strong
Maori Data Rights & Interests (Ownership)	No recognition of Maori data	Recognition of Maori interests in data	Maori governance of data	Maori ownership of data
Governance of Data (Control)	Consideration of risks for Maori	Maori participation in a data access committee	Maori protocols for data access	Maori data access committee
Data for Governance (access)	No specific access arrangements	Maori can access summary data about their collective	Maori can access raw data about their collective on request	Maori have full access to data about their collective (copies)
Jurisdiction (Possession) Security env, regulatory env, Sovereign env	Storage overseas – poor regulatory env	Storage overseas – strong regulatory env	Storage in NZ	Storage in Maori repository
Ethics	Consideration of risks for Maori	Integration of Maori principles (kaitiaki)	Use of Maori principles (guidelines)	Use of Maori principles and DM protocols
Consent	No consent	Individual consent – general use	Individual consent – specific use	Individual and collective consent
Capacity	No capacity building	Use of external expertise	Building organisational capacity	Building org & community capacity
Process, how addressed				

AProf Maui Hudson, 2019 <https://www.otago.ac.nz/wellington/otago706724.pdf>

University of Auckland Data Maturity Model (in-development)

Acknowledging FAIR, RISE & ANDS models & Māori Data Sovereignty (developed from work by Maui Hudson).

	Level 1 INITIAL <i>Process disorganised & ad hoc</i>	Level 2 DEVELOPMENT <i>Process is under development</i>	Level 3 DEFINED <i>Process is standardised and communicated</i>	Level 4 MANAGED <i>Process is managed and measured</i>	Level 5 OPTIMISED <i>Focus is on continuous improvement</i>
Strategy, Governance, Policies	<ul style="list-style-type: none"> - Strategy, policies & procedures may be underdeveloped, not up to date, and/or inconsistent 	<ul style="list-style-type: none"> - Strategy, policies & procedures are developed & harmonised for specific tasks 	<ul style="list-style-type: none"> - Strategy, policies & procedures are defined and absorbed into behaviours 	<ul style="list-style-type: none"> - Strategy, policies & procedures are accepted as part of culture & subject to audit. 	<ul style="list-style-type: none"> - Strategy, policies and procedures are accepted as BAU, audited and regularly reviewed to align with current best practice.
Māori Data Sovereignty	<ul style="list-style-type: none"> - There is little or no recognition of Māori data - Māori data stored without consideration of the implications of location/security 	<ul style="list-style-type: none"> - Recognition of Māori interests in data - Māori participation in a data access committee - Some integration of Māori principles (<i>kaitiaki</i>) 	<ul style="list-style-type: none"> - Māori governance of data & protocols for data access - Māori data definition is consistent (e.g. Te Mana Raraunga charter) - Māori can access raw data about their collective on request - Full range of storage options, including NZ based, as required 	<ul style="list-style-type: none"> - Māori ownership of data - Māori data access committee- - Māori have full access to data about their collective - Widespread use of Māori principles and DM protocols 	<ul style="list-style-type: none"> - Māori Data sovereignty principles are intrinsic to RDM at an institutional level - RDM is aligned with the principles of whanaungatanga, rangatiratanga, kotahitanga, whakapapa, manaakitanga and kaitiakitanga
Data Management & Quality	<ul style="list-style-type: none"> - Metadata management is chaotic & understood by only a few - Data quality measures are ad hoc or absent 	<ul style="list-style-type: none"> - Responsibilities are defined & skills are developed - Simple DMPs available - Data collection guidelines in development 	<ul style="list-style-type: none"> - Processes are standardised and integrated - All data are assigned a globally unique persistent identifier (DOI) 	<ul style="list-style-type: none"> - All datasets described & metadata shared - DMPS used for provisioning and active management of data 	<ul style="list-style-type: none"> - Continuous improvement applied to processes & capabilities
Data Operations	<ul style="list-style-type: none"> - Simple data sharing can be a challenge - Curation, preservation services absent or disorganised 	<ul style="list-style-type: none"> - Project based data sharing services become available - Curation practices are developing and awareness of the value of curation is increasing - Value and practice of preservation is not recognised 	<ul style="list-style-type: none"> - Project based data management strategies and roles developed - Data sharing straightforward - Curation practices are standardised and widely understood - Preservation practices for selected data 	<ul style="list-style-type: none"> - Data is FAIR: sharing becomes commonplace and embedded in practice; curation understood as critical; and, data is being preserved with policy. 	<ul style="list-style-type: none"> - In addition to data being FAIR, data management operations (sharing, curation and preservation) are fully automated and machine accessible throughout the organisation
Infrastructure, Platforms, Architecture	<ul style="list-style-type: none"> - IT infrastructure is patchy across departments, deployed and managed inconsistently - Systems are poorly understood, not easily discoverable, supportable, nor documented as services 	<ul style="list-style-type: none"> - Responsibilities for provisioning, maintaining, and lifecycle management are defined - Beginning to integrate instruments, storage & transfer services, and research compute 	<ul style="list-style-type: none"> - Widespread availability of data management platforms and tools for analysing and interpreting data - Facilities are well-defined, standardised, and integrated - Automated provisioning of project infrastructure in development 	<ul style="list-style-type: none"> - Funding adapts to platform needs - Platforms are well-managed within a defined University-research-department architecture - Auditing of platforms and architecture in place 	<ul style="list-style-type: none"> - IT infrastructure management optimises the IT infrastructure evolved in previous Levels through continuous focus on management and improvement of data assets
Training, Skills & Support	<ul style="list-style-type: none"> - Data management planning is unsupported - Training is ad hoc or missing. - QA is ad-hoc or absent. - Staff are unable to locate required support or documents 	<ul style="list-style-type: none"> - Investment in skills and processes - Data management planning is used on projects, documentation & training developed 	<ul style="list-style-type: none"> - Widespread availability and uptake of training and skills development in data management - QA becomes feasible on training, processes to share and curate 	<ul style="list-style-type: none"> - QA is routinely applied to processes, results feed into future planning 	<ul style="list-style-type: none"> - Processes are optimised and periodically refined

RDM Framework?

NOT a one-size-fits-all, top-down or pre-determined approach.

Flexible, enabling, connected, incremental.

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