



Australian Research Data Commons

Supporting Open Data: CAUL – ARDC Partnership

25 November 2020

PRESENTED BY

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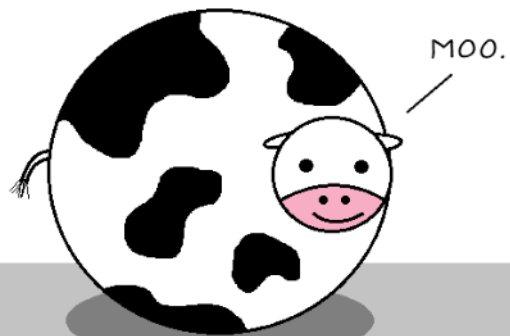
Open Data

“Open data, by definition, should be *freely* available, easily discoverable, anonymous, accessible and published in ways and with licences that allow reuse.”

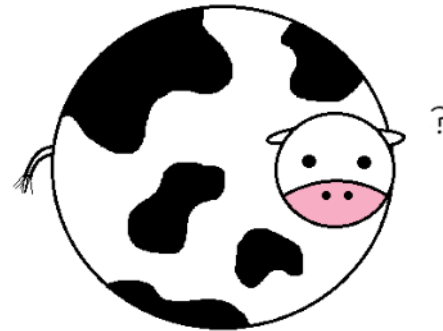
data.gov.au



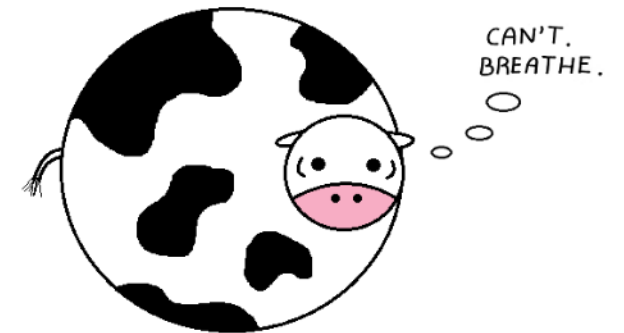
Assume a spherical cow of uniform density.



...while ignoring the effects of gravity.



...in a vacuum.



***beep* theoretical physicists**
How do you sleep at night?

Cartoon by Abstruse Goose

FAIR



FAIR: Why do we care?

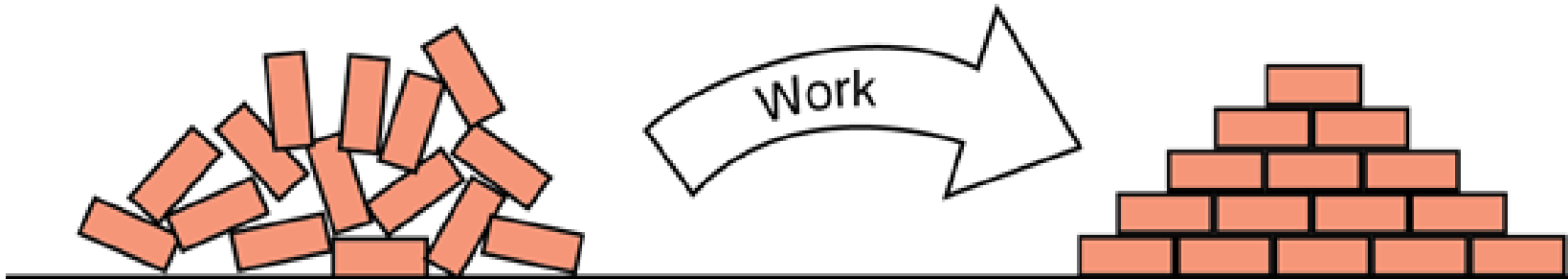
“the annual cost of not having FAIR research data costs the European economy at least **€10.2bn every year**. In addition, we also listed a number of consequences from not having FAIR which could not be reliably estimated, such as an impact on research quality, economic turnover, or machine readability of research data ... we concluded that these unquantified elements could account for another **€16bn annually**”

European Commission, *Cost-Benefit analysis for FAIR research data*, 2018



Second Law of Thermodynamics

Work is generally required to produce order out of disorder, so energy must be used to produce a highly ordered state.



The Wombles of Wimbledon Common



ARDC Members




THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA
CREATE CHANGE




UNSW
SYDNEY


THE UNIVERSITY OF
SYDNEY


MACQUARIE
University
SYDNEY AUSTRALIA


UNIVERSITY OF WOLLONGONG
AUSTRALIA


UTS
UNIVERSITY OF TECHNOLOGY SYDNEY


AUSTRALIA
ECU
EDITH COWAN
UNIVERSITY


Curtin
University


THE UNIVERSITY OF
WESTERN AUSTRALIA


THE UNIVERSITY
of ADELAIDE


Flinders
UNIVERSITY
ADELAIDE • SOUTH AUSTRALIA


MONASH University


THE UNIVERSITY OF
MELBOURNE


SWINBURN
UNIVERSITY OF
TECHNOLOGY


Federation
University


UNIVERSITY OF
TASMANIA


Australian National
University

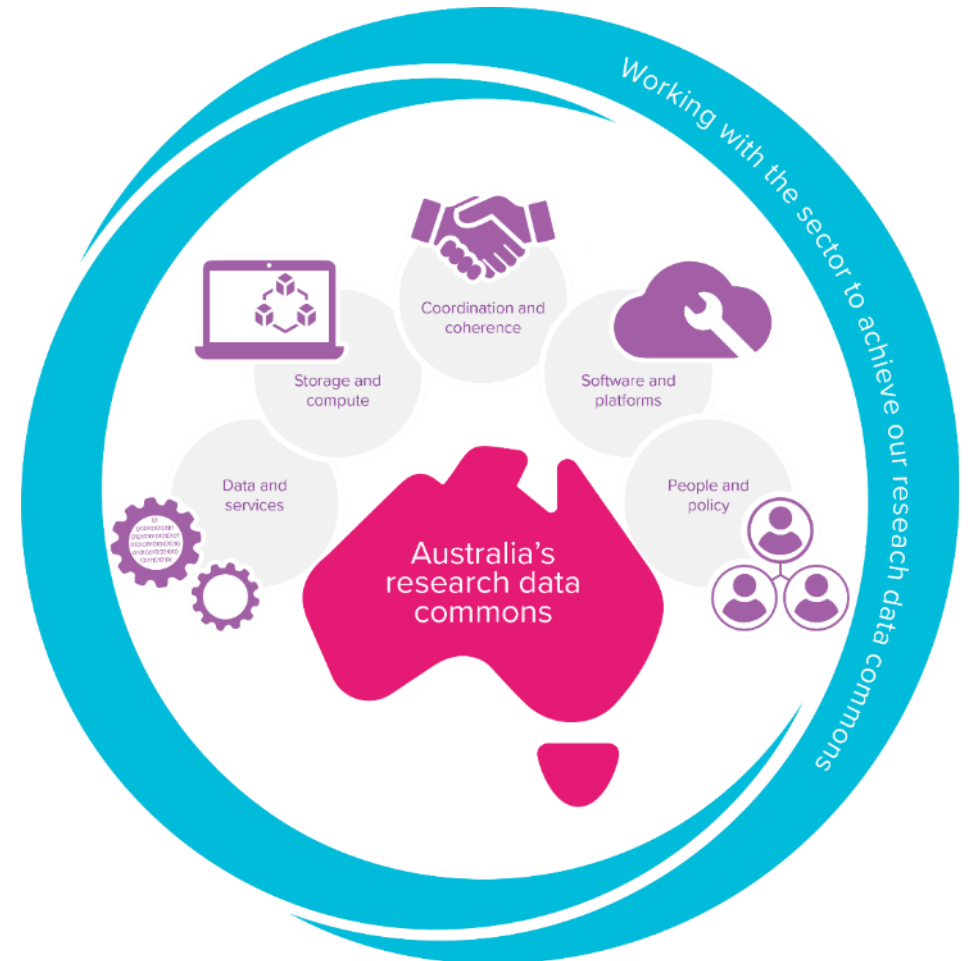

CSIRO

● HOST INSTITUTION

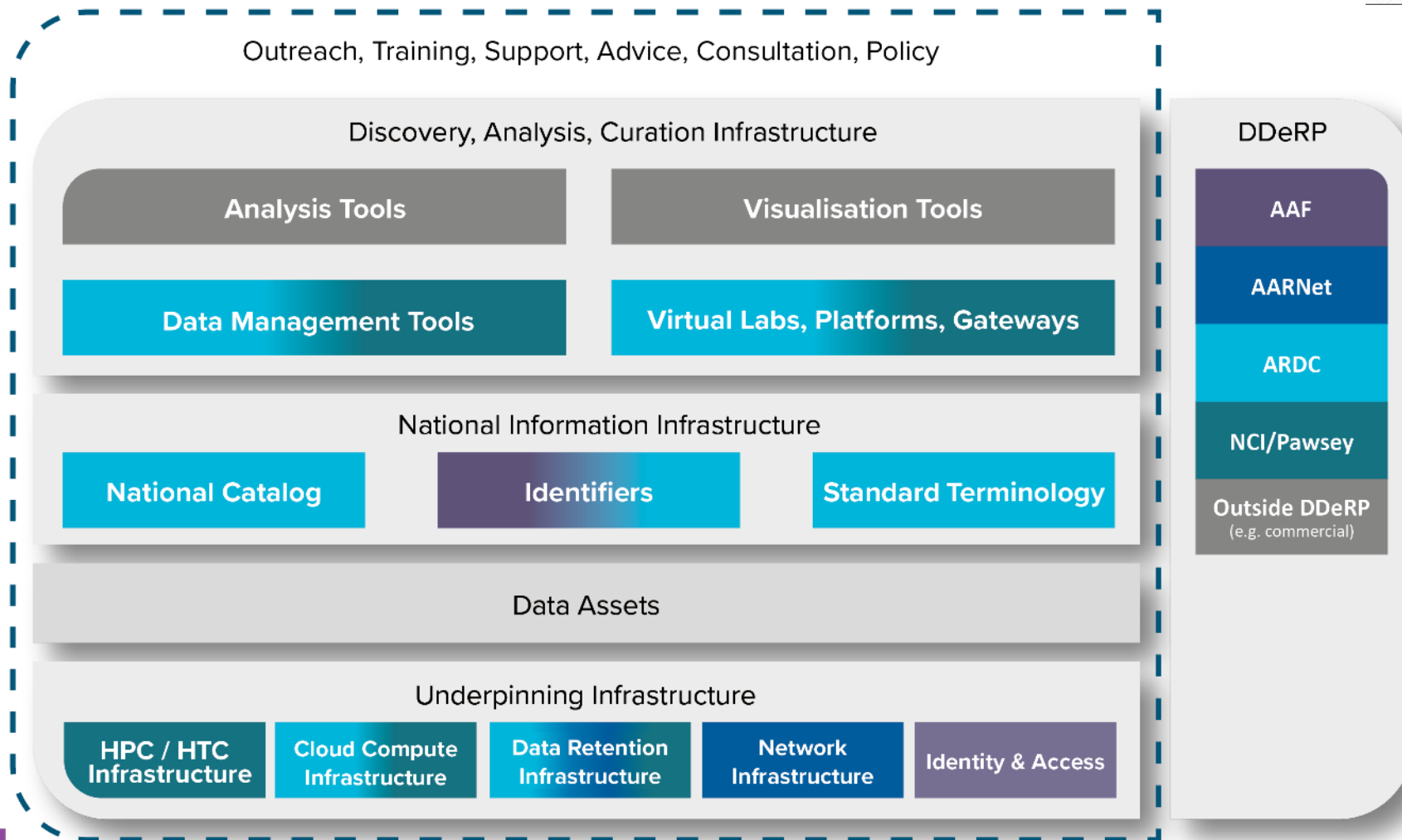
ARDC – The Australian Research Data Commons

Purpose: *to provide Australian researchers with competitive advantage through data.*

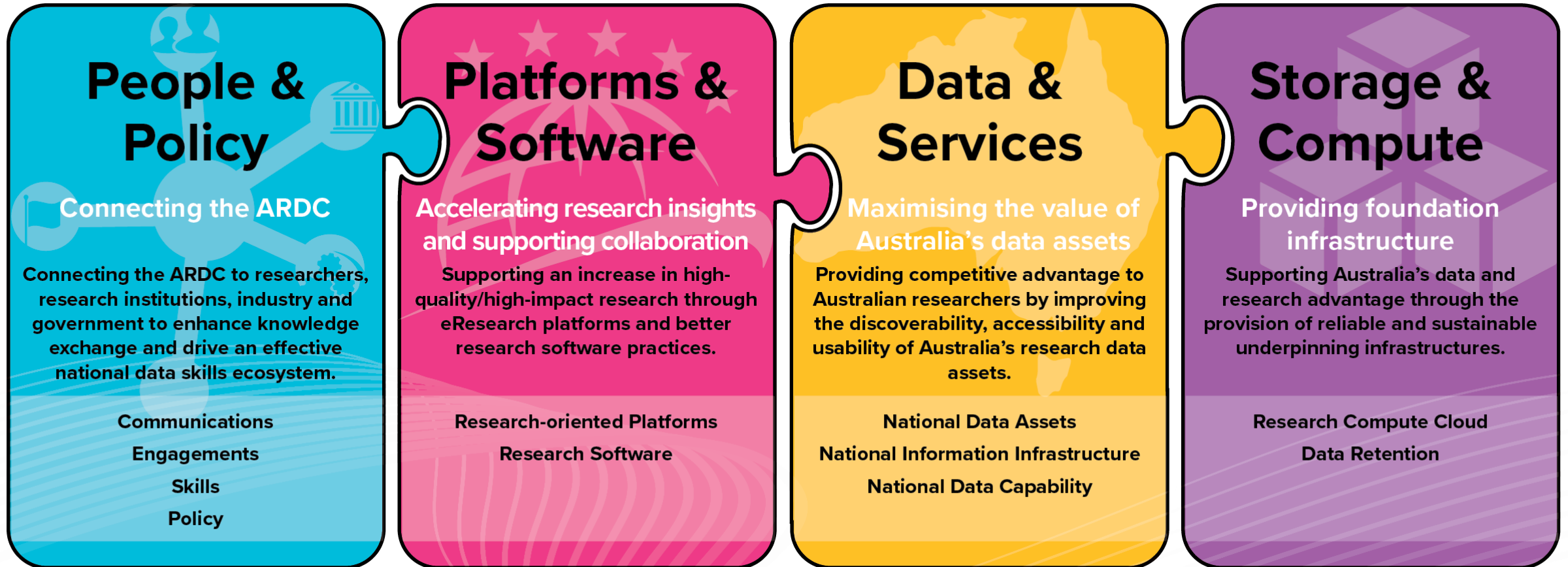
Mission: *to accelerate research and innovation by driving excellence in the creation, analysis and retention of high-quality data assets.*



ARDC's Areas of Activity



ARDC – Four Themes



Our Core Strategic Themes



Platforms & Software

- Transforming research through establishing advanced platforms that help more Australian researchers
- Developing a research software agenda for Australia
- Creating portfolio of shared eResearch software services that can be integrated into other solutions



Data & Services

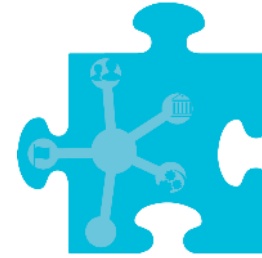
- Creating national data assets with our partners to increase research innovation and efficiency
- Providing national infrastructure services that accelerate wide uptake of FAIR
- Improving discovery linking and citation of data

Our Enabling Themes



Storage & Compute

- Nectar Research Cloud (hardware refresh, support for ARDC projects incl. GPUs, Kubernetes)
- Data Retention project – changing the storage of nationally significant data collections

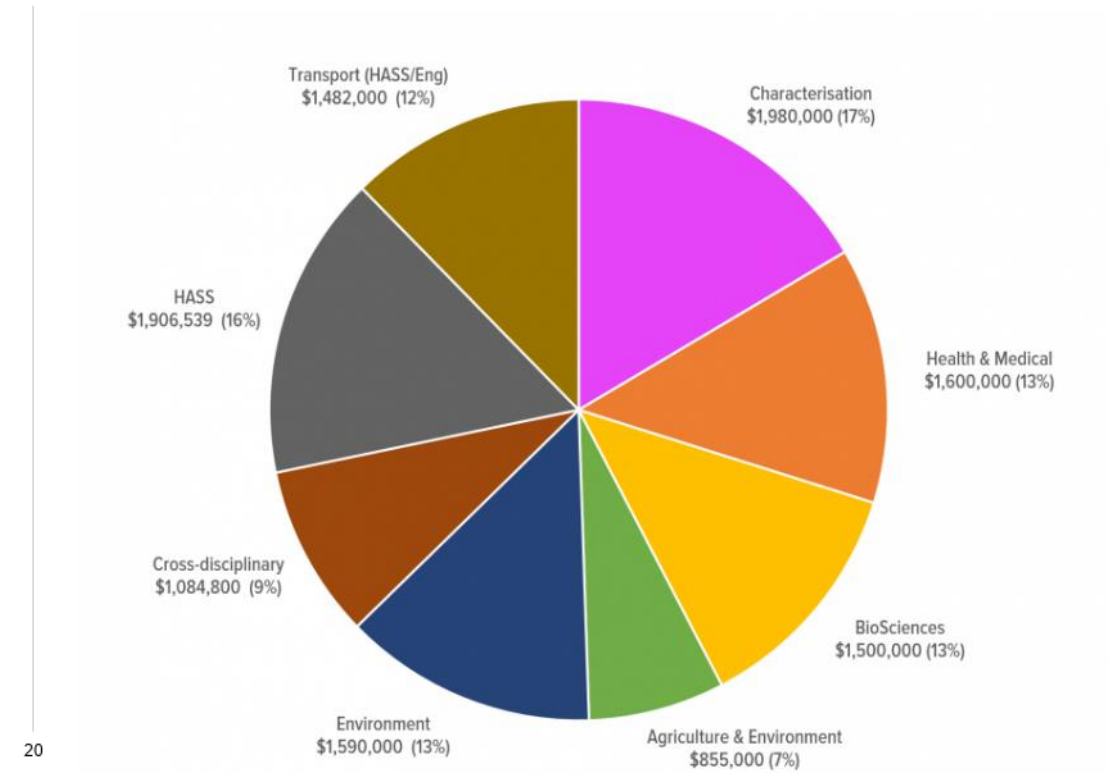
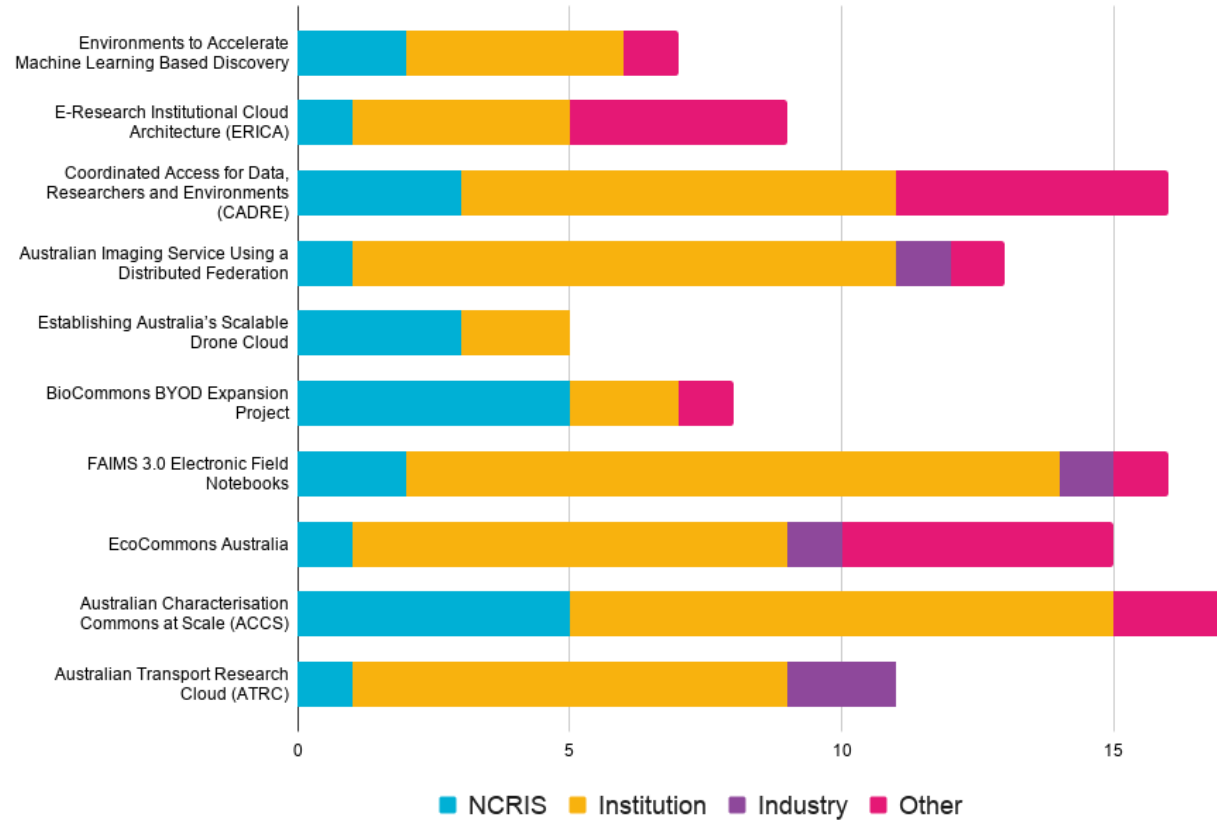


People & Policy

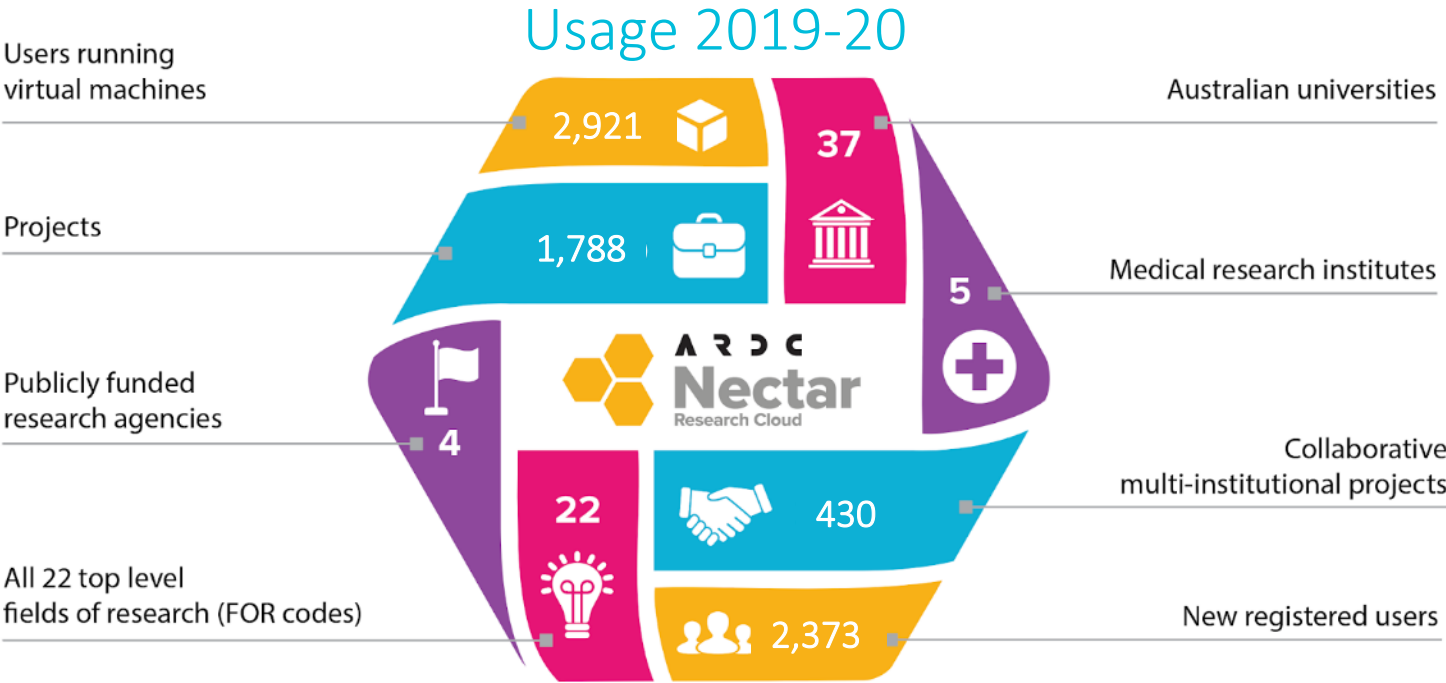
- Policy focus to advance FAIR agenda
- Providing national training activities - e.g. FAIR 101
- Mapping the skills landscape



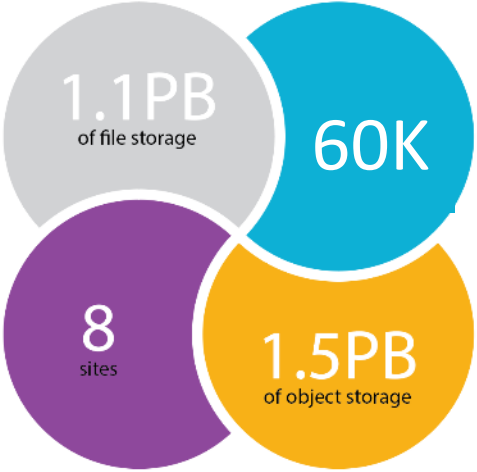
Platforms 2019



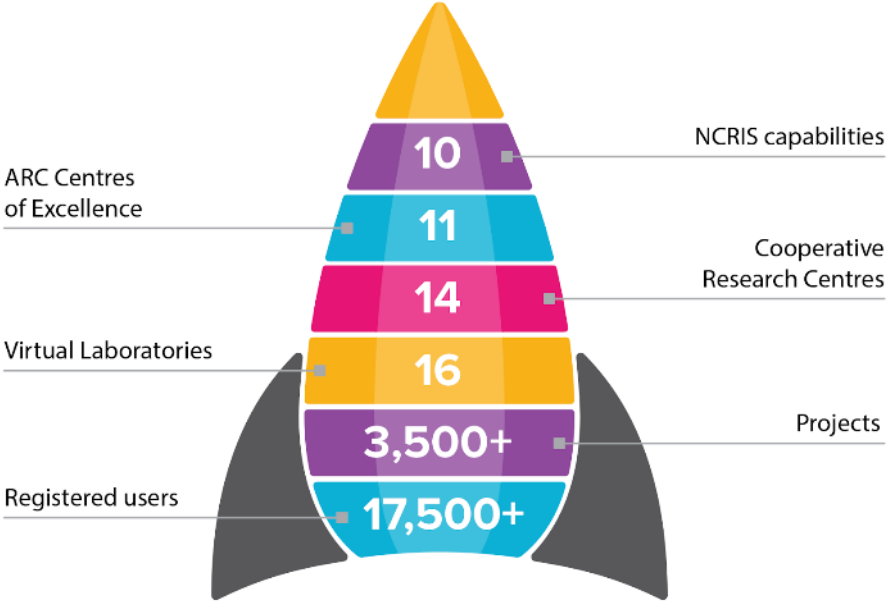
Nectar Research Cloud



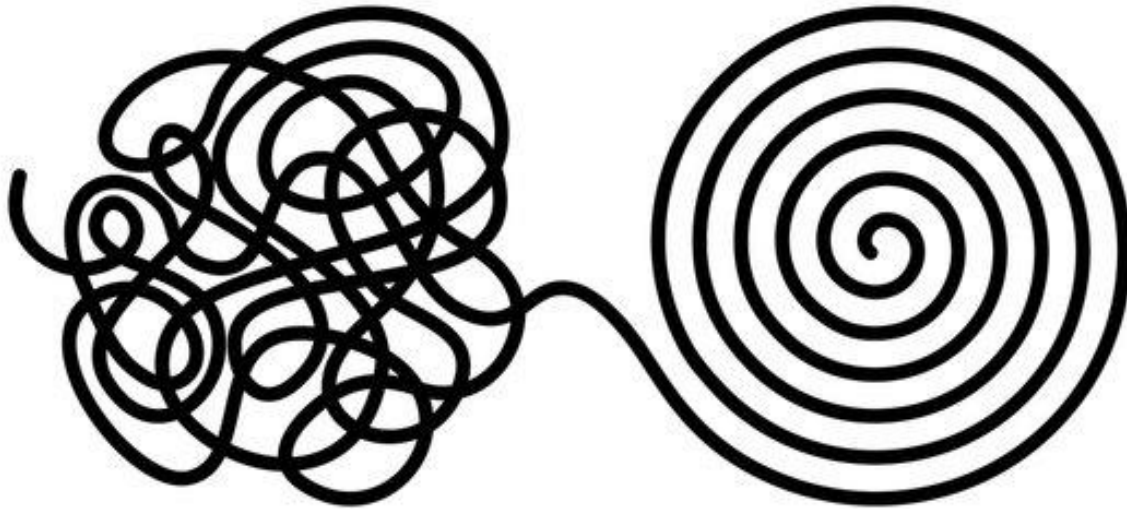
Capacity 2019-20



Supporting since 2012



Second Law of Thermodynamics



“The...ultimate purpose of life, mind, and human striving: to deploy energy and information to fight back the tide of entropy and carve out refuges of beneficial order.”

— *Steven Pinker*



Data & Services – Data Assets Program

| Program | Purpose |
|---|--|
| Emerging Collections | Incubate the development of emerging national scale collections. |
| Health Studies Australian National Data Asset | Build a (distributed) national data asset from the outputs of NHMRC funded health studies to enable meta analysis, guideline development and data linkage. |
| Cross-NCRIS National Data Assets | Establish cross-NCRIS facility collections to support multi-domain science and research translation. |
| Australian Data Partnerships | Establish and develop national data assets to support leading edge research & broader impact. |
| Public Sector Bridges | Optimise use of and access to public sector data for specialised research purposes beyond the agencies' core business. |
| Institutional Underpinnings | <ol style="list-style-type: none">1. Catalyse system-wide good institutional practice for FAIR data.2. Support distributed national scale assets. |

National Data Rainforest

ARDC National Data
Assets co-
investment

- Reference Collections
- Community Collections

- “Operational” Data

Institutional
Underpinnings

Research Institutions, Govt Agencies, Utilities, National Facilities....



Australian Research Data Commons



Institutional Underpinnings

- Develop a coordinated approach to research data management across Australia's universities
- Create a jointly-agreed framework for the management, sharing, retention and disposal of data
- Catalyse system-wide good institutional practice for FAIR data
- Support distributed national scale assets





Data Retention Project

Moving from hardware support to maximising impact

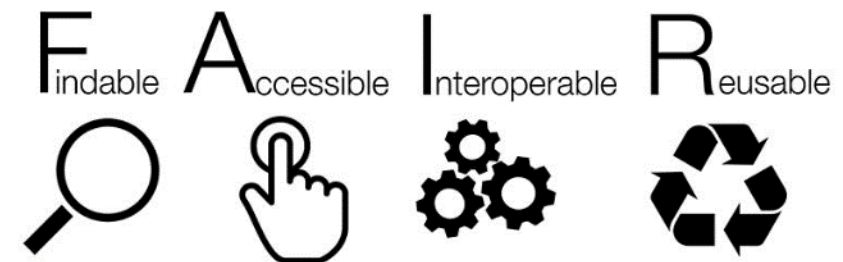


Support for collections using 13 mandatory criteria that aligns with DataCite's metadata criteria

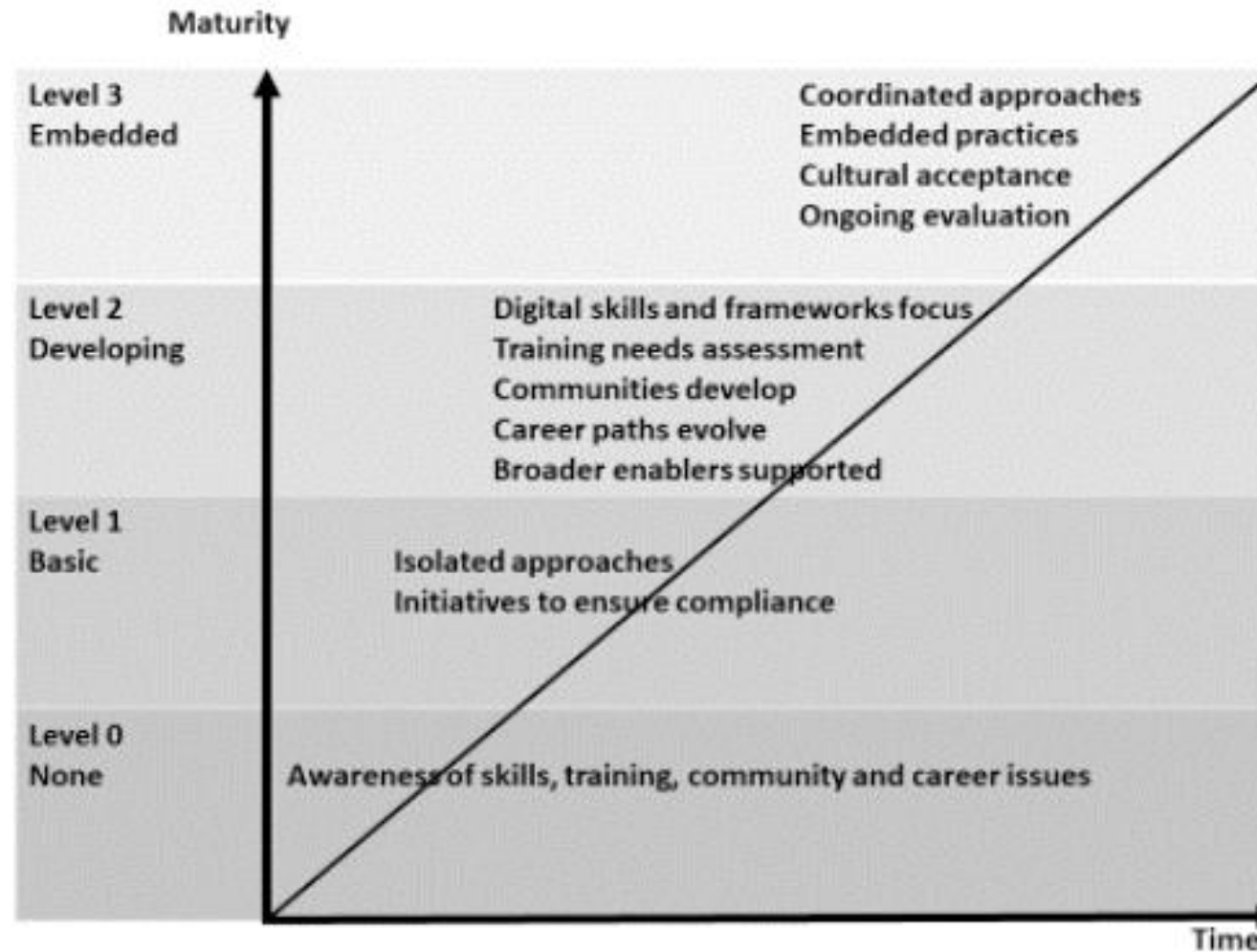
- ID Concept
- Identifier
- Creator
- Title
- Publisher
- Publication year
- Subject
- (Contributor)
- Resource Type
- Alternate Identifier
- Related Identifier
- Size
- Rights
- Description
- Funding Reference



Australian Research Data Commons

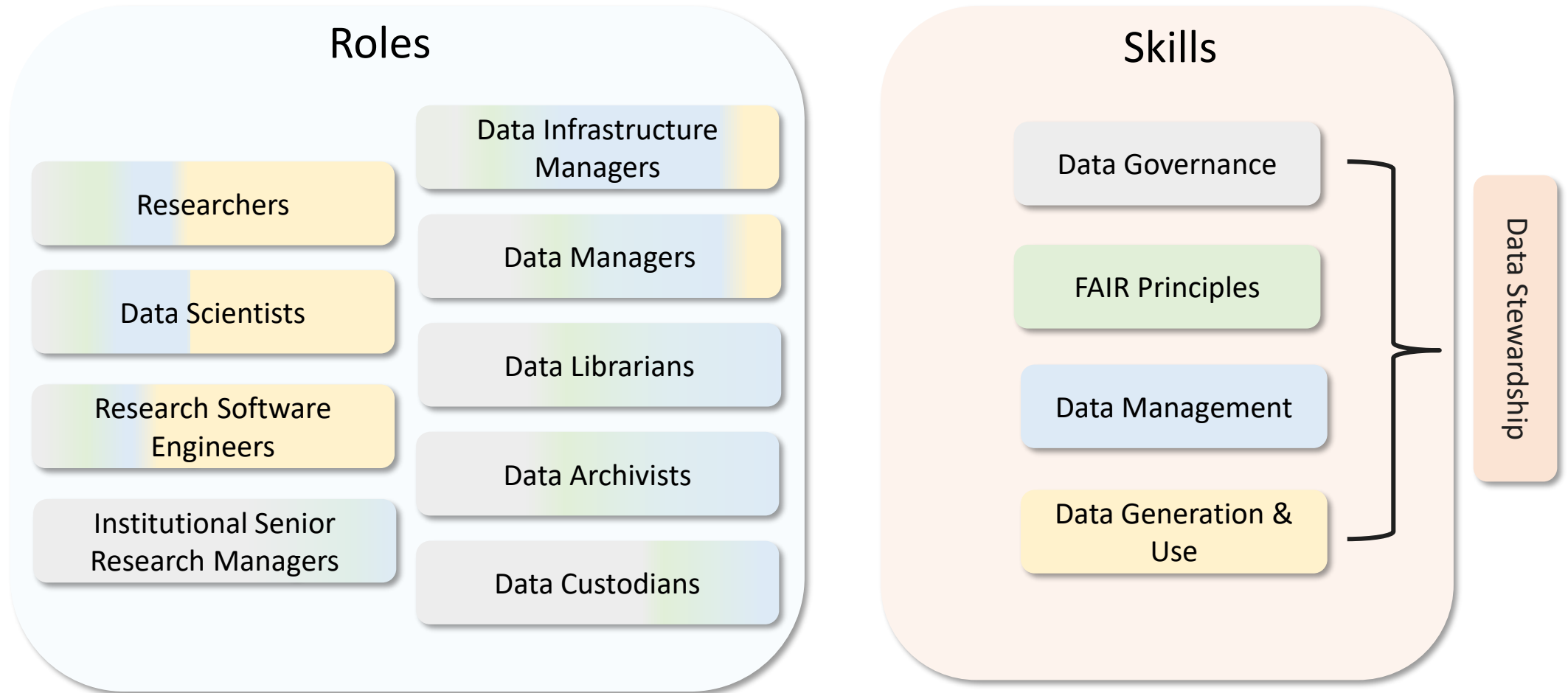


Digital workforce capacity maturity model



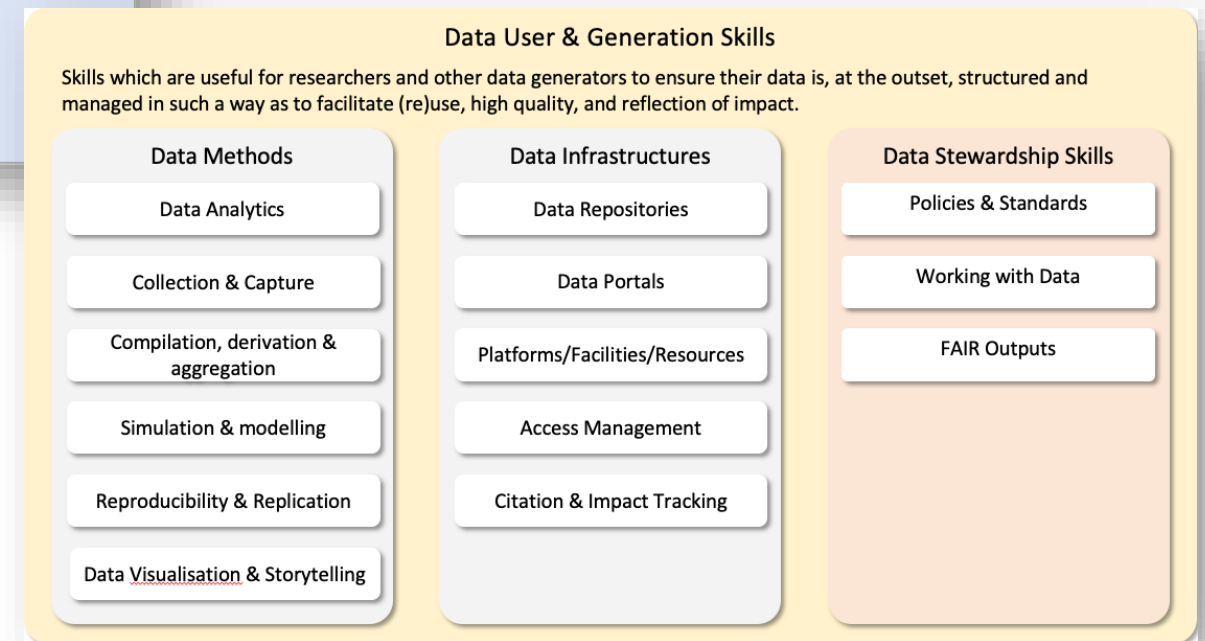
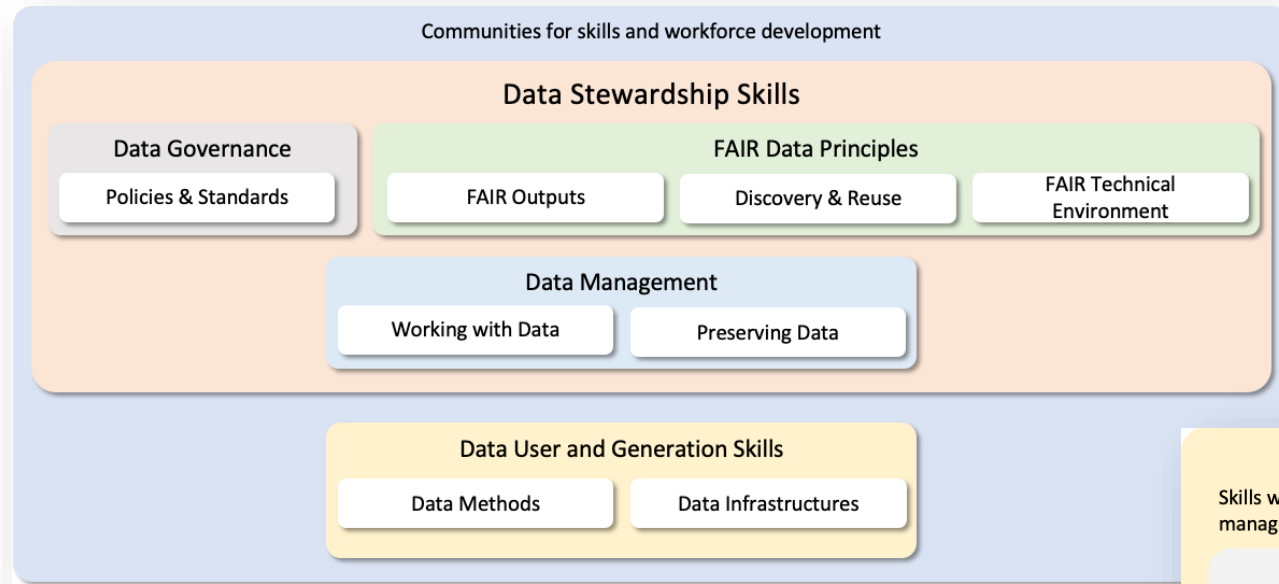


Skills Landscape





Skills Landscape



Translational Research Data Challenges



START
WITH A SOCIETAL
PROBLEM



IDENTIFY
THE DATA
CHALLENGE

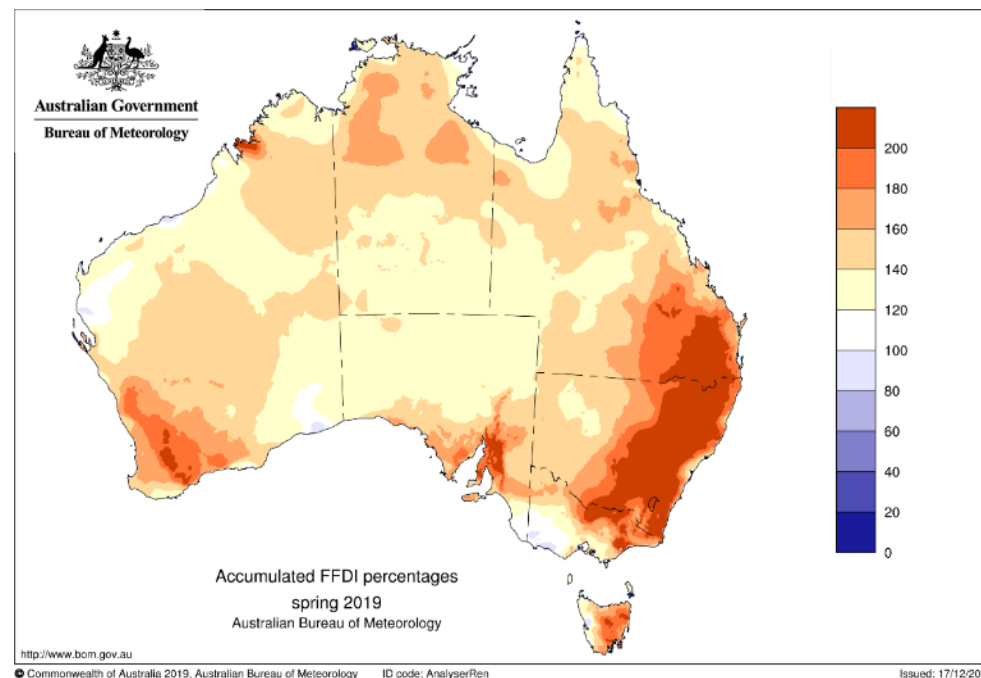


BUILD
AND APPLY DIGITAL
INFRASTRUCTURE



Australian Research Data Commons

Driving innovative digital infrastructure for bushfire research



*Transforming digital infrastructure to support
leading edge research and innovation*



Australian Research Data Commons



2019-2020 Highlights

- Collaboration – Platforms, National Data Assets
- Coordination – Skills, ARDC Nectar Research Cloud container orchestration
- Transformation – Data retention, Translational Research Data Challenges RDC - Bushfires

