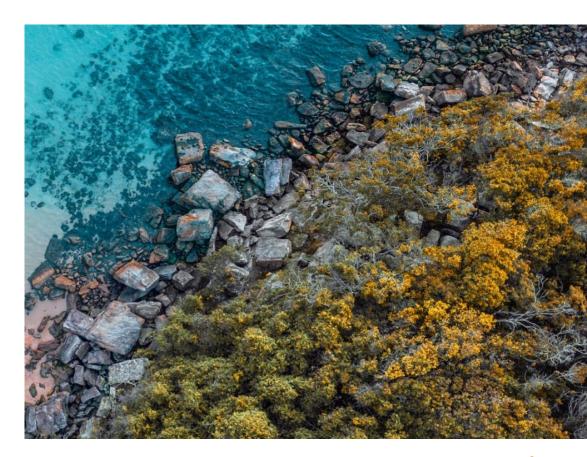# Putting the R into PlatfoRms:

Patterns of Reusability

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PRESENTED BY

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ACKNOWLEDGEMENT OF COUNTRY

We acknowledge and celebrate the First Australians on whose traditional lands we meet, and we pay our respect to their elders past, present and emerging.

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 by the numbers

- Funded by the Australian Commonwealth Department of Education under NCRIS
- In existence since 2018, but standing on the shoulders of giants (ANDS, Nectar, RDS)
- 80+ staff
- Currently have **20 member** institutions
- 113 projects underway or completed
- Four portfolios of activity
  - Data and Services
  - People and Policy
  - Storage and Compute
  - **Platforms** and Software
- More at ardc.edu.au

A rose by any other name…

- The ARDC defines a platform as a set of shared interactive and persistent services, often with connections to specific data collections, that enables researchers to find and access, collect or generate, and analyse, combine or transform that data.
- You might call this a VRE, a VL, or a Science Gateway

ARDC Platforms Program

- Enabling more researchers in more disciplines to have access to platforms that transform the way they do their research in speed and/or kind by undertaking a series of Open Calls and [subsequent investments](#)

  - AUD 21.7M ARDC investment, AUD 35.97 co-investment
- Identifying and promoting eResearch tools and services that can be shared or reused between platforms
- Growing the community of platform developers and managers

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From FAIR data to FAIR platforms

- Platforms as critical elements in the FAIRness Pipeline(™)
  - Enable
  - Respect
  - Reduce (Ramezani, 2021)
- Application of FAIR Principles to Platforms themselves
  - c.f. FAIR4RS
- FAIR4VREs WG within RDA

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Reusability Patterns

- In general, F + A + I → R
- So, how to ensure greater R for Platforms?
- In ascending order of difficulty for implementers:
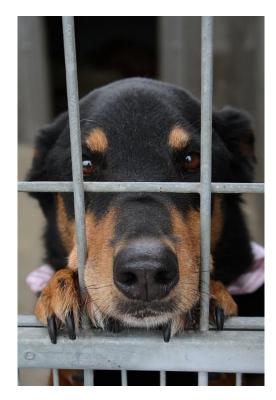 - Accessing
  - Adopting
  - Adapting
  - Abstracting

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Accessing

- For users, accessing an existing running instance
  - Examples: OSF.io, Zooniverse
- For infrastructure builders, calling modules in an existing platform via APIs
  - Example: OGC

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Adopting

- Take an existing code-base and redeploy
- More work for original developers
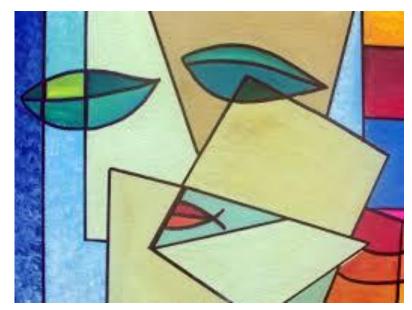- Less work for adopters
- Example: Hubzero

Adapting

- Take an existing framework and adapt to different problem domain
- Fork the code-base or coordinate development
- Example: EcoCommons
  - Now being adapted for Biosecurity Commons

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Abstracting

- Identify common elements and make them available as infrastructure
- ARDC did this in our Platforms program
- Examples:
  - Virtual Desktop Interface
  - Australian Research Container Orchestration Service
  - JupyterHub (based on dev work done by EcoCommons)

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Encouraging Reusability

- Design the Platforms Open Calls to maximise reusability
  - Clear guidance during EOI
  - Assessment criteria for RfPs
- Provide active architecture assistance during project lifecycle
  - Jonathan Smillie has been invaluable here
- Broker discussions between projects
- Facilitate Platforms Community of Practice

Conclusions

- Platforms are great for researchers, but expensive to build and maintain
  - So re-use makes sense
- FAIR can be applied to a range of things
  - Work underway on its application to platforms in [FAIR4VRE](#) WG
- Multiple platform re-use patterns exist, each with pros and cons
- Reuse of platforms won't just happen - need to be intentional
- [Thematic Research Data Commons](#) will act as a testbed for this approach

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