

Planet Research Data Commons Co-Design Framework

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The Planet RDC's co-design process for developing national research infrastructure

This co-design framework lays out how the Planet RDC will involve external stakeholders and community members in the planning of its investment activities, through a process of co-design.

The framework is intended to help those external to ARDC understand how we are making our investment decisions, and where they will be able to contribute.

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Background

The national data landscape for earth and environmental science research is rich, diverse and complex. In collaboration with earth and environmental science researchers, national research infrastructures, industry and government, the Planet Research Data Commons (Planet RDC) is delivering digital research infrastructure to address the data challenges that earth and environmental science researchers face on a national scale.

The Planet RDC is led by the Australian Research Data Commons (ARDC), which is enabled by the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS). The ARDC accelerates Australian research and innovation by driving excellence in the creation, analysis and retention of high-quality data assets.

The ARDC is developing a suite of Thematic Research Data Commons (RDCs). A data commons can be defined as bringing together data with computing infrastructure and commonly used software services, tools and applications for managing, analysing and sharing data to create an interoperable resource for a research community.

The ARDC Thematic Research Data Commons are developing national-scale data assets, digital tools and platforms within a thematic area to address Australia's science and research priorities. The Thematic RDCs are supported by existing ARDC underpinning infrastructure: cloud computing, data retention, expertise, and training and outreach activities. Sharing best practices across domains, the RDCs will result in significant optimisation, drive efficiency and provide maximum return on investment.

The Planet RDC envisages a future where research, government and industry can seamlessly access, visualise, analyse and model trusted data that is integrated across earth and environmental domains. New digital platforms and data portals will improve how researchers discover and access Australia's rich earth and environment data and innovative analysis tools. The Planet RDC is also upskilling researchers to use data-driven approaches to earth and environmental research, ensuring Australian researchers gain a competitive advantage through data.

As an engine for research translation, the Planet RDC will enable researchers to develop and sustain cross-sectoral and multidisciplinary data collaborations at a national scale. It integrates the ARDC's services and infrastructure for compute, storage, persistent identifiers and data discovery with analysis platforms and tools that are supported by expertise, standards and best practices.

Learn more about the [Planet Research Data Commons](#).

Our Investment Strategy

Our investment strategy in the Planet RDC focuses on delivering infrastructure and services in the 4 Focus Areas:

1. Trusted Environmental Data and Information Supply Chains
2. Integrated FAIR Datasets and Services
3. Planet Infrastructure
4. Indigenous Data Governance and Skills

Projects will be developed through co-design with stakeholders in the earth and environmental science research communities, and the broader groups who contribute to and benefit from that research. This process will be guided by the published Planet RDC consultation and strategy documents:

- [National Consultation Report](#)
- [Planet RDC Program Description](#)

The co-design process is outlined in this document.

ARDC investment within the Planet RDC will align with researchers' need for digital research infrastructure, the 2021 [National Research Infrastructure Roadmap](#), the [2021 State of Environment Report](#), and multiple national science and regulatory policies to support research and decision-making. We will seek to develop infrastructure that creates the greatest impact for research and researchers.

The Planet RDC aims to leverage existing infrastructure and minimise duplication of efforts. We will collaborate with existing national research infrastructures and will facilitate cross-sector partnerships between research, research infrastructure, government and industry to ensure research translation to enable data-driven management and decision-making to protect Australia's ecosystems.

Who Will Be Involved

Co-design will involve a wide range of stakeholders with different experiences and expertise in the design of our infrastructure. Our aim is to develop infrastructure that creates the greatest impact for research and researchers by co-designing that infrastructure with the people who will benefit from it.

Stakeholders in the Planet RDC include:

- researchers (from universities, research centres and publicly funded research agencies)
- research infrastructure providers such as NCRIS facilities and NEESFF partners
- peak bodies who have insights into patterns of research practice and needs across the field, and the policies and strategic initiatives that impact that practice

- Australian, state and territory government agencies
- non-government and not-for-profit organisations
- industry partners.

Process for Co-Designing Infrastructure

Our consultation and co-design processes are based on established methods such as the [TACSI Co-Design Framework](#). Development of our co-investment activities will follow the following steps:

1. Problem Identification
2. Project Shaping
3. Project Planning
4. Endorsement.

The way that each step is implemented will vary depending on the scale, complexity and timeline of the activity.

1. Problem Identification

Purpose

- Identify which broad problems/needs we are aiming to address.
- Identify the stakeholders who can help us to shape the solutions.
- Find partners who have the expertise and capability to help us to deliver the solutions.

Principles

- **Openness:** consider a wide range of possible options. Consult broadly across the relevant sectors, and aim to look beyond our assumptions.
- **Maximise benefit:** identify areas where our activity will have the largest possible impact, benefit many research projects, and meet the needs of multiple research groups and organisations.
- **Leverage opportunities:** identify existing initiatives and networks that can be built upon to maximise the benefit from our activities. Activities that engage a coherent community of researchers and build on existing research infrastructure are more likely to succeed.

Implementation

- Considerable broad-scale consultation and information-gathering has already taken place to identify the broad problems/areas of need that will be addressed by the Planet RDC. This includes the [national consultations](#) that were carried out in 2022 to determine the scope, scale, and focus of the digital capabilities to be delivered through the Planet RDC. ARDC has continued to engage with the community, tracked emerging gaps and opportunities and identified trends and developments in the sector that can be leveraged to deliver benefits for the earth and environmental science research community.
- As a result of these consultations and input, the Planet RDC has identified 4 focus areas for its work in the earth and environmental sciences, as articulated in the [Planet RDC Program Description](#):
 - trusted environmental data and information supply chains
 - integrated FAIR datasets and services
 - modelling, analytics and decision support infrastructure
 - Indigenous Data Governance and Skills.

The 4 focus areas have a set of programs, with each program developing a portfolio of projects through co-design.

2. Project Shaping

Purpose

- Work in collaboration with potential delivery partners and stakeholders to
 - build an understanding of the current state of the activity area and opportunities for improvement
 - identify and select the potential solution(s)
- Finalise the organisations(s) and project lead(s) who will deliver the solution(s).

Principles

- Proposed solutions will align with the intended outcomes for the relevant Planet RDC program.
- The project shaping stage will include input from stakeholders from the sectors identified above.
- Interested parties should be able to participate in the process of scoping and developing requirements of the project and to identify their own potential contributions. Development

of the project team is intended to be collaborative, but where membership is unclear ARDC will mediate this process and select the final team with a focus on the following:

- inclusion of partners who provide important skills and capabilities necessary for the project
- inclusion of partners with expertise and perspectives necessary for the success of the project
- inclusion of partners who can provide the necessary co-investment
- project team cohesion
- effective project leadership and project management skills to ensure successful and timely delivery of the project outputs.

Implementation

- ARDC may facilitate workshops with potential project partners and other stakeholders to shape the project and finalise the project team. The number and nature of these workshops will depend on the scope of the identified problem area, the stakeholders and communities involved, and the scale of the project(s).
- ARDC will document the project-shaping process and its outcomes (such as through discussion papers and workshop reports).

3. Project Planning

Purpose

- Develop an investable project plan including timeline, deliverables, co-investment, and resourcing
- Collect feedback on the plan from key stakeholders
- Finalise the project plan.

Principles

- The project plan should be clearly defined, with concrete deliverables and measurable outcomes.
- Appropriate review (internal and/or external) will be undertaken to ensure that the plan reflects the outcomes of the initial consultation and meets broader needs beyond those of the project team.

- The planned project should meet the program guidelines for the relevant Planet RDC program, as well as ARDC expectations for the conduct of co-investment projects set out in the Appendix.

Implementation

- The ARDC will provide a template for the project plan, and documentation laying out specific expectations or constraints relevant to the activity, and will assist the project team in developing the plan (including identifying where ARDC services and expertise can be utilised).
- The ARDC will assist in collecting feedback on the plan from stakeholders outside of the project team.

4. Endorsement

Purpose

- Confirm ARDC investment in the project.

Principles

- Endorsement will follow the ARDC's governance procedures.
- Ensuring that the planned project meets the NCRIS principles, and the program outcomes for the Planet RDC focus areas.
- Where relevant, endorsing parties will ensure that activities are aligned across the ARDC's strategic pillars.

Implementation

- A project plan is reviewed by the Planet RDC Director, ARDC CEO and/or ARDC Board (depending on delegation).
- A decision is made to co-invest in the project.