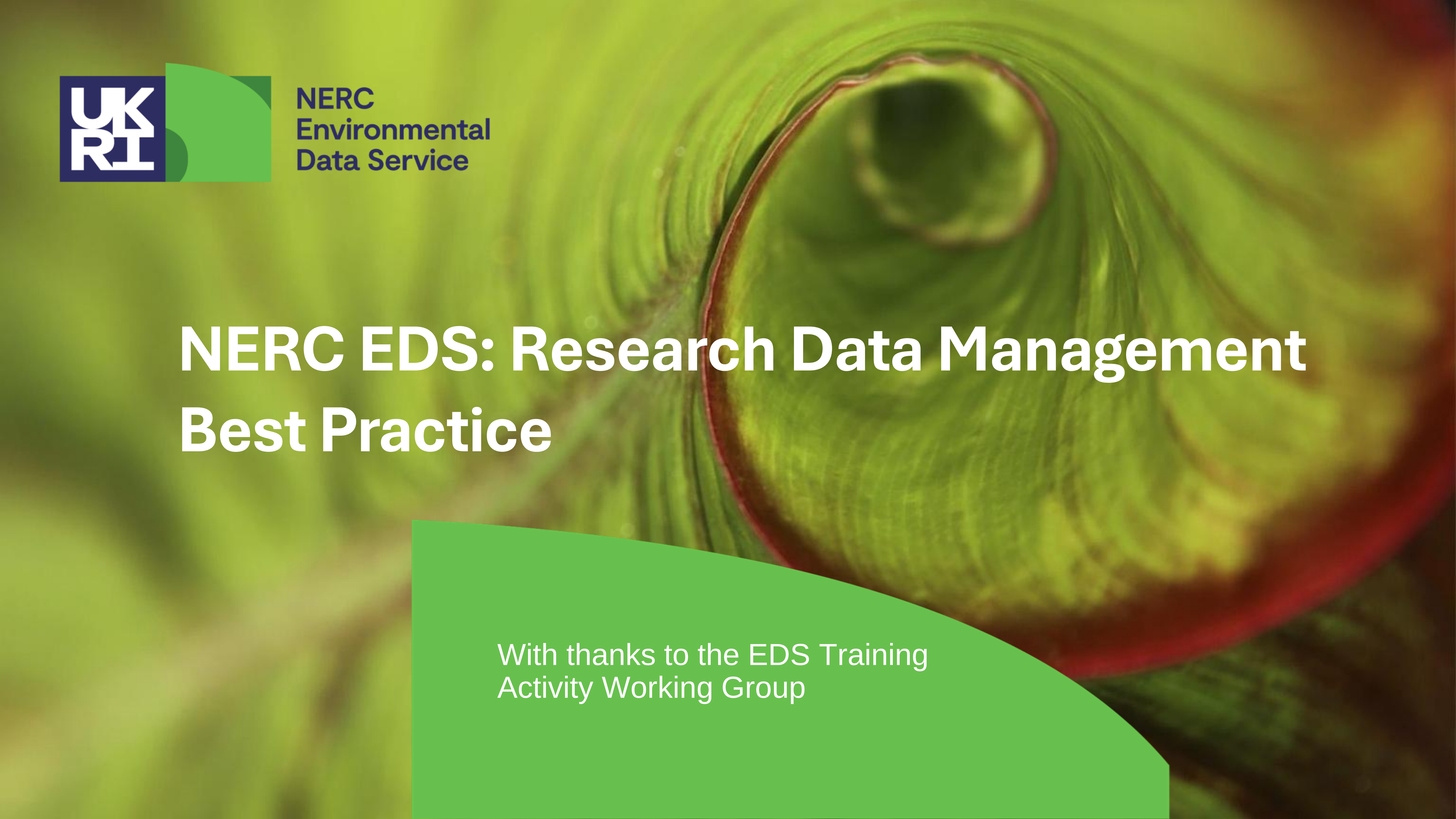

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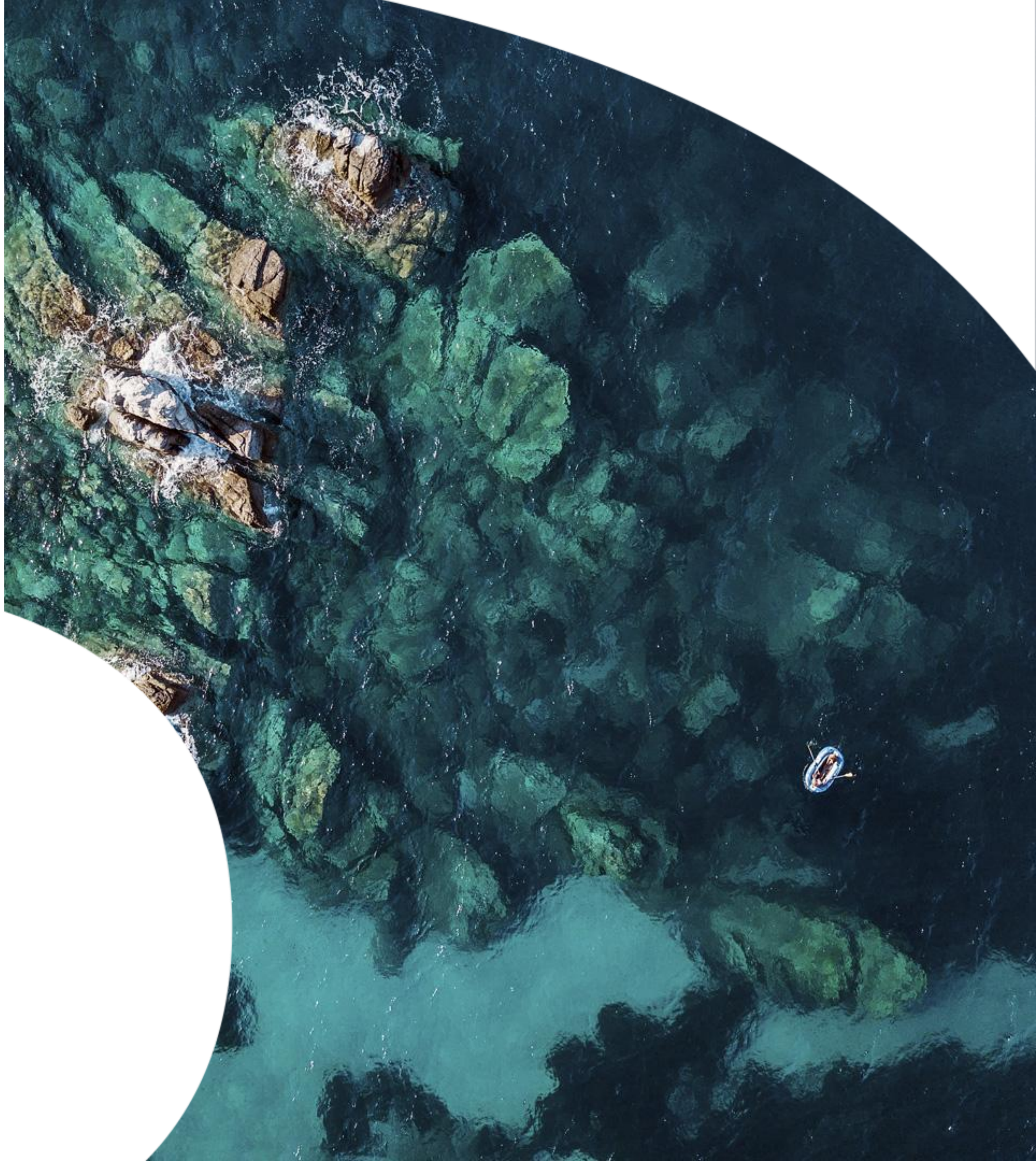
NERC EDS: Research Data Management Best Practice

With thanks to the EDS Training Activity Working Group

Content

- FAIR and CARE principles



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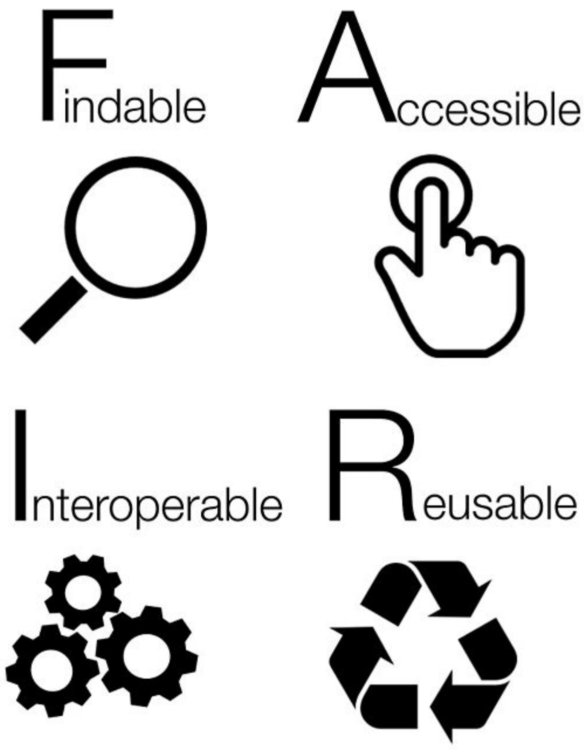
What is FAIR data?

- Open science is not just about disclosure
- Research assets must also be **FAIR**

Can your data be found easily by humans and machines?



Once it is found, is your data easy to access and download?

Is your data easy to integrate with other data, workflows, and applications?

Does your dataset have all the correct metadata so that is can be reused in the future?

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Making your data FAIR

- Self assessment tools
    - determine FAIRness of your data set
    - improve FAIRness of your data (where necessary)
    - https://www.ands.org.au/working-with-data/fairdata/fair-data-self-assessment-tool
- Trusted repositories
    - https://repositoryfinder.datacite.org/
- Resources
    - https://www.dtls.nl/fair-data/fair-data/
    - https://fairsharing.org/
    - https://www.ands.org.au/working-with-data/fairdata/training

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CARE principles

In this section, you will learn what are the principles to apply when working with Indigenous data

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https://help.eds.ukri.org/article/5188-care

CARE Principles for Indigenous Data Governance

Indigenous data

Data, information, and knowledge that impact Indigenous Peoples, nations, and communities at the collective and individual levels

Implementation of the CARE Principles should be seen as a required dimension of open and FAIR data

https://www.indigenousarchives.whyte.org/beaded-vest

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CARE Principles for Indigenous Data Governance

- **Collective Benefit...** for innovation, for improved governance and citizen engagement and for equitable outcomes.
  To enable Indigenous Peoples to derive benefit from data and be proactive about disseminating this usefully.
- **Authority to Control** by collecting consent for data collection and giving ultimate control over data use and publication to Indigenous Peoples.
  To recognise the rights and interest of Indigenous Peoples to control data. This means collecting consent for data collection and giving ultimate control over data use and publication to Indigenous Peoples.
- **Responsibility**
  To ensure data are used for Indigenous Peoples' self-determination and collective benefit.
- **Ethics**
  To reduce potential harm which could be done to Indigenous Peoples throughout the data lifecycle, including by the future reuse of data.

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CARE Principles and scientific data

- CARE Principles consider how scientific data are used for enhancing wellbeing of people (also beyond Indigenous Peoples)
- CARE Principles apply to all stages of data life cycle
    - contribution of Indigenous Peoples during samples/data **collection**
    - utilising traditional knowledge during data **curation**
    - co-authorship in the scientific output **publication**

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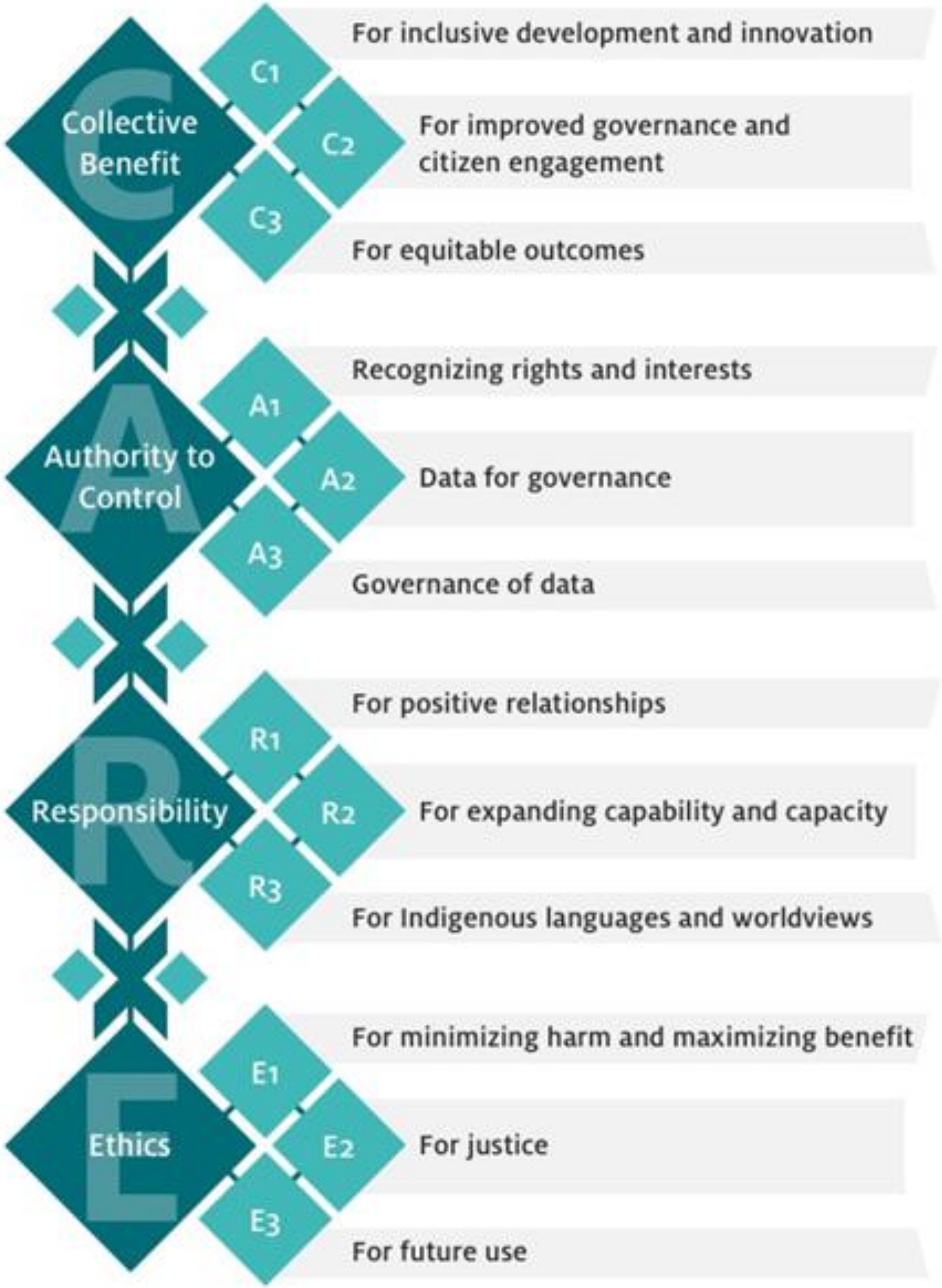
Carroll et al. 2020



C — Collective Benefit
- C1 For inclusive development and innovation
- C2 For improved governance and citizen engagement
- C3 For equitable outcomes

A — Authority to Control
- A1 Recognizing rights and interests
- A2 Data for governance
- A3 Governance of data

R — Responsibility
- R1 For positive relationships
- R2 For expanding capability and capacity
- R3 For Indigenous languages and worldviews

E — Ethics
- E1 For minimizing harm and maximizing benefit
- E2 For justice
- E3 For future use

CARE Principles and legislation

- Implementation of CARE Principles in data repositories or specimen collections can contribute to more equitable benefit sharing

- Development of legislation to support Community data rights for Indigenous Peoples to be active stewards of their data

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Indigenous Peoples' Rights in Data

DATA FOR GOVERNANCE

RIGHT TO SELF-DETERMINATION
the ability to organise and control data in relation to a collective identity

RIGHT TO POSSESS
the ability to exercise jurisdictional control over the ways that data flow/move/are queried

RIGHT TO USE
the ability of individuals and collectives to use data for their own purposes

RIGHT TO CONSENT
the expression of digital autonomy and the ability to assess risks and accept potential harms

RIGHT TO REFUSE
the right to say "no" to certain uses of data

RIGHT TO RECLAIM
the right to reclaim, retain, and preserve data, data labels, and data outputs that reflect Indigenous Peoples' identities, cultures, and relationships

GOVERNANCE OF DATA

RIGHT TO GOVERN
the right to lead and collaborate in the development and implementation of protocols and in decisions about access to data

RIGHT TO DEFINE
the right to define lifeways of knowing and being including how they are represented in data

RIGHT TO PRIVACY
the protection of collective identities and interests from undue attention, also including the possibility of requesting omission and/or erasure

RIGHT TO KNOW
the ability to track the storage, use, and reuse of the data and who has had access to them

RIGHT TO ASSOCIATION
the recognition of provenance and terms of attribution

RIGHT TO BENEFIT
the opportunity to benefit from the use of data and equitable benefit sharing from derivatives of data

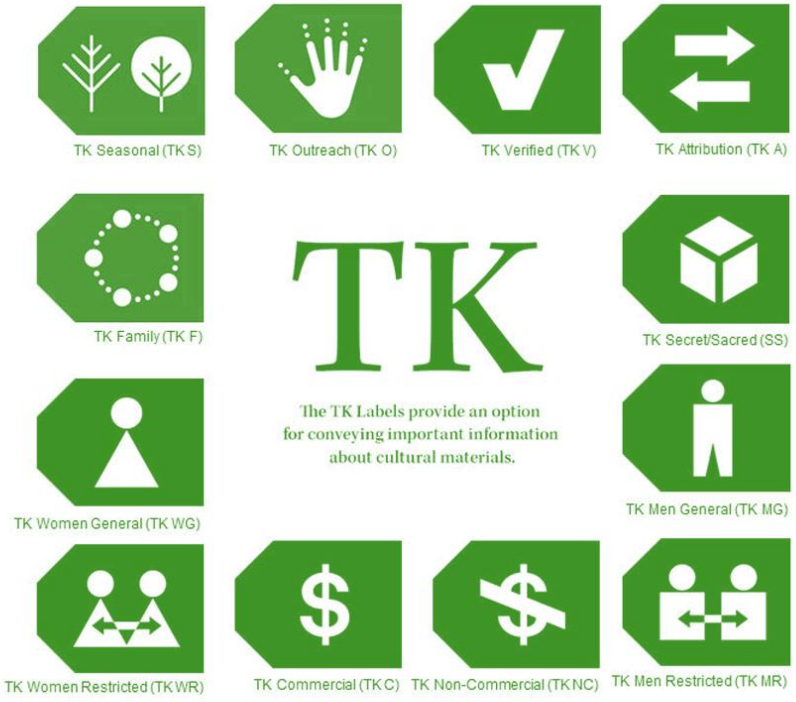
Global Indigenous Data alliance. (2023). "Indigenous Peoples' Rights in Data." *The Global Indigenous Data Alliance.* GIDA-global.org.

DOI: 10.6084/m9.figshare.22138160

GIDA
Global Indigenous
Data Alliance

CARE Principles in practice

- Consider human well-being in addition to open science and data sharing and who your data impact
- Acknowledge contribution of Indigenous communities in data collection, curation or publication
- Make data accessible to Indigenous Peoples
- Consider Traditional Knowledge (TK) and Biocultural (BC) Labels (metadata designed to identify and clarify which material has community-specific restrictions regarding access and use)



Source: https://blogs.ubc.ca/etec523/2021/10/02/traditional-knowledge-and-the-commons/

Bilberry genome assembly

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https://localcontexts.org/

https://help.eds.ukri.org/article/5188-care