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Trusted Services from the ICS World Data System

Dr. Karen Payne, World Data System
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Outline

- World Data System Introduction
- International Technology Office
- Core Trust Seal

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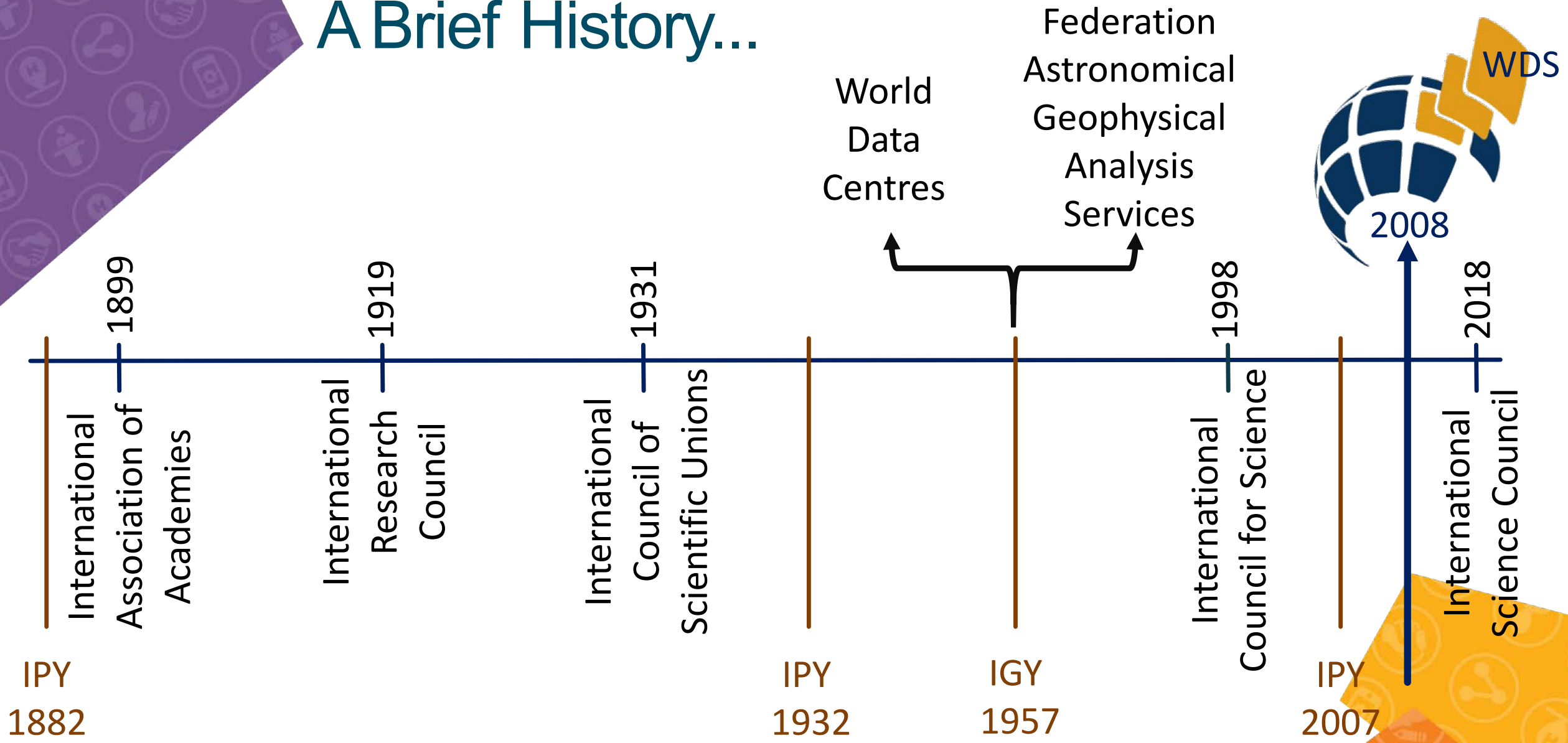
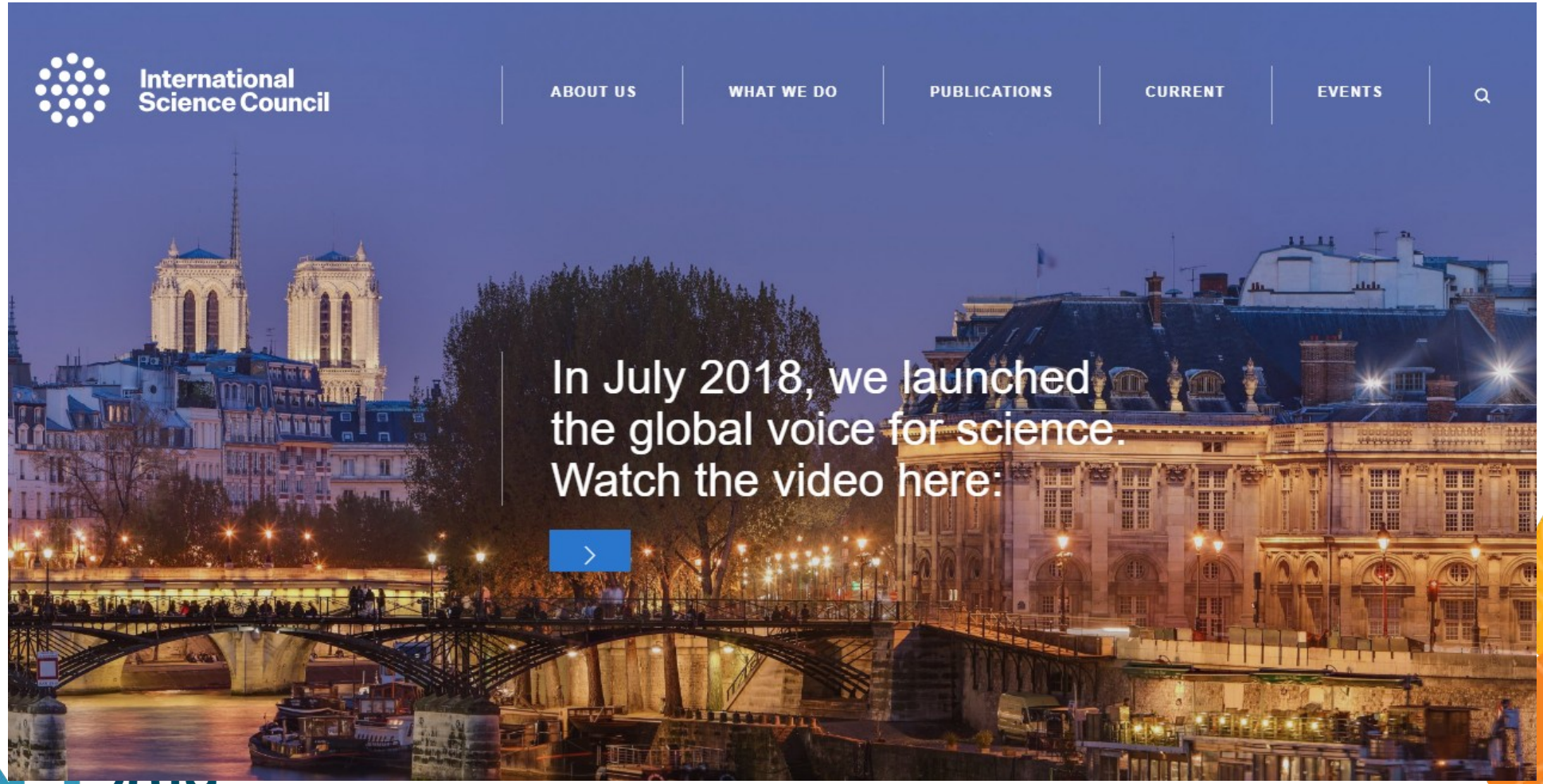
A Brief History...



A Brief History...

International Science Council



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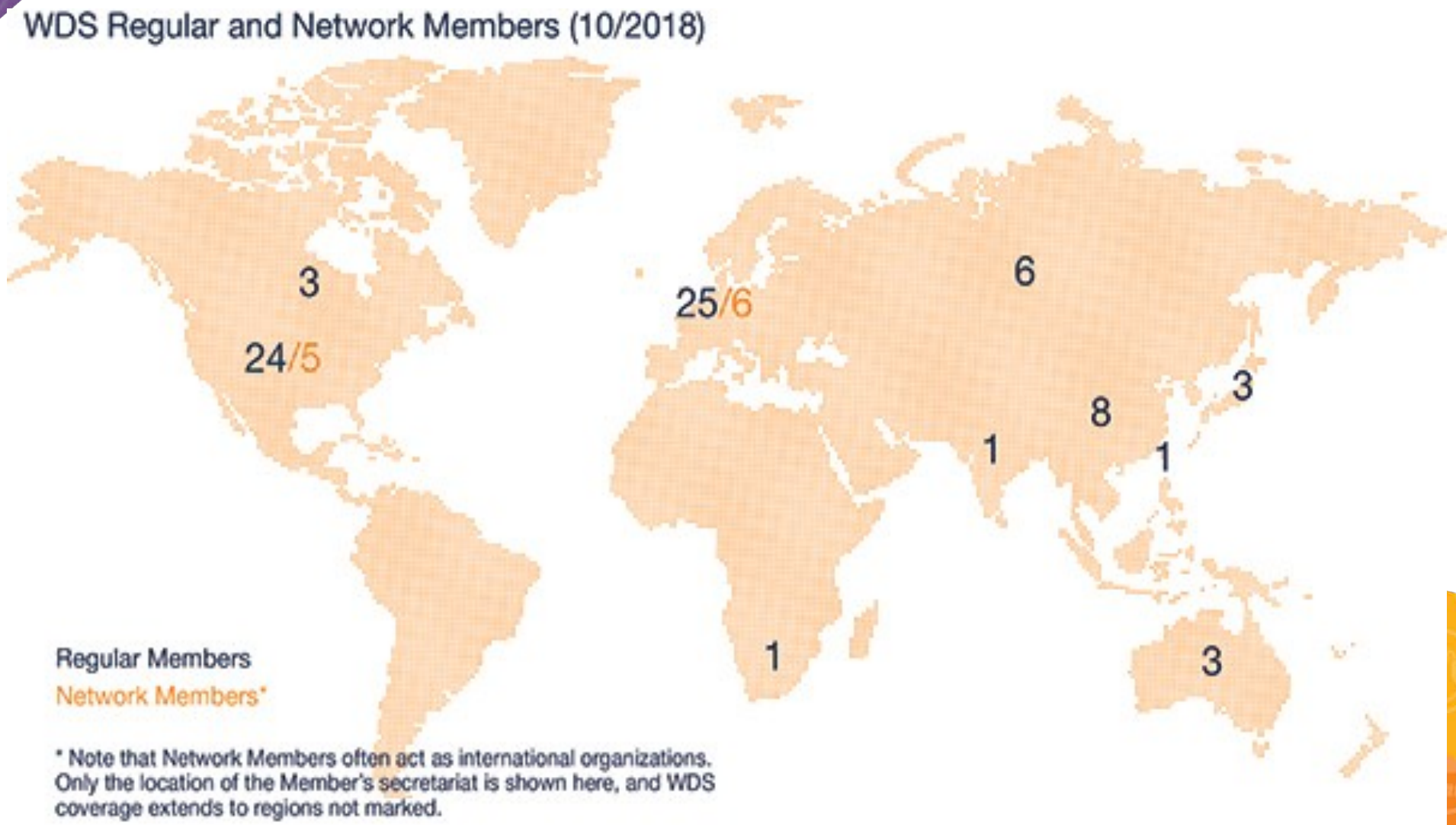
WDS Reach


WDS Regular and Network Members (10/2018)
3
24/5
25/6
6
8
1
1
3
1
3
Regular Members
Network Members*
* Note that Network Members often act as international organizations. Only the location of the Member's secretariat is shown here, and WDS coverage extends to regions not marked.

WDS Strategic Targets

- Improve the trust in and quality of open Scientific Data Services
- Ensure long term data stewardship
- Make trusted data services an integral part of international collaborative scientific research

International Technology Office

- 2016 Vision of ITO: to Support development of Global Research Data Infrastructure (GRDI), previously done pro bono by members
- 2017 Awarded to Ocean Networks Canada, NRC's Canadian Astronomy Data Centre, and the University of Waterloo's Canadian Cryospheric Information Network/Polar Data Catalogue

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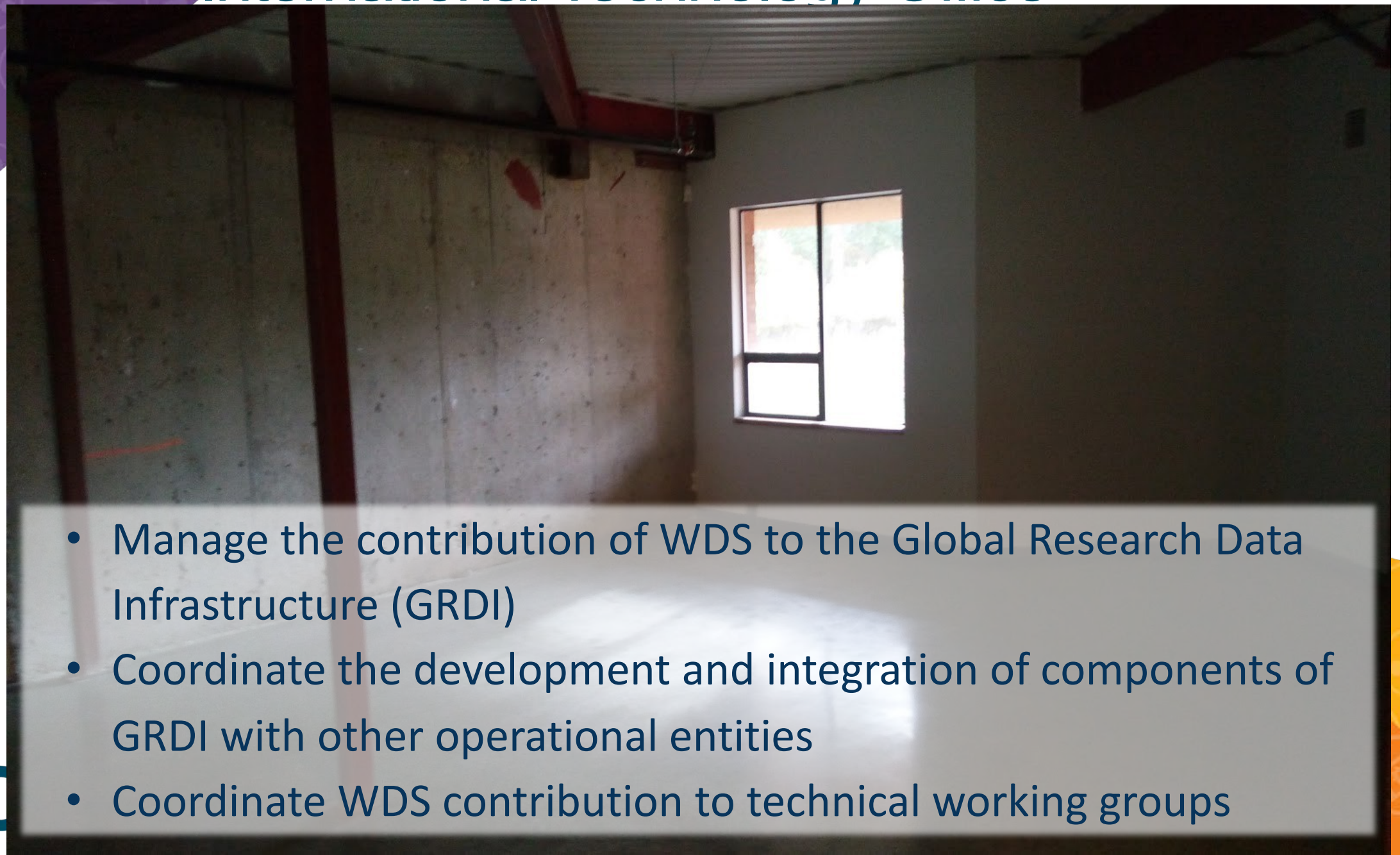
International Technology Office



- Manage the contribution of WDS to the Global Research Data Infrastructure (GRDI)
- Coordinate the development and integration of components of GRDI with other operational entities
- Coordinate WDS contribution to technical working groups

GoC

UVic

CADC ONC PDC

SC

ISC

WDS CODATA INASP

IPO ITO

TAC

75 Regular

11 Network

10 Partner

19 Associate

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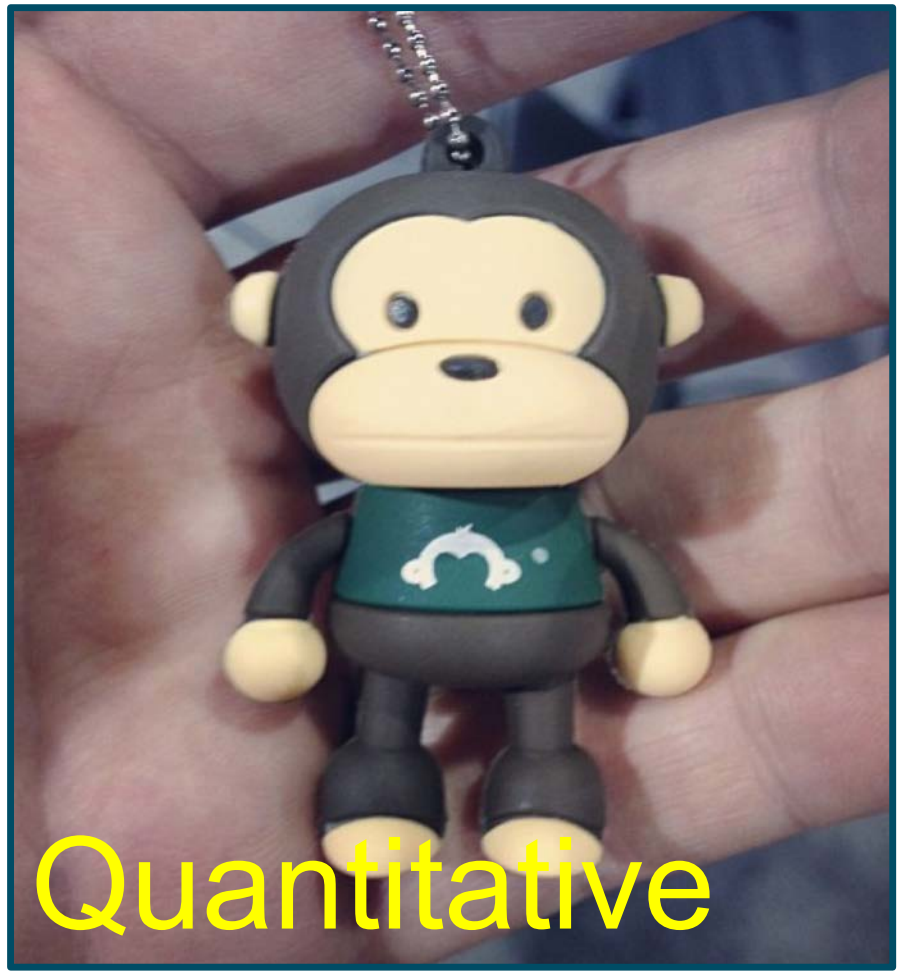
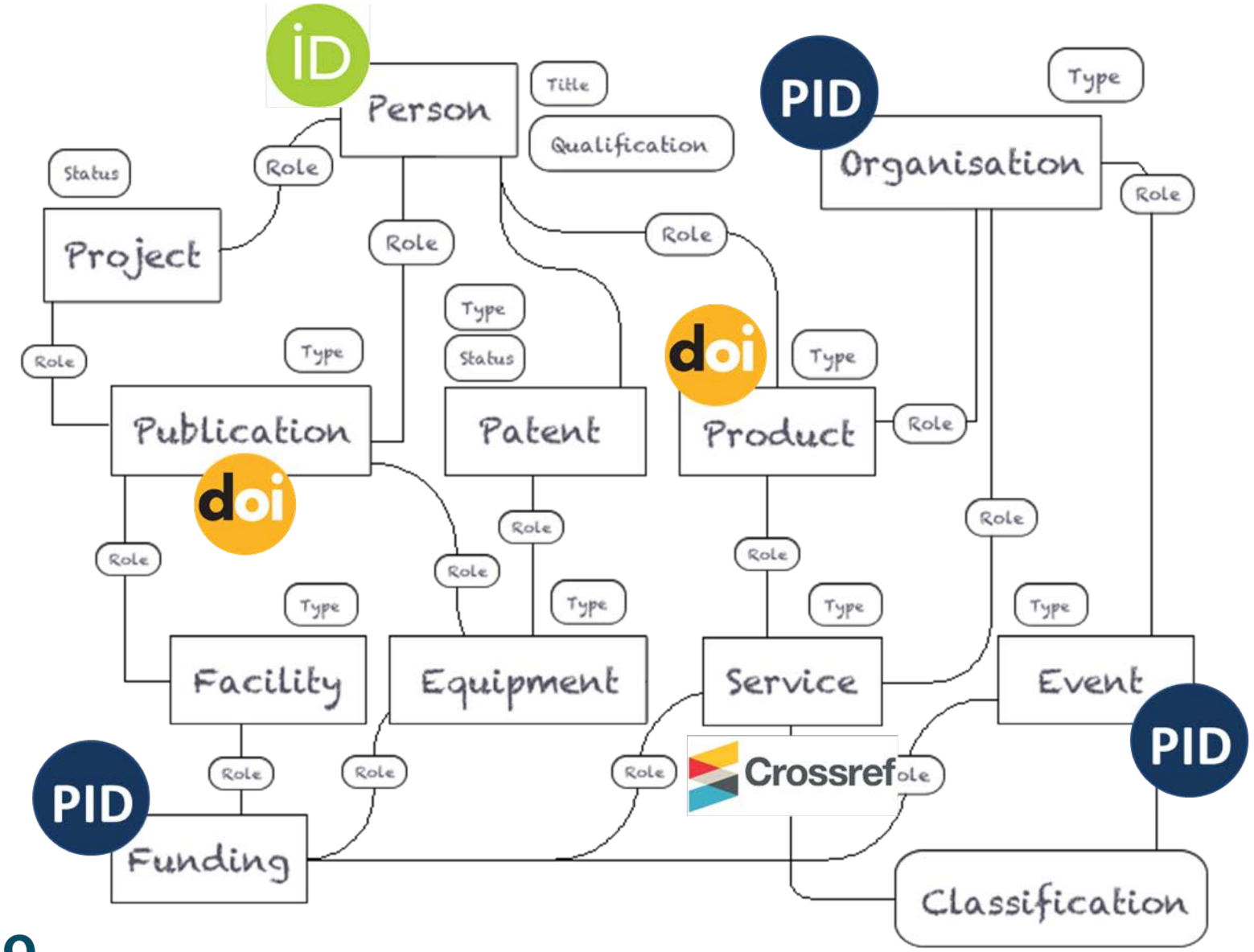
Surveys



Building the PID graph



Potential Activities

- **Brokering Registry**
- **Core Trust Seal**
- **PID Services**
  (Datacite Site)

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Internal Workflows

Automation

External Connections

Distributed Data Lake

Better Decisions

Publishing as Application

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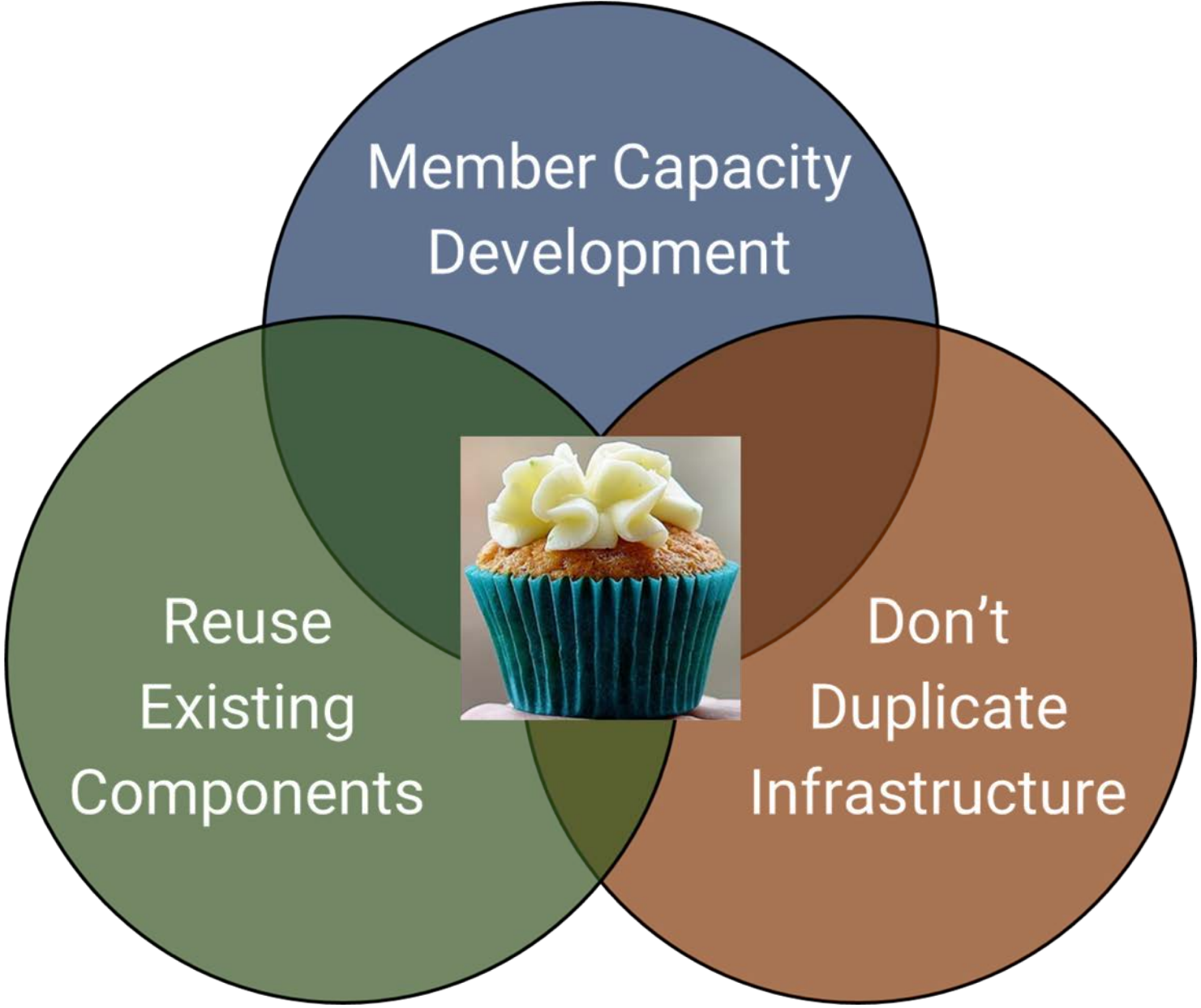

Project Selection Guidelines

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Building Trust in Scientific Data: Certification & the CoreTrustSeal

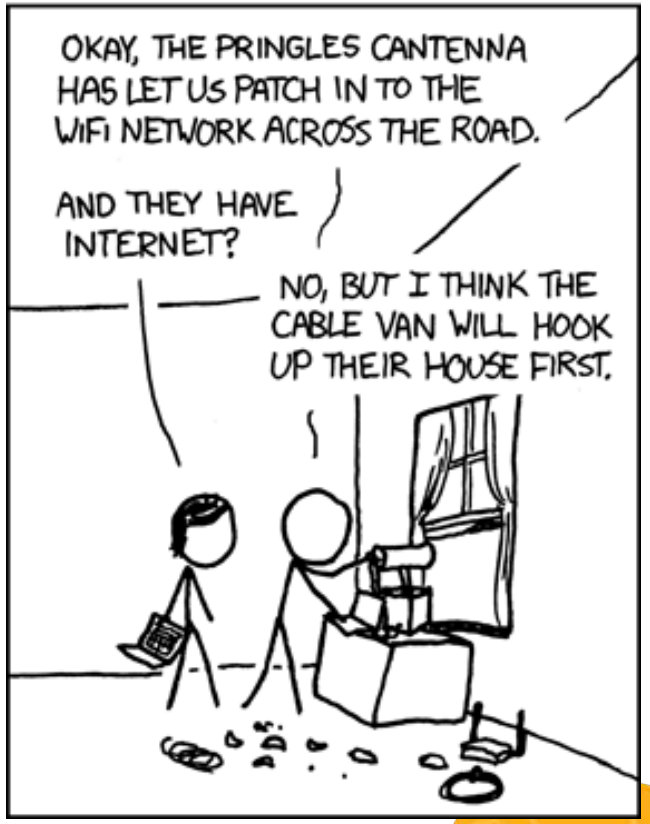
Reyna Jenkyns

CoreTrustSeal Board Member

Technical barriers to data sharing

System does not operate as expected

Datasets do not contain what they claim to contain



Access to data & services not guaranteed

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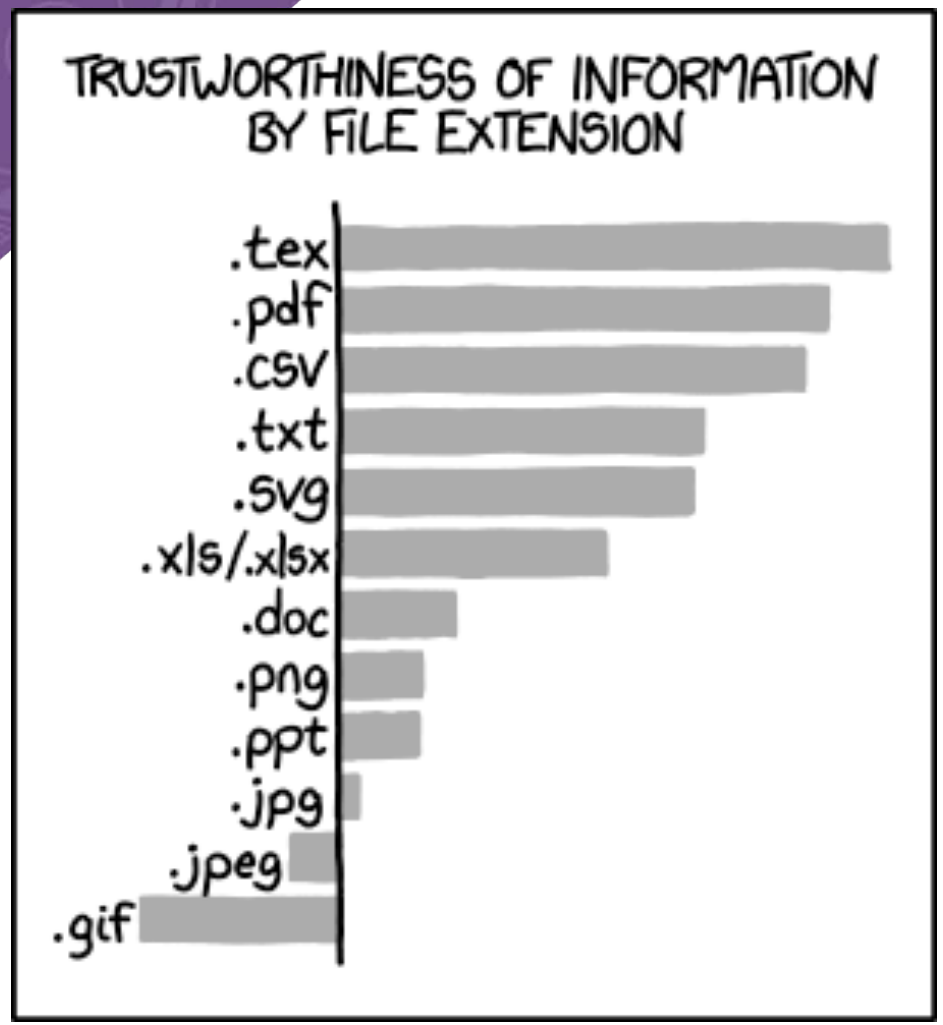
https://xkcd.com/

Cultural barriers to data sharing: Trust



- Funders want to protect their investment
- Data depositors want to be sure their data are safe
- Data users want to know that data is high quality

https://xkcd.com/

Trustworthy Data Repositories

- Certification Standards play an important role in establishing trust and ensuring long-term data sharing
- Number of certifications try to establish how to evaluate repository trustworthiness
- Not just technical infrastructure/standards, also business models, legal aspects, finances, staffing, organization management

The CoreTrustSeal

Data Seal of Approval Certification of Trusted Data Repositories

WDS Certification of Regular Members

WORLD DATA SYSTEM

Research Data Alliance Repository Audit and Certification DSA–WDS Partnership WG

RDA
RESEARCH DATA ALLIANCE

CORE TRUST SEAL

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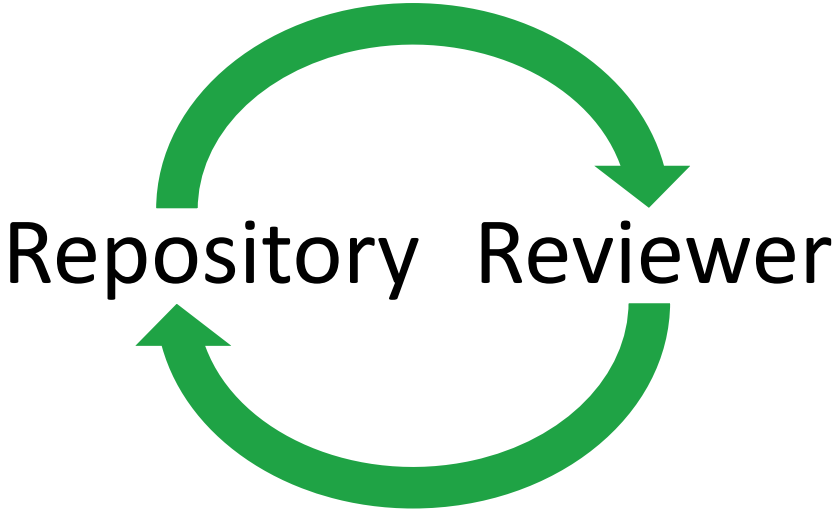
CoreTrustSeal Certification 101

- Core certification - minimally intensive process: Data repository supplies evidence that it is *sustainable* and *trustworthy*

1. Internal self-assessment - online application of 16 requirements
2. Reviewed by 2 community peers under the oversight of the CoreTrustSeal Standards and Certification Board



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Compliance Levels

- 0 - Not Applicable
- 1 - Not yet considered
- 2 - Has a Theoretical Concept
- 3 - Is In Implementation Phase
- 4 - Fully Implemented

Certification granted if some guidelines are at Level 3

Requirements include assumption of continuous improvement

Core TDR Requirements

- Background information:
  - Context
- Organizational infrastructure:
  - Mission/scope
  - Licenses
  - Continuity of access
  - Confidentiality and ethics
  - Organizational infrastructure
  - Expert guidance


25/08/2015 Common Requirements/V2.1

Data Seal of Approval

ICSU WORLD DATA SYSTEM

DSA–WDS Partnership Working Group
Catalogue of Common Requirements

Introduction

Importance of Certification

National and international funders are increasingly likely to mandate open data and data management policies that call for the long-term storage and accessibility of data.

If we want to be able to share data, we need to store them in a trustworthy digital repository. Data created and used by scientists should be managed, curated, and archived in such a way to preserve the initial investment in collecting them. Researchers must be certain that data held in archives remain useful and meaningful into the future. Funding authorities increasingly require continued access to data produced by the projects they fund, and have made this an important element in Data Management Plans. Indeed, some funders now stipulate that the data they fund must be deposited in a trustworthy repository.

Sustainability of repositories raises a number of challenging issues in different areas: organizational, technical, financial, legal, etc. Certification can be an important contribution to ensuring the reliability and durability of digital repositories and hence the potential for sharing data over a long period of time. By becoming certified, repositories can demonstrate to both their users and their funders that an independent authority has evaluated them and endorsed their trustworthiness.

Basic Certification and its Benefits

Nowadays certification standards are available at different levels, from a basic level to extended and formal levels. Even at the basic level, certification offers many benefits to a repository and its stakeholders.

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Core TDR Requirements

- Digital object management:
  - Data integrity and authenticity
  - Appraisal
  - Documented storage procedures
  - Preservation plan
  - Data quality
  - Workflows
  - Data discovery and identification
  - Data reuse


25/08/2015 Common Requirements/V2.1

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Core TDR Requirements

- Technology:
  - Technical infrastructure
  - Security
- Applicant feedback


25/08/2015 Common Requirements/V2.1

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Example Requirement

XIV. Data reuse

R14. The repository enables reuse of the data over time, ensuring that appropriate metadata are available to support the understanding and use of the data.

Compliance Level 

Response

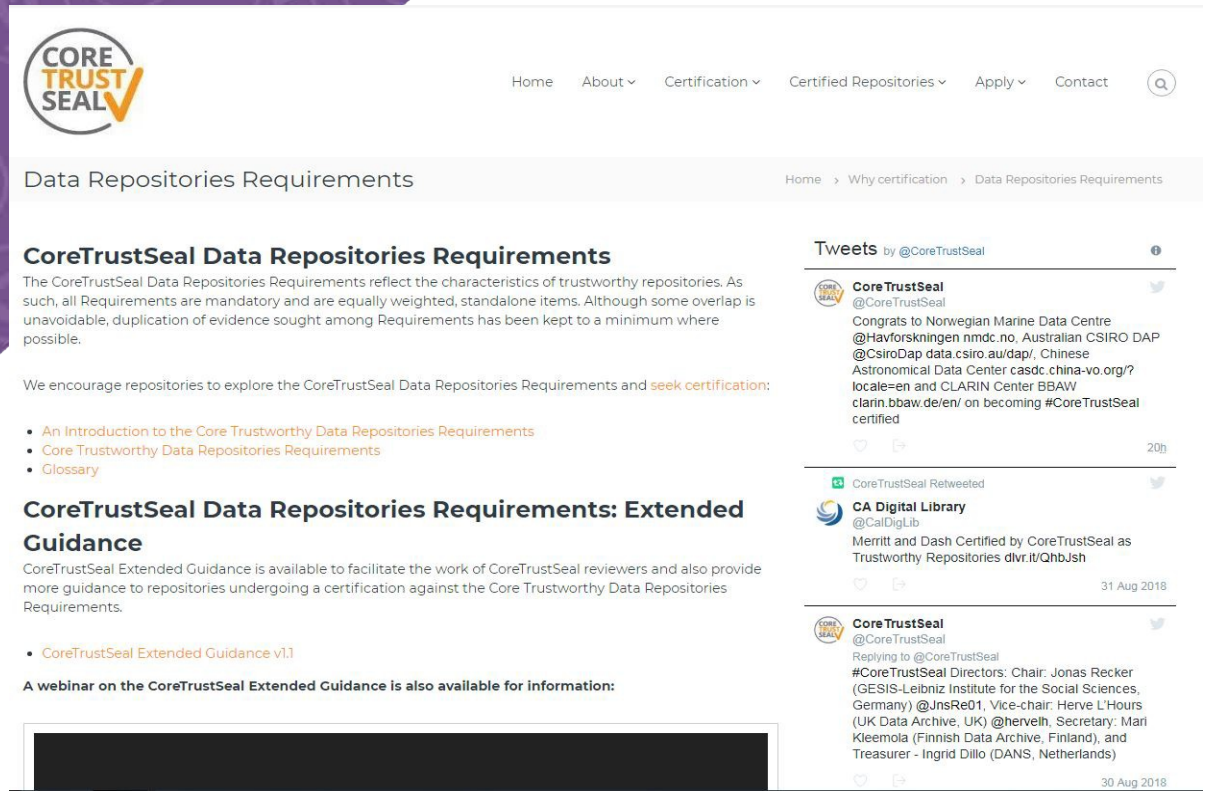
Guidance:
Repositories must ensure that data can be understood and used effectively into the future despite changes in technology. This Requirement evaluates the measures taken to ensure that data are reusable.

For this Requirement, responses should include evidence related to the following questions:

- Which metadata are required by the repository when the data are provided (e.g., Dublin Core or content-oriented metadata)?
- Are data provided in formats used by the Designated Community? Which formats?
- Are measures taken to account for the possible evolution of formats?
- Are plans related to future migrations in place?
- How does the repository ensure understandability of the data?

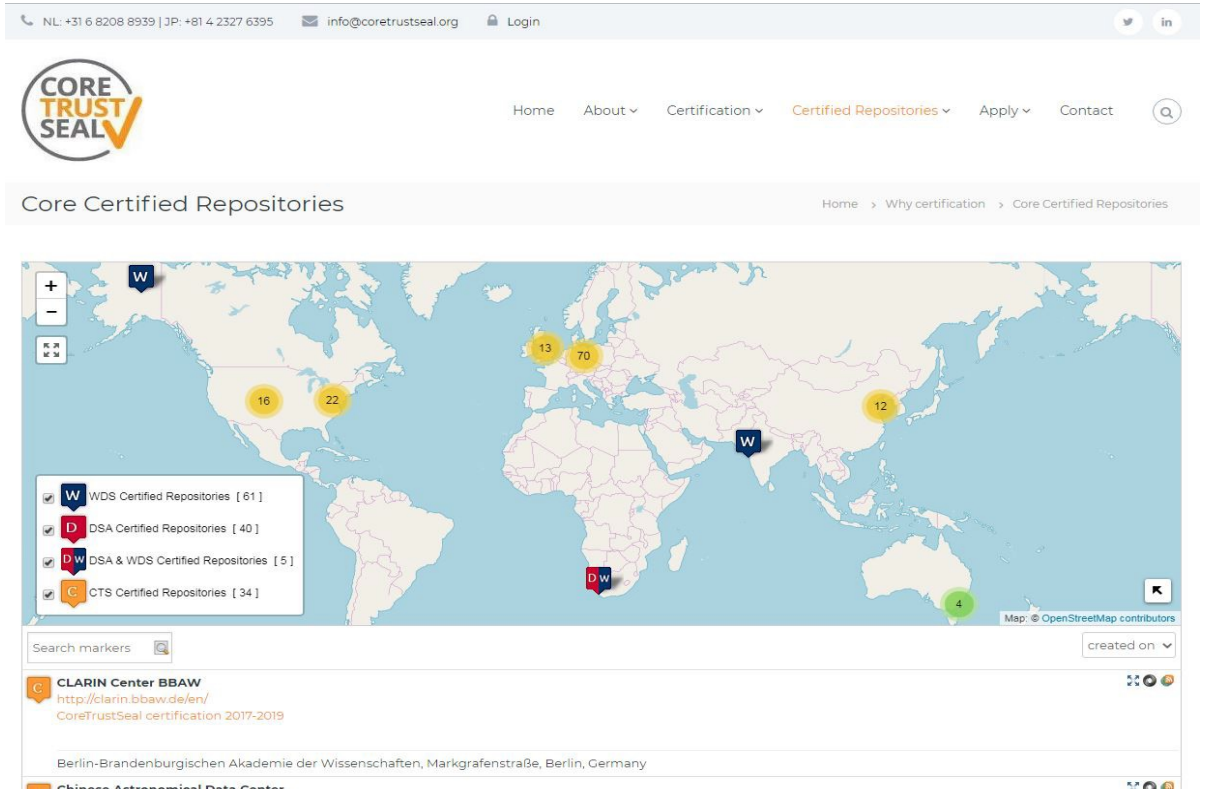
Reuse is dependent on the applicable licenses covered in R2 (Licenses).

Resources



www.coretrustseal.org/why-certification/requirements/

Extended Guidance and Webinar



www.coretrustseal.org/why-certification/certified-repositories/

Library of Public Applications

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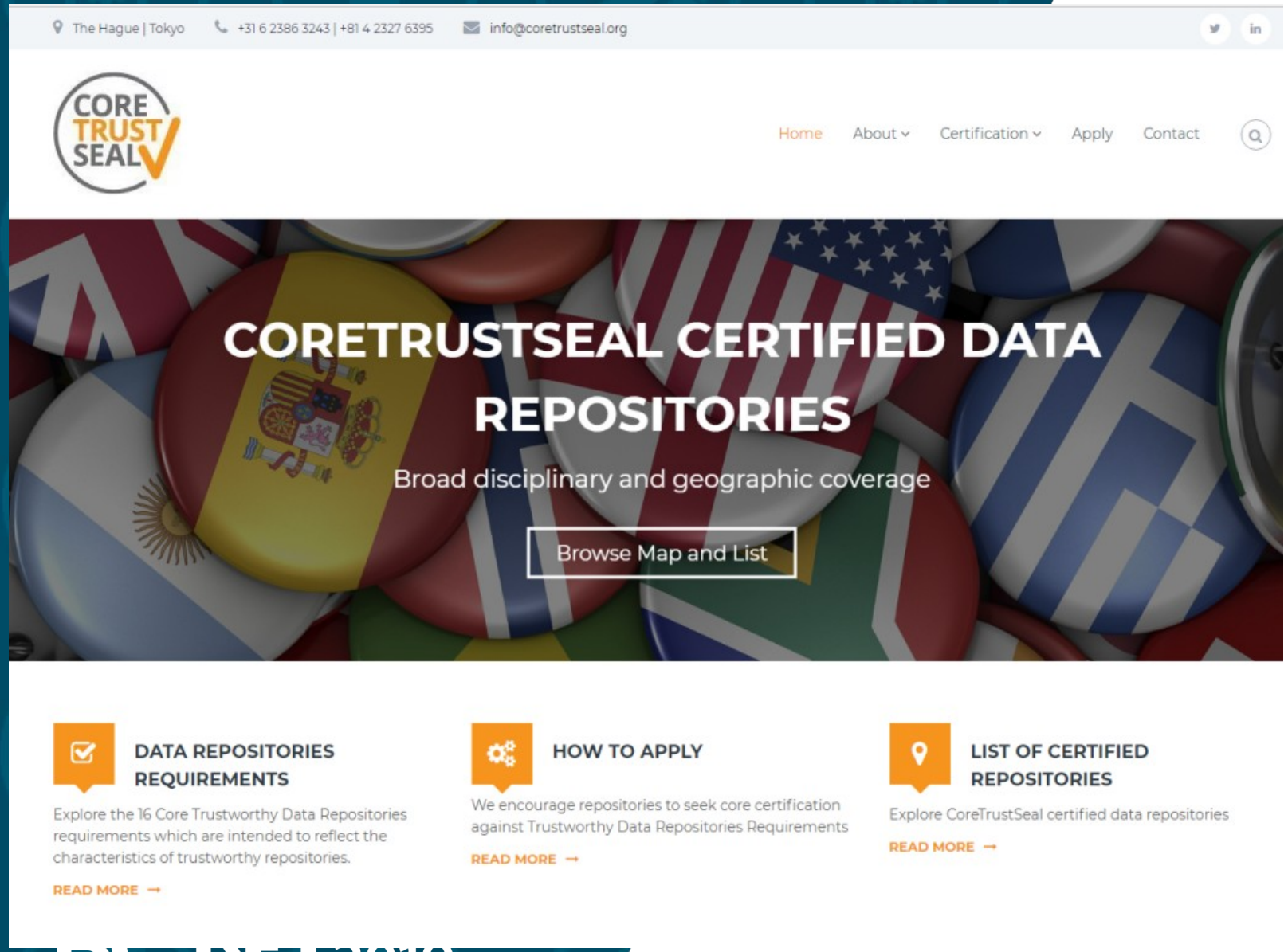
Canadian World Data System Regular Members

- Canadian Astronomy Data Centre
- Ocean Networks Canada
- Polar Data Catalogue

More Information



www.CoreTrustSeal.org

info@coretrustseal.org

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Welcome to BCNET 2019

Keynote Presentation