



BCNET[→]2019

Trusted Services from the ICS World Data System

Dr. Karen Payne, World Data System
Reyna Jenkyns, Oceans Network Canada



Outline



World Data System Introduction

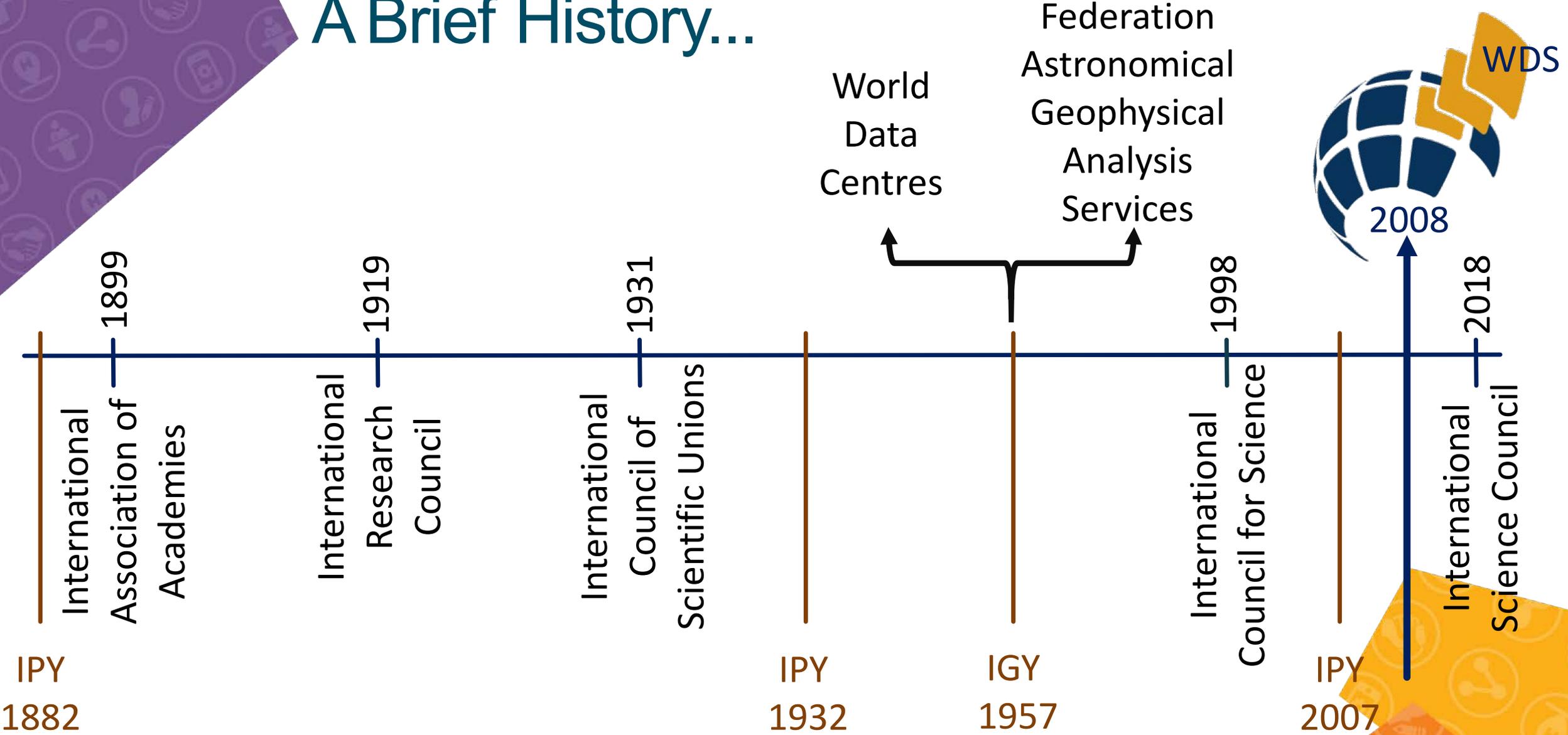


International Technology Office

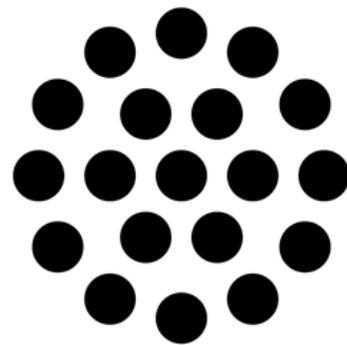


Core Trust Seal

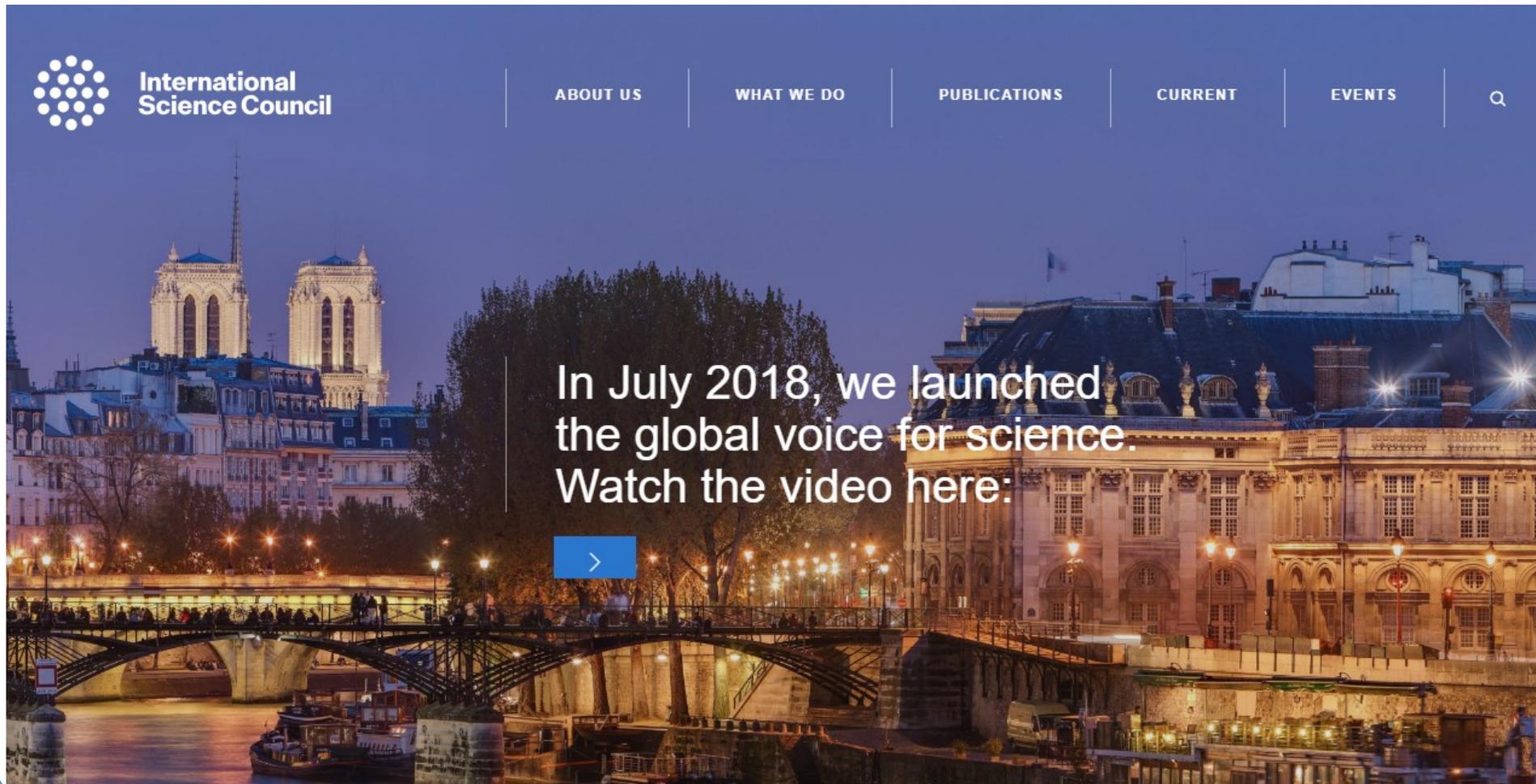
A Brief History...



A Brief History...

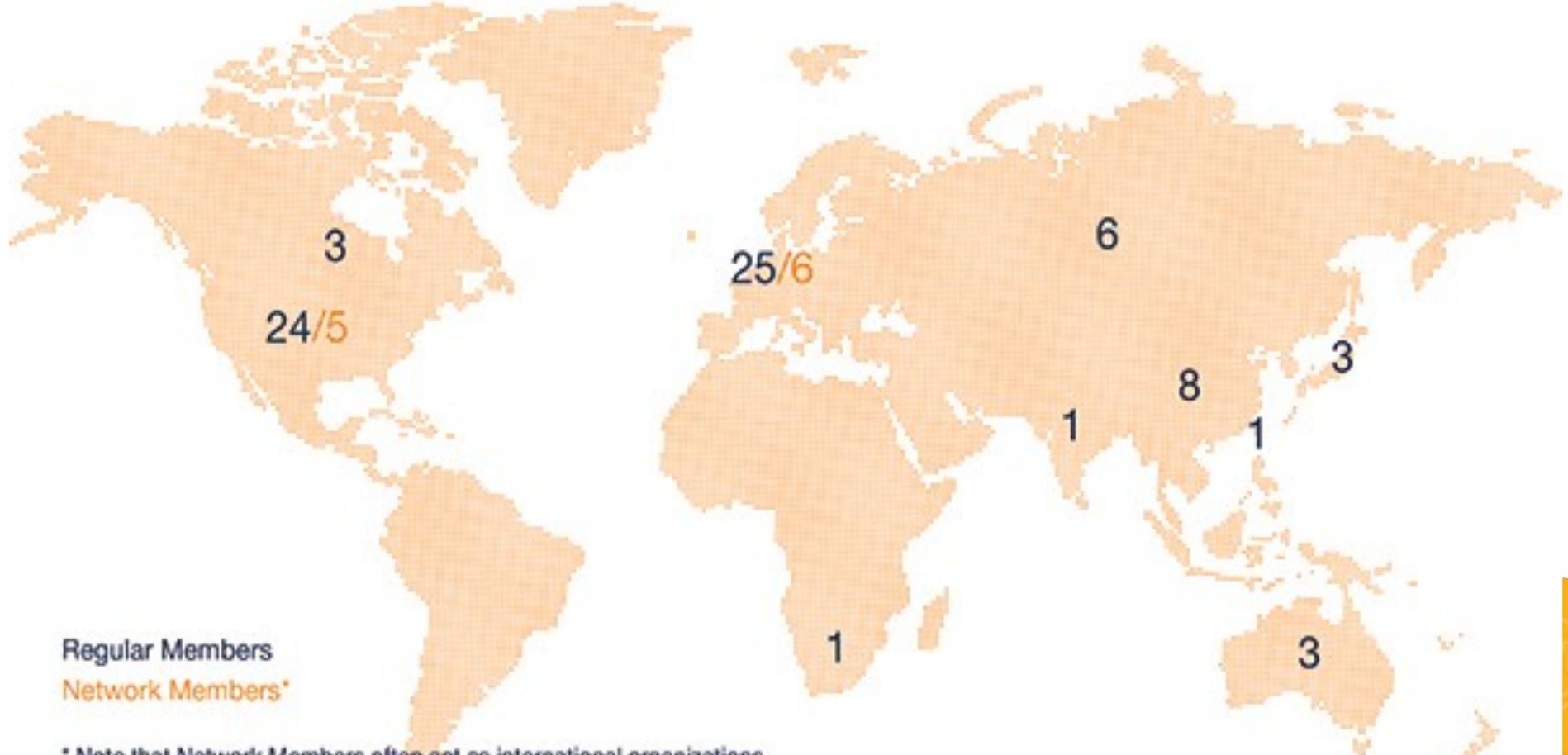


International Science Council



WDS Reach

WDS Regular and Network Members (10/2018)



Regular Members
Network Members*

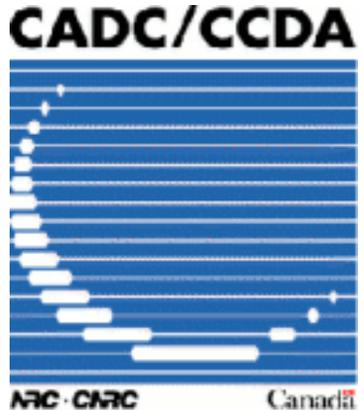
* Note that Network Members often act as international organizations. Only the location of the Member's secretariat is shown here, and WDS coverage extends to regions not marked.

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



BCNET 2019

- 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



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



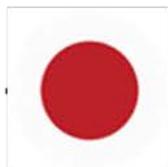
CADC



ONC



PDC



IPO



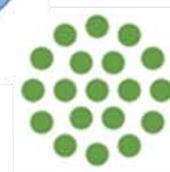
ITO



SC



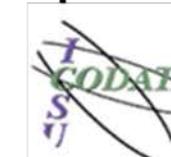
TAC



ISC



WDS



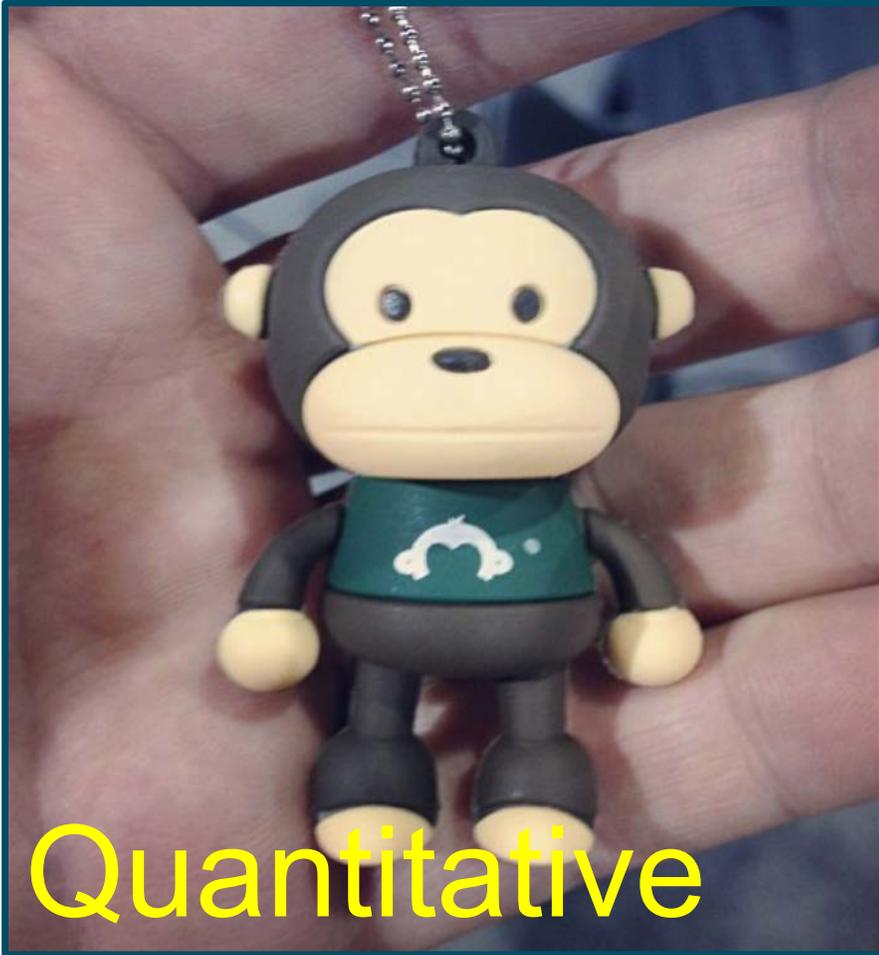
CODATA



INASP

- 75 Regular
- 11 Network
- 10 Partner
- 19 Associate

Surveys



Quantitative

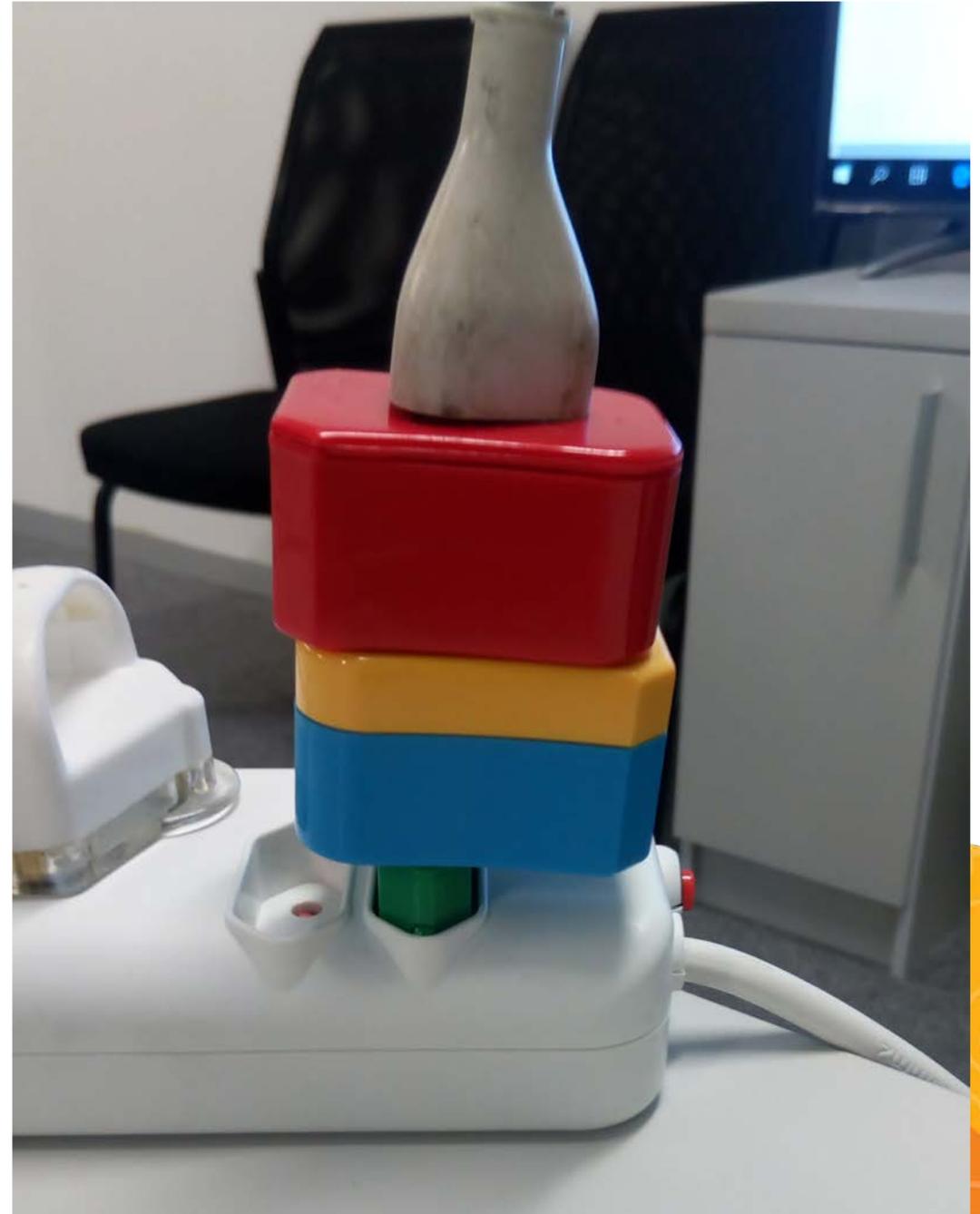


Qualitative

Potential Activities

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

BCNET 2019



Internal Workflows



Automation

External Connections

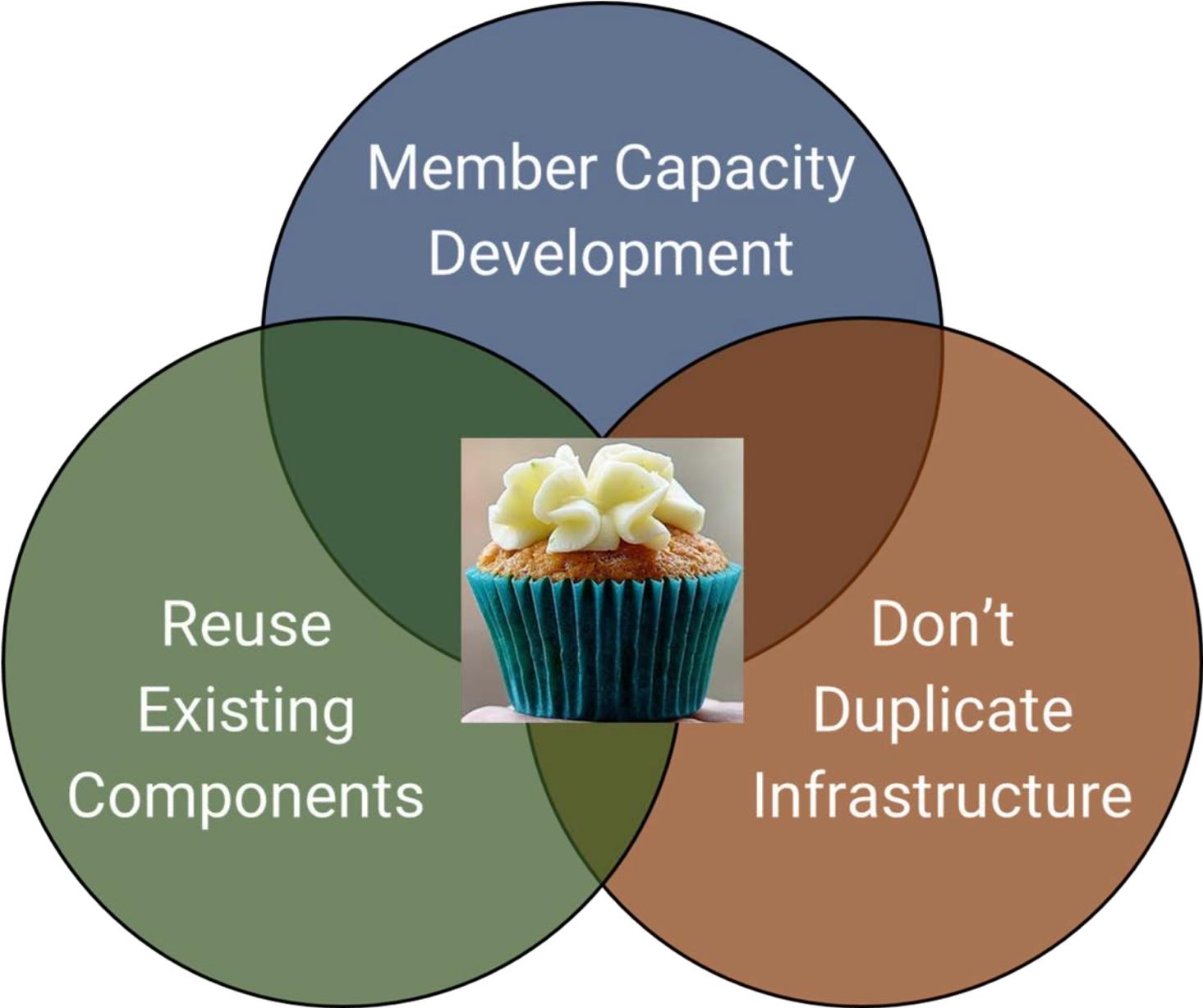


*Distributed
Data Lake*

Better Decisions

*Publishing
as
Application*





Member Capacity
Development

Reuse
Existing
Components

Don't
Duplicate
Infrastructure





BCNET[→]2019

Building Trust in Scientific Data: Certification & the CoreTrustSeal

Reyna Jenkyns
CoreTrustSeal Board Member



Technical barriers to data sharing



System does not operate as expected

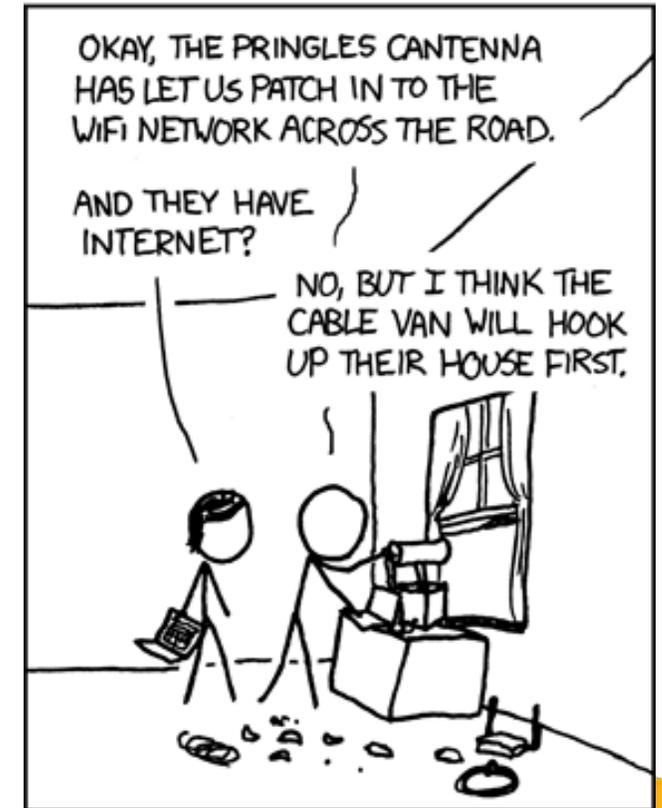
BCNET 2019



I WANT TO MAKE A DISASTER MOVIE THAT JUST SHOWS SCIENTISTS RUSHING TO UPDATE ALL THEIR DATA SETS.

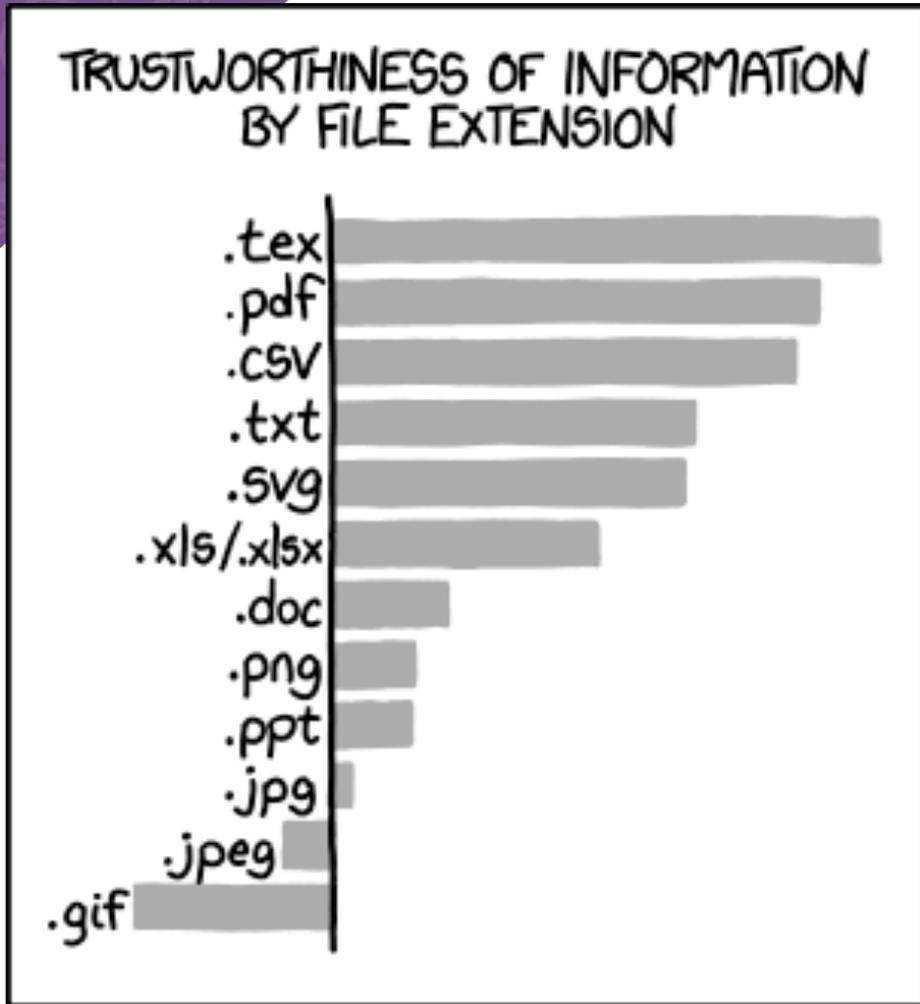
Datasets do not contain what they claim to contain

<https://xkcd.com/>



Access to data & services not guaranteed

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

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



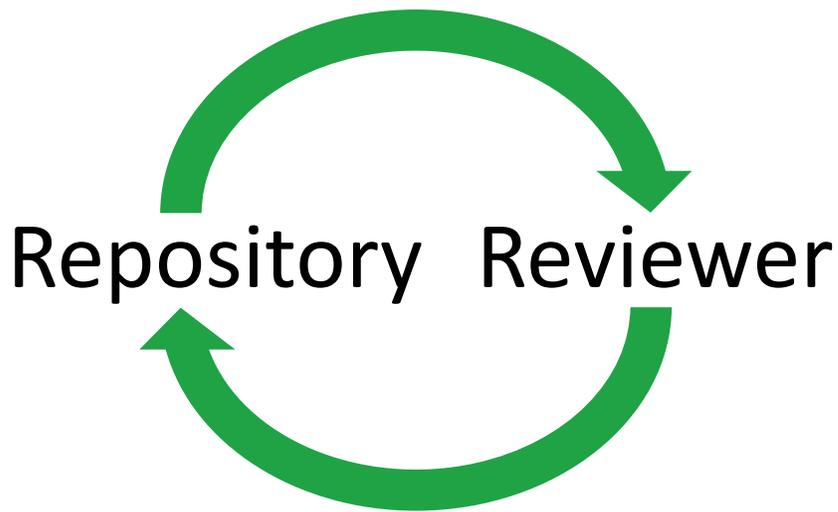
WDS Certification of
Regular Members

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



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



BCNET 2019



1,000

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



DOI 10.5281/zenodo.168411

25/08/2015

Common Requirements/V2.1



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.

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



**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.

Core TDR Requirements

- Technology:
 - Technical infrastructure
 - Security
- Applicant feedback



25/08/2015 Common Requirements/V2.1



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.

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

The screenshot shows the 'Data Repositories Requirements' page on the CoreTrustSeal website. The page includes the CoreTrustSeal logo, a navigation menu, and a breadcrumb trail: Home > Why certification > Data Repositories Requirements. The main content area is titled 'CoreTrustSeal Data Repositories Requirements' and contains a paragraph explaining that these requirements reflect the characteristics of trustworthy repositories. Below this, there is a link to 'seek certification' and a list of resources: 'An Introduction to the Core Trustworthy Data Repositories Requirements', 'Core Trustworthy Data Repositories Requirements', and 'Glossary'. A section titled 'CoreTrustSeal Data Repositories Requirements: Extended Guidance' follows, with a paragraph explaining its purpose and a link to 'CoreTrustSeal Extended Guidance v1.1'. A note mentions a webinar on the extended guidance. On the right side, there is a 'Tweets by @CoreTrustSeal' section showing three tweets, including one from CA Digital Library and another from CoreTrustSeal replying to a tweet about the #CoreTrustSeal Directors.

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

Extended Guidance and Webinar

Canadian World Data System Regular Members

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

BCNET 2019

The screenshot shows the 'Core Certified Repositories' page on the CoreTrustSeal website. The page features the CoreTrustSeal logo, a navigation menu, and a breadcrumb trail: Home > Why certification > Core Certified Repositories. The main content is a world map with colored markers indicating the location and number of certified repositories in various regions. A legend on the left lists the categories: WDS Certified Repositories [61], DSA Certified Repositories [40], DSA & WDS Certified Repositories [5], and CTS Certified Repositories [34]. A search box for markers is present. Below the map, a detailed view of a repository is shown, including the CLARIN Center BBAW logo, its website URL (http://clarin.bbaw.de/en/), its CoreTrustSeal certification period (2017-2019), and its location (Berlin-Brandenburgische Akademie der Wissenschaften, Markgrafestraße, Berlin, Germany).

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

Library of Public Applications

More Information

The Hague | Tokyo +31 6 2386 3243 | +81 4 2327 6395 info@coretrustseal.org



Home About Certification Apply Contact

CORETRUSTSEAL CERTIFIED DATA REPOSITORIES

Broad disciplinary and geographic coverage

[Browse Map and List](#)



DATA REPOSITORIES REQUIREMENTS

Explore the 16 Core Trustworthy Data Repositories requirements which are intended to reflect the characteristics of trustworthy repositories.

[READ MORE →](#)



HOW TO APPLY

We encourage repositories to seek core certification against Trustworthy Data Repositories Requirements

[READ MORE →](#)



LIST OF CERTIFIED REPOSITORIES

Explore CoreTrustSeal certified data repositories

[READ MORE →](#)

www.CoreTrustSeal.org

info@coretrustseal.org



BCNET  2019





BCNET  2019



BCNET[→]2019

Welcome to BCNET 2019

Keynote Presentation

