Adoption and Outputs session

RDA multidisciplinary solutions / Domain Agnostic
Key Challenges in the field

- How best can domain agnostic Recommendations and Outputs be applied across a range of research fields?
- What issues do we face in keeping domain agnostic Recommendations and Outputs up-to-date and relevant?
- How can we effectively communicate results of adoption to specialist and non-specialist audiences?
RDA WGs and IGs

Some relevant Groups include...

- Libraries for Research Data IG*
- Data policy standardisation and implementation IG
- Surveying Open Data Practices IG
- Early Career and Engagement IG
- Data policy standardisation and implementation IG
- Data Discovery Paradigms IG

...with many more on the RDA website!
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.30 - 14.42</td>
<td>Adoption Project - 23 Things Revisited: Field Guides To Research Data Management</td>
<td>Dr Mijke Jetten</td>
</tr>
<tr>
<td>14.42 - 14.54</td>
<td>FAIRSharing Registry Working Group</td>
<td>Prof Susanna-Assunta Sansone</td>
</tr>
<tr>
<td>14.54 - 15.06</td>
<td>Adoption Story - The RDA CoreTrustSeal adoption story across domains and regions (CSIRO)</td>
<td>Kathryn Unsworth</td>
</tr>
<tr>
<td>15.06 - 15.18</td>
<td>RDA/WDS Scholarly Link Exchange (Scholix) Working Group</td>
<td>Wouter Haak</td>
</tr>
<tr>
<td>15.18 - 15.30</td>
<td>Adopting the Output of Data Type Registry WG, Kernel Info Type, and PID4Instruments by ePIC</td>
<td>Dr Ulrich Schwardmann</td>
</tr>
</tbody>
</table>
Resources...

RDA CoreTrustSeal repository certification adoption across research domains: https://www.rd-alliance.org/rdacoretrustseal-adoption-story-across-domains-and-regions


RDA Domain Agnostic resources - Working Groups, Interest Groups, blogs, etc.
- https://www.rd-alliance.org/domain-agnostic

RDA Information and Communications Technology (ICT) Specifications
- https://www.rd-alliance.org/recommendations-outputs/standards

RDA and Librarianship, Archival Science and Information Science
Get in touch

Adoption Project - 23 Things Revisited: Field Guides To Research Data Management - Dr Mijke Jetten  https://www.rd-alliance.org/users/mijke-jetten

FAIRSharing Registry Working Group co-chair - Prof Prof Susanna-Assunta Sansone  https://www.rd-alliance.org/users/susanna-assunta-sansone

Adoption Story - The RDA CoreTrustSeal adoption story across domains and regions - Kathryn Unsworth (CSIRO)  https://www.rd-alliance.org/users/kunsworth

RDA/WDS Scholarly Link Exchange (Scholix) Working Group co-chairs - Wouter Haak  https://www.rd-alliance.org/users/wouterhaak

Adoption of DRT WG Recommendation, Kernel Info Type, and PID4Instruments by ePIC - Dr Ulrich Schwardmann  https://www.rd-alliance.org/users/uschwar1
Adopting the Outcome of DTR, KernelInfoType and PID4Instruments by ePIC
RDA P14 Adoption and Outputs Session

Ulrich Schwardmann (GWDG)

Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen (GWDG)
Am Fassberg, 37077 Göttingen
ulrich.schwardmann [at] gwdg.de

25 October 2019, Helsinki
GWDG, ePIC and DONA

- **GWDG**
  - is computer center of the University of Göttingen
  - and competence center for the Max-Planck-Society

- **ePIC**
  - is a network of currently eight strong scientific service providers
  - that signed a contract to **ensure a reliable PID infrastructure** for research

- **DONA**
  - is a Swiss foundation hosting an international consortium
  - that governs the Handle structure at the top level
  - GWDG is DONA MPA for ePIC
Types, Metadata and Registration

- Data producers need to explicitly specify certain details in the data description:
  - measurement units, coordinate systems, variable names...
- Need a way to precisely characterize those assumptions
  - such that they can be identified by humans that were not closely involved in its creation, and **and by machines**
- Detailed and precise data typing is a key consideration in data sharing, findability, interoperability and reuse (FaIR)
- A federated registry system for such types is highly desirable and needs to accommodate each community’s own requirements
- Output of DTR WG: Specification and Deployment of a prototype registry (called CORDRA, now v0.2)
  - implementing one potential data model, against which various use cases can be tested
  - Uptake in a number of projects and other RDA groups
Interoperability by Registration of Types

RDA working group on Data Type Registries

- approach to provide type definitions
- a PID for each definition
- defines the type structure, its use and semantics
- CORDRA as DTR service
- typical use cases:
  - with given PID find a type and ask for its use at DTR (see left)
  - ask at DTR for types with given semantics and find via PIDs according data
The ePIC Data Type Registry

Features
- Definition of PID Information Types
- Hierarchical types and automated schema extraction
- Access via REST API, Browser
- Based on CORDRA software
- GWDG is provider on behalf of ePIC
- Who can use the service?
  - Public, authorization needed only for type definition

Overview: http://dtr.pidconsortium.eu/

PID InfoType states are:
- in preparation (21.T11148),
  - http://dtr-test.pidconsortium.eu/
- candidate, approved, deprecated (21.11104)
  - http://dtr-pit.pidconsortium.eu/
Hierarchical Type Definitions at ePIC DTR

- types are often dependent from each other, how exactly?
- to exactly describe JSON objects by data types one needs:
  - a distinction between derived objects and basic objects
    - concept of basic PID info types and PID info types
  - a more exact description of the type dependencies
  - additionally a JSON schema inspired dependency model
- in consequence:
  - possibility to derive JSON schemas for the type values
    - automated server side schema derivation at ePIC DTR
  - one type defines in an exact way its whole dependencies
    - in objects of a certain type one can use the names of its parts (instead of type identifiers)
- see also Schwardmann, U.: Automated schema extraction for PID information types
  - PID: http://hdl.handle.net/21.11101/0000-0002-A987-7
Defining the PID4Instruments InfoType

```json
allowOmitSubsidiaries: "Yes"
value: ""
name: "Owners"

identifier: "21.T11148/1f3e82ddf0697a497432"

representationsAndSemantics:
  obligation: "Mandatory"
  repeatable: "No"
  expression: ""
  allowOmitSubsidiaries: "Yes"
  value: ""
  name: "Manufacturers"

identifier: "21.T11148/55f8ebc805e65b5b71dd"

representationsAndSemantics:
  obligation: "Optional"
  repeatable: "No"
  expression: ""
  allowOmitSubsidiaries: "Yes"
  value: ""
  name: "Description"

identifier: "21.T11148/f76ad9d0324382fc47dd"
```
Where to find the definitions

- the complete JSON of the type definition for type Properties-PID-instruments is here:
  http://hdl.handle.net/
  21.T11148/17ce618137e697852ea6
- for a more user friendly layout use
  http://dtr-test.pidconsortium.eu/#objects/
  21.T11148/17ce618137e697852ea6
  - Here you also has the pointers to all the defined subtypes for PIDINST.
Representing the Nanocluster Example

mapping the subtypes as single entries in the Handle record

You can see the entries in the Handle record with e.g. http://hdl.handle.net/21.T11998/0000-001A-1379-7?noredirect

* 21.T11998/0000-001A-1379-7

- **Type:** URL
  - **Index:** 1
  - `https://www.helmholtz-berlin.de/pubbl/gama_output?modus=en&sprache=en&gld=1848&a...`

- **Type:** PIDINST
  - **Index:** 2
  - `identifierValue": "21.T11998/0000-001A-1379-7", "identifierType": "PIDINST"

- **Type:** NanoclusterTrap
  - **Index:** 4

- **Type:** "Owner" ("ownerName": "Helmholtz-Zentrum Berlin fu00for Materialien und Energie")
  - **Index:** 5

- **Type:** "Manufacturer" ("manufacturerName": "Helmholtz-Zentrum Berlin fu00for Materialien und Energie")
  - **Index:** 6

- **Type:** The Nanocluster Trap endstation at BESSY II combines a cryogenic linear radio-frequency ion trap with an...
  - **Index:** 7

- **Type:** Experimental station for x-ray magnetic circular dichroism (XMCD)
  - **Index:** 8
Sensor Web Enablement SensorML

- presented in Breakout 3 by Louise Darroch, British Oceanographic Data Centre (BODC)


RDA Adoption by ePIC

Ulrich Schwardmann (GWDG)

GWDG, ePIC and DONA
Data Type Registries

ePIC DTR Adaption of the MD Schema for Instruments

ePIC DTR Adaption of the generic KernelInfoType Profile

Questions

Handle.Net®

Handle Values for: 21.T11998/0000-001A-3905-F

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<thead>
<tr>
<th>Index</th>
<th>Type</th>
<th>Timestamp</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>21.T11998/4aeac4bc0f1df68ab2a7</td>
<td>2019-10-15 07:14:35Z</td>
<td>{'Owner': {'ownerName': 'National Oceanography Centre', 'ownerContact': '<a href="mailto:louise.darroch@bodc.ac.uk">louise.darroch@bodc.ac.uk</a>', 'ownerIdentifier': '<a href="http://vocab.nerc.ac.uk/collection/B75/current/ORG00009">http://vocab.nerc.ac.uk/collection/B75/current/ORG00009</a>', 'ownerIdentifierType': 'URL'}}</td>
</tr>
<tr>
<td>6</td>
<td>21.T11998/1f3e82dd0f697a497432</td>
<td>2019-10-15 07:14:35Z</td>
<td>{'Manufacturer': {'manufacturerName': 'Sea-Bird Scientific', 'manufacturerIdentifier': '<a href="http://vocab.nerc.ac.uk/collection/L35/current/MAN0013">http://vocab.nerc.ac.uk/collection/L35/current/MAN0013</a>', 'manufacturerIdentifierType': 'URL'}}</td>
</tr>
<tr>
<td>7</td>
<td>21.T11998/55f8ebc805e65b5b71dd</td>
<td>2019-10-15 09:56:18Z</td>
<td>A high accuracy conductivity and temperature recorder with optional pressure sensor designed for deployment on moorings. The IM model has an inductive modem for real-time data transmission plus internal flash memory data storage.</td>
</tr>
<tr>
<td>10</td>
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<td>{'date': '1999-11-01', 'dateType': 'Commissioned'}</td>
</tr>
<tr>
<td>11</td>
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<td>2019-10-15 07:14:34Z</td>
<td>{'AlternativeIdentifier': {'AlternativeIdentifierValue': '2490', 'AlternativeIdentifierType': 'SerialNumber'}}</td>
</tr>
<tr>
<td>100</td>
<td>HS_ADMIN</td>
<td>2019-10-14 16:31:53Z</td>
<td>handle=21.T11998/USER30; index=300; [create hdl, delete hdl, read val, modify val, del val, add val, modify admin, del admin, add admin]</td>
</tr>
</tbody>
</table>
Sensor Web Enablement SensorML

http://hdl.handle.net/
21.T11998/0000-001A-3905-F
RDA KernelInformationType Profile at ePIC

ePIC Specific Consequences on the Typing:

- In order to express a Kernel Information Profile as an InfoType in the ePIC DTR we need a different DTR schema
  - **KernelInformationProfile**: 
    21.T11148/532ce6796e2828dd2be6
  - A Kernel Information Profile is then an instance of the DTR schema KernelInformationProfile
    - An example instance of such a DTR type is **recommendedKernelInformationProfile**: 
      21.T11148/0c5636e4d82b88f86132
  - A PID, fulfilling a concrete Kernel Information profile, has to have the properties, as described in this profile.
RDA Kernel Information Type Profile at ePIC

identifier: "21.T1114/0c5636e4d82b88f86132"
name: "recommendedKernelInformationProfile"
description: "Recommended Kernel Information profile, describing which attributes must or may be included in a conforming default Kernel Information record. (context: KernelInformation)"

standards: [-]
provenance: {} representationsAndSemantics: [-]
properties:

0:
name: "KernelInformationProfile"
identifier: "21.T1114/076759916209e5d62bd5"
representationsAndSemantics: [-]

1:
name: "digitalObjectType"
identifier: "21.T1114/1c699a5d1b4ad3ba4956"
representationsAndSemantics: [-]

2:
name: "digitalObjectLocation"
identifier: "21.T1114/b8457812985b83046284"
representationsAndSemantics: [-]

3:
name: "digitalObjectPolicy"
Many Thanks

Questions ???

Contact at ePIC:
  - support [at] pidconsortium.eu

Contact at GWDG:
  - Ulrich Schwardmann
    T: +49 551 201-1542, E: ulrich.schwardmann [at] gwdg.de
Building the Reputation as a trusted Repository following international Standards

Commonwealth Scientific and Industrial Research Organisation (CSIRO) Data Access Portal (DAP) adopts Repository Audit and Certification Catalogue RDA recommendation

CSIRO Data Access Portal

Trusted Data Repository Project

Mikaela Lawrence
Janet Applegate
Sue Cook
Kathryn Unsworth
Cynthia Love
Susan McMaster
David Lemon

INFORMATION MANAGEMENT AND TECHNOLOGY
www.csiro.au

RDA Helsinki - 25 October 2019
CSIRO is a trusted organisation that undertakes research of fundamental importance to Australia. This research produces data that CSIRO manages over the long-term, enabling reuse as inputs to new research.
Certification Project

The project undertook certification of the DAP using the Core Trustworthy Data Repositories Requirement with the CoreTrustSeal.

It was supported by the Australian National Data Service (ANDS), now known as the Australian Research Data Commons (ARDC). ARDC is an organisational member of RDA.

Infrastructure and software for the DAP is developed and maintained by Information Management & Technology dept in CSIRO. data.csiro.au
Investigating potential

• To provide trustworthy access to significant data assets

• Host third party data for those organisations with whom we collaborate where appropriate.
RDA output adopted

Repository Audit and Certification Catalogue RDA recommendation, an outcome of the RDA/WDS Certification of Digital Repositories Interest Group.
Adoption process

The project had four distinct phases:

• Understanding requirements

• Gathering documentation and evidence

• Developing publicly available documentation

• Completing the application for certification
CSIRO’s CoreTrustSeal Application

- November 2017: DSA cease accepting applications
- February 2018: CSIRO’s application submitted to CoreTrustSeal
- August 2018: Reviewers feedback received
- September 2018: Re-submitted application
- October 2018: CSIRO received seal
Adoption logistics

- Staffing for the project included two data librarians or 1.0 full-time equivalent over an 8 month period.

- Minor resources on the project included a project manager, project sponsor and another data librarian who attended fortnightly meetings.

- Weekly meetings were held with ANDS who supported the project.

- A CSIRO Senior Legal Counsel was involved in developing policies and procedures for data deposit applications by external organisations.

- A researcher from the Land and Water research unit and an external water researcher had minor involvement in developing a test case for the DAP to host externally owned data.
Lessons learned – Application

- CoreTrustSeal is basic certification
- Achievable for institutional repositories
- Get an account early for the Application Tool
- Your application is locked on submission
- A seal is for 3 years from seal acceptance by board
- New requirements due to be released 2020–2023
Hosting externally owned data

• Why was it part of our strategy
• Investigated policies, procedures and system changes to host externally owned data
• Project impact: Processes for requests to host externally owned data in place
• Developed Collection Development Principles
  • https://confluence.csiro.au/display/daphelp/Data+Collection+Development+Principles
• Developed Data Deposit Conditions and Data Deposit Form
  • https://confluence.csiro.au/display/daphelp/External+Data+Applications
• Significant input by staff from Legal, Information Management and Technology, and researchers
Benefits of adopting the RDA output

• Opportunity to consolidate documentation

• Enabled transparency
This project is supported by the Australian National Data Service (ANDS)

ANDS is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy Program

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative
FAIRsharing WG

Group details

Status: Completed
Chair (s): Susanna-Assunta Sansone, Rebecca Lawrence, Peter McQuilton, Simon Hodson
Secretariat Liaison: Lynn Yarmey
TAB Liaison: Paul Uhlir
Case Statement: Download

WG's Maintaining deliverables (maintenance group)

This WG has delivered its RDA-endorsed Flagship outputs:

FAIRsharing registry

FAIRsharing recommendations

Susanna-Assunta Sansone

ORCiD: 0000-0001-5306-5690 | Twitter: @SusannaASansone

http://dx.doi.org/10.15497/RDA00030
A curated, informative and educational resource on data and metadata standards, inter-related to databases and data policies.

**Find**
- **Recommendations**
  Standards and/or databases recommended by journal or funder data policies.

**Discover**
- **Collections**
  Standards and/or databases grouped by domain, species or organization.

**Learn**
- **Educational**
  About standards, their use in databases and policies, and how we can help you.

---

**Search FAIRsharing**

**Advanced Search**
- Fine grained control over your search.

**Search Wizard**
- Let us guide you to your results.

---

**1325 Standards**
- Terminology Artifact: 730
- Model/Format: 391
- Reporting Guideline: 162
- Identifier Schema: 13
- FAIR metrics: 29

**1290 Databases**
- Natural Sciences: 1193
- Engineering Science: 196
- Humanities: 42
- Social Sciences: 48

**123 Policies**
- Funder: 23
- Journal: 85
- Society: 9
A curated, informative and educational resource on data and metadata standards, inter-related to databases and data policies.

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Learn
Educational
About standards, their use in databases and policies, and how we can help you.

Advisory Board
See also the FAIRsharing RDA and Force11 WG webpages.

Emma Ganley (PLOS) Co-chair
Varsha Khodiyar (NPG) Co-chair
Michael Ball (ESRC)
Theo Bloom (BMJ)
Jennifer Boyd (OUP)
Dave Carr (The Wellcome Trust and Wellcome Open Research)
Helena Cousijn (Datacite)
Scott Edmunds (GigaScience, BGI)
Dominic Frizzo (JISC)
Chris Graf (Wiley)
Simon Hodson (CODATA), Co-Chair of the RDA/Force11 WG
Mike Huerta (Coordinator of Data & and Open Science Initiative, Associate Director for Programme Development at the NIH National Library of Medicine)
Amye Kenall (BMC)
Rebecca Lawrence (F1000), Co-Chair of the RDA/Force11 WG
Thomas Lemberger (EMBO Press)
Jennifer Lin (CrossRef)
Luiz Olavo Bonino (GO-FAIR)
Gabriella Rustici (ELIXIR UK Node, University of Cambridge, UK)
Marina Soares E Silva (Elsevier)
Imma Subirats (Information Management Officer, FAO of the United Nations, Italy)
Marta Teperek (Data Stewardship Coordinator, TUDelft, The Netherlands)

Peter McQuilton
Project Coordinator
with developers and curators

Data Readiness Group

datareadiness.eng.ox.ac.uk
Researchers in academia, industry, government

Journal publishers or organizations with data policy

Learned societies, unions and associations

Developers and curators of resources

Research data facilitators, librarians, trainers

Funders and data policy makers

A flagship output (and a WG) of the:

**RESEARCH DATA ALLIANCE**

Core part of implementation networks in:

**GO FAIR**

Recommended by funders, e.g.:
DATA POLICIES by journals, funders, and other organizations

Curated inter-linked descriptions

REPOSITORIES, databases and knowledgebases

COMMUNITY STANDARDS for metadata and identifiers

Formats  Terminologies  Guidelines  Identifiers
All records are **manually curated in-house**, classified by disciplines, verified with and claimed by the community behind each resource.
DATA POLICIES
by journals, funders, and other organizations

REPOSITORIES, databases and knowledgebases

Curated inter-linked descriptions

COMMUNITY STANDARDS
for metadata and identifiers

We guide consumers to discover, select and use these resources with confidence

We help producers to make their resources more visible, more widely adopted and cited
The Virtual Observatory (VO) is the vision that astronomical datasets and other resources should work as a seamless whole. Many projects and data centres worldwide are working towards this goal. The International Virtual Observatory Alliance (IVOA) is an organisation that debates and agrees the technical standards that are needed to make the VO possible. It also acts as a focus for VO aspirations, a framework for discussing and sharing VO ideas and technology, and body for promoting and publicising the VO. This collection lists the documents & standards agreed by IVOA.

This record is maintained by: carviset
Record added: March 15, 2018, 12:56 p.m..
Record updated: Oct. 11, 2018, 9:57 a.m. by carviset.
“The interactive browser will allow us to discover which databases and standards are not currently included in our author guidelines, enabling us to regularly monitor and refine our policies as appropriate, in support of our mission to help our authors enhance the reproducibility of their work.”

H. Murray. Publishing Editor, F1000Research
Example of an active community and strong by-in

FAIRsharing as a community approach to standards, repositories and policies

https://doi.org/10.1038/s41587-019-0080-8

69 authors (adopters, collaborators, users) representing different stakeholder groups

FAIRsharing plays a key role in helping editors to discover and recommend appropriate resources
Objectives:

- **guide journals and publishers** in providing authors with consistent recommendations on data deposition
- **reduce** potential for confusion of researchers and support staff
- **inform** data repository developers and managers of the features believed to be important by journals and publishers
- **apprise certification** and other evaluation initiatives, serving as a reference and perspective from journals and publishers

**Collaboration:** [FAIRsharing.org](http://fairsharing.org) and [DataCite](https://datacite.org)

**Harmonize journals and publishers’ data deposition guidelines** by defining a common set of criteria for repository selection

**Pre-print:** [https://osf.io/m2bce](https://osf.io/m2bce)

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susanna-Assunta Sansone</td>
<td>(co-chairs) FAIRsharing, Oxford</td>
</tr>
<tr>
<td>Peter McQuilton</td>
<td>(co-chairs) FAIRsharing, Oxford</td>
</tr>
<tr>
<td>Helena Cousijn</td>
<td>(co-chairs) DataCite</td>
</tr>
<tr>
<td>Emma Ganley and Iain Hrynaszkiewicz</td>
<td>PLOS</td>
</tr>
<tr>
<td>Varsha Khodiyaar</td>
<td>Springer Nature, Scientific Data</td>
</tr>
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<td>Wei Mun Chan</td>
<td>eLife</td>
</tr>
<tr>
<td>Nick Everitt and Caroline Sutton</td>
<td>Taylor and Francis</td>
</tr>
<tr>
<td>Scott Edmunds</td>
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<tr>
<td>Marina Soares Silva and Ilaria Carnevale</td>
<td>Elsevier</td>
</tr>
<tr>
<td>Kiera McNeice</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>Philippe Rocca-Serra</td>
<td>FAIRsharing, Oxford</td>
</tr>
</tbody>
</table>
Increase the number and the clarity of journals and funders data policies by classifying the recommendations these policies contain to improve their definition and guidance to researchers.

**Workplan – phase 1:**

Curate and assess their compliance to the Transparency and Openness Promotion (TOP) guidelines and display the level in FAIRsharing.

**Standards:** Data Citation | Data, Materials, and Code Transparency | Design and Analysis | Preregistration | Replication

**Levels:** Disclose, Require, or Verify

<table>
<thead>
<tr>
<th></th>
<th>Not Implemented</th>
<th>Level I</th>
<th>Level II</th>
<th>Level III</th>
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</thead>
<tbody>
<tr>
<td><strong>Data Transparency</strong></td>
<td>Journal encourages data sharing, or says nothing.</td>
<td>Article states whether data are available, and, if so, where to access them.</td>
<td>Data must be posted to a trusted repository. Exceptions must be identified at article submission.</td>
<td>Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.</td>
</tr>
</tbody>
</table>
The use of community standards for (meta)data and identifiers are among the FAIRness indicators

FAIRsharing content powers 2 (semi)automatic evaluation tools:
Here what you can do with and for FAIRsharing

- Register your data policy in FAIRsharing
- Recommend FAIRsharing to your researchers and awardees

Researchers in academia, industry, government
Use FAIRsharing to identify and cite the standards, databases or repositories that exist for your discipline when creating a data management plan, releasing data or submitting a manuscript to a journal.

Developers and curators of resources
Make your standard, database or repository discoverable, by adding or claiming it in FAIRsharing; increase exposure and credit outside of your immediate community and promote adoption.

Journal publishers or organizations with data policy
Create in FAIRsharing your interrelated list of citable databases, repositories and relevant standards to recommend to your authors, users or their community; maintain and revise your recommendation over time.

Research data facilitators, librarians, trainers
Use FAIRsharing to provide a foundation on which to create or enrich educational lectures, training and teaching material; and to plug into data management planning tools and other FAIR-supporting resources.

Learned societies, unions and associations
Collaborate with FAIRsharing to raise awareness of standards, databases, repositories and data policies; mobilize your community to take action to promote registration, use and citation of key resources.

Funders and data policy makers
Recommend FAIRsharing to your awardees or community, to inform the development of their data management plan; and select the appropriate resources to recommend in your data policy.
Scholarly Link Exchange
www.Scholix.org
RDA 14th plenary Helsinki
Scholix is a schema

- Scholix: *linking Research Data with the Literature*

- A schema for standardizing the exchange of *scholarly link* information between scholarly infrastructure providers
  - Information Model for scholarly links representation
  - Recommendation and provision of exchange formats and protocols

See also [http://www.scholix.org/guidelines](http://www.scholix.org/guidelines)
Recap Scholix: connecting the dots

**Past:** disconnected sources using heterogeneity of practices

**Future:** standard set of guidelines for exposing and consuming links, supported by hubs
Scholix adoption
see: www.Scholix.org

For data repositories and journal publishers
- increase their visibility and usage
- improve the user experience
- More scalable and robust

For research institutes, bibliographic service providers, and funding bodies
- Make data count
- track datasets and publications within common and comprehensive framework

For researchers:
- Easier finding and accessing
- track long-term impact of their data
- additional incentives to share data.
The classical approach (before Scholix)


Source: Kirsten Elger, GFZ German Research Centre for Geosciences
ekelger@gfz-potsdam.de
The classical approach (before Scholix)


Source: Kirsten Elger, GFZ German Research Centre for Geosciences
kelger@gfz-potsdam.de
New possibilities for cross-linking data and papers

Data publication in 2016

Paper published in 2011

Link to data on the paper landing page

Data: http://doi.org/10.5880/GFZ.4.1.2016.007

Source: Kirsten Elger, GFZ German Research Centre for Geosciences
ekelger@gfz-potsdam.de
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e.g.: using Scholix to measure data sharing in Finland

Source: Scopus, SciVal, Scholix, data extracted on February 19, 2019 – CAGR = Compound Annual Growth Rate
The impact of RDM best practices

e.g.: using Scholix to measure data sharing in Finland

Source: Scopus, SciVal, Scholix, data extracted on February 19, 2019
RDM impact – Aalto University

- Outputs in Top Citation Percentiles
- Publications in Top Journal Percentiles
- Scholarly Output

Source: Scopus, SciVal, Scholix, data extracted on February 19, 2019
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Bioorganic and Medicinal Chemistry
Volume 14, Issue 23, 1 December 2006, Pages 7917-7923

A new dihydroxanthone from a plant-associated strain of the fungus Chaetomium globosum demonstrates anticancer activity  (Article)


1Southwest Center for Natural Products Research and Commercialization, Office of Arid Lands Studies, College of Agriculture and Life Sciences, 250 E. Valencia Road, Tucson, AZ 85706-6800, United States
2Steele Memorial Children's Research Center, University of Arizona Health Sciences Center, 1501 N. Campbell Avenue, Tucson, AZ 85724, United States

Abstract

Bioassay-guided fractionation of a cytotoxic EtOAc extract of the fungal strain, Chaetomium globosum, inhabiting the rhizosphere of the Christmas cactus, Opuntia leptocaulis, of the Sonoran desert afforded a new dihydroxanthone, globosuxanthone A (1), a new tetrahydroxanthone, globosuxanthone B (2), two new xanthones, globosuxanthone C (3) and D (4), 2-hydroxyvertianthone (5), and two known anthraquinones (6 and 7). The structures of the new compounds 1-4 were elucidated by NMR and MS techniques, and the relative stereochemistry of 1 was determined by X-ray crystallographic analysis. Of the compounds encountered, 1 was found to exhibit strong cytotoxicity against a panel of seven human solid tumor cell lines, disrupt the cell cycle leading to the accumulation of cells in either G2/M or S phase, and induce classic signs of apoptosis. © 2006 Elsevier Ltd. All rights reserved.
Scopus uses Scholix to link to repositories (example CCDC)
Many use-cases & examples now growing

ScienceDirect
Scopus®
zenodo
EarthChem
CPSR

API: link search/resolution
WebUI: link discovery/navigation

Harvesting of links

Other sources

SCHOLIIS API

research data sharing without barriers
rd-alliance.org
Scholix in practice: the Hubs

- DataCite: https://www.datacite.org/eventdata.html
- Crossref: https://www.crossref.org/services/event-data
- OpenAIRE: http://scholexplorer.openaire.eu/
- Europe PubMed Central: https://europepmc.org/
RDA Adoption Grant: 23 Things Revisited
A version for the Dutch Community

14th RDA Plenary Helsinki, October 23-25, 2019
Adoption and Outputs Session

Mijke Jetten, PhD, Radboud University

with cooperation of

Ingeborg Verheul (LCRDM, SURFSara), Fieke Schoots (Leiden University), Iza Witkowska (Utrecht University), Lena Karovskaya (Utrecht University), Mateusz Kuzak (eScience Center), Ellen Leenarts (DANS), Carlos Teijeiro Barjas (SURFSara) & Boudewijn van den Berg (LCRDM, SURFSara)

The Netherlands
Adoption grant

**What?** Creating Dutch versions of the 23 Things for different audiences improves national cooperation, and a common understanding of RDM among diverse practitioners and supporters.

**Why?** 23 Things as a shared reference tool for knowledge on RDM.

**How?** For this RDA adoption grant, a LCRDM task group will generate four deliverables between June ‘19 and May ‘20.

The original 23 Things was created by the Libraries for Research Data Interest Group and can be found at edu.nl/w7e34
Phases and deliverables

Phase 1. Creating a Dutch nationwide commitment
Deliverable: implementation and adoption plan at https://doi.org/10.5281/zenodo.3337870

Phase 2. Adjusting the 23 Things (via sprints)
Intermediate deliverable: a version updated and adapted to the Dutch community at https://doi.org/10.5281/zenodo.3465895
Deliverable: versions for different target audiences (e.g. data stewards, IT specialists, policy officers, researchers, and students)

Phase 3. Getting the 23 Things adopted (in training)
Deliverable: use cases and recommendations for the 23 Things, particularly (to create consensus) in training

Phase 4. Dissemination of experiences and final versions (via Zenodo, blogs, webinars, conference presentations and a paper)
Deliverable: sustainability plan
Highlight: 23 Things and training

Phase 3. Getting the 23 Things adopted (in training) for different target audiences (December ‘19 - April ‘20)

Deliverable: use cases and recommendations

• Part 1. Test adoption in daily practice. Approach: local working sessions (RDM supporters with target audiences)

• Part 2. Test adoption as a basis for training. Approach: local/national working sessions (RDM supporters with training coordinators)

• Part 3. Test usefulness. Approach: national meeting to collect use cases (with stakeholder groups/audiences)

Ideas

• Use sprints to collect successes and needs in training materials and events

• Framework for materials and events for researchers around the 23 Things, to help research supporters

• Carpentry lessons for data supporters (and researchers?)

https://ucsdlib.github.io/23-Research-Data-Things

https://datasupport.researchdata.nl/en
Highlight: adjusting the 23 Things

Phase 2. Review the 23 Things content (July - November ‘20)

*Deliverable:* reviewed versions of the 23 Things for different target audiences

*Approach:* via sprint sessions (7) with the Dutch community

- **Part 1.** Update according to recent RDM developments (FAIR, GDPR, Open Science)
- **Part 2.** Update links and references to reflect Dutch and European initiatives and resources
- **Part 3.** Textual adaption to other target audiences

*Impressions*

- Kept the original layout, style, pages, themes and numbers
- Introductory texts were less changed, most links updated
- Added FAIR, GDPR and Open Science things
- Curious about the needs of our ‘audiences’:
  First sprint part 3 next week, contacting potential stakeholders via broad network right now: IT staff, support staff, trainers, policy makers and researchers
Thank you

Do you have questions? Are there any important issues you would like to point us to? Do you want to share experiences? **Your input and feedback is highly valued**

• Come talk to us:
  At the 23 Things poster
  At this Friday’s Adoption, Outputs & business plenary session

• Contact:
  Mijke Jetten (m.jetten@ubn.ru.nl)
  Iza Witkowska (i.m.witkowska@uu.nl)
  Fieke Schoots (s.p.schoots@library.leidenuniv.nl)

• Check out our deliverables via Zenodo
  [https://doi.org/10.5281/zenodo.3337870](https://doi.org/10.5281/zenodo.3337870)
  [https://doi.org/10.5281/zenodo.3465895](https://doi.org/10.5281/zenodo.3465895)