Research Data Alliance

Vision:

Researchers openly **sharing data** across technologies, disciplines, and countries

Mission:

Building the social and technical **bridges**

Guiding Principles

- Openness
- Consensus
- Balance
- Harmonization
- Community-driven
- Non-profit

> 9900 members

> 700 active members

- Working Groups
- Interest Groups
- Plenaries

34 RDA Working Groups

Experts that are engaged in creating deliverables that will directly enable data sharing, exchange, or interoperability.

- **Concrete problem**
- Short time frame (~18 months)
- Consensus-driven
- Concrete output improving data exchange, deliverables
  - Technical specifications and implementation practices,
  - Conceptual models or frameworks,
  - Policies, and
  - Other documents and practices
- Working groups and their deliverables undergo a community review process.
- Clear adoption by one or more specific communities

RDA Recommendations that Make Data Work

"Create - Adopt - Use"

✓ Adopted code, policy, specifications, standards, or practices that enable data sharing

✓ "Harvestable" efforts for which 12-18 months of work can eliminate a roadblock

✓ Efforts that have substantive applicability to groups within the data community but may not apply to all

✓ Efforts that can start today

32 flagship Recommendations & Outputs
More than 75 cases of Adoption in Different Domains, Organisations and Countries

Arlington (2012)

- Data Foundation & Terminology WG
- Practical Policy WG
- PID Information Types WG
- Data Type Registries WG

Practical Policies WG

Computer actionable policies → workflows

- Enforce management

- Automate administrative tasks

- Validate assessment criteria

- Automate scientific analysis

- etc.

A generic set of policies that can be revised and adapted by user communities and site managers did not exist.

Results Practical Policies WG

List of of policy categories and policies

- Improved data center *administration:* quantify the management steps, automate enforcement

- By *sharing* policies, communities can interoperate and share data more effectively

- *Transparency*: basis of establishing trust

http://doi.org/10.15497/83E1B3F9-7E17-484A-A466-B3E5775121CC

- "Outcomes Policy Templates: Practical Policy Working Group, February 2015"

- "Implementations: Practical Policy Working Group, February 2015"

- → European Commission: ICT Technical Specifications

57 RDA Interest Groups

Experts that are engaged in creating deliverables that will directly or indirectly enable data sharing, exchange, or interoperability.

- Group around a common interest
- Exist as long as they are active
- Coordination and communication
- Outputs:
  - Platform that leads to the formation of one or more Working Groups
  - Communication and coordination across Working Groups/Interest Groups
  - Communication and coordination with communities outside RDA
  - Important deliverables such as surveys, recommendations, reports

Why RDA ?

- Work in working and interest groups: focused topics

- Voluntary and non-profit

- On equal footing

- Enjoyable

- **Create – adopt – use**

- Results have impact
  $\rightarrow$ adoption

- Political backing

RDA: Accelerate Data Sharing and Interoperability Across Cultures, Communities, Scales, Technologies

- **Technical parts of the data engine:**
  - Data type registries reference model
  - Wheat data interoperability framework
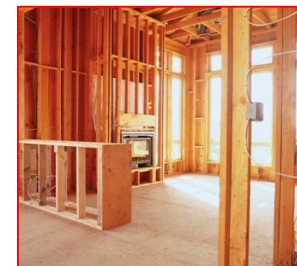
- **Rules of the road:**
  - Common agreement on data citation
  - Common practice for data repositories
  - Principles of legal interoperability

- **Better drivers**
  - Summer schools in data science and cloud computing in the developing world (with CODATA)
  - Active data management plan development and monitoring

Common Types, Standards, Metadata

Systems Interoperability

Policy and Practice

Sustainable Economics

Training, Education, Workforce

Fran Berman, Research Data Alliance

Example: Turning FAIR into reality

Final Report and Action Plan from the European Commission Expert Group on FAIR Data

TURNING FAIR INTO REALITY

2018

- FAIR Digital (Data) Objects
(Data Foundation & Terminology WG,
PID Information Types WG)

  - Data
  - Identifiers
  - Standards & Code
  - Metadata
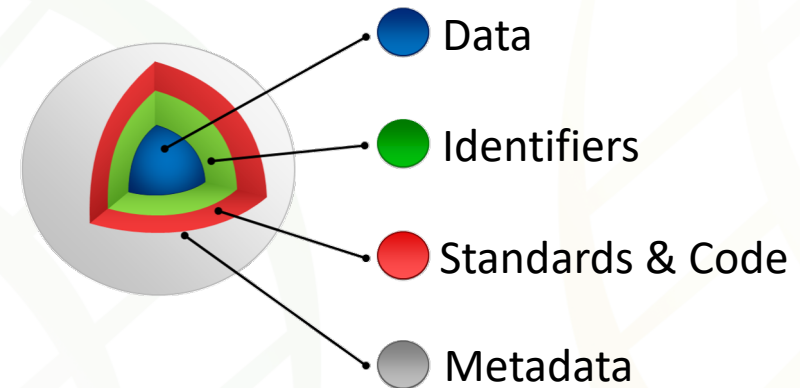
- CoreTrustSeal
(DSA-WDS Repository Audit and
Certification WG)

Who Can Join RDA?

Any individual or organization, regardless of profession or discipline, with an interest in reducing the barriers to data sharing and re-use and who agrees to RDA's guiding principles of:
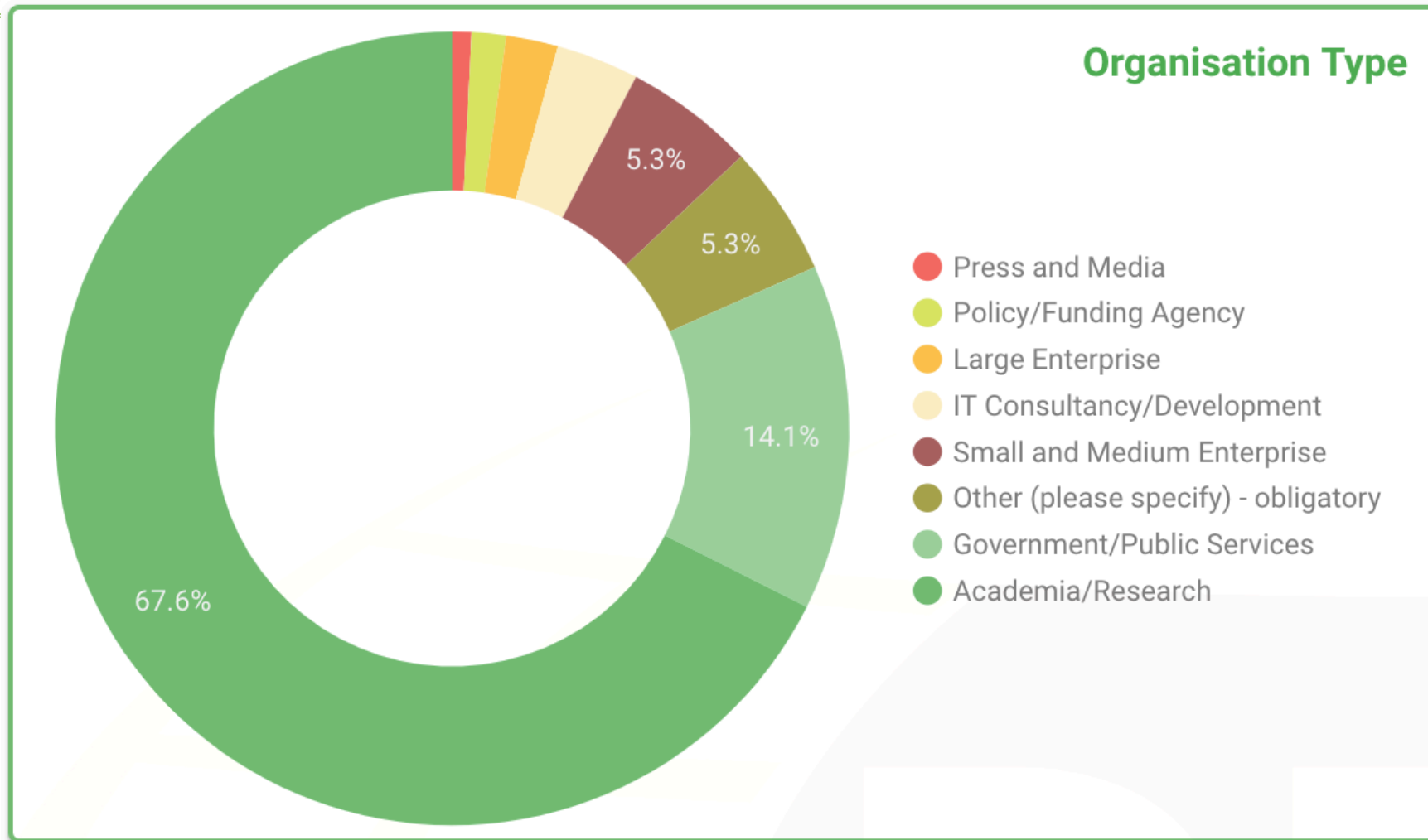
- *Openness*
- *Consensus*
- *Balance*
- *Harmonization*
- *Community-driven*
- *Non-profit and technology-neutral*

**Individual Membership is free @
https://www.rd-alliance.org/user/register**

Who is RDA ?

Organisation Type

- Press and Media
- Policy/Funding Agency
- Large Enterprise
- IT Consultancy/Development
- Small and Medium Enterprise
- Other (please specify) - obligatory
- Government/Public Services
- Academia/Research

5.3%
5.3%
14.1%
67.6%

Membership Is Free (www.rd-alliance.org)

Plenaries

P12 in Botswana

700 participants

Plenary P15, Melbourne

https://www.rd-alliance.org/rda-15th-plenary-programme

16th March 2020	
08:30	**Registration Open**
09:00 - 18:00	**RDA Council Meeting (Closed meeting)**

17th March 2020	
08:30	**Registration Open**
10:00 - 14:00	**RDA Secretariat Meeting (Closed meeting)**
10:00 - 16:00	**Funders Forum**
12:00 - 13:00	**Organisational Assembly (OA) Lunch**
14:00 - 17:00	**Technical Advisory Board (TAB) and WG/IG Chairs Meeting (Open to TAB members and WG/IG Chairs)**
15:00 - 17:00	**Organisational Assembly (OA) Meeting**
17:00 - 19:00	**RDA for Newcomers**

18th March 2020 - RDA 15th Plenary Meeting - Day 1	
08:15	**Registration Opens - Welcome Tea and Coffee**
09:00 - 11:00	**Opening Plenary Session** **Welcome:** **Hilary Hanahoe** RDA Secretary General, RDA Foundation **Keynote Address:** **Dr Cathy Foley** Chief Scientist, Commonwealth Scientific and Industrial Research Organisation (CSIRO) *"Thinking about Data Differently – If Data is the 'New Oil' will it Mean We Will Have Regrets in Decades to Come?"* **Ms Priyanka Pillai** Academic Specialist – Research Data Stewardship and Health Informatics, The University of Melbourne *"The Role of Data in a Rapid and Coordinated Response to Infectious Disease Outbreaks"*

Plenary P15, Melbourne

https://www.rd-alliance.org/rda-15th-plenary-programme

11:30 - 13:00	**Breakout 1**

- **JOINT MEETING -** ⊘ Data for Development IG, ⊘ Disciplinary Collaboration Framework IG, ⊘ ESIP/RDA Earth, Space, and Environmental Sciences IG, ⊕ RDA for the Sustainable Development Goals: RDA Cross-disciplinary Collaboration for Addressing Societal Challenges - Part 1
- **IG -** ⊘ Data Policy Standardisation and Implementation: Open Meeting
- **IG -** ⊘ ELIXIR Bridging Force: Increasing Impact of RDA in the Life Sciences
- **WG -** ⊕ Ethical and Legal Best Practices for Drone Data in a Global Research Context (WELDD): Ethics, Legalities and Drone Data
- **WG -** 🟠 Exposing Data Management Plans: Recommending FAIR Practices for DMPs, with an Emphasis on "I"
- **IG -** ⊘ Repository Platforms for Research Data: Approaches for Implementing the Data Repository - Opportunities and Challenges
- **WG -** ⊘ Research Metadata Schemas: Progress and Use Cases
- **BoF -** Engaging Researchers With Research Data: What Works?
- **BoF -** Science Communication for Research Data
- **BoF -** Value of Making Data F.A.I.R. to Respond to Infectious Disease Emergencies

13:00 - 14:30	**Lunch**
14:30 - 16:00	**Breakout 2**

- **JOINT MEETING -** ◎ Data Description Registry Interoperability (DDRI) WG, ⊕ Open Science Graphs for FAIR Data IG, ◎ RDA/WDS Scholarly Link Exchange (Scholix) WG: Joining the Dots for Better Research
- **JOINT MEETING -** ⊘ Data for Development IG, ⊘ Disciplinary Collaboration Framework IG, ⊘ ESIP/RDA Earth, Space, and Environmental Sciences IG, ⊕ RDA for the Sustainable Development Goals: RDA Cross-disciplinary Collaboration for Addressing Societal Challenges - Part 2
- **IG -** ⊘ CODATA/RDA Research Data Science Schools for Low and Middle Income Countries: 5 Years of Success - What Should the Next 5 Years Look Like?
- **IG -** ⊘ Software Source Code: FAIR Principles for Research Software
- **BoF -** Challenges in Professionalizing Data Stewardship: How Can the RDA Contribute to Solving Them?
- **BoF -** Creating an RDA Interest Group on FAIR Digital Objects
- **BoF -** Interoperability of Global Environmental Research Infrastructures (GERI)

RDA P15 Pathways

Find your breakout session by theme

Welcome to the RDA Plenary Pathways for P15!

The Plenary Pathways are the result of a joint effort between TAB and OA to provide a guide through the rich diversity of topics that the plenary presents. As such, they are meant to enhance the plenary experience rather than constrain, to highlight convergences, and to propose divergences you may not have considered. We hope you find them useful.

Please find the Pathways below:

⌄ Indigenous Data Issues

⌄ The FAIR Agenda

⌄ Disciplinary Approaches

⌄ Underpinning Infrastructure

⌄ Content Issues

⌄ Global Perspective

⌃ The FAIR Agenda

B1: BoF - Value of Making Data F.A.I.R. to Respond to Infectious Disease Emergencies

B2: BoF - Creating an RDA Interest Group on FAIR Digital Objects OR JOINT MEETING - Data Description Registry Interoperability (DDRI) WG, Open Science Graphs for FAIR Data IG, RDA/WDS Scholarly Link Exchange (Scholix) WG: Joining the Dots for Better Research

B3: JOINT MEETING - FAIR Data Maturity Model WG, GO FAIR IG, Social Science Research Data IG, WDS/RDA Assessment of Data Fitness for Use WG: Data Quality Assessment

B4: WG - FAIR Data Maturity Model: 3rd Face-to-Face Meeting, IG - Vocabulary Services: Moving toward FAIR Semantics

B5: JOINT MEETING - FAIR Data Maturity Model WG, International Indigenous Data Sovereignty IG: Operationalising Be FAIR and CARE OR JOINT MEETING - GO FAIR IG, Sharing Rewards and Credit (SHARC) IG: FAIR Training Material and Networks (FAIR Literacy Vectors)
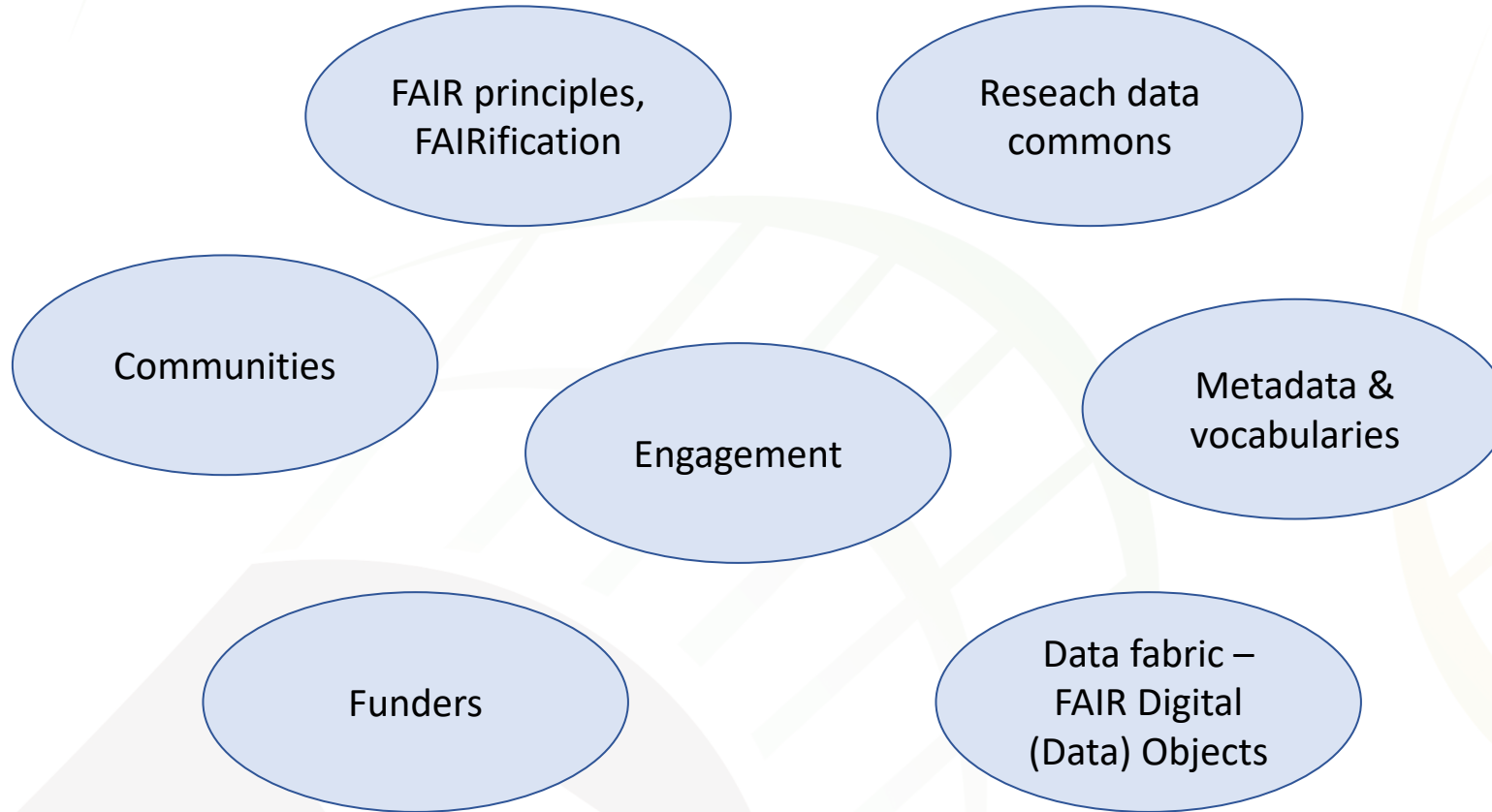
B6: Nil

B7: JOINT MEETING - CURE-FAIR WG, Reproducible Health Data Services WG: Open Meeting

RDA Hot Topics – Trends

FAIR principles, FAIRification

Reseach data commons

Communities

Engagement

Metadata & vocabularies

Funders

Data fabric – FAIR Digital (Data) Objects

FAIR & Metadata

FAIRness is mostly driven by metadata

(Oversimplified view)

F – Unique identifier + information

A – Rules and technologies (e.g. protocols)

I – Semantics , standards

R – Description and license

FAIR Principles

Findable

Accessible

Interoperable

Reusable

Difference between metadata and data:

mode of use

- Metadata has usage scenarios, e.g. discovery, preservation, publications:
  → standards & schemas & profiles
- Metadata & usage scenarios are defined by the community, e.g. standard, content, terminology, ...

FAIR & Metadata

FAIRness ist mostly driven by metadata

F – Unique identifier + information

A – Rules and technologies (e.g. protocols)

I – Semantics, standards

R – Descriptions and licence

F – ID alone does not enable deep search

A – Huge variety with hundreds of databases / repositories / landing pages

I – How to combine similar datasets from various sources?

R – Descriptions differ.
I don't necessarily know how to interpret or to apply the information in the metadata.

DATACITE metadata is not sufficient.

Examples

Example: Sensor data and descriptions
(e.g. temperature sensor with geolocation)

- Local databases / repositories

- Rich metadata according to local standard

- Partly open accessible

- Interfaces of the repositories are custom built

- IDs / PIDs / DOIs of the sensor datasets are available

Q: How do I exploit the commonalities of data located in various repositories?

A: build an overarching data harvester that interfaces manually with the repositories
→ low scalability, hard to maintain

Example: Digitized manuscripts

- Local databases / repositories in libraries

- Partly open accessible

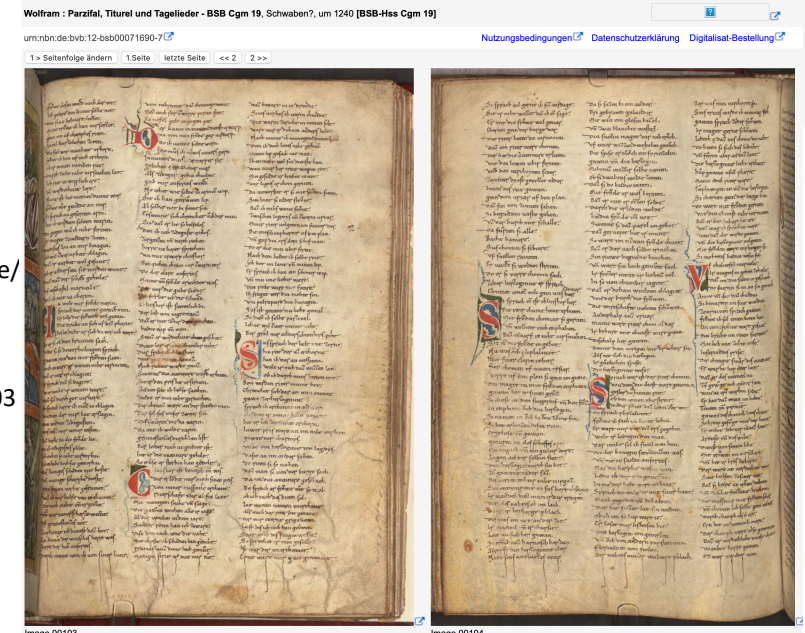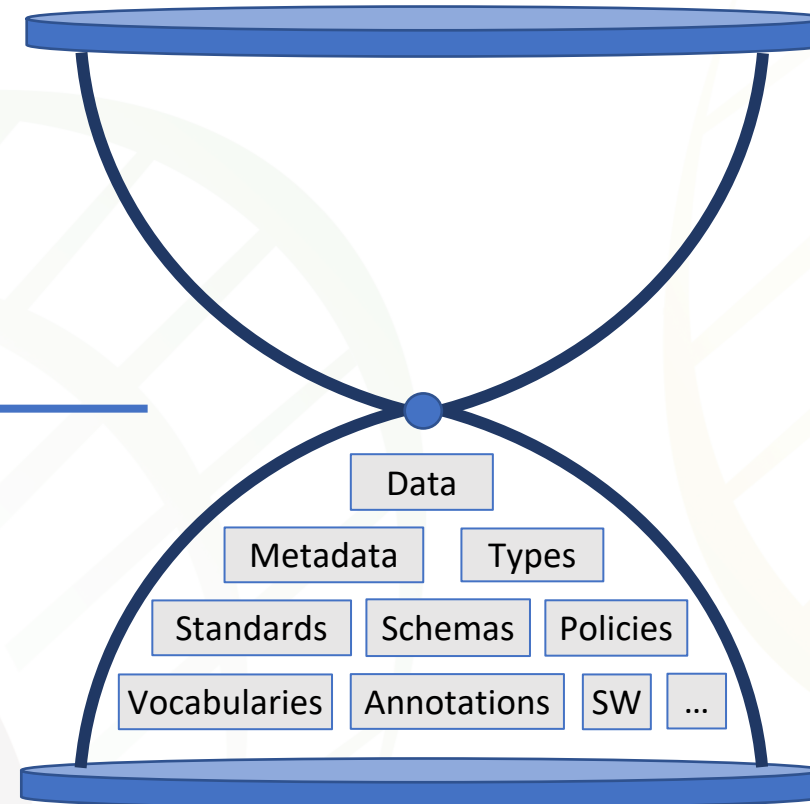- Metadata standard: e.g. METS

- Interface: landing page

Image: BSB
https://daten.
digitale-sammlungen.de/
~db/ausgaben/
zweiseitenansicht.html
?fip=193.174.98.30&
id=00071690&seite=103

Scientific Community:
- Metadata is defined by the community, e.g. standard, content, terminology, …

→ standards, schemas, profiles, data types, access policies

Research data catalog, repository, database, …

Data

Metadata | Types

Standards | Schemas | Policies

Vocabularies | Annotations | SW | …

How to enable global functionalities
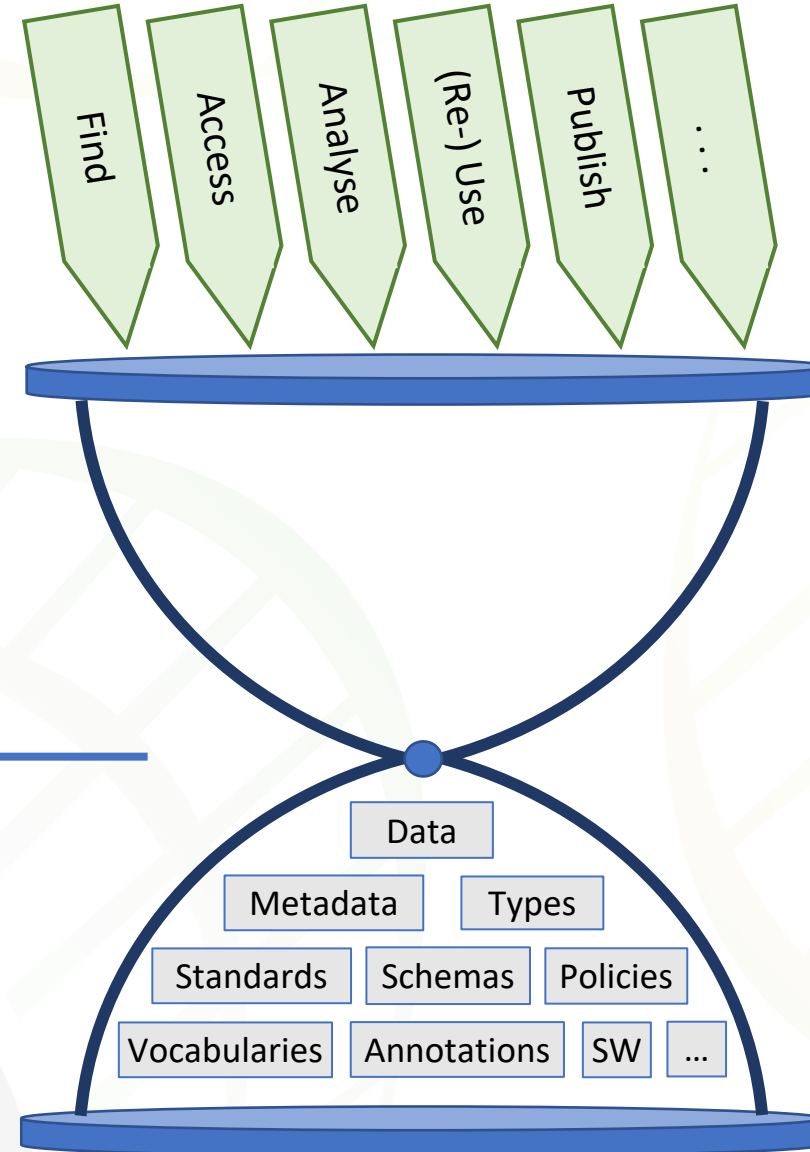
bridging

- Communities

- Infrastructures

- Technologies

- National borders

- ...

How to exploit millions of datasets?

Scientific Community:

- Metadata is defined by the community, e.g. standard, content, terminology, ...

→ standards, schemas, profiles, data types, access policies

?

Find Access Analyse (Re-) Use Publish ...

Does the dataset with PID „123" contain certain information?

Data

Metadata   Types

Standards   Schemas   Policies

Vocabularies   Annotations   SW   ...
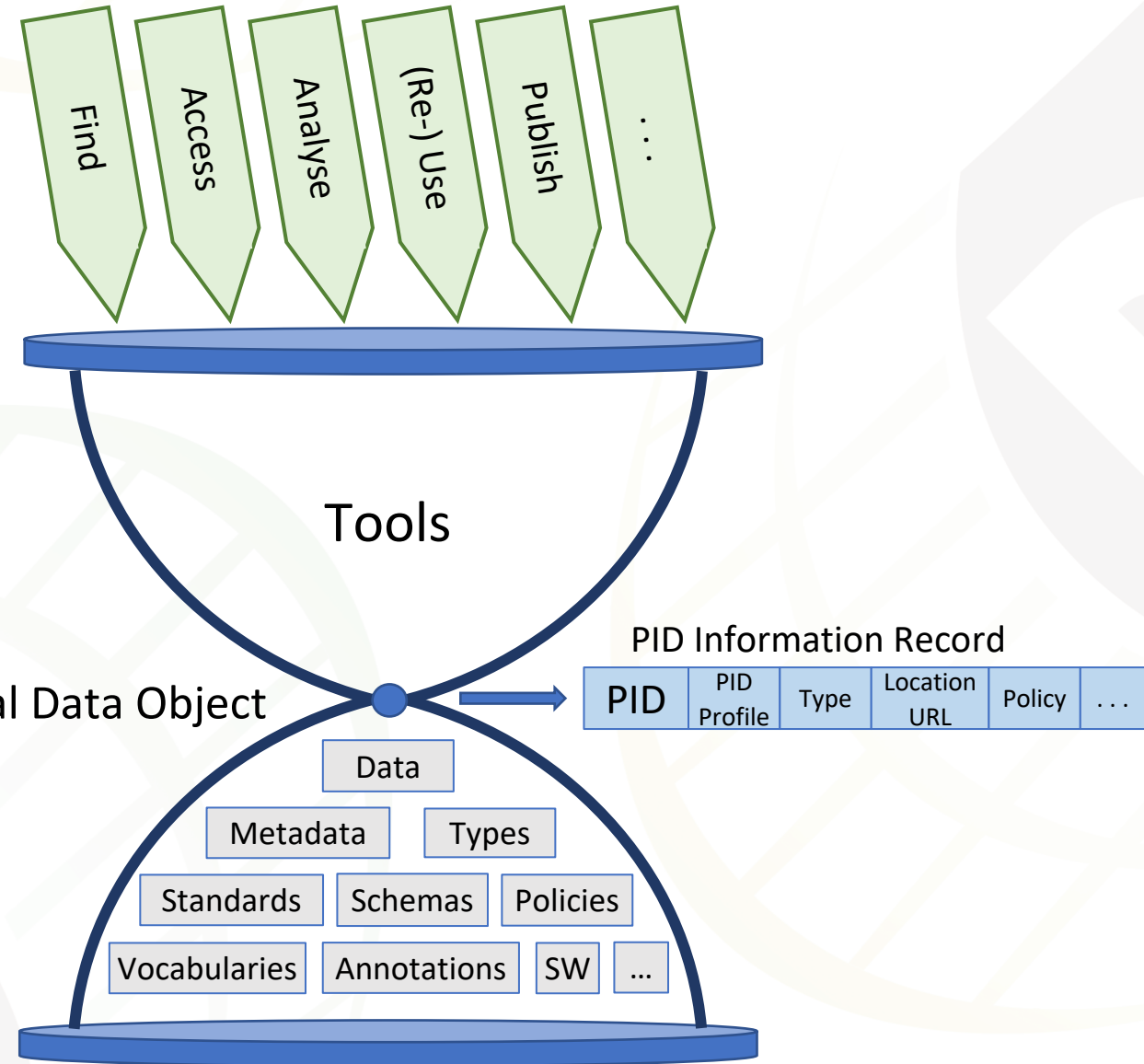
Research data catalog, repository, database, ...

FAIR Digital Objects

FAIR Digital (Data) Objects

FAIR Virtual (Data) Objects

- Elegant and very simple
- Minimal representation
- General: independent of data and metadata standards
- Machine actionable

- Agreement on some simple principles "on the road": policies
- PID Information Record
- Ecosystem of information systems, e.g. Data Type Registry
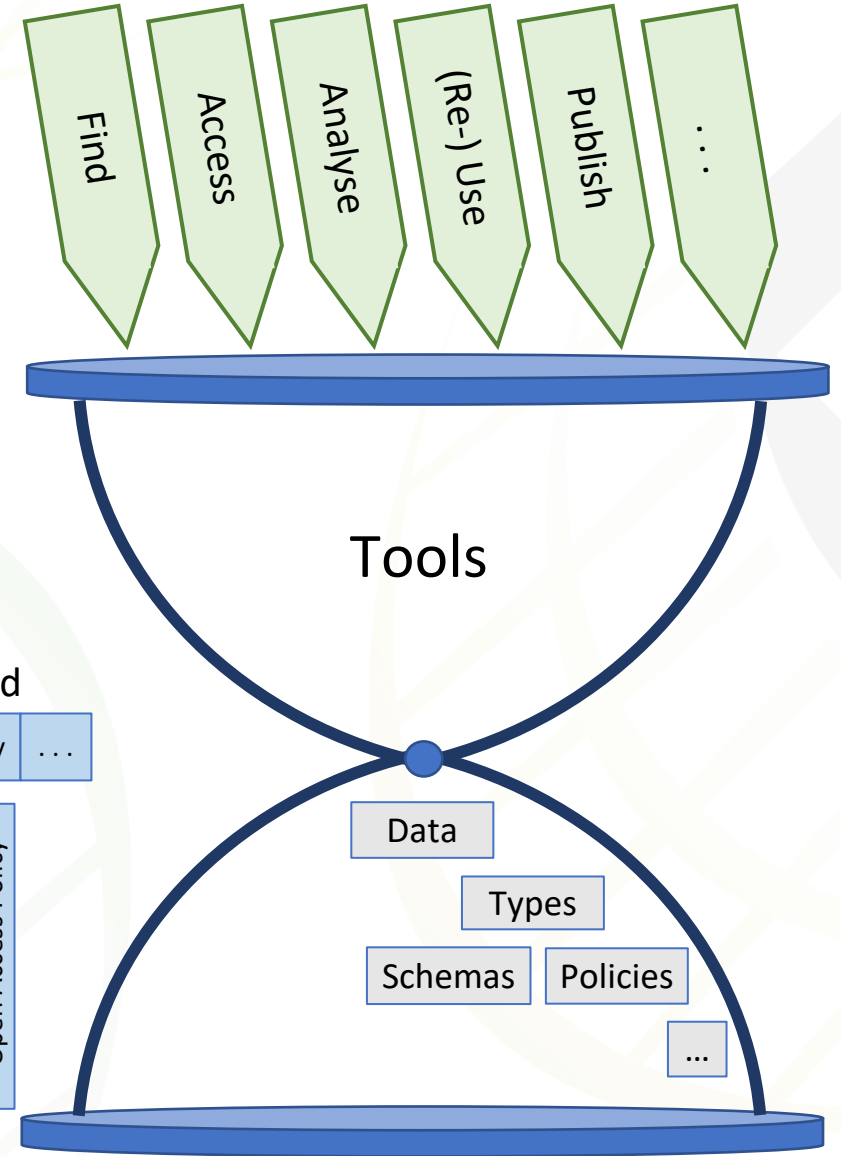- Easy-to-use tools for enabling FAIR

Find | Access | Analyse | (Re-) Use | Publish | . . .

Tools

FAIR Digital Data Object

PID Information Record

| PID | PID Profile | Type | Location URL | Policy | . . . |

Data

Metadata | Types

Standards | Schemas | Policies

Vocabularies | Annotations | SW | ...

Example

Temperature sensor with geolocation

#	Location	T [°F]	Time
1	52°22'58.9"N 13°03'44.3"E	35	2020-02-26T08:34:30
2			
	...	...	...

PID Information Record

PID	PID Profile	Type	Schema	Location URL	Policy	. . .
	Sensor Profile	URL / PID CSV	URL / PID Schema	URL CSV File	URL / PID Open Access Policy	

Find Access Analyse (Re-) Use Publish . . .

Tools

Data

Types

Schemas   Policies

...

RDA Governance
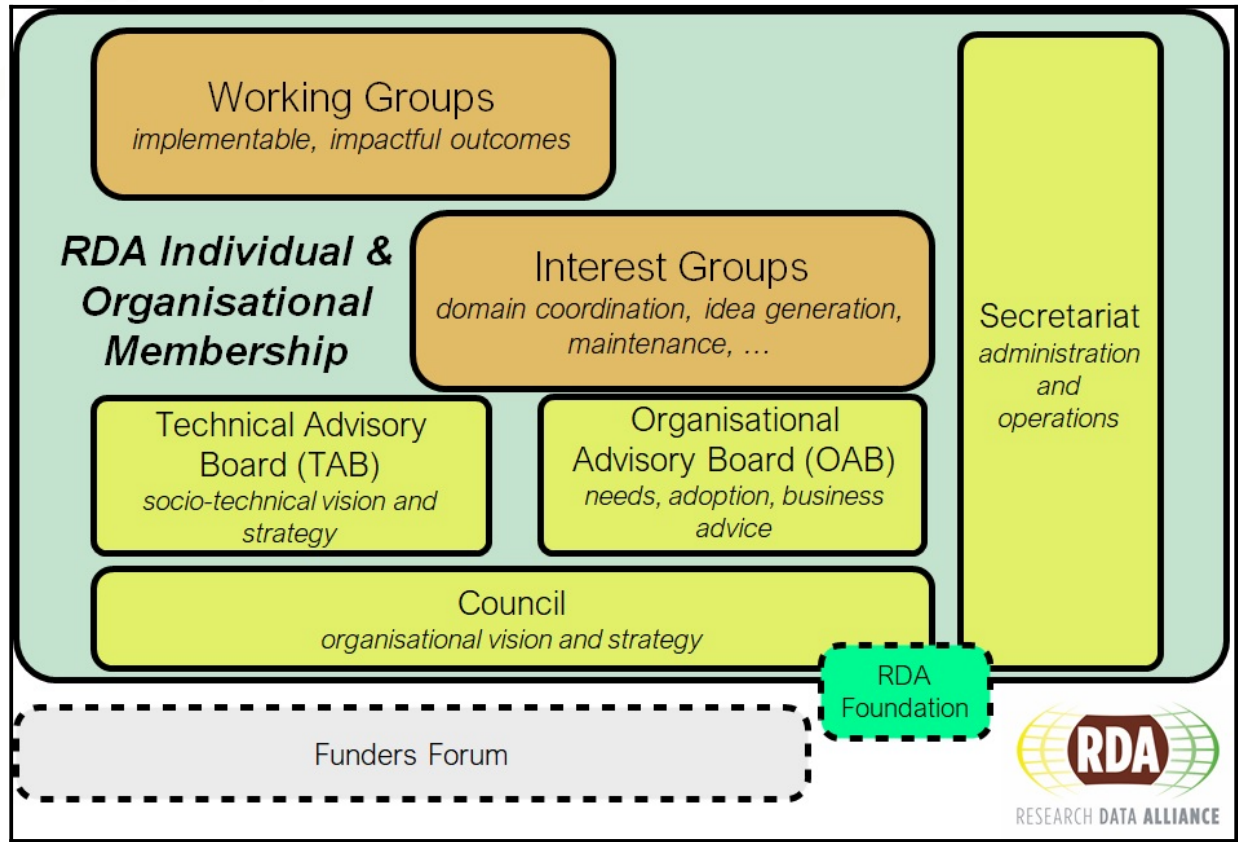
Secretariat
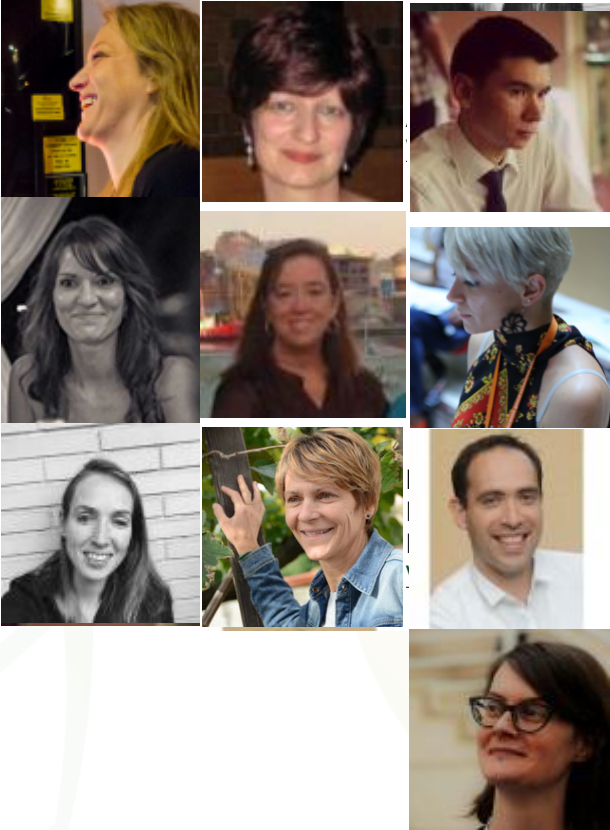
> "The huge amount of parallel sessions and of different topics surprised me in a favourable way: the IDW18 program was incredibly rich, covering many aspects of the data life cycle and management."

ROSELLA AVERSA RDA EU ECR GRANTEE P12

RDA Global

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Many thanks for materials, ideas, and slides provided by:

RDA Secretariat, RDA Council, RDA Advisory Boards and RDA membership