Archive & Deposition Repositories

3.11.2023

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Data steward
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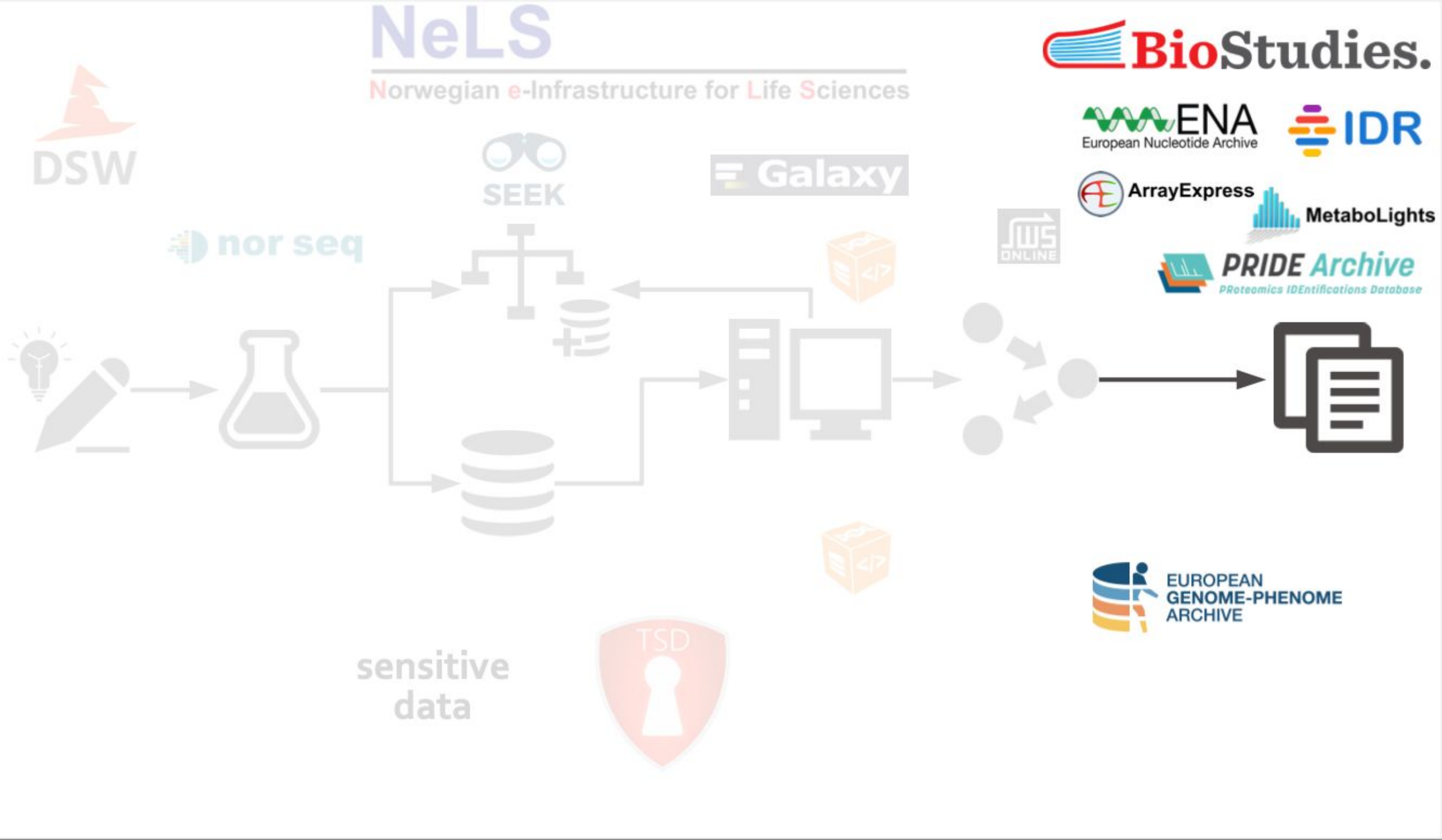

NeLS
Norwegian e-Infrastructure for Life Sciences
DSW
SEEK
Galaxy
nor seq
sensitive data
TSD
BioStudies.
ENA
European Nucleotide Archive
IDR
ArrayExpress
MetaboLights
PRIDE Archive
PRoteomics IDEntifications Database
EUROPEAN GENOME-PHENOME ARCHIVE

Data management

- Data life cycle
- Your role
- Your domain
- Your tasks
  - Compliance monitoring
  - Data analysis
  - Data management plan
  - Data organisation
  - Data protection
  - **Data publication**
  - Data quality
  - Data storage
  - Data transfer
  - Documentation and metadata
  - Existing data
  - Identifiers
  - Licensing
  - Machine actionability
  - Sensitive data

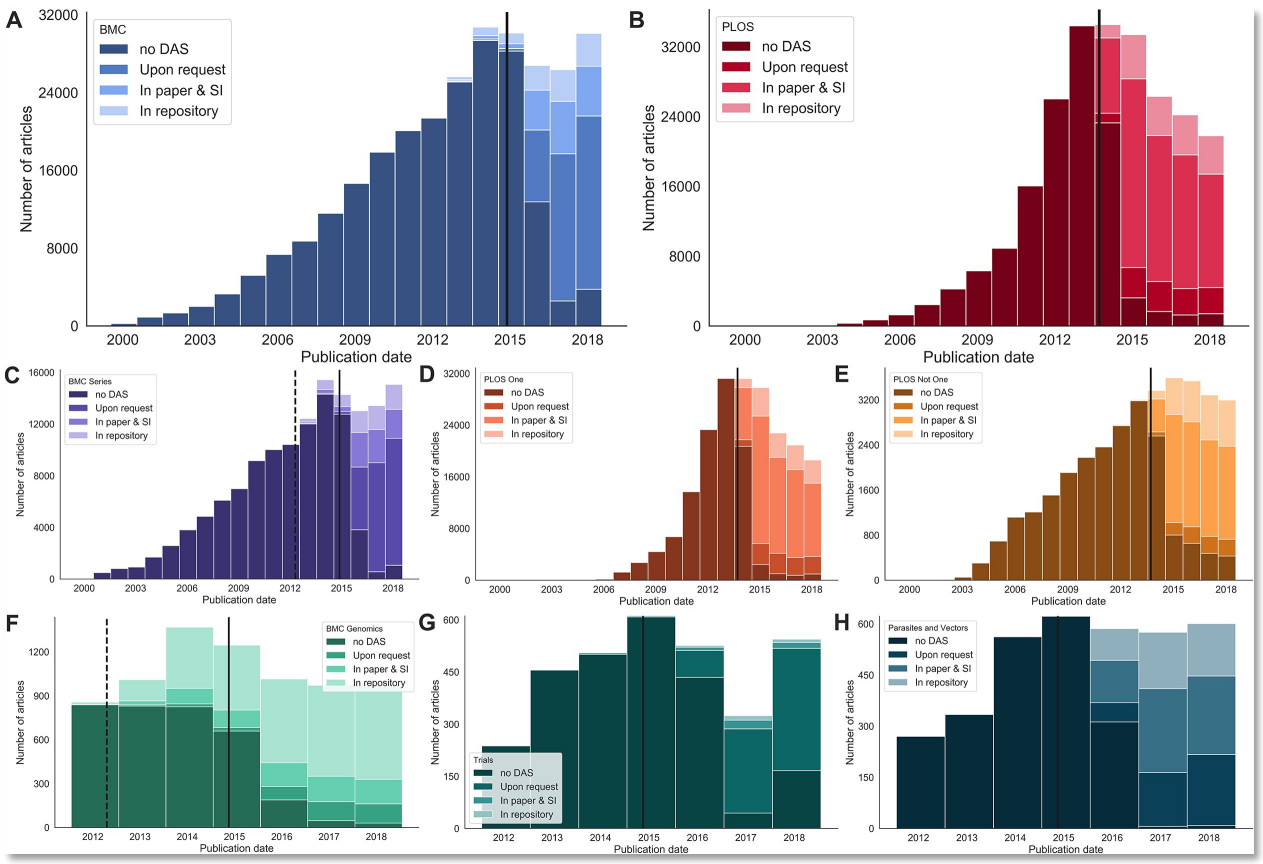
- Can you really deposit your data in a public repository?
- Which repository should you use to publish your data?
- How do you prepare your data for publication in data repositories?
- More information
- Relevant tools and resources

RDMkit

Link to RDMkit: https://rdmkit.elixir-europe.org/

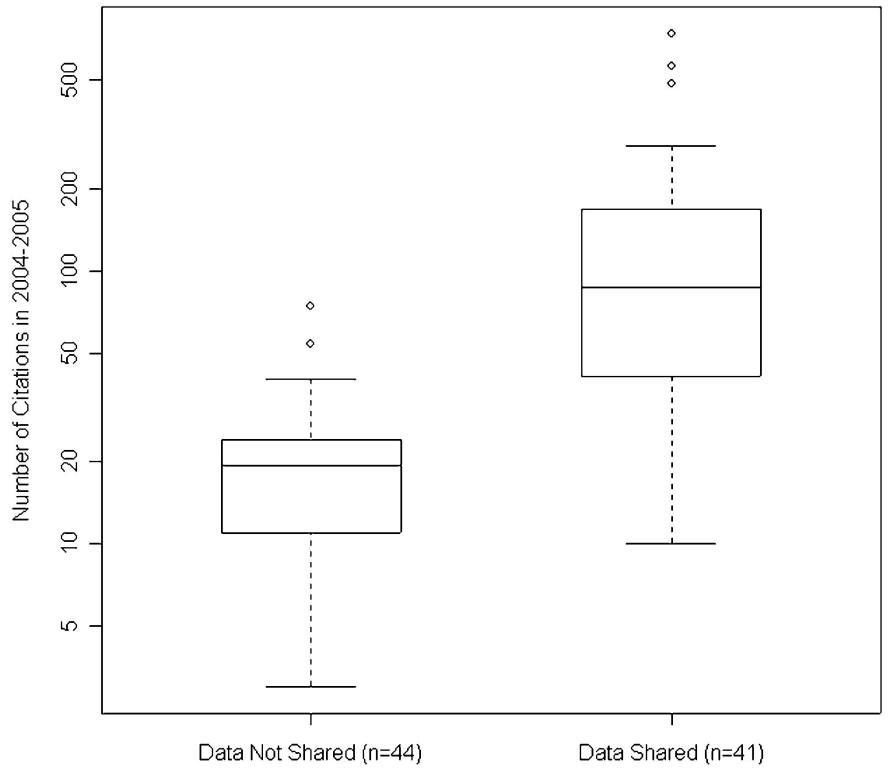
Why should I deposit my data?

- Increased Visibility (SEO), added value → 25% more citations
- Funding agencies requirement; institutions, and journal publishers policies
- Save money on storage



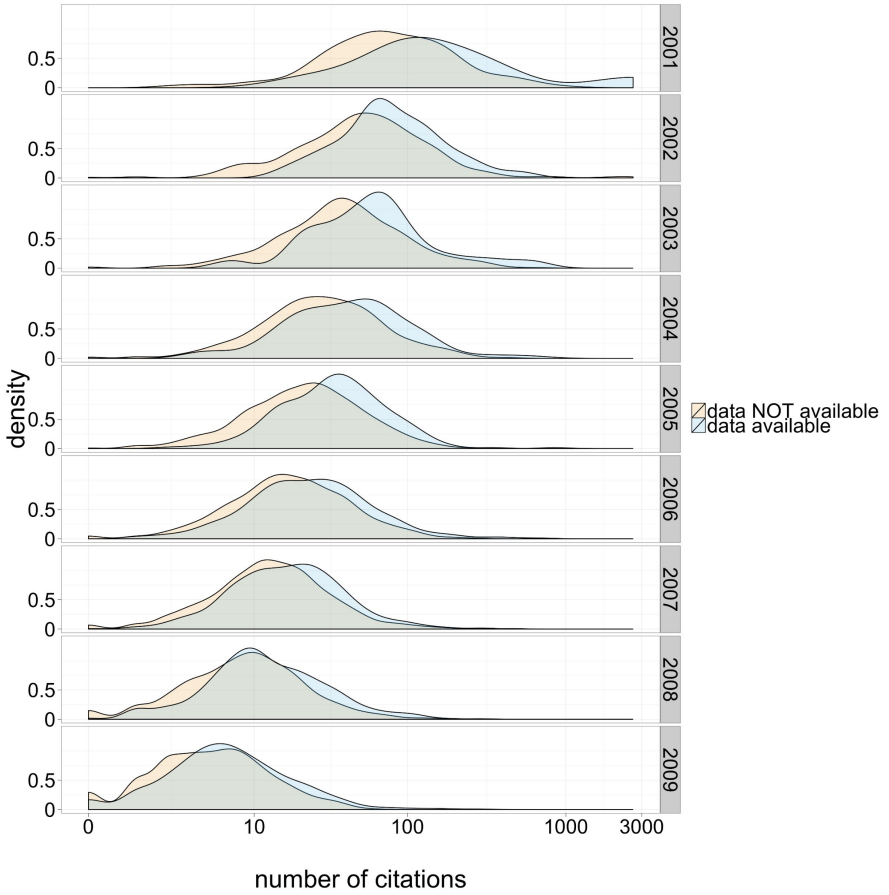
http://doi.org/10.1371/journal.pone.0230416

Articles with shared data have higher citation rates



Distribution of 2004–2005 citation counts of 85 trials by data availability.
"The 41 clinical trial publications which publicly shared their microarray data received more citations"

Heather A. Piwowar, Roger S. Day, and Douglas B. Fridsma. 2007. PLOS ONE, doi:10.1371/journal.pone.0000308. Figure licensed CC BY.



Citation density for papers with and without publicly available microarray data, by year of study publication.

Heather A. Piwowar, Roger S. Day, and Douglas B. Fridsma. 2007. PLOS ONE, doi:10.1371/journal.pone.0000308. Figure licensed CC BY.

The Research Council Policy for Open Science

- European Open Science Cloud (EOSC):
  - European network of **FAIR** data and services
- Since 2009: Open Access requirement
  "…research data must be stored in a safe and secure manner for a minimum of 10 years."
- Adopted Plan S
- Citizen science

The Research Council of Norway

https://www.forskningsradet.no/siteassets/forskningspolitisk-radgivning/apen-forskning/nfr-policy-open-science-eng.pdf

Plan S

Research may be made openly available in one of the three following ways:

1. Publication via open access journals/platforms
2. Making peer-reviewed research works immediately available in **open repositories**;
3. Publication in journals participating in collective agreements (e.g. “publish and read” agreements) aimed at transitioning from a subscription-based model to open access

Plan S

Making full & immediate Open Access a reality

https://www.coalition-s.org/

UiB Policy for Open Science

adopted by the University Board 24.09.2020

- Open access to research publications and artistic research
- Open access to research data
- Open Innovation
- Citizen Science
- Open educational resources

https://www.uib.no/en/foremployees/142184/university-bergen-policy-open-science

The University of Oslo's Open Access Policy

The following applies to peer-reviewed scientific articles:

1. Mandatory institutional archiving of all peer-reviewed articles in UiO's institutional repository

All members of staff employed by UiO after 4 July 2013 are obliged to deposit a post-print version of scientific articles produced in connection with the employment relationship into the institutional repository.

UiO also encourages all members of staff whose employment commenced prior to 4 July 2013 to follow this practice.

The "post-print" version means the final manuscript version following peer-review. When the publisher permits institutional archiving of the publisher's pdf, then this is the preferred choice. If publication takes place in a journal that does not allow institutional archiving, and the employee, after inquiring, is not granted such permission by the publisher, the person concerned is relieved of this requirement. If one or more co-authors use their right of refusal, the same applies.

2. Making scientific articles deposited into the institutional repository openly available

All members of staff employed by UiO after 4 July 2013 shall undertake to do their best to ensure that scientific articles deposited into the institutional repository can be made openly available as soon as possible.(1)

UiO also encourages all members of staff whose employment commenced prior to 4 July 2013 to comply with this practice of making scientific articles openly available.

3. Choosing where to publish

When choosing where to publish, UiO recommends that all employees select journals that allow the article to be openly available. These may either be Open Access journals or those that permit articles to be deposited and made openly available in an institutional repository.

(1) See Section 2.3.6. in UiO's IPR policy dated 6 December 2011.

UNIVERSITY OF OSLO

https://www.ub.uio.no/english/writing-publishing/open-access/documents/open-access-policy.html

Policy for Open Science at NTNU

The policy is approved by the NTNU Rector 2 October 2020, and is effective from this date. NTNU University Library manages the document.

6. Principles of open science

As a general rule, results of research and teaching carried out at NTNU must be made publicly available where this is practically and legally possible. In many cases, however, open access to research data or learning resources may not be appropriate. This may be because the research is of a sensitive nature, de-identification of personal information is not possible, or the research or teaching includes the use of material protected by copyright.

Researchers and teaching staff may also be bound by commercial agreements that make open access impossible. It is still important to follow good scientific practice for documentation of research results and data management, and more limited access to research results may be relevant in certain cases, such as replication studies.

As far as possible, NTNU will strive to ensure that the University or its employees retain copyright protection for their work in connection with entry into publishing contracts and licences for use, and that the author's moral rights are safeguarded.

NTNU
Kunnskap for en bedre verden

https://www.ntnu.edu/policy-for-open-science

Where should I deposit my data?

Preferably somewhere where most things are taken care of?

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Where should I deposit my data?

- 1641 databases for molecular biology
- Each journal publisher has its own policies and recommendations
- fairsharing.org : 1863 registered database

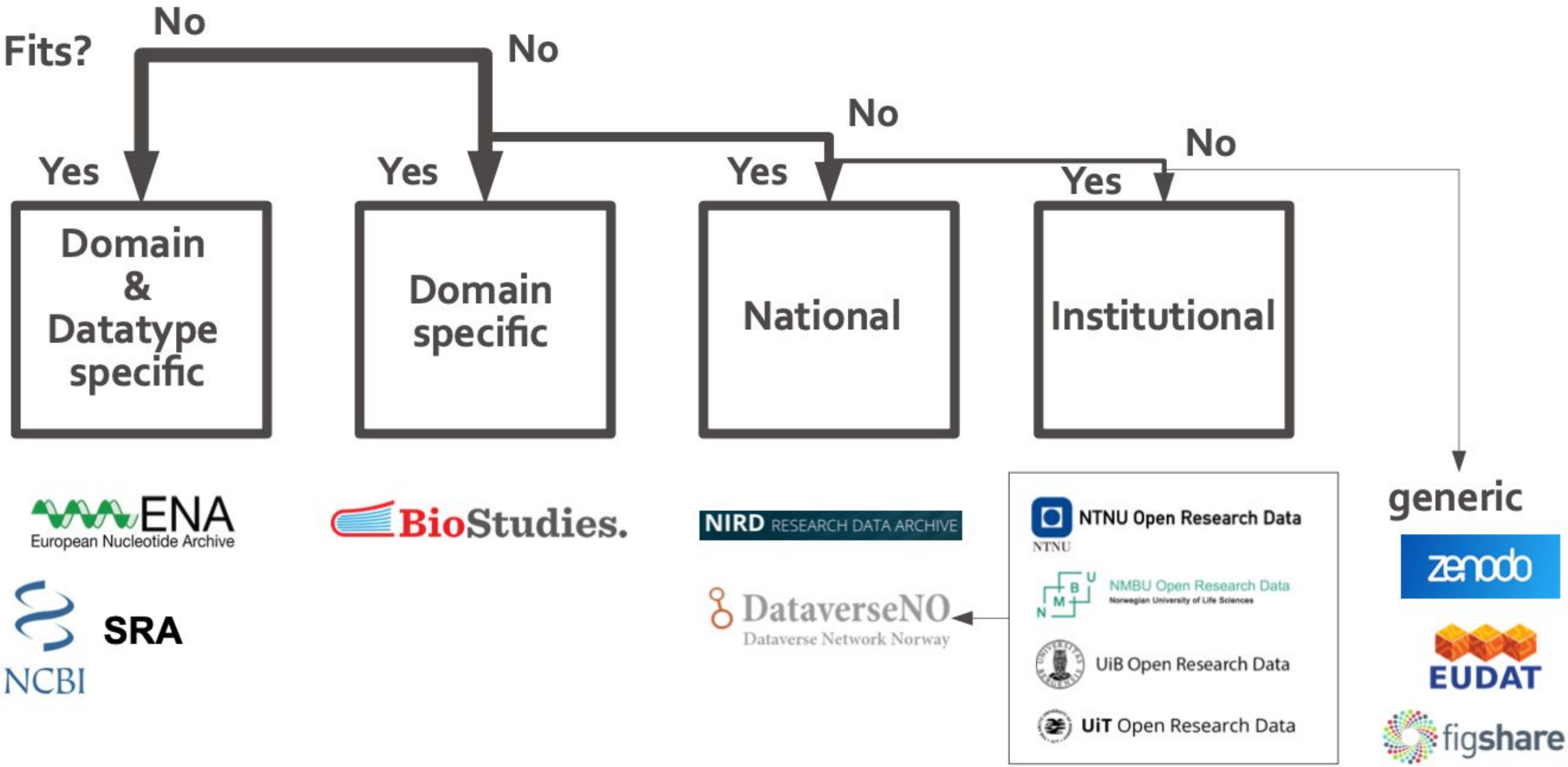
Community-developed platform (including standards, repositories and policies across all disciplines)

- re3data.org : 2834 registered database

Registry of Research Data Repositories (overview of existing international repositories of research data from all academic disciplines).

Rigden D.J. & Fernández X.M., The 2021 Nucleic Acids Research database issue and the online molecular biology database collection. Nucleic Acids Research 49, D1-D9 (2021)

Where should I deposit my data?



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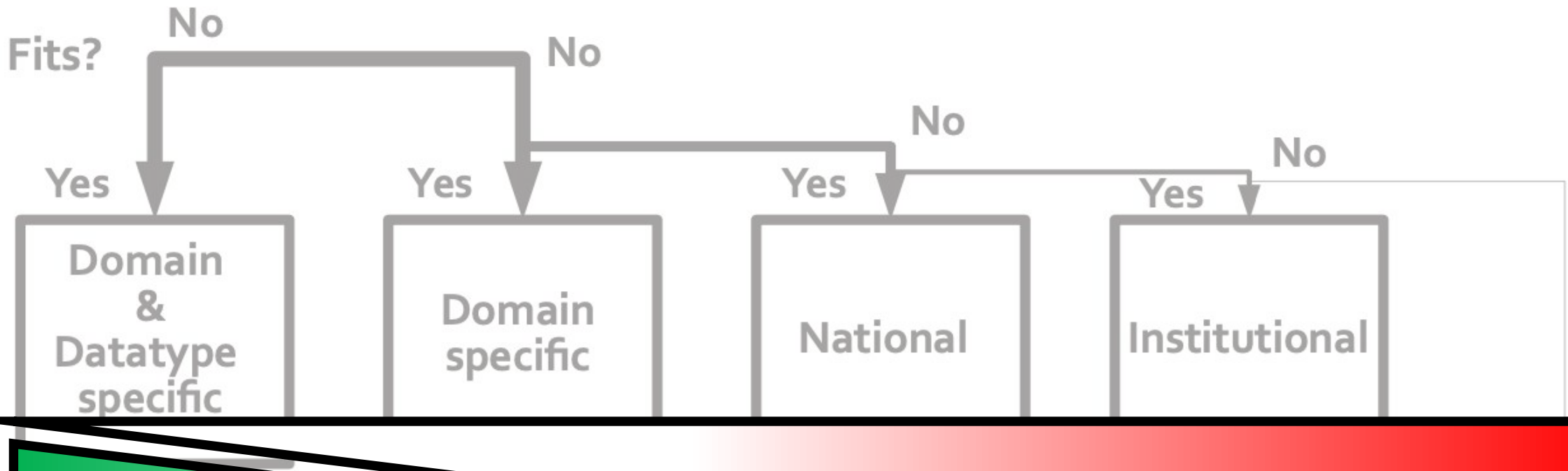


Standardization

Own effort

SRA

NCBI

DataverseNO

Dataverse Network Norway

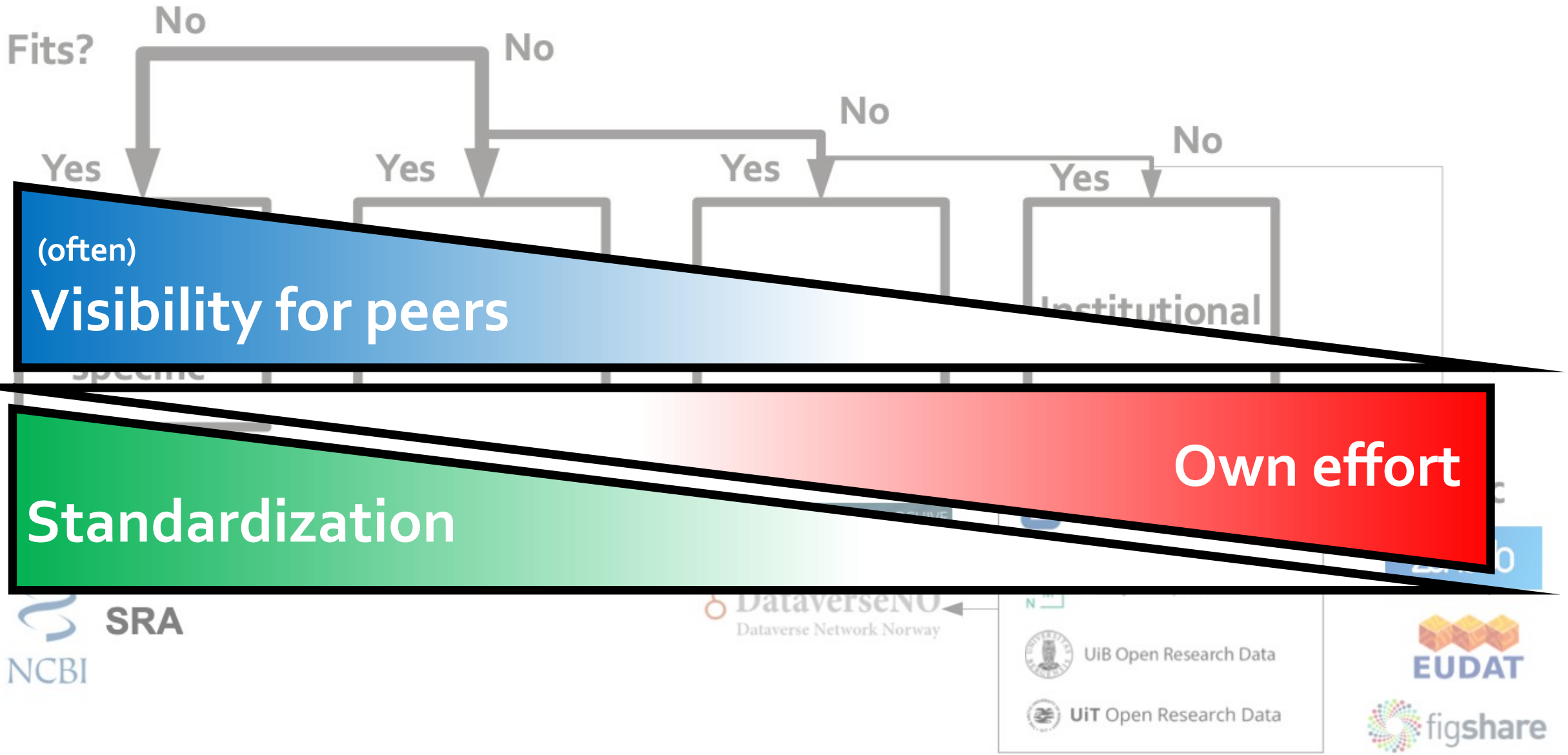
UiB Open Research Data

UiT Open Research Data

EUDAT

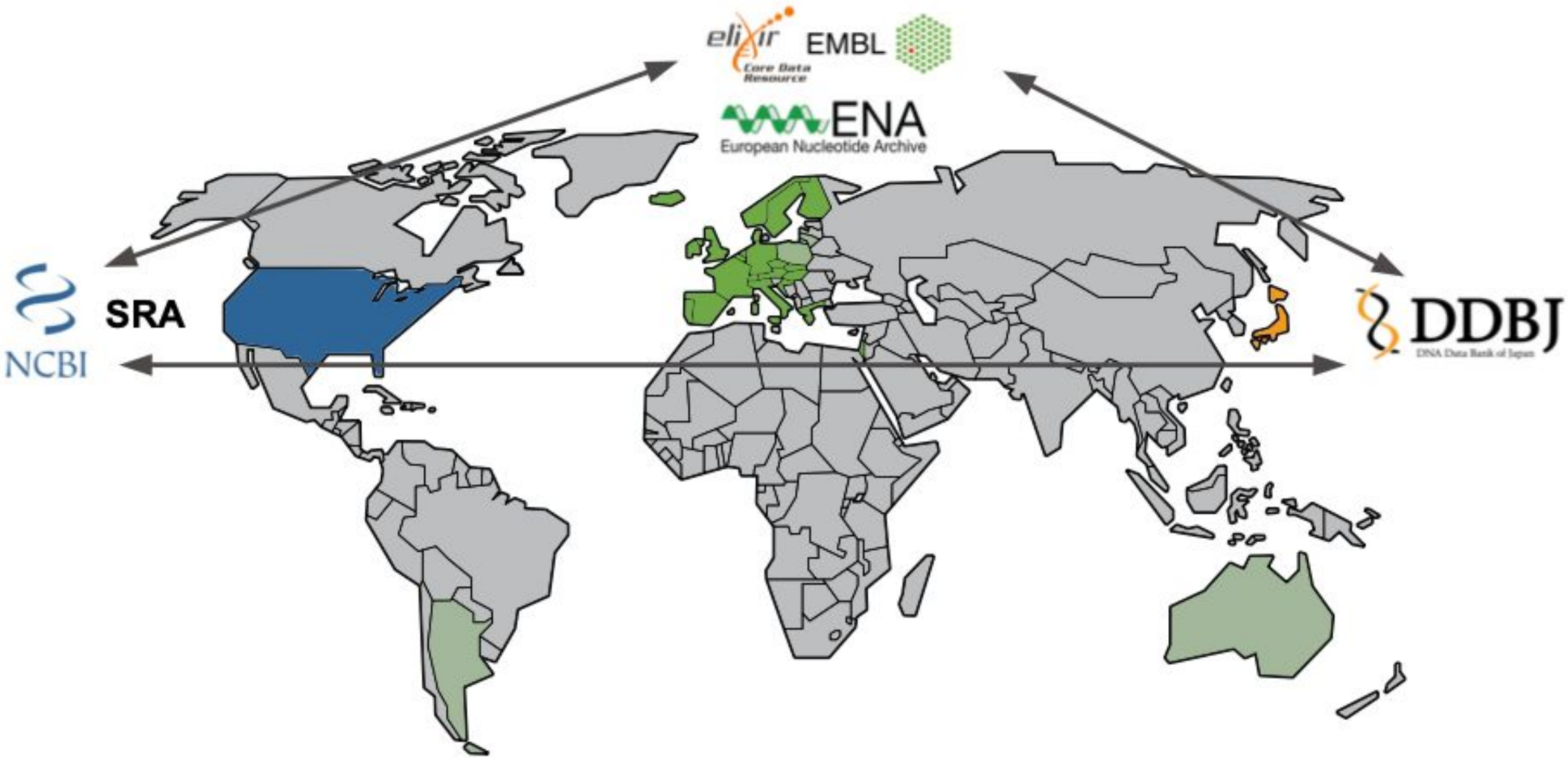
figshare

Where should I deposit my data?

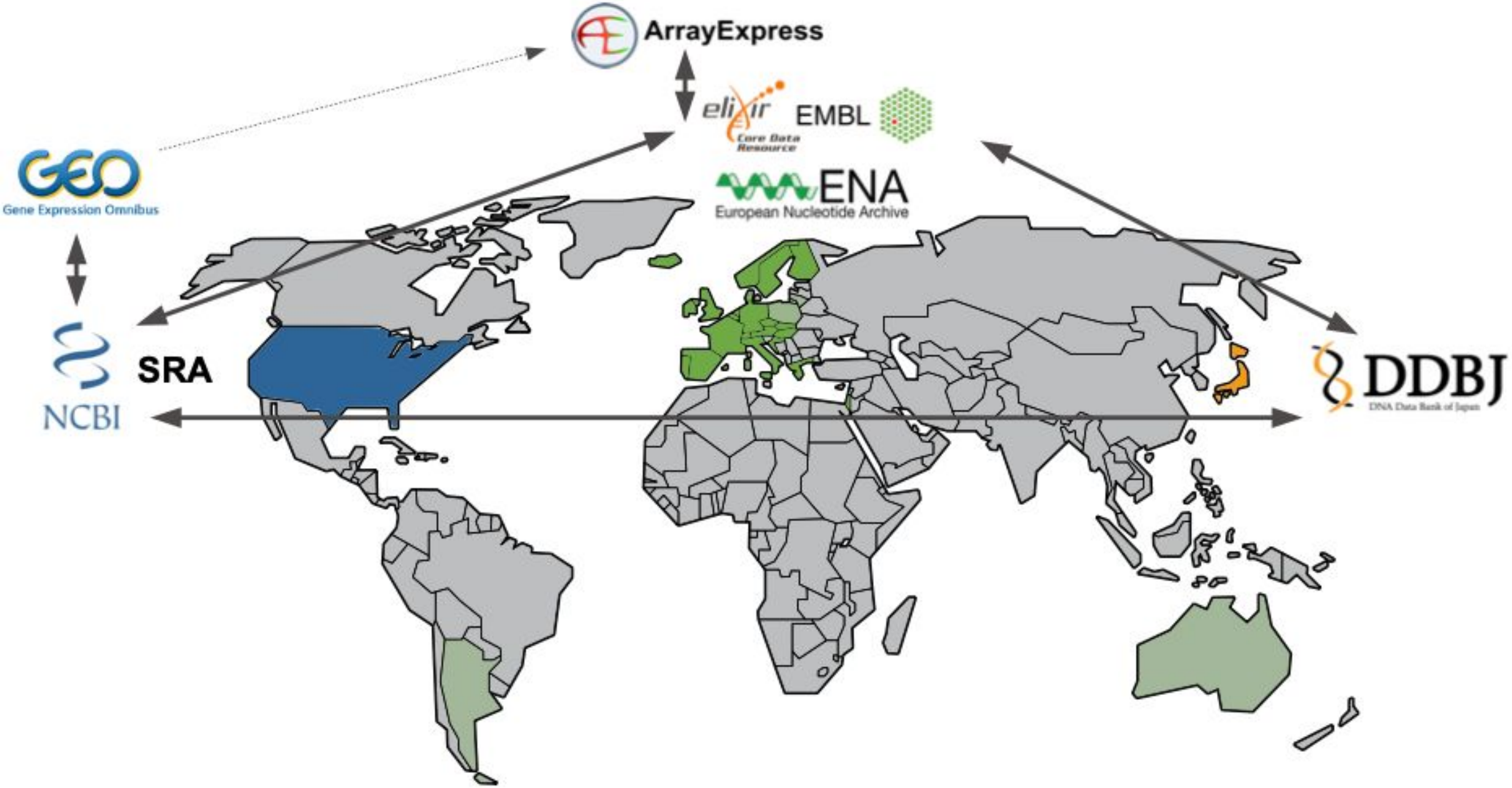


Some domain-specific archives

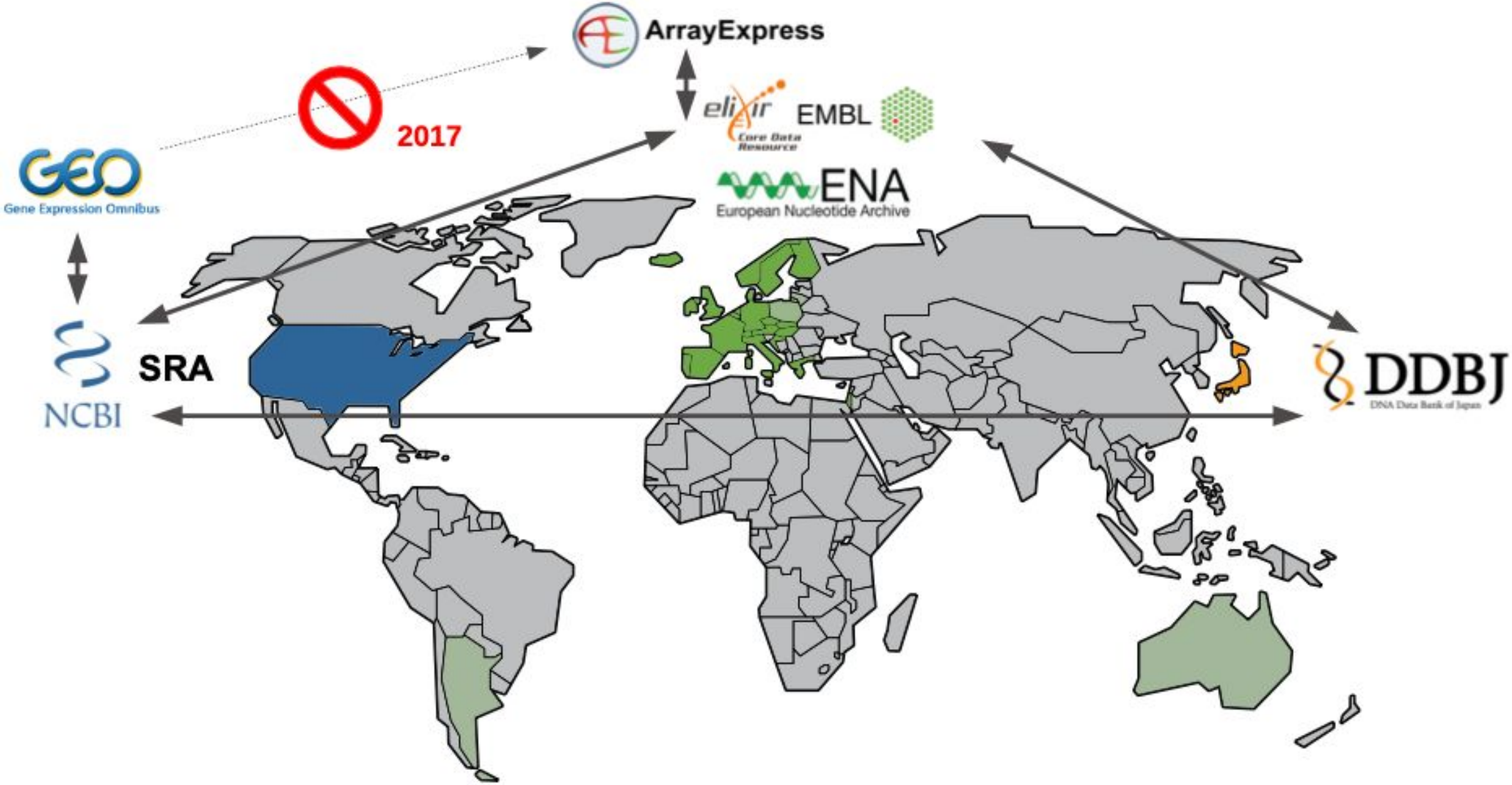
Sequencing data: Multiple Repositories – similar datatypes



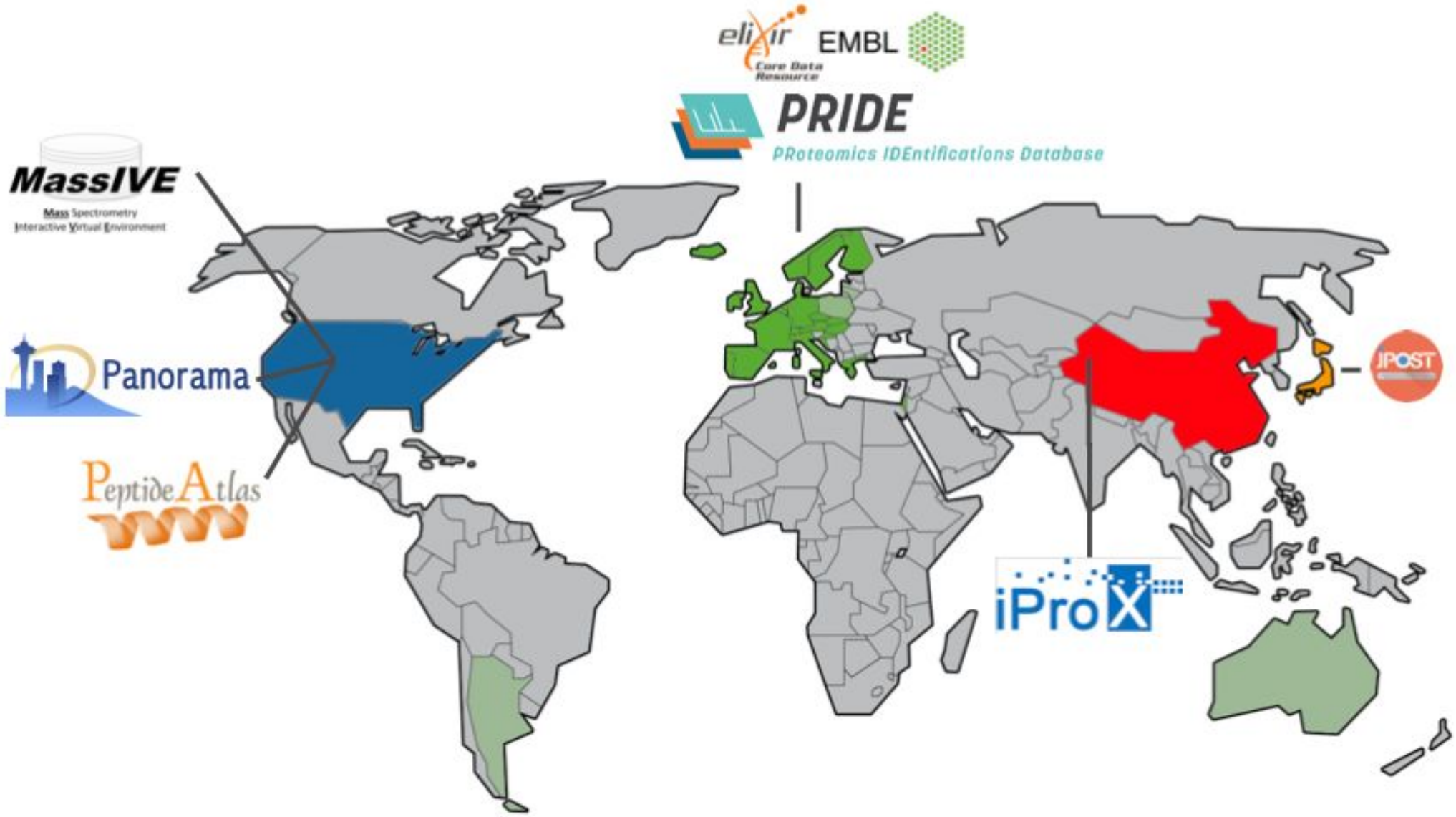
Sequencing data: Multiple Repositories – similar datatypes



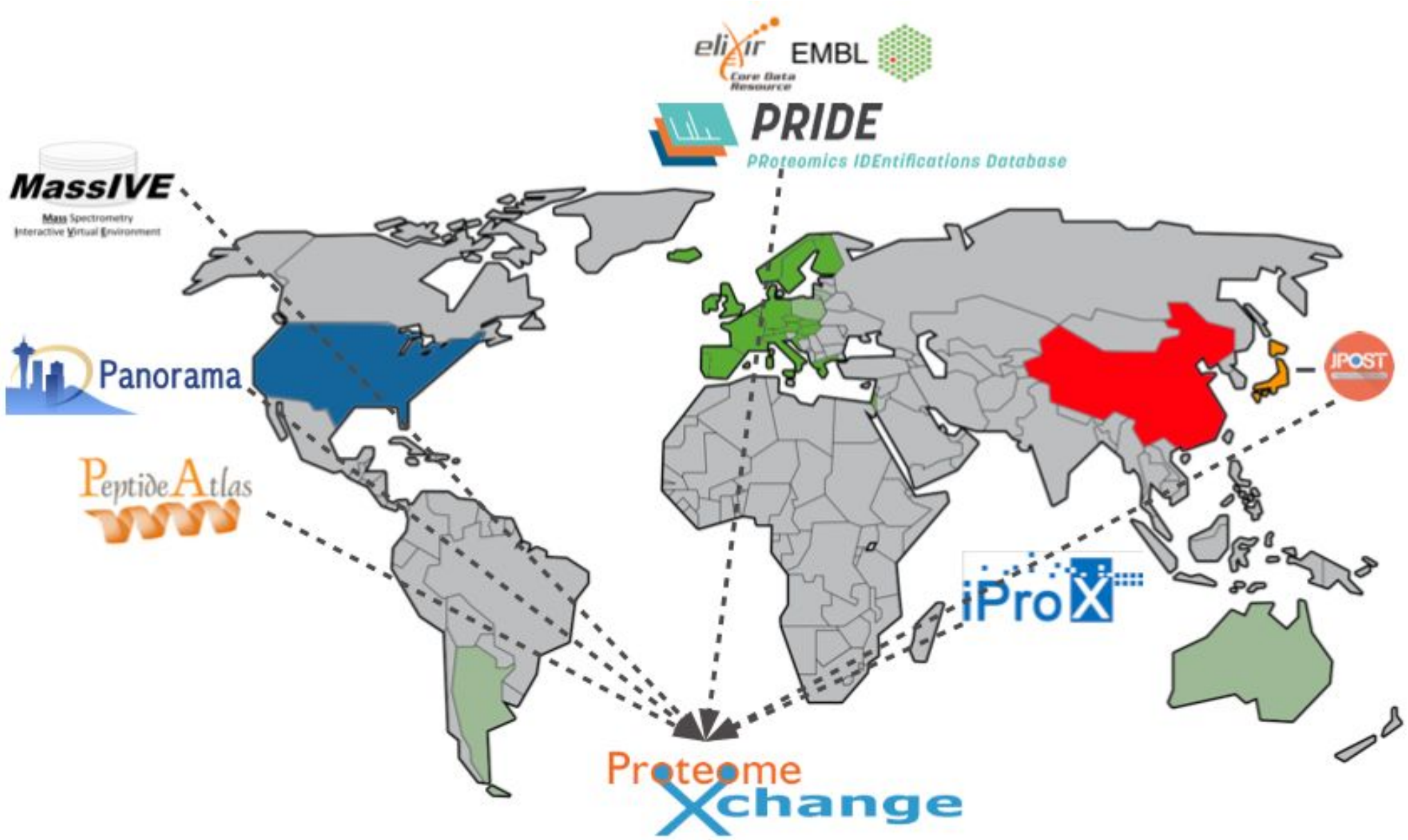
Sequencing data: Multiple Repositories – similar datatypes



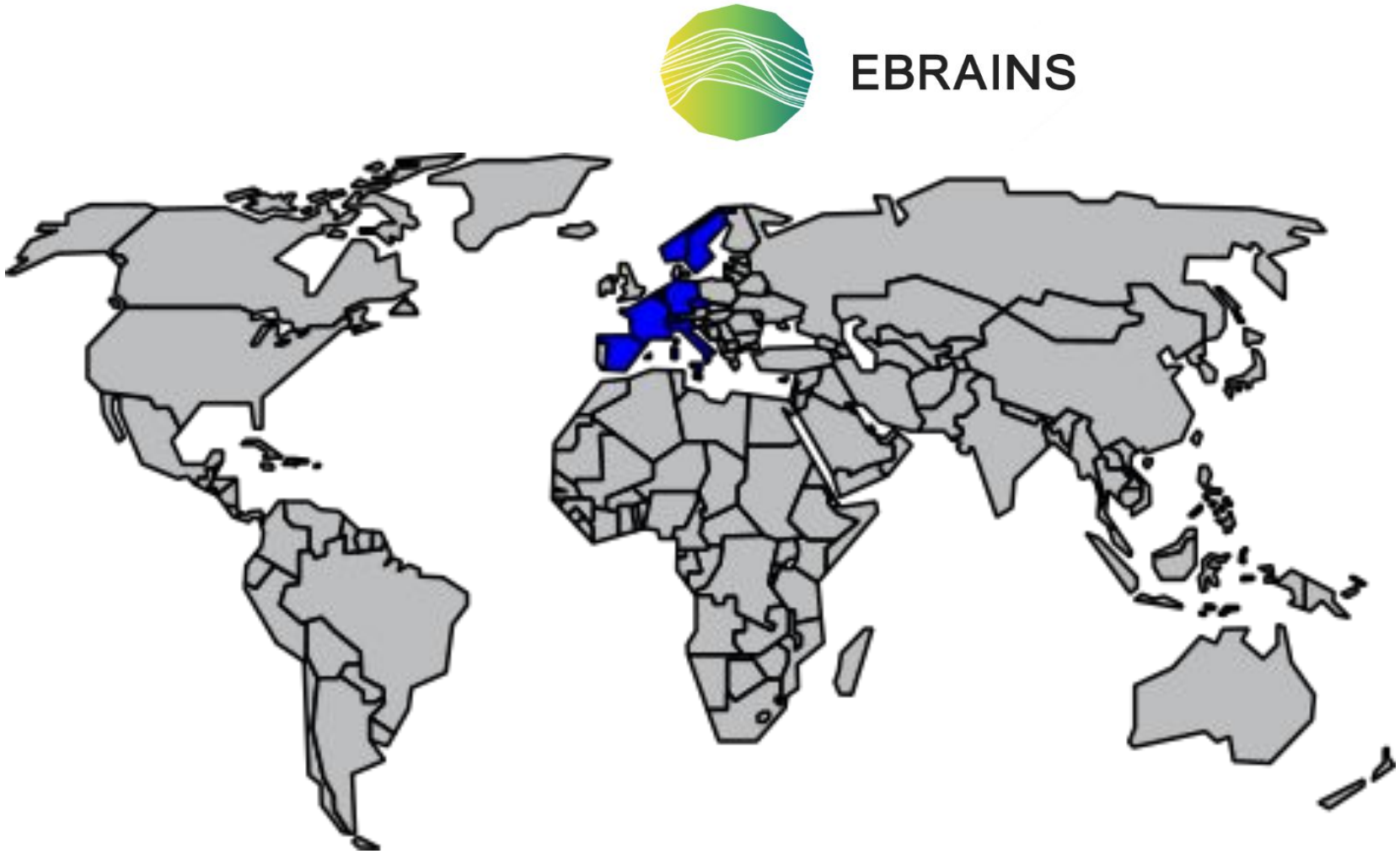
Proteomics data: Multiple Repositories – similar datatypes



Proteomics data: Multiple Repositories – similar datatypes



Neuroscience data: Multiple organisations association



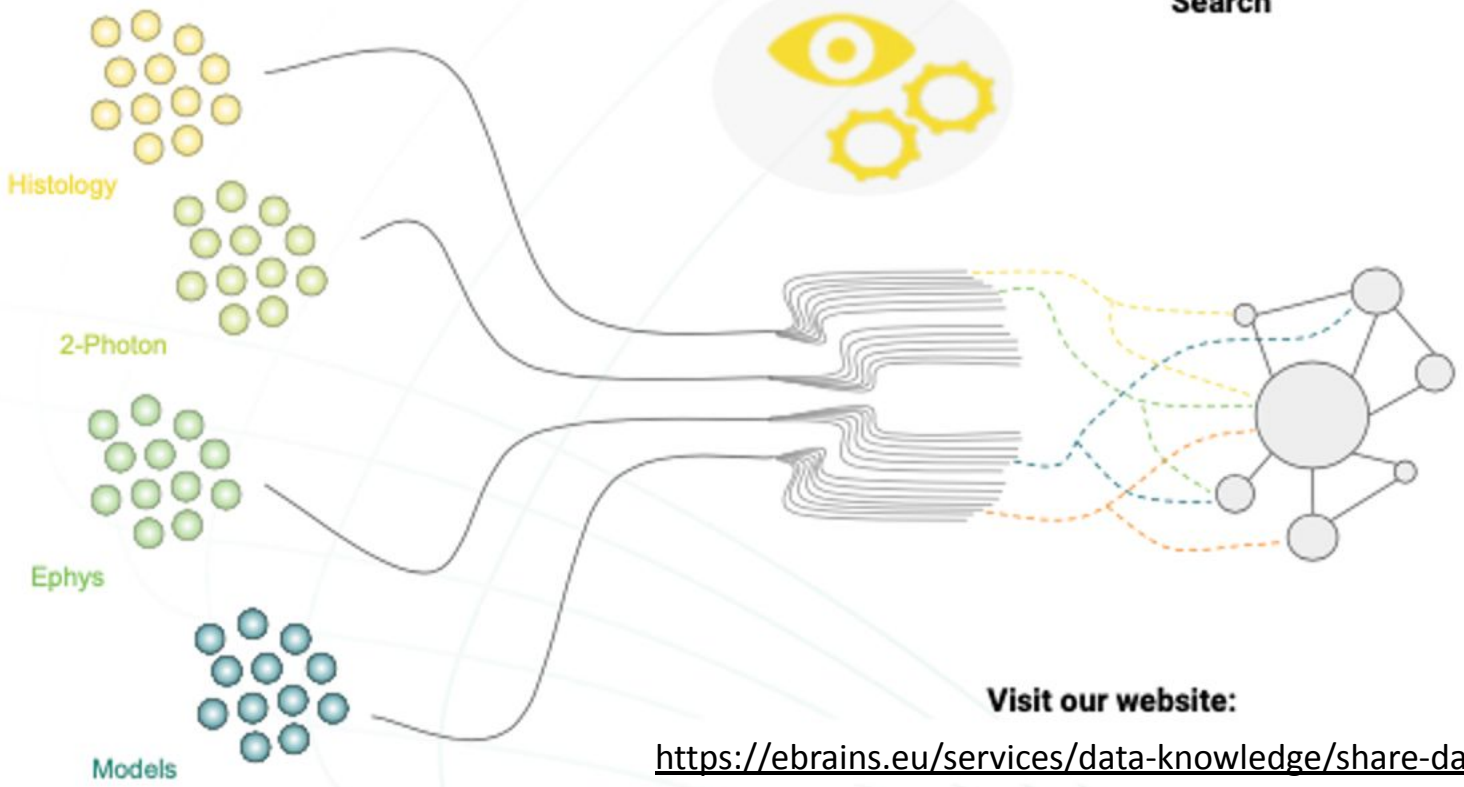
A shared digital brain research infrastructure for the EU

EBRAINS - a FAIR place to share your neuroscience data

All types of neuroscience data are welcome

Data Curation and support

Integration of data into the EBRAINS Knowledge Graph Search



- Data and metadata management and storage
- Data curation and integration
- Data security
- Collaboration and sharing of data
- Copyright, licensing and citation
- Long-term storage of data

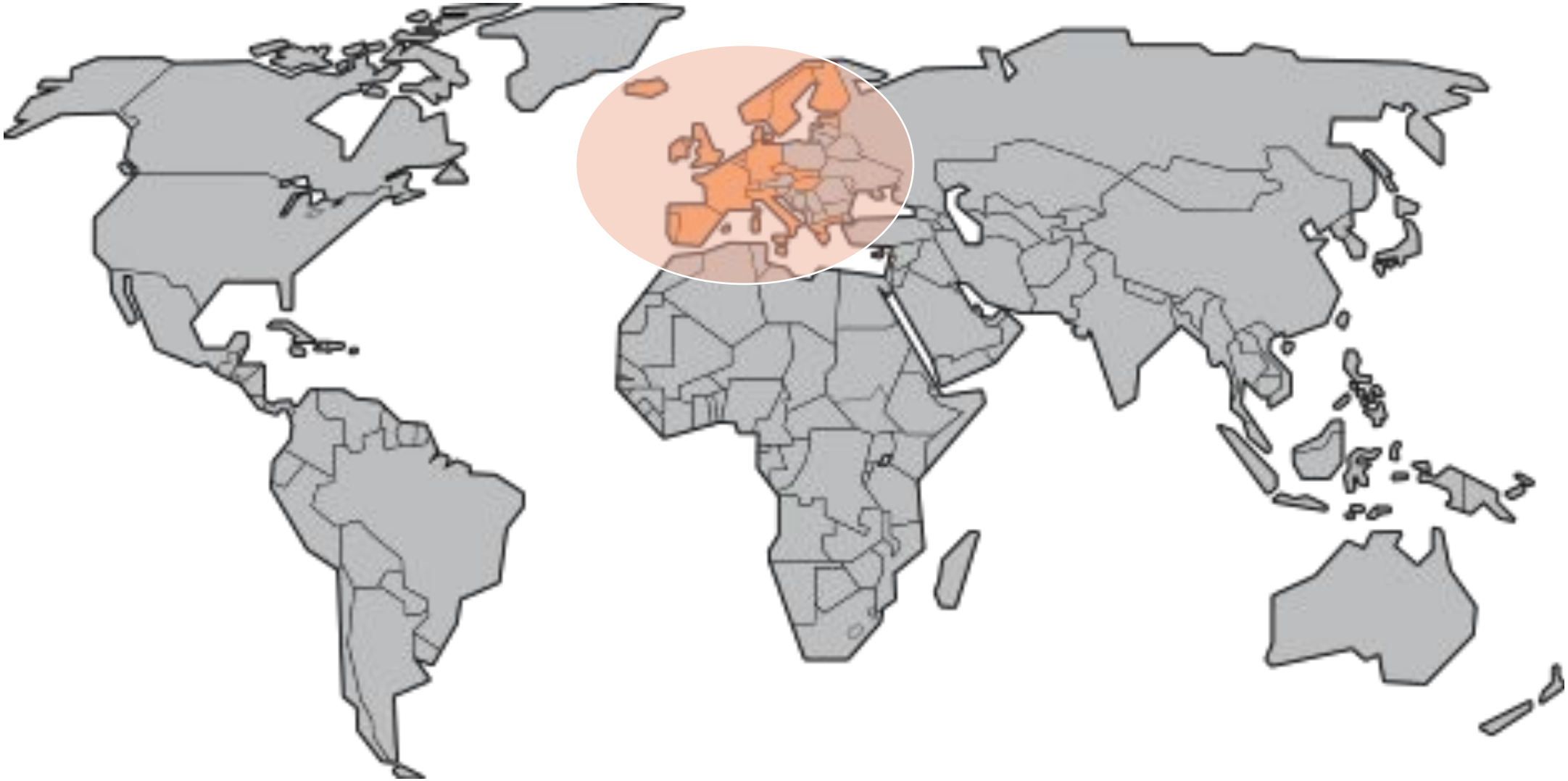
Visit our website:

https://ebrains.eu/services/data-knowledge/share-data/

Or contact us directly at:
curation-support@ebrains.eu

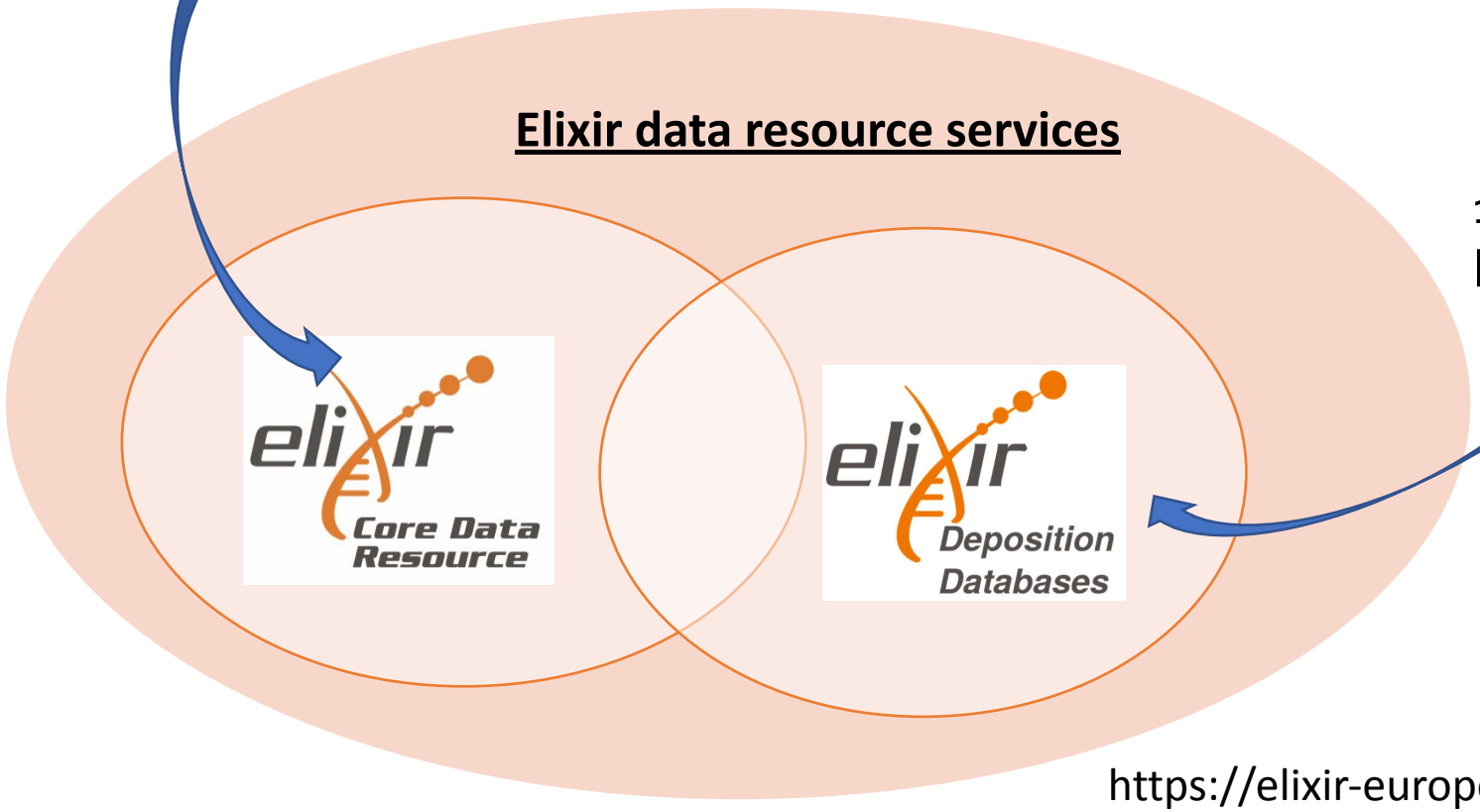
CC-BY 4.0 Anne Marte Kvello

Elixir Data resource services: delivered by different Elixir nodes



Elixir Data resource services

22 resources of fundamental importance to the wider life-science community and the long-term preservation of biological data



12 deposition database for experimental biomolecular data

https://elixir-europe.org/platforms/data/core-data-resources
https://elixir-europe.org/platforms/data/elixir-deposition-databases

Elixir Deposition Databases

- Recognized & recommended
- Free of charge
- Quick upload
- Not operated by single university/government
- Guided submission process
- Generous embargo regulation (2yrs)
- API access (upload from NeLS planned)

https://elixir-europe.org/platforms/data/core-data-resources
https://elixir-europe.org/platforms/data/elixir-deposition-databases

Elixir Deposition Databases

Elixir Deposition Databases

EMBL-EBI

Data submission wizard which helps to find the right archive for your data through a series of questions

https://www.ebi.ac.uk/submission/

EUROPEAN GENOME-PHENOME ARCHIVE

Variation Archive

IntAct

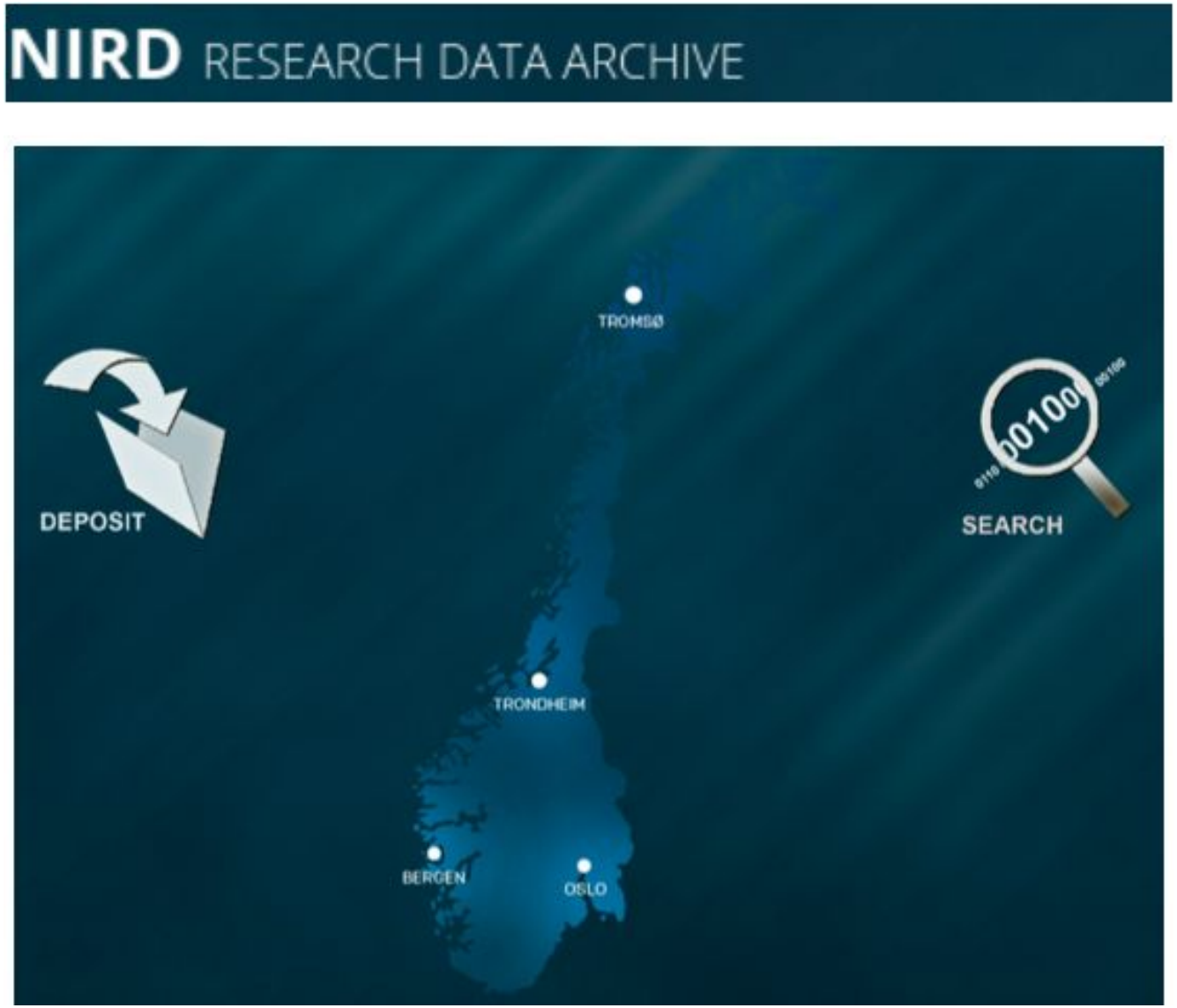
MetaboLights

PDBe Protein Data Bank in Europe

PRIDE PRoteomics IDEntifications Database

National repositories

NIRD archive



National, free depositing repository

Domain agnostic

Dublin-core metadata standard

DOI accessible

Supports machine readable metadata harvesting

https://archive.norstore.no

DataverseNO

National/Institutional, free depositing repositories

Domain agnostic

Manually curated by libraries

DOI accessible

8Gb max/upload - contact support >50Gb

https://dataverse.no

NSD/Sikt archive

NSD NORSK SENTER FOR FORSKNINGSDATA

CORE TRUST SEAL

Sikt
Kunnskapssektorens tjenesteleverandør

Domain agnostic

DOI accessible

Implemented data access committees

Main data type: Questionnaires, …

Reorganisation: from 2022 NSD has merged with Uninett and Unit to form Sikt – Norwegian Agency for Shared Services in Education and Research

https://arkivering.nsd.no

Other types of data

Generic archives

Less standard metadata → Re-usability ⇓

Domain agnostic → Findability ⇓

Guided submission process

Commercial factors: Size limitations, …

https://zenodo.orgs/
https://b2share.eudat.eu/
https://figshare.com

Archiving code/scripts

Good integration - easy to implement

Archival of each release

beta version for gitlab

https://zenodo.org/
https://guides.github.com/activities/citable-code/
https://gitlab.com/sbeniamine/gitlab2zenodo

What about sensitive data?

ega-archive.org

Central metadata accessibility

Secure storage

Implemented data access committees

<u>Norwegian EGA</u>
(for data that can not leave the country)

Tryggve

elixir

neic

What about sensitive data?

Central metadata accessibility

Ensure your consent form & REC approval allow controlled access archiving!

ega-archive.org

Secure storage

Implemented data access committees

Norwegian EGA

(for data that can not leave the country)

Tryggve

elixir

neic

What to consider before submitting to a long-term repository?

Outlined in the DMP:

- Can your data be submitted to an open repository?
- Who is the **long-term** contact person for the submitted dataset?

Familiarize yourself with the repository standards

- What data, metadata or other information does the repository require me to submit?
- Are my data compatible with the repository format standards?

When should I know which repository I should submit to?

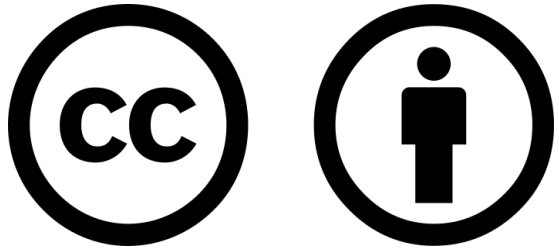
Preferably already before the project starts

Thank you!

Elixir-norway.org

@elixirnorway

support@elixir.no



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