The Future of FAIR in Europe
What we are doing to make ourselves FAIR

Katrina Exter, VLIZ

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ENVRI FAIR

EOSC-Life

EMBRC EUROPEAN MARINE BIOLOGICAL RESOURCE CENTRE

LifeWatch ERIC

FAIR is…

FAIR principles apply to data objects / digital objects

- Data

- Services
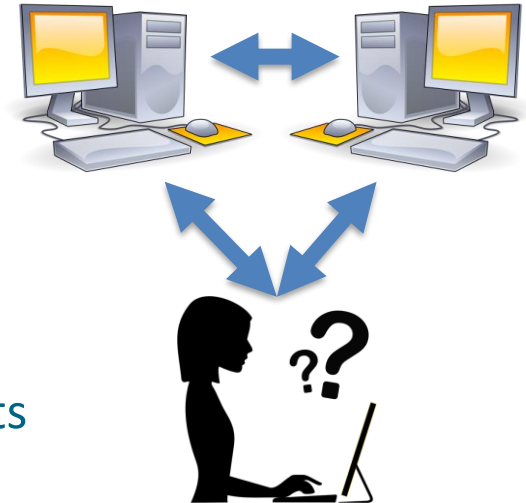
- E-tools

- Publications

- Metadata

- …

The FAIR principles

Findable: data objects can be found

- By a human
- By a computer (machine2machine)

Requires

- Public metadata catalogues with linked data objects
- Search functions (humans and m2m)
- Rich and complete metadata

The FAIR principles

Accessible: humans and computers can access the meta(data)

Requires

- PIDs: permanence, versioning

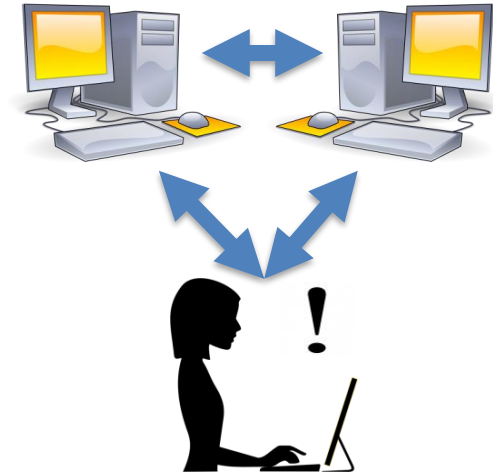- Standard m2m communication protocols

- Robust and standard AAAI

The FAIR principles

Interoperable: data objects can be understood

- By a human
- By a computer (machine2machine)

Requires

- Standards (file and data formats)
- Standards (vocabularies and ontologies)
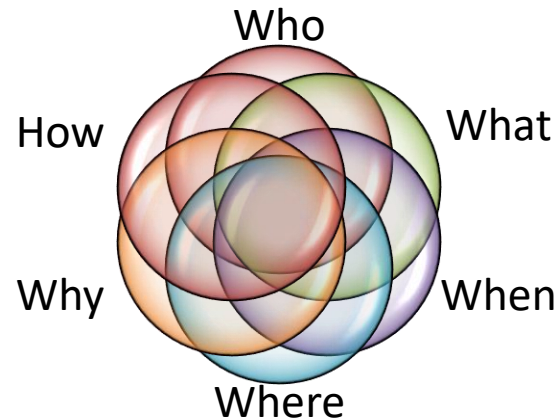- Standards (practices, schemas)
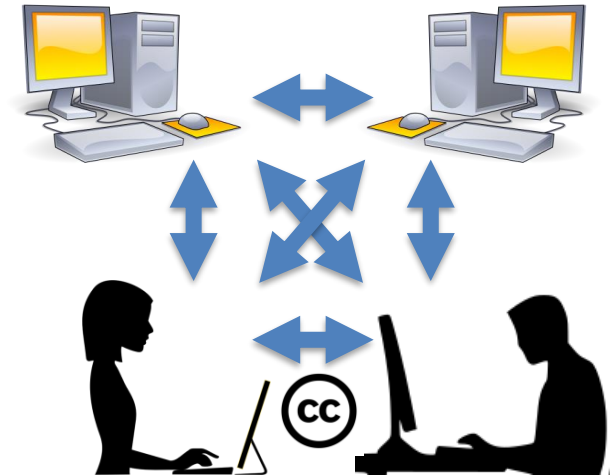- Translators

standards > data

The FAIR principles

Re-usable:

- Data licences are clear
- Provenance is provided

Requires

- Clear licences
- Clear communication channels
- The entire WhoWhatWhereWhenWhyHow of the data object

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Who
How
What
Why
When
Where

FAIR in practice

The starting point:

- Data archiving is common

- Data cataloguing is common

- The understanding of why scientific data should be FAIR has been around for a long time….

- ….but providing that lags behind

Now we need to handle:

- Requirements for Open Access

- Requirements for m2m interfaces

- Ability to work across thematic domains

- Broader definition of data object

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For these to work, we need to follow FAIR practices

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EOSC

*The **European Open Science Cloud** (EOSC) is a European Commission initiative aiming at developing an infrastructure providing its users with services promoting open science practices....the envisaged infrastructure is to be built by aggregating services provided by individual organisations*

Research Infrastructures, data centres, institutes, universities... will make their services FAIR, and then can be provided via a single hub (the EOSC)

European FAIR projects

VLIZ is involved in many European FAIR/EOSC projects

- ENVRI-FAIR: ENVRIs working towards FAIR

- EOSC-Life: Biological and life sciences working towards FAIR

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ENVRI-FAIR

ENVRI-FAIR connects the ENVRI community to the EOSC. We will establish technical preconditions for the successful implementation of a virtual, federated machine-to-machine interface. The overarching goal is that at the end of this project, all participating RIs have built a set of FAIR data services that can be connected in this way to the EOSC.

~20 RIs and technical partners, we participate as LifeWatch ERIC

LifeWatch ERIC is a European Infrastructure Consortium providing e-Science research facilities to scientists (biodiversity and ecosystem research).

Four scientific domains: marine, solid earth, atmosphere, biodiversity

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ENVRI-FAIR

Each domain is responsible for

- Assessing the FAIRness of their services
  - Online FAIR checkers
  - Questionnaires
  - Digging deep into our own systems

- Identifying gaps
  - FAIRness of data objects
  - M2m interoperability of our services (connect to the Hub)
  - Polices, practices

- Building a roadmap
  - The practical steps to be taken over the course of ENVRI-FAIR

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ENVRI-FAIR

What is on our roadmap?

- IMIS (catalogue), MDA (archive), and all related data systems and data collections

- Content
  - Metadata (completeness, standards, schemas, translators, m2m interfaces)
  - Data (standards, formats)

- Technical aids
  - Automated assessment methods
  - Automated translators
  - M2m interfaces with other systems

- Policies

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EOSC-Life

EOSC-Life brings together ESFRIs to create an open, digital and collaborative space for biological and medical research in the EOSC. We will publish our FAIR Data Resources, link reusable tools and workflows to standardised national cloud computing, connect our users to a single AAAI system, and develop the policies dealing with research participants and patients volunteering their data and samples"

46 partners, we participate as EMBRC

EMBRC-ERIC is a pan-European RI for marine biology and ecology research. With its services, it aims to answer fundamental questions on oceanic ecosystems, enable new technologies, support life-science discoveries with the use of marine biological models, and continue long-term marine monitoring efforts.

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EOSC-Life

What is the focus? The WPs :

- FAIR data and catalogues, FAIR workflows, polices, provenance,…

- Demonstrators and Open Calls : practical scientific projects combining resources from multiple RIs for new research, to test and demonstrate our FAIRness

What are we working on?

- Demonstrator case: *Marine eukaryote genome portal - access to tools and data-flows for marine genome annotation*

- Provenance: in particular the Nagoya Protocol on the use of genetic resources collected from the wild, and how to include this in provenance

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Why do this? The added value

Why make ourselves FAIR?

- It is only fair that data are FAIR

- Results in more efficient systems, more automation

- More science, more citations, more use of our systems

- Funders require it

Why participate in these projects?

- Many cooks makes a *better* broth!

- External deadlines: the stick

- End results: the carrot

- Working together to connect together

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Questions?