Task Forces (TFs) steer the implementation of EOSC on key components by identifying strategic gaps and areas of investment and providing feedback on developments.

One of these TFs is named “Fair Metrics and Data Quality”. It is a multidisciplinary advisory group of 26 experts in biology, metrology, climatology, data science and management, philosophy, computer sciences, etc. Experts come from 17 different European countries.

Two co-chairs coordinate this EOSC TF: Mark Wilkinson and Carlo Lacagnina.

Kick-off in December 2021 followed by bi-weekly meetings over two years in a mixed method approach including virtual discussions, workshops organization and participation, use cases collection, and survey dissemination.
Goals of this Task Force

This Task Force (i) explores issues related to the governance of FAIR evaluations; (ii) examines the problem of inconsistency between FAIR evaluation tools; (iii) evaluates the applicability and uptake of FAIR Metrics across research communities. In addition, the group will undertake a state of the art to generate mutual understanding about data quality and conduct several case studies to identify common features and dimensions to define a data quality approach for EOSC.

The EOSC Task Force “FAIR Metrics and Data Quality” has been split into two subgroups, let’s start with the “Data Quality” subgroup
EOSC Task Force
FAIR Metrics and Data Quality

Data Quality group

Current status
What done so far

- Kick off in December 2021, bi-weekly meetings and agenda set
- Pinning down common ground understanding about quality approaches, what quality means, dataset lifecycle, actors involved, benefits of quality, workflow for managing quality, data types, certification, etc.

- Desk research of ISOs, literature, vocabulary
- Gathering inputs, lessons learned, agreed practices from various initiatives (e.g. RDA, INSPIRE, bioimaging, CoreTrustSeal, energy sector)
- Drafting a recommendation document – 1st version in December 2022
- RDA session organized in June
- Drafted a survey released in April: >700 views
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### Survey: respondents

<table>
<thead>
<tr>
<th>Views</th>
<th>Starts</th>
<th>Submissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>778</td>
<td>418</td>
<td>155</td>
</tr>
</tbody>
</table>

**Survey open during**
April and May 2022

Which communities participated?
All but law, little response from agriculture, chemistry, astronomy

**Organization type?**
All, 70% comes from academia/research

Full results: [https://bsc3.typeform.com/report/WsWwLHtD/5ie82ib4pqMz01Hb](https://bsc3.typeform.com/report/WsWwLHtD/5ie82ib4pqMz01Hb)

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Trend of views

- Apr 13
- Apr 20
- Apr 27
- May 4
Survey: some insights

- Biggest concern/barrier to provide quality assessed data:
  - unawareness
  - no tools
  - time consuming
  - inexperience
  - complexity
  - other priorities
  - legacy
  - expensive
  - too many
  - multilingual
  - visibility
  - demand driven

- Which practices should a discipline have to **gauge its maturity in quality management**?
  - Metadata standards, agreed definitions, standard quality management framework, metrics to quantify quality, quality assessments are operational routine and funded

- What level of data quality management do you expect from EOSC?
  - **Basic curation**: e.g., data content sanity checks, control availability of basic metadata or documentation, basic metadata compliance checks. Allow (re)users to rate or leave comments on data quality

- Some conclusions
  - It must be crystal clear and well advertised that **quality does not refer to data content quality only**, a.k.a. scientific quality. The survey demonstrated that several respondents see quality assessments as dangerous when done by external organizations like EOSC because the respondents see quality usually associated with the assessment of the data content.
  - Striking **preference for no ranking**. If a ranking has to be applied, then priority should be placed on **showing the FAIRness level** of the datasets. **No data content assessment** is expected from EOSC, but check of documentation availability for data understanding.
  - The future quality assessments should be shown first to the **data provider**, to give a chance to **improve the data**, and then to the users. The methodology has to be the same for similar datasets.
  - Create a catalogue of community tests/methods to apply in quality analyses.
  - EOSC users expect tools and services being designed according to a user-centric model.
Multidisciplinary understanding about data quality

- Survey
- RDA session
- Invited talks from other initiatives
- Desk research

Recommendation document

First version to be released in December 2022 to gather community feedback.
Recommendations are a set of principles and guidelines for both EOSC and the next TF:

- Datasets have to come with enough contextualization information to understand and correctly interpret them.
- EOSC is not in charge of data content assessments.
- Set clear criteria to prevent researchers concerns about how professionally their data will be managed, concerns are barriers to data sharing.
- Develop a pre-operational quality function tailored to the EOSC stakeholders’ requirements.
- EOSC should support and push each community to agree on community standards, which form the basis for any quality assessment and FAIR sharing of research datasets.
- We have already identified minimum requirements; the next TF will need to identify the exact standards forming the baselines for these requirements assessment.
EOSC Task Force
FAIR Metrics and Data Quality

FAIR Metrics group

Current status
Three key objectives

• Explore issues related to the **governance** of FAIR evaluations
  
  Who has the authority to decide what should be tested, how, and what is a successful result? There are (at least) 17 different FAIR evaluation systems, and nobody knows which one to trust.

  This is extremely problematic, when agencies and publishers are beginning to demand FAIRness

• Examine the problem of **inconsistency** between FAIR evaluation tools
  
  Evaluators are generating dramatically different results

• Evaluate the applicability and **uptake** of FAIR Metrics (specifically RDA Maturity Indicators)
  
  Ongoing... Measuring the effect that a well-governed and consistent FAIR assessment ecosystem will have on stakeholders’ perceived trust in FAIRness evaluations, and their willingness to be evaluated using these tools.
Three key objectives

- Explore issues related to the governance of FAIR evaluations
  - Who has the authority to decide what should be tested, how, and what is a successful result? There are (at least) 17 different FAIR evaluation systems, and nobody knows which one to trust.
  - This is extremely FAIRness
- Examine the problem of integrity
  - Evaluators are given too much power
- Evaluate the applicability and performance
  - Measuring the effect the audience will have on stakeholders

Outcomes:

*Whitepaper on Governance* submitted to F1000 for open peer review and to initiate a discussion around governance models for FAIR metrics and testing

Objective: a self-sustaining, peer-reviewed mechanism for approving FAIR metrics and tests (including domain-specific!) that is trusted by the broad community of stakeholders
Three key objectives

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Three key objectives

- Explore issues related to the governance of FAIRness.
  - Who has the authority to decide what is FAIR? There are at least 17 different metrics.
  - This is extremely problematic, which one to trust?
- Examine the problem of inconsistency between evaluators.
  - Evaluator are generating dramatic results.
- Evaluate the applicability and uptake of FAIRness.
  - Ongoing... Measuring the effect the ecosystem will have on stakeholder willingness to be evaluated using the same metric.

The output display panels for The Evaluator (A) and F-UJI (B) when tested on the same URI, representing the Catalog record of the FAIR Data Point for the Duchenne Parent Project patient registry.
Inconsistency between FAIR evaluation tools

Evaluator harmonization: find a common workflow

FAIR Signposting: a no-guesswork, unambiguous specification for pointing between a canonical identifier, the data it represents, and the metadata about that data

<table>
<thead>
<tr>
<th>Relation</th>
<th>Usage</th>
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<tbody>
<tr>
<td>cite-as</td>
<td>A one-to-one relationship between the entity and its globally unique identifier</td>
</tr>
<tr>
<td>describedby</td>
<td>A one-to-many relationship between the entity and all known metadata records about that entity</td>
</tr>
<tr>
<td>item</td>
<td>A one-to-many relationship between an entity representing a deposit and the data file(s) it contains.</td>
</tr>
</tbody>
</table>

Four TF-hosted Hackathons → specification and reference environment for checking that all evaluators are behaving identically when faced with a FAIR Signposting-compliant site
Three key objectives

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  ➢ Who has the authority to decide what should be tested, how, and what is a successful result? There are (at least) 17 different FAIR evaluation systems, and nobody knows which one to trust.
  ➢ This is extremely problematic, when agencies and publishers are beginning to demand FAIRness.

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Thanks / Gracias / Obrigado