



# Opinion paper on FAIR data sovereignty in EOSC

By the EOSC Steering Board expert group (E03756)

Independent  
Expert  
Report



Research and  
Innovation

## Opinion paper on FAIR data sovereignty in EOSC

European Commission  
Directorate-General for Research and Innovation  
Directorate A — ERA & Innovation  
Unit RTD.A.4 — Open Science  
Contact Michel Schouppe  
Email [rtd-eosc@ec.europa.eu](mailto:rtd-eosc@ec.europa.eu)  
[Michel.Schouppe@ec.europa.eu](mailto:Michel.Schouppe@ec.europa.eu)  
[RTD-PUBLICATIONS@ec.europa.eu](mailto:RTD-PUBLICATIONS@ec.europa.eu)

European Commission  
B-1049 Brussels

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# OPINION PAPER BY THE EOSC STEERING BOARD EXPERT GROUP (E03756) ON FAIR DATA SOVEREIGNTY IN EOSC

Version 1.2 updated 2022-10-24<sup>1</sup>

*The EOSC Steering Board expert group <sup>2</sup>(EOSC-SB) has initiated an overarching analysis of the main disruptive concepts and practices connected to the construction and future operation of the EOSC.\* The foreseen benefits of EOSC for European research and innovation require transformative practices in several domains covering from FAIR-by-design data collection technologies to FAIR data and service exploitation skills. The Specific issues were chosen by the Steering Board based on the perceived urgency/priority. Those are addressed individually in Opinion Papers drafted by the Policy sub-group, elaborated by the board, and communicated at tripartite level together with the Statement ‘EOSC: the Transverse European Data Space for Science, Research and Innovation’<sup>3</sup> to become a living reference for the definition of EOSC policies at European, national, and institutional level.*

## 1. About the implementation of Open Science concerning research Data and related Services

Implementing the EOSC principle on access to data “as unrestricted as possible” has implications on legal, IPR, and institutional levels as it implies rights and responsibilities by those who will provide research FAIR data (FD), and those who will use them. The pragmatic concept of “Data Sovereignty” derives its meaning from these responsibilities. Here we elaborate an opinion on the specific EOSC sovereignty on research FD (EOSC-SFD) by attributing to EOSC and to the participating data-providers, the responsibility to protect the value of the FAIR datasets and related data services throughout the whole lifecycle of their open exploitation. EOSC-SFD implies governance and practices oriented at monitoring the usage and the conditions of usage of FD, by protecting the persistence of the FD quality upon reuse, and by applying effectively the restrictions when needed, including the rights of data providers to withdraw FD sets recognised as faulty or severely incomplete. As of today, only a fraction of the data generated by public research undergoes curation and integration with metadata to become compliant with the definition of FD. A specific investment of human and financial resources is required to implement a raw-data set into a FD-set. This effort is typically supported by the data producer being a research infrastructure, and RPO or, seldom, a single user group (see further the EOSC-SB opinion paper on FAIR data literacy).

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<sup>1</sup> Contact point for this paper by the EOSC Steering Board Expert Group is [RTD-EOSC@ec.europa.eu](mailto:RTD-EOSC@ec.europa.eu)

<sup>2</sup> [Register of Commission expert groups and other similar entities \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

<sup>3</sup> EOSC: the Transverse European Data Space for Science, Research and Innovation – STATEMENT, <https://doi.org/10.2777/140927>

The basic ideas are defining EOSC-SFD are:

- the notion that FD are common goods governed by rules that must be known and understood; and
- responsibilities to protect FD value of use and reuse do exist, and these need to be clearly defined.

## 2. About data governance and data sovereignty in the Union

Sovereignty has meaning in a broad context, with specific meanings in specific issues. It is a sensitive point of EC policy (see Appendix). The concept of a Single Market for Data would ensure that data from the public sector (including publicly funded research data), businesses and citizens can be accessed and used in the most effective and responsible manner possible, while businesses and citizens keep control of the data they generate, and investments made into their collection are valorised. The broad application of the FAIR principles, used in a pervasive way across the EOSC, is necessary to enable the re-use of research data by promoting that they be not only findable but also accessible, interoperable, and re-useable. These objectives must be fully integrated at European Tripartite Governance level as well at national level.

## 3. Digging deeper in the notion of FAIR data sovereignty

Possible specifications of FD sovereignty are connected to:

- a) the protection of rights of the data owners/communities/funders (IPRs, academic freedom, institutional sovereignty, geo-localization, possession, custody or control over the data stored in the EU by an international company or by a company with a parent company out of the EU, quality protection) to safeguard the value and investment in making FAIR datasets and in developing/operating FAIR data services;
- b) the safeguard of a minimum autonomy/freedom by the research community regarding access to critical services along the data life cycle (including digital services from non-profit public actors);
- c) the transparency on data provenance and of how the data have been processed;
- d) the right of data providers, according to agreed rules of procedures, to withdraw a FD set based on scientific reasons;
- e) the elaboration of appropriate rule settings targeting public or private partners and other users from non-EU and associated countries (see EOSC-SB opinion paper on EOSC and commercial partners).

FAIR data sovereignty is not a hurdle to Open Science. On the contrary it is meant to augment the notion of openness, persistent quality, and interoperability of FAIR research data with:

- ownership, in particular for personal or sensitive data;
- effective/adequate control of the data flows and usage monitoring including of where the data are
  - being used and under which laws (national or extraterritorial), where computation on the data is
  - being performed, and where the newly generated data and metadata, e.g., from analysis of FD by users, are stored and become accessible resources;
- applicability of legal rules over data infrastructures, in particular when they are operated in cloud environments by public or commercial organisations, including relevant data geo-localisation requirements and specific international agreements on mutual sharing of data, when appropriate;
- transparent relationship to the commercial sector; avoidance of vendor locking solutions and appropriated community ownership of key research infrastructures.

#### 4. Short term objectives

Sovereignty of research FD (EOSC-SFD) is a proposal to identify and support coordination and convergence of and synergies across MS/AC to cope with responsibilities by all elements of the EOSC federation and data providers, in the implementation of EOSC. It is part of EOSC tripartite governance and shall reflect legislation at the national and European levels. The EOSC-SFD cannot be implemented in isolation with respect to the broader setting. The following objectives and recommendations target the priorities for the short term (2022–2024) towards the general objective of Open Science as the new normal (see EOSC-SB opinion paper on monitoring Open Science). Medium (2025–2027) and longer (2028–2030) term objectives and recommendations will be addressed by the EOSC-SB later. EOSC-SFD should be built for establishing an EOSC ecosystem in which research FD is made available, collated, and shared in a trustworthy environment and where the data providers always retain sovereignty over their data and related services and the users on their own results from FD reuse. It shall benefit from and nurture the EOSC Interoperability Framework (EIF)<sup>4</sup>.

EOSC-SFD should by 2024 become a common practice of:

- 1) the EOSC Tripartite Governance and all related levels at EC and MS/AC levels;
- 2) the research communities including RIs, RPOs, learned societies; and
- 3) the developers and operators of the EOSC platform and the EOSC federation.

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<sup>4</sup> The EOSC Interoperability Framework is being developed by the Horizon Europe project EOSC-Future. <https://eoscfuture.eu/ker/eosc-interoperability-framework/>

## 5. Recommendations

### 5.1. At European level, it is recommended that

- 1) the EOSC Rules of Participation (RoP) are phased in time to adapt to the evolving quality standards in discipline and research communities. The initial phase shall define a highly reliable set of suppliers of FAIR data and services who agree on quality-control criteria of the datasets to be made FAIR and accessible through appropriate policy (fully unrestricted or else); the EOSC-SFD shall be acknowledged in the RoP.
- 2) the EOSC Partnership will ensure that the IT-architecture and services shall cope with EOSC-SFD needs;
- 3) the EOSC Tripartite Governance shall ensure that EOSC-SFD elements are implemented: e.g.,
  - (a) Update Rules of Participation and onboarding processes
  - (b) Tag data quality and persistent integrity as a key asset in the EOSC ecosystem;
  - (c) Meta-geo-localization in the EU and ACs of FD services and FD repositories;
  - (d) Ownership of data and services by EOSC partners in a cloud that is overall “known”;
  - (e) Promotion of appropriate licensing, preservation of IPR and recognition of authorship of research FD in the EOSC ecosystem;
  - (f) Implementation of the EOSC Interoperability Framework (including legal and technical interoperability) supporting full FAIRification of ‘relevant’ licensed data sets;
  - (g) Definition of common guidelines for quality control, skills, and stewardship.

### 5.2. At national level

- 4) the contributors to EOSC shall be clearly identified (geo-localized, fully described for capacity, technology, policy, and legal constraints);
- 5) the list of national EOSC-ready nodes (computing, storage, services compliant with EOSC rules of participation) shall be constantly updated and communicated to the EOSC Tripartite Governance.
- 6) investments in skills and data stewardship by national funders should be proportional to the expected growing volume of the FAIR data market.
- 7) national policies and EOSC-SFD implementation strategies should be regularly evaluated and updated;
- 8) engagement (dedication) through European and national tripartite events should be accelerated;
- 9) EOSC-SFD for full compliance w/r national laws and European common practices should be and complemented, namely with regard to ownership and IPR.



### 5.3. At institutional level (Ris, RPOs)

- 10) the readiness to contribute with contents (open FD sets) and services shall be qualified, quantified and made public.
- 11) sustainable efforts shall be described to cope with FAIR principles, to adopt FAIR-by- design solutions, to invest in data stewards.
- 12) institutes shall interact both at the national level and directly with EOSC. (EOSC-A, national mandated org., RIs...).

The **EOSC Steering Board** shall in 2024 evaluate the effectiveness and efficiency of the EOSC-SFD objectives and recommendations.

## 6. Appendix

The COVID crisis has acted as a booster to the digital transformation of companies, public organisations including administrations, research performing organisations and universities. “Plans that had maybe dragged on for years, had to be implemented at very short notice, overcoming many technological, organisational, skill gaps, and cultural barriers. The crisis made it possible to overcome barriers in the sharing of data. At the same time, the crisis underlined the critical role of the governance of digital data in modern societies. How data is collected, by whom, for what purpose, how it is accessed, shared, and re-used have become central questions”.<sup>5</sup>

“The lockdown also highlighted the European dependency on non-European collaborative platforms and accelerated the process of market polarisation on big digital platforms. These platforms became critical in connecting users, organisations and content, and the vast majority of them are not European. When using these tools, Europeans provide valuable intelligence to the platform operators. This means that these companies have been able to gather additional intelligence about every aspect of the European economy and society, which they can use for profiling, targeting - or manipulation”.<sup>6</sup>

Activities that are contrary to the sovereignty, values, and interests of the European Union (EU) fall under what is called Foreign interference<sup>7</sup>. The EU's approach on R&I interference is based on a positive agenda of partnership coupled with the constructive management of differences. Reciprocity, a level playing field and unbiased competition across all areas of cooperation must be guaranteed. The EU will seek to maximise its internal cohesion and effectiveness in its dealings with foreign actors that demonstrate coercive, covert, deceptive or corrupting behaviour and are contrary to the EU's sovereignty, values, and interests.

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<sup>5</sup> European Commission, Joint Research Centre, Nigris, S., Gómez-González, E., Gómez, E., et al., *Artificial intelligence and digital transformation : early lessons from the COVID-19 crisis*, Craglia, M.(editor), Publications Office, 2020, <https://data.europa.eu/doi/10.2760/166278>

<sup>6</sup> European Commission, Joint Research Centre, Nigris, S., Gómez-González, E., Gómez, E., et al., *Artificial intelligence and digital transformation : early lessons from the COVID-19 crisis*, Craglia, M.(editor), Publications Office, 2020, <https://data.europa.eu/doi/10.2760/166278>

<sup>7</sup> <https://op.europa.eu/en/publication-detail/-/publication/3faf52e8-79a2-11ec-9136-01aa75ed71a1/language-en/format-PDF/source-271676623>

“At EU level great attention is already paid to technological and data sovereignty and this crisis has only confirmed that we are right to attach so much importance to these questions”.<sup>8</sup>

With the European data strategy, the Commission is proposing a package of measures as a key step towards a common, trusted data space in the EU - a seamless digital area with the scale that will enable the development of new products and services based on data<sup>9</sup>. The EOSC is an overarching system that supports research and innovation through serviced access to FAIR data. It will federate/interoperate with other sectoral data spaces with a particular focus on the sharing and reuse of research digital objects across a renewed European Research Area (ERA). As part of this package, the Data Governance aims to foster the availability of data for use by increasing trust in data intermediaries and by strengthening data sharing mechanisms across the EU. The proposal builds on the mechanisms present in the existing legislation (in particular the portability right under Article 20 GDPR) that give individuals more control over how their data is used. While offering an alternative model to the data handling practices of the Big Tech platforms, the current Data Governance Act is also distinct from the Digital Services Act<sup>10</sup> (DSA) which aims to address issues relating to the market power of online platforms, resulting from, among other factors, their control of large amounts of data acquired in Europe.

\* The ambition of the European Open Science Cloud (EOSC) is to provide European researchers, innovators, companies and citizens with **a federated and open multi-disciplinary environment** where they can publish, find and reuse data, tools and services for research, innovation and educational purposes. EOSC is not a single monolithic organisation or resource provider but is rather a federation built out of many independent organisations and resource providers as in a system of systems approach. As such, **it ensures the independence and autonomy** of resource providers. (SRIA V1.0, June 2021, Chapter 6).

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<sup>8</sup> European Commission, Joint Research Centre, Nigris, S., Gómez-González, E., Gómez, E., et al., *Artificial intelligence and digital transformation : early lessons from the COVID-19 crisis*, Craglia, M.(editor), Publications Office, 2020, <https://data.europa.eu/doi/10.2760/166278>

<sup>9</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_en)

<sup>10</sup> <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package>

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### **EU open data**

The portal [data.europa.eu](https://data.europa.eu) provides access to open datasets from the EU institutions, bodies and agencies. These can be downloaded and reused for free, for both commercial and non-commercial purposes. The portal also provides access to a wealth of datasets from European countries.

The EOSC Steering Board expert group (E03756) has developed opinion reflections on selected high-level policy issues. The outcome of these reflections have been formulated as opinion papers on 'EOSC and data literacy', 'EOSC and the commercial partners', 'FAIR data sovereignty in EOSC', and 'Monitoring Open Science'. The papers include objectives and recommendations for the period 2022 to 2024. A selection of key elements from these opinions are highlighted in a joint statement by the expert group called 'EOSC: the Transverse European Data Space for Science, Research and Innovation'. All four papers have collected input from private experts, governmental experts, and the European Commission, and were finally adopted via written procedure in November 2022.

*Studies and reports*

