EOSC POLICY BRIEF

CALL: HORIZON-INFRA-2021-EOSC-01
TOPIC: HORIZON-INFRA-2021-EOSC-01-05
PROJECT: FAIR-IMPACT Expanding FAIR solutions across EOSC
PROJECT WEB SITE: https://fair-impact.eu/
GRANT NUMBER: 101057344
DATE: 22.08.2024

SCOPE OF THE POLICY BRIEF

Background

This policy brief enables EU-funded projects contributing to the advancement of the European Open Science Cloud (EOSC) to report on progress and provide input for further policy analysis and development by the European Commission. This policy brief should be understood as complementary to the other mandatory reporting materials.

The present policy brief follows the first FAIR-IMPACT policy brief[1] published in August 2023 and provides and update on the contribution of the FAIR-IMPACT project to EOSC SRIA Version 1.2[2] (December 2023), covering the project's activities during its second reporting period (June 2023 - May 2024).

FEEDBACK ON PROGRESS AND POLICY RECOMMENDATIONS

A. Overview of contributions in relation to the EOSC policy and EOSC SRIA objectives.

FAIR-IMPACT directly contributes to the implementation of the EOSC by providing support, coordination and synchronisation for the implementation of FAIR-enabling practices, tools and services across scientific communities at a European, national and institutional level. With a first policy brief in August 2023, FAIR-IMPACT described its contributions as per the EOSC SRIA General Objectives, Operational Objectives and Action Areas. In this second policy brief, FAIR-IMPACT describes its activity and contributions in the following Opportunity Areas (OAs) by using the terminology introduced during the EOSC Winter School 2024:[3] OA1 Persistent Identifiers (PIDs), OA2 Metadata, Ontologies and Interoperability, OA3 FAIR Assessment and alignment, OA4 User and resource environments, OA5 Skills, training, rewards, recognition and upskilling, OA6 Open Scholarly Communication, as well as in the areas of Sustainable pathways to impact and Joint communication and outreach. An exhaustive list of the FAIR-IMPACT outputs produced per Opportunity Area so far are available through the project's website under section "Outputs and documents".

OA1 PIDs: One of the focus areas of the FAIR-IMPACT support programme was on creating EOSC compliant PID policies. Characteristics of PID policies have been analysed through desktop research and through engagement with the research community via three PID policy alignment workshops[4] and the work fed into practical guidelines for Data Managers on how to create EOSC compliant and user-friendly PID policies.[5] These guidelines are at the moment open for community feedback.[6] Consultations with PID

[1] Kalaitzi, V., Dillo, I., Turner, D., Ashley, K., Davidson, J., Nordling, J., Parland-von Essen, J., Jonquet, C., Aubin, S., Priddy, M., Verburg, M., Fink, A. S., Rouchon, O., Pittonet, S., Mari, M., & Meneses, R. (2023). EOSC Policy Brief for FAIR-IMPACT. Zenodo. https://doi.org/10.5281/zenodo.8255645

[2] https://eosc.eu/sria-mar/

[3] https://eosc.eu/eosc-focus-project/winter-school-2024/

[4] van Horik, R. (2024). M3.6 - 3 PID Policy Alignment Workshops and Feedback Report (V1.0). Zenodo. https://doi.org/10.5281/zenodo.11371085

[5] van Horik, R., & Hugo, W. (2024). D3.3 - Guidelines for creating a user tailored EOSC Compliant PID Policy (V1.0 DRAFT NOT YET APPROVED BY THE EUROPEAN COMMISSION). Zenodo. https://doi.org/10.5281/zenodo.11354246

[6] https://fair-impact.eu/guidelines-creating-user-tailored-eosc-compliant-pid-policy

service providers resulted in a proposal[7] with defined criteria for establishing a coordination mechanism for PID service providers, and a set of requirements[8] for onboarding EOSC service providers into EOSC. Use case partners representing various different scientific disciplines have described their initial PID practices as part of FAIR data management.[9]

OA2 Metadata, Ontologies and Interoperability: Extended tools, methods, and practices across various use cases (agri-food, ecology, earth sciences, humanities, astronomy) were enhanced for the production and use of FAIR semantic artefacts. Established initiatives (OntoPortal) initiated new catalogues in other communities, such as astronomy and the technological sciences, while a unified approach and governance for semantic artefacts is being consolidated for 3 scientific communities: agri-food, ecology and earth sciences through Agro/Eco/EarthPortal. A series of workshops and interactions with other EOSC projects and initiatives, including the co-organisation of a hands-on session[10] under the relevant Opportunity Area during the EOSC Winter School 2024 led to significant outputs under this area of activity for the project, including guidelines for recommended metadata standard for research software within EOSC,[11] examples of community practices for semantic artefact governance models,[12] processes & tools to engineer FAIR semantic artefacts[13] and specification of semantic artefact description.[14]

OA3 FAIR Assessment and alignment: Moving from initial mappings and landscaping to production of new metrics and guidelines for FAIR data, software and semantic artefacts, the project has also worked towards the exposure of repository information related to FAIR assessment and trustworthiness. The domain-agnostic F-UJI tool has been adapted to include metrics that better reflect the way data are produced and shared in the social sciences and humanities. Work is ongoing to adapt the metrics for additional communities. The Research Software MetaData (RSMD) Guidelines have been developed to help software creators and curators improve the FAIRness of research software, and are available on Github, while semantic artefacts can be assessed using the FOOPS! And O'FAIRe tool. Through the FAIR-IMPACT support programmes of the period, support was provided to repositories and data service providers on interacting with a range of FAIR assessment tools, implementing transparency guidelines and software metrics.

Sustainable pathways to impact: The project not only contributes to, but also ignites discussions on sustainable pathways towards impact through uptake of Key Exploitable Results with regards to FAIR-enabling solutions in the context of EOSC. An example is a recent session on Sustainability during the EOSC HE projects' coordination meeting in June 2024, which was proposed by FAIR-IMPACT. The purpose of this request was to capitalise on the discussions initiated in previous meetings and the EOSC Winter School 2024, and to bring around the table relevant projects with a view to reach collaborative solutions and sustainability plans. Working towards its own sustainability plan, the FAIR-IMPACT project has developed an inventory of outputs with the potential to achieve uptake through long-term sustainability. The inventory is reviewed regularly and updated as needed.

Joint communication and outreach: FAIR-IMPACT has established and maintains a working relationship with several EOSC projects, taking the opportunity for shared communication and outreach activities when possible. Next to contributions to activities organised by the EOSC-A and in collaboration with EOSC projects, FAIR-IMPACT is active across Europe through the organisation of national roadshows[15] and providing support to National Level Initiatives with a focus to EOSC mandated organisations.[16]

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[7] Mejias, G., Cousijn, H., Marjamaa-Mankinen, L., Nordling, J., van Lieshout, N., & Gonzalez-Beltran, A. (2023). M3.2 - Proposal for an EOSC PID Service providers coordination mechanism. Zenodo. https://doi.org/10.5281/zenodo.8405818

[8] Mejias, G., Cousijn, H., Marjamaa-Mankinen, L., Nordling, J., Lager, L., van Lieshout, N., & Newbold, E. (2024). MS3.3 - Aligning requirements for onboarding PID providers into EOSC, including emerging PIDs. Zenodo. https://doi.org/10.5281/zenodo.11232175

[9] Nordling, J., Juty, N., Goble, C., Soiland-Reyes, S., Granger, S., Ramezani, P., L'Hours, H., Neto, R. J., Sennesal, F.-X., Mancarella, F., Matthews, B., Gonzalez-Beltran, A., & Newbold, E. (2023). M3.4 Defining PID Practices in FAIR data management. Zenodo. https://doi.org/10.5281/zenodo.10210001

[10] https://eosc.eu/oa2-metadata-ontologies-interoperability/

[11] Gruenpeter, M., Granger, S., Monteil, A., Chue Hong, N., Breitmoser, E., Antonioletti, M., Garijo, D., González Guardia, E., Gonzalez Beltran, A., Goble, C., Soiland-Reyes, S., Juty, N., & Mejias, G. (2024). D4.4 - Guidelines for recommended metadata standard for research software within EOSC (V1.0). Zenodo. https://doi.org/10.5281/zenodo.10786147

[12] Ramezani, P., GRAU, N., Jonquet, C., & Fiore, N. (2023). M4.1 Semantic artefact governance models: example of community practices. Zenodo. https://doi.org/10.5281/zenodo.10287011

[13] Poveda-Villalon, M., Garijo, D., Gonzalez-Beltran, A., le Franc, Y., Jonquet, C., Aubin, S., Soiland-Reyes, S., Goble, C., & Kechagioglou, X. (2023). M4.2 - Processes & tools to engineer FAIR semantic artefacts. Zenodo. https://doi.org/10.5281/zenodo.10551054

[14] Gonzalez Beltran, A. N., & Wilson, A. (2024). FAIR-IMPACT M4.3 - Specification of semantic artefact description. Zenodo. https://doi.org/10.5281/zenodo.10725304

[15] https://fair-impact.eu/events/national-roadshows

[16] https://fair-impact.eu/second-call-national-level-initiatives

B. Key contributions subject to wider dissemination by the European Commission.

During the second year of FAIR-IMPACT a high number of outputs was achieved, most of them directly contributing to the EOSC implementation. All of the project's public deliverables and outputs, as well as other publications and materials from events are available on the project's website and the FAIR-IMPACT Zenodo community.[17] At the same time, significant resources for FAIR implementation and adoption are further disseminated using the project's FAIR Implementation Framework,[18] FAIR use cases[19] across the four scientific domains represented in the project (life sciences, social sciences and humanities, photon and neutron science, earth and environmental sciences), and FAIR implementation and adoption stories[20] based on the project's support programmes.

A few selected key contributions of the period that can inspire the EOSC community in the form of guidance and examples, next to those mentioned above, are listed below:

- Second synchronisation workshop[21]
- Guidelines for creating a user tailored EOSC Compliant PID Policy[22]
- Proposal for an EOSC PID Service providers coordination mechanism[23]
- Guidelines for recommended metadata standard for research software within EOSC[24]
- Semantic artefact governance models: example of community practices[25]
- Guidelines for repositories and registries on exposing repository trustworthiness status and FAIR data assessments outcomes[26]
- Semantic artefact assessment methodology[27]
- Core metadata schema for legal interoperability[28]
- Impact Report [D&E&C results preliminary version][29]

[17] https://zenodo.org/communities/fair-impact/

[18] https://fair-impact.eu/fair-implementation-framework

[19] https://fair-impact.eu/use-cases

[20] https://fair-impact.eu/implementation-adoption-stories

[21] Grootveld, M., Pittonet Gaiarin, S., Davidson, J., Dillo, I., Verburg, M., Rouchon, O., Priddy, M., Nordling, J., Marjamaa-Mankinen, L., Gonzalez, E., Fink Kjeldgaard, A.-S., David, R., & Dennis, R. (2024). M1.8 - Second synchronisation workshop. Zenodo. https://doi.org/10.5281/zenodo.10959528

[22] van Horik, R., & Hugo, W. (2024). D3.3 - Guidelines for creating a user tailored EOSC Compliant PID Policy (V1.0 DRAFT NOT YET APPROVED BY THE EUROPEAN COMMISSION). Zenodo. https://doi.org/10.5281/zenodo.11354246

[23] Mejias, G., Cousijn, H., Marjamaa-Mankinen, L., Nordling, J., van Lieshout, N., & Gonzalez-Beltran, A. (2023). M3.2 - Proposal for an EOSC PID Service providers coordination mechanism. Zenodo. https://doi.org/10.5281/zenodo.8405818

[24] Gruenpeter, M., Granger, S., Monteil, A., Chue Hong, N., Breitmoser, E., Antonioletti, M., Garijo, D., González Guardia, E., Gonzalez Beltran, A., Goble, C., Soiland-Reyes, S., Juty, N., & Mejias, G. (2024). D4.4 - Guidelines for recommended metadata standard for research software within EOSC (V1.0). Zenodo. https://doi.org/10.5281/zenodo.10786147

[25] Ramezani, P., GRAU, N., Jonquet, C., & Fiore, N. (2023). M4.1 Semantic artefact governance models: example of community practices. Zenodo. https://doi.org/10.5281/zenodo.10287011

[26] Verburg, M., Ulrich, R., L'Hours, H., Huber, R., Priddy, M., Davidson, J., Gonzalez-Beltran, A., Meijas, G., & Neidiger, C. (2023). M5.2 - Guidelines for repositories and registries on exposing repository trustworthiness status and FAIR data assessments outcomes (1.0). Zenodo. https://doi.org/10.5281/zenodo.10058634

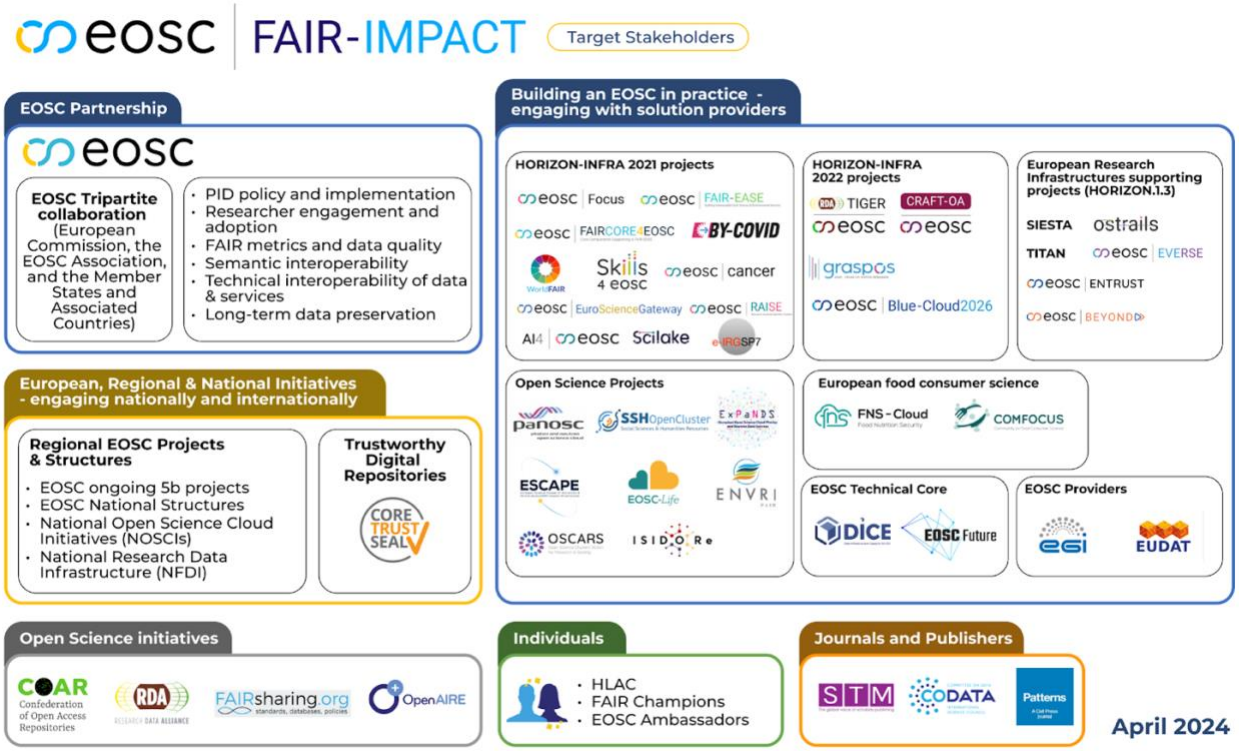
[27] Garijo, D., Poveda-Villalón, M., Flohr, P., Gonzalez-Beltran, A., le Franc, Y., & Verburg, M. (2023). M5.3 Semantic artefact assessment methodology (Version 1). Zenodo. https://doi.org/10.5281/zenodo.8305173

[28] Rouchon, O., Kraaikamp, E., Gonzalez, E., Fink Kjeldgaard, A. S., Pedersen Tenderup, N., Davidson, J., Hodson, S., Rettberg, N., & Scharnhorst, A. (2024). D6.2 - Core metadata schema for legal interoperability (Version v1). Zenodo. https://doi.org/10.5281/zenodo.11104269

[29] Pittonet Gaiarin, S. (2024). M7.4 - Impact Report [D&E&C results preliminary version] (v1.0). Zenodo. https://doi.org/10.5281/zenodo.11544863

C. Synergies with other stakeholders.

FAIR-IMPACT actively engages a wide range of EOSC stakeholders at European, national and institutional levels. The ecosystem of stakeholders that FAIR-IMPACT navigates is depicted in the figure below.



The FAIR-IMPACT Synchronisation Force brings together a wide range of actors in the EOSC and FAIR realm on a yearly basis, providing the opportunity for interactive, thematic sessions across the pillar activity areas of the project: PIDs, Metadata and Ontologies, Metrics, certification and guidelines, and Interoperability.

The Technical Bridging Team (TBT) is responsible for the technical alignment with FAIRCORE4EOSC and relevant projects, and participates in the EOSC HE Technology Group. Project representatives also actively participate in the EOSC HE groups for coordination, engagement and communication, and sustainability and impact.

At the same time, FAIR-IMPACT regularly contributes to the EOSC HE projects coordination activities, the EOSC macro-roadmap,[30] and events such as the EOSC Winter School. Collaboration activities are pursued with several EOSC projects apart from the FAIRCORE4EOSC project, such as WorldFAIR, BY-COVID, Skills4EOSC, EOSC Beyond, EVERSE, FAIR EASE, HORIZON ZEN, etc. Furthermore, FAIR-IMPACT is collaborating closely with FAIRCORE4EOSC and FAIRsharing on the definition and delivery of current and forthcoming support actions.

Furthermore, the project has interacted with the previous EOSC Task Forces through the provision of input and feedback to relevant outputs, and has established connections to current Task Forces.

The FAIR-IMPACT High Level Advisory Committee and the EOSC FAIR Champions are critical and extremely important for the project's strategic goal implementation, connection to international, European, national and institutional initiatives, and the promotion of the project's outputs and achievements.

Through its Interoperability work, FAIR-IMPACT collaborates with the EU Data Spaces towards FAIR implementation.

[30] https://eosc.eu/eosc-macro-roadmap/

D. EOSC challenges and lessons learnt of a policy nature.

FAIR-IMPACT has developed several coordination, support and synchronisation mechanisms in order to address challenges with regards to FAIR implementation within EOSC. One of the main challenges faced by the project, which encompasses technical, engagement, communication and sustainability aspects, is the ever-changing nature of the EOSC and FAIR ecosystems, with the constant addition of new projects and initiatives.

The project carefully and responsively navigates this complicated environment by deploying these mechanisms to the benefit of the community and its stakeholders, as described in the previous section.

Most importantly, FAIR-IMPACT contributes to the EOSC HE coordination, engagement and communication, and impact groups, in order to address challenges with regards to the uptake, impact and long-term sustainability of the project's results.

E. Link to other EU policy priorities (beyond EOSC).

FAIR-IMPACT collaborates with the EU Data Spaces in promoting FAIR for interoperability, and participates as an invited EOSC project in the Data Spaces Support Centre's Thematic groups (Business, Governance, Technology).

The project also contributes to the UNESCO recommendations on Open Science by supporting their uptake and use in Open Science infrastructures and services, developing and enabling policy environments for Open Science and promoting international cooperation on Open Science.

In the realm of Sustainable Development Goals, FAIR-IMPACT contributes to SDG8 Decent Work and Economic Growth, SDG9 Industry, Innovation and Infrastructure, SDG5 Gender equality, SDG10 Reduced inequalities and SDG17 International cooperation. It moderately contributes to SDG2 Zero hunger, SDG13 Climate action and SDG15 Life on land to some extent through the thematic scientific partners involved (e.g., INRAE, CNRS/DataTerra, etc.).