

Riding the Next Wave of Research Data

DECLARATION

Prepared in the context of the Workshop '*Riding the Next Wave of Research Data: Leveraging the COVID-19 response towards advancing data interoperability*', held in Lisbon on 7th June 2021, co-organised by the Portuguese Presidency of the European Union Council and the European Commission.

The coronavirus crisis has put tremendous pressure not only on governments, societies and citizens, but also on the research community to speed up scientific discovery, develop vaccines and therapies, monitor the myriad effects of the pandemic, and inform public health policy.

Since the outbreak, the research community has engaged in an unprecedented level of global collaboration, increasingly practicing early and open sharing of knowledge, data and tools. The record development of effective vaccines based on rapid generation of knowledge about the virus is unprecedented. We must learn from this, use the momentum and ensure that we evolve our collective capability to respond to the next crisis.

Open science, open collaborative work and sharing of research outputs, has been instrumental in improving the quality, efficiency, and impact of the research.

However, many hurdles still exist, including being able to quickly find and integrate different data types, such as virus and host genomics, clinical, epidemiological and social science data, originating from laboratory, hospital or industrial settings across countries, organisations and communities.

Global challenges require global solutions that transcend traditional disciplines and sectors: Speeding up scientific discovery and enhancing research impact require successfully riding the next wave of data that is now rising, namely an increasing volume of FAIR (Findable, Accessible, Interoperable, Re-usable) and open data.

We, the attendees of the event on "Riding the Next Wave of Research Data" co-organised by the Portuguese Presidency of the European Union Council and the European Commission:

- **Recognise that early and open sharing of viral data has been vital in our fight against the coronavirus; unnecessarily restricting access to such data severely limits scientific discovery, research efficiency and effectiveness;**
 - Commend the launch of the European COVID-19 Data Platform to facilitate seamless access to and sharing of research data and results;

- Stress that research and healthcare data need to be accessible and interoperable across silos, in line with the FAIR principles¹ and the GDPR, and where possible, in open and interconnected federated environments, to prepare our healthcare systems for future pandemics;
- Commit to work together to strengthen the interoperability of health and research data;

- **Reaffirm that FAIR-based data sharing and management, reciprocal openness, and better use of digital methods and services are required for higher quality, more efficient and impactful research;**
 - Recall the high yearly cost of not having FAIR research data, estimated at €10.2bn/year for the EU alone;
 - Recall that implementation of the FAIR principles must be pragmatic and inclusive allowing different communities to progress towards increased FAIRness;
 - Emphasise the need for community-endorsed, minimal and rigorous standards and for the convergence of semantic artefacts such as vocabularies, taxonomies, ontologies, and metadata schemata to enhance data interoperability within and then across disciplines;
 - Recognise that efforts to apply the FAIR principles must extend beyond research data to research outputs including software, algorithms, workflows, protocols, and services;
 - Commit to promote research data management and stewardship following the FAIR principles, including open access as the default setting for publicly funded research in Europe, allowing for exceptions only in duly justified cases, in line with the principle “as open as possible as closed as necessary”;
 - Commit to systematically mainstream efforts to eliminate biases in the data, which could later lead to discrimination;
 - Commit to explore ways to reward researchers who make research outputs, including data, open and FAIR and/or reuse and reproduce outputs, both in their career assessment and in the evaluation of publicly-funded projects;

- **Recognise the implementation of the European Open Science Cloud, EOSC, as a major contribution to realise a “web of FAIR data and services”, and as a federation of research infrastructures enabling access to and reuse of research results and data in the European Research Area;**
 - Highlight the need for continued national and international investments in research data infrastructures, and for a strong and inclusive community

¹ <https://www.nature.com/articles/sdata201618>

involvement to ensure technical, organisational, semantic, and legal interoperability across infrastructures and communities;

- **Reaffirm that European science must be grounded in a culture of data stewardship, where the stakeholders of the research ecosystem receive adequate training in data skills, ensuring that data and other research outputs are FAIR, appropriately managed and curated, and preserved in the long-term where appropriate;**
 - Underline that the necessary training and upskilling in research data management, stewardship and analysis, should be provided throughout the European Union as part of higher education, as well as lifelong training in academia and industry;
 - Invite all public research funders in Europe to require Data Management Plans to mainstream a culture of responsible data management;
 - Recall that the TRUST Principles² provide high-level guidance for data repository stakeholders to develop and maintain the infrastructure to foster continuing stewardship of FAIR data and enable future use of their data holdings.

- **Call for a wide mobilisation across the European Union towards developing – in the context of the European Open Science Cloud - coherent interoperability frameworks that build on research community practices to enable interdisciplinary research and innovation.**

Lisbon, 7 June 2021

² <https://www.rd-alliance.org/trust-principles-rda-community-effort>
<https://www.nature.com/articles/s41597-020-0486-7>