OpenAIRE can form the basis for a truly public European Open Access Platform

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In a previous Impact Blog post, Benedikt Fecher and colleagues envisioned a European Open Access Platform, an innovative public information infrastructure that would integrate publishing and dissemination into the research lifecycle, rather than having it outsourced. **Tony Ross-Hellauer** *describes how OpenAIRE is working to make this vision a reality, and how it can contribute further to create a participatory, federated open access platform.*

In April, Benedikt Fecher and colleagues made the case for a European Open Access Platform. The call for such a platform is timely. The authors note that funders are increasingly recognising that publishing is a fundamental part of the research process, and so are supportive of initiatives to move towards new open infrastructures. The Wellcome Trust and Gates Foundation have recently announced their own "open research" platforms, built upon F1000's open science publishing platform that enables immediate publication and transparent peer review. In a potentially major development, the European Commission has recently revealed its aspiration to institute its own open access publishing platform, although details of what this will eventually look like remain scarce.

Using private-sector infrastructure to support such platforms brings with it an all-too-familiar concern, however: how to avoid vendor lock-in? And what happens if, for example, F1000 is sold to one of the major publishers (as has been speculated)? Such concerns are particularly pressing in light of the fact that Wellcome's Robert Kiley seems to foresee an ultimate merger of such funder platforms: "the expectation is that this, and other similar funder platforms that are expected to emerge, will ultimately combine into one central platform". Were such a centralised funder publishing platform to emerge based on proprietary technologies, such a monopoly would make the current scholarly publishing oligopoly seem quaintly democratic in comparison.

Such a high-level platform is also timely given the current moves to implement the European Open Science Cloud (EOSC), the new flagship European Commission initiative to build a unified research environment with trusted access to services, systems and the reuse of shared scientific data across disciplinary, social and geographical borders. An open publishing platform would fit naturally within the EOSC vision. (See here for more on OpenAIRE's place within EOSC). Seen in this light, the call for a European Open Access Platform is not only timely, but essential.

OpenAIRE as the basis for a truly public European Open Access Platform

The high-level idea of a public European Open Access Platform is very much in line with the vision of OpenAIRE. OpenAIRE exists to create the social and technical links to enable open science in Europe. It is now reaching maturity and will shortly establish itself as a sustainable legal entity. Since 2010, we have been building a human and technical infrastructure for open access and open science which would naturally support such a federated system of repositories and community-governed overlay journals.

OpenAIRE has built a robust infrastructure to support the interoperability of repositories, publishers, research information systems, funder information and more. Its technical infrastructure enables:

- **Aggregation** – the aggregation of diverse data sources will form the base of such a platform. Our infrastructure, operating 24/7 since 2010, currently harvests from 579 repositories, 30 repository aggregators, and 167 open access journals/publishers to produce a sophisticated information graph of the open access output of Europe: currently more than 19 million records.

- **A participatory system** – data providers are supported by OpenAIRE guidelines on how to interpret and expose metadata and how to get metadata validated and aggregated into the OpenAIRE infrastructure.

- **Interlinking** – once we have aggregated the information, it is then deduplicated, cleaned, text-mined and interlinked via our powerful algorithms to join up publications to data, people, institutions, projects, and more. Users themselves can then enrich these links (login needed).

- **Monitoring** – to date, we have so far linked 217,000 publications to EC funding information, and continue to extend our services to other major funders. We are currently implementing a range of dashboards for data providers, funders, and researchers to enable them to manage their data, link research outputs, and gain easy overviews of research impact and use.

- **Innovation** – in the near future, we will begin implementing some of the blue-sky advances proposed by the COAR Next Generation Repositories Working Group to improve discovery and content transfer in repositories and build services for open metrics and open peer review.

- **Global interoperability** – we will also continue our efforts, in conjunction with COAR, to foster international interoperability and technology transfer amongst regional repository networks, enriching the European research environment whilst simultaneously helping other world regions to adopt common open standards.
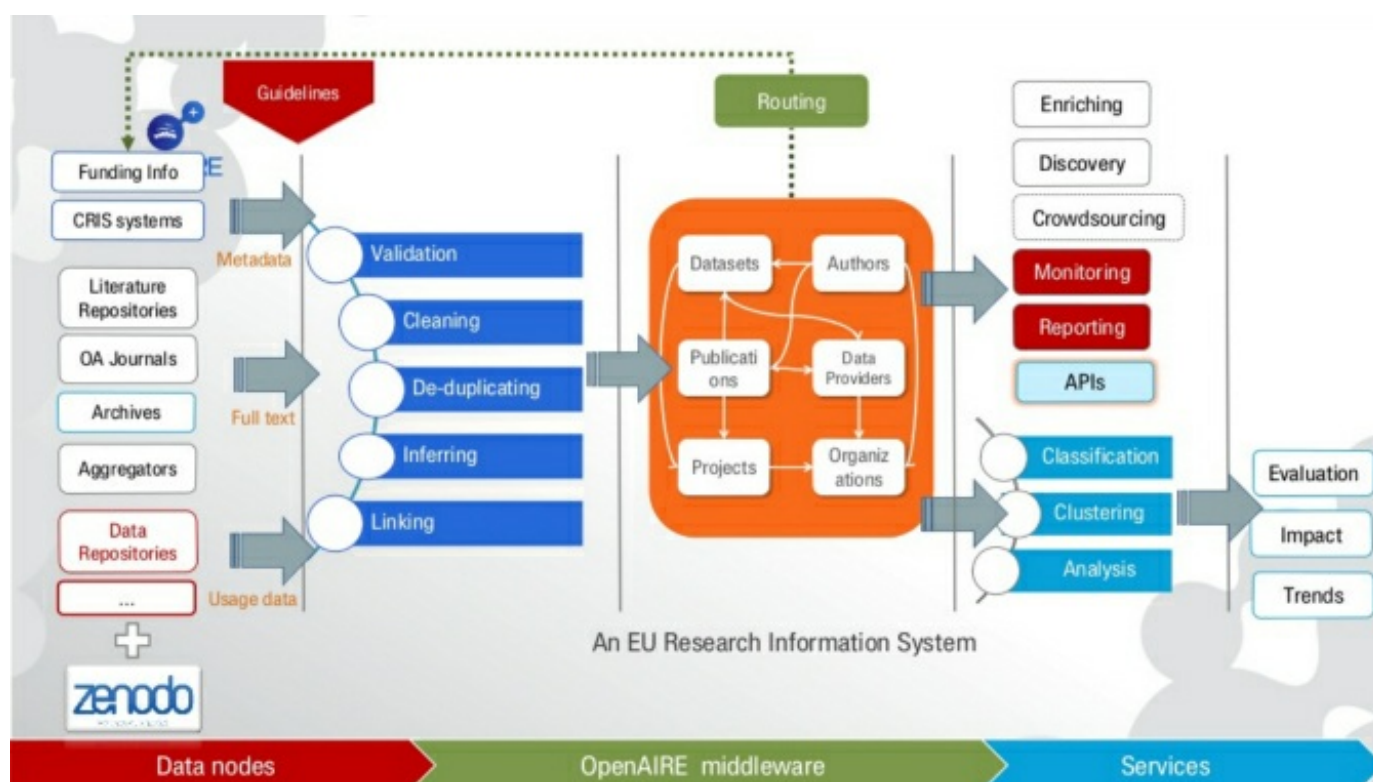
OpenAIRE's technical infrastructure

A truly pan-European open access platform will require not only the technological infrastructure, however, but also the political alignment of many actors. As a sociotechnical network, OpenAIRE has always recognised the need for policy implementation to bring technical solutions hand-in-hand with the human infrastructure needed to win hearts and minds. It is people who make the difference, and cultural change on the scale necessary to bring about a truly open system of scholarly communication needs effective advocacy and outreach, and on a large scale.

OpenAIRE is a partnership of (currently) more than 50 institutions, all working to shape and implement effective open access and open science policies, in particular by aligning them to those of the EC. Our network of 33 National Open Access Desks (NOADs), present in every EU country and beyond, exists to reach out to researchers,

research coordinators, and policymakers at the local level. Increased awareness at the national level is assured through a range of training and support activities, such as workshops and webinars, dissemination of training materials, and reaching out directly to researchers. As a result, all countries across Europe have made concrete advancements, ranging from implementing open access policies to placing open access/open science issues on national agendas. The diverse range of expertise within the OpenAIRE consortium means that the OpenAIRE helpdesk is a 24/7 resource for all stakeholders to gain answers to questions on any area of open access and open science. This human infrastructure would be invaluable in organising and educating the people needed to make a European Open Access Platform work.

OpenAIRE's human infrastructure

Governance

In short, OpenAIRE is excellently placed to form the basis for a European Open Access Platform. There will, of course, be many stumbling blocks on the way to realising such a bold vision. But one concern seems to supersede all others: governance. Who would oversee such a system to avoid two major potential problems: (1) the potential for the effective monopoly constituted by such a centralised platform to subvert the aims of open science; and (2) the inherent conflict of interest that exists where funders directly finance a platform for the dissemination of their own research?

It seems to us that the only way to address such concerns in an "open" way would be for such a "platform" to follow the participatory approach of OpenAIRE. Funders could: (1) publish a vision in line with the authors' approach, but which envisages a distributed network of resources; (2) produce standards (licensing, access, search, preservation, uptime, etc.) for open services including repositories, overlay journals and associated services (e.g. review, social networking); and (3) fund organisations, via open tenders, which are willing to operate services according to those standards. Through the promotion and adoption of common standards and protocols, such a distributed system would ensure the avoidance of "lock-in" or any single points of failure, since open standards would ensure that any node in the network is, in principle, replaceable. OpenAIRE's interoperability mechanisms could ensure the effective brokerage of content between repositories and the overlaid journal (hosting/reviewing/networking) layer.

The governance mechanisms for such a system could build naturally upon and integrate with the governance framework currently being developed by the EOSCpilot project. As the EOSCpilot Governance Development Forum charter says:

> *"The main governance challenge of establishing the EOSC is how to construct a framework allowing strong and disparate stakeholders to work together. This framework also needs to address cultural challenges, encouraging the adoption of new ways of working and scientific practices. EOSC pilot will design and trial a stakeholder-driven governance framework with the involvement of all stakeholders including: research communities, research institutions, research infrastructures including e-infrastructures, commercial and non-commercial service providers, and research funding bodies. This will then shape and oversee future development of the European Open Science Cloud."*

Such a stakeholder-driven governance structure would ensure the avoidance of potential conflicts of interest and guarantee that outcomes are ultimately driven by scientific excellence and societal needs rather than, for example, the profit motives of commercial publishers. It could set the "terms of engagement", including for the formation of editorial boards, rules of review and federation of content. This "commons" approach could welcome partnership with private-sector actors while remaining faithful to the public good, encouraging the development of innovative services that ensure that the future of open science is not to become once again "locked in" to reliance on commercial interests whose profit motive often creates an inherent conflict with the goal of open knowledge.

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