

Shared Open Source Infrastructure in Workflow

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This expert panel was opened by Heather Staines, Head of Partnerships for MIT's Knowledge Futures Group, who points to commercial and resource consolidation trends in the publishing industry as one driver toward adopting open source (OS) technologies. In particular, university and nonprofit initiatives are on the rise to increase flexibility and avoid proprietary lock-in, in support of research sustainability, reproducibility, transparency, data reuse and portability, as well as end-user control and privacy. The 2.5% Project is a Mellon-funded initiative that encourages university libraries to defer 2.5% of their acquisitions budgets to support OS infrastructure on their campuses. The Global Sustainability Coalition for Open Science Services (SCOSS) is a global network of associations committed to an open future for research, supporting initiatives like the 2.5% Project, as well as investing in SherpaRomeo and Directory of Open Access Journals (DOAJ).

Maël Plaine, Product Manager of eLife, an STM journals publisher backed by various research funders, further addressed their motivations for building an OS infrastructure in publishing. Their mission is to leverage the power of web technologies to accelerate research and discovery across various disciplines. Proprietary infrastructure solutions risk dependence on a single provider, where maintenance and standards compliance can be difficult, demanding a need to keep up with fast moving technological development. In contrast, eLife has established a shared OS infrastructure in collaboration with several organizations, such as the Collaborative Knowledge (Coko) Foundation.

Libero (<https://libero.pub>) is the open-source publishing and service platform built by eLife. In addition to their

own publishing program, eLife has the goal of building an end-to-end OS journal publishing solution, addressing all publisher, producer, and reviewer functions. They draw their development priorities from workshops with researchers, content providers, and other stakeholders, powered by a community of developers and service providers. Anyone is welcome to join the community via their Slack account, email newsletter, Trello roadmap, various events, and activity on social media.

Working in concert with eLife and other publishers, Hindawi is a gold open access (OA) publisher of nearly 230 journals and a service provider to societies and publishers, both open and traditional. Chief Digital Officer, Andrew Smeall, explained that Hindawi also aims to offer an end-to-end OS system, where Coko powers submission and peer review systems, and Libero powers all post-acceptance functions. The benefits of this OS approach are freedom to customize; and, while it went unmentioned, benefits also include a publishing platform solution free from the sorts of companies involved in the consolidation referenced at the start of this panel (such as Elsevier, Wiley, etc.).

Hindawi rebuilt their platform in 2017, after analyzing options for building or buying workflow software. They generally found these OS solutions to have low barriers to entry and many easily available tools at much lower costs to publishers. Now live, they plan to continue to "code in the open" as they maintain and develop the platform, sharing their roadmap widely and making base code available on Github for others to leverage.

Demonstrating a feature-level example of OS publishing development, Managing Editor Jennifer Regala of the American Society of Plant Biologists shared her experience of adding web annotation to The Plant Cell journal using Hypothesis. Regala evaluated the resources and costs required to meet the online annotation needs of readers and editorial boards, and she found that Hypothesis offered a solution for promoting their open peer-review summaries. These peer-review summaries are published as supplementary data to the journal's site on the HighWire platform, but lacked visibility. Creating an annotation with links to the summaries will hopefully drive more traffic to them. Regala reflected that it can be challenging to add new tools to an already busy pipeline of papers for the small, stretched staff at the society and editorial team. However, they found success with the Hypothesis feature and are considering how best to extend it to other journals in the future.

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A lively discussion with the audience followed these presentations. One attendee asked for clarification regarding if or how an underlying database, metadata extraction, or reporting are handled on OS platforms. Smeall mentioned that using JATS4R compliance is key and that standards like ORCID and other identifiers will be coming soon to their platform to account for these issues. Plaine also noted eLife has a new database product coming soon, Libero for Data, which will be compatible with third party providers. Smeall encouraged publishers to get involved and build the integrations and solutions they need.

Another attendee asked how authors should be involved or if they engage in OS platform development. Smeall mentioned that 10% of article submissions come in PDF format, which is very difficult to convert to XML, so they are looking at an improved HTML-based authoring system. Plaine suggested that author tools should have XML on the back end, regardless of how the interface is

designed. This way, documents are more interoperable and transparent.

The moderator asked panelists to reflect on OS factors in technology decision making. Regala mentioned that it was key in their decision to integrate with Hypothesis, especially the assurance that they owned the annotations and could port them to other sites. Smeall noted that, whereas before they had more freedom to skip steps or add internal work-arounds, now Hindawi is more diligent and accountable in their development practices. The panelists noted securing buy-in for OS decisions sometimes requires a multi-prong strategy, both internally and externally, in community building. Smeall suggests that publishers be honest and realistic about OS investments, being wary not to oversell or rush into meeting all needs from day one. Plaine suggests we might first focus on cost and the potential risk of alternatives. The panelists welcome everyone to participate and engage in building OS industry standards.

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