

Open infrastructure for research integrity: leveraging scholarly metadata as trust signals

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Crossref

ABSTRACT

Journal articles and books are generally considered the traditional published outputs that result at the end of the scholarly process and constitute the scholarly record. With rapid advancements in scholarly communication, the type and complexity of published outputs have increased significantly in recent times to include works such as datasets, software, conference presentations, as well as the elements that go into the creation of these outputs (e.g., peer reviews and preprints) (Lavoie et al, 2014). As such, the definition of the scholarly record has expanded to include published outputs, the inputs, the relationships between them, as well as the context around each output that can be inferred from the associated metadata. Preserving the integrity of such a comprehensive and constantly evolving scholarly record is a key component of the overall efforts to preserve research integrity. Open scholarly infrastructure plays an important role in this undertaking by providing trust signals that enable the assessment of the trustworthiness of published outputs. Crossref is a not-for-profit membership organisation that provides open scholarly infrastructure to enable the scholarly community to provide and deposit metadata about the content that they produce. This open and rich metadata provides a framework for detecting trustworthiness, thereby helping to preserve the integrity of the scholarly record.

In this presentation, we will provide an overview of Crossref's Research Nexus vision, which is a "rich and reusable open network of relationships connecting research organisations, people, things, and actions; a scholarly record that the global community can build on forever, for the benefit of society" and is tied to the concept of the scholarly record (Hendricks, 2021). We will also expand upon how metadata elements and the relationships between them provide important context about the work produced by the scholarly community. Metadata tells us about who authored a work, who funded it, whether it was updated after publication, what the relationship is between a work A and a dataset B, and more. Crossref provides infrastructure so members of the scholarly community can provide metadata about the content produced by them. By making this metadata available openly, Crossref enables members to communicate the trustworthiness and context of their content. Given that the scale and impact of research integrity issues have increased considerably in recent years, the scholarly community needs solutions at scale for these issues now more than ever. We highlight that open and

machine-readable datasets of metadata can play a crucial role in supporting the development of such solutions.

To inform our efforts in this direction, we have been engaging with our community to understand which metadata elements are perceived as key for communicating trust. We find that information on retractions, abstracts, references, and affiliations is important to our community members for signalling trust. In light of recent developments in the area of research integrity, information on peer review, special issues, ethics approvals, conflicts of interest, and clinical trials is being recognised as information that would be “nice to have” in the scholarly record. We will elaborate on the value of each of these elements in supporting trustworthiness.

Preserving the integrity of the scholarly record is a collaborative endeavour that requires participation from the entire community. We will outline some ways in which every stakeholder can contribute to enriching the Research Nexus. We hope that this information will help the community to recognise the value of metadata in supporting research integrity, encourage them to contribute and use rich metadata in their work.

KEYWORDS

Crossref; metadata; research integrity; Research Nexus; scholarly record; trustworthiness

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