Bridging data gaps in a Research Information Management System with OpenAlex

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OpenAlex

How can you discern the absence of something when you lack a comprehensive source of all necessary information?

Identifying data gaps within a research information management system presents a considerable challenge. It hinges on the available resources, licenses, and organizational procedures, not to forget the ever-precious commodity of time—a resource universally coveted for its scarcity. Promising endeavors such as OpenAlex could offer us significant assistance.

Consequently, we have begun experimenting with new tools that could aid us in both detecting and bridging these gaps eventually. CRISearch and OpenAlex2RIS are experimental tools that can help you identify and close the data gap in your Current Research Information System (CRIS)

1 Introduction

Data within a CRIS must be as complete as possible to provide a solid base for distributing, showcasing and evaluating an institution's research contributions. Despite solid institutional processes and access to multiple systems to help us out, some records inevitably slip through the cracks each year. Thankfully, initiatives like OpenAlex are making significant progress in this domain. By utilizing persistent identifiers such as ROR, ORCID, and DOIs, OpenAlex provides a valuable resource with well-structured data on open research infrastructure platforms. This aids us in identifying missing records and potentially enhancing our local metadata quality in our CRIS.

2 Objective

To initiate the creation of an easy-to-use tool that facilitates the identification and closure of data gaps within our CRIS system,

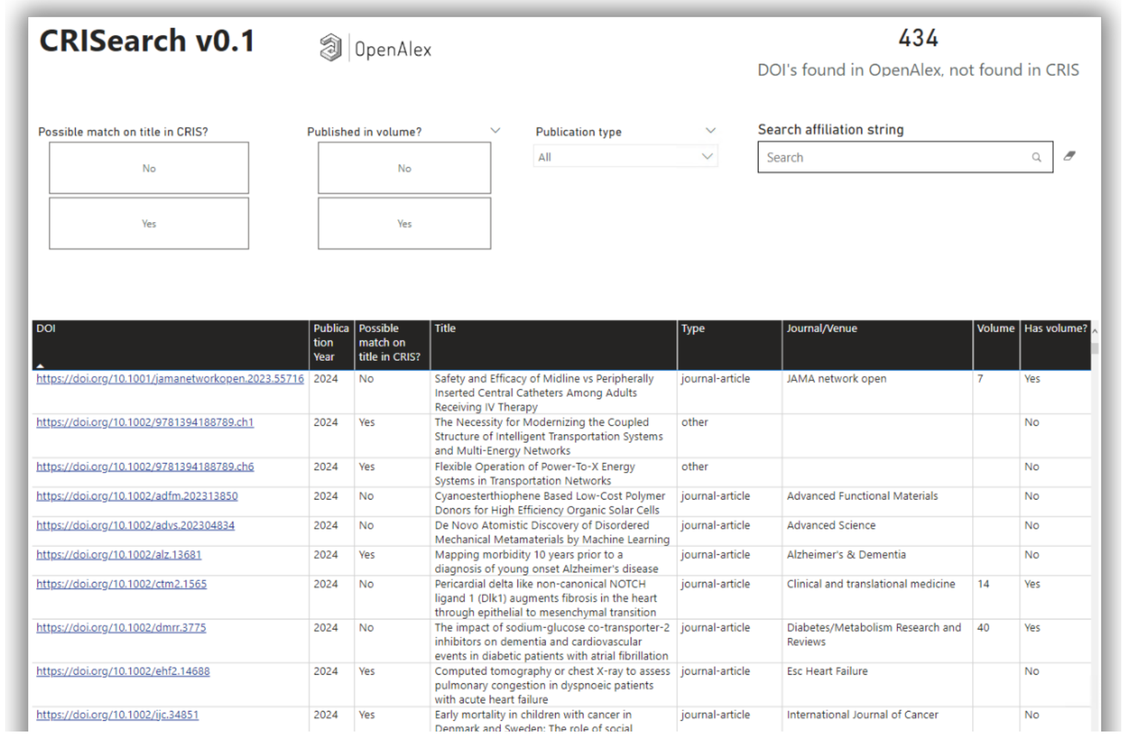
3 Identifying missing content with CRISearch - A PowerBI tool for the OpenAlex API

First step in closing the gap is identifying the publications missing in the CRIS.

The primary function of CRISearch is to compare the publications from our institution in OpenAlex against those in our CRIS, providing us with a comprehensive overview of any research outputs our institution may be lacking. Its design requires further refinement, and while it initially was built within PowerBI for its ease of implementation, it should evolve to have a presence beyond PowerBI.

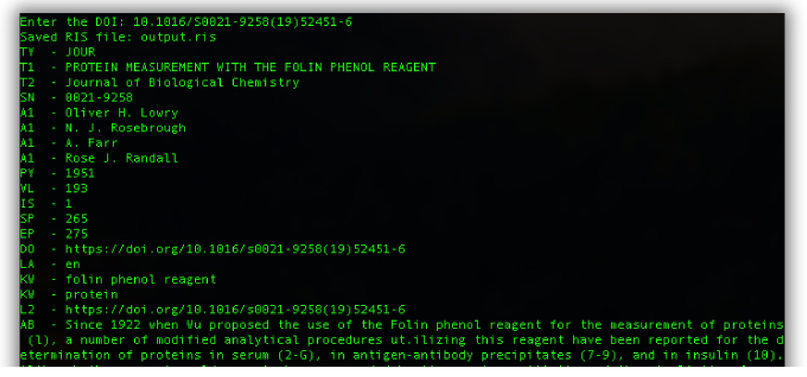
We use Elsevier's Pure as our CRIS, but the tool is system-agnostic as such, relying on DOI matching and a supplementary Lucene search for title matching to account for missing or faulty DOIs. By utilizing the APIs of OpenAlex and our CRIS, we can systematically identify gaps in our database, by narrowing down a list of publications which belong to our institution, but which we don't have in our CRIS.

Plus, it finds (legal!) Open Access versions of articles through Unpaywall, hinting at the potential for further automation in writing Unpaywall URLs directly to our CRIS



4 Filling the gap with Python - OpenAlex2RIS

So identifying what's missing is one thing - filling the gap is another. To facilitate the integration of missing records, I've created two Python scripts. These scripts are capable of submitting either an individual DOI or a collection of DOIs in a CSV file to the OpenAlex API, producing RIS files in response. These RIS files can then be imported into our CRIS system. Although a collection of RIS files may not be the perfect solution for a large gap, it's a step in the right direction and certainly better than nothing.

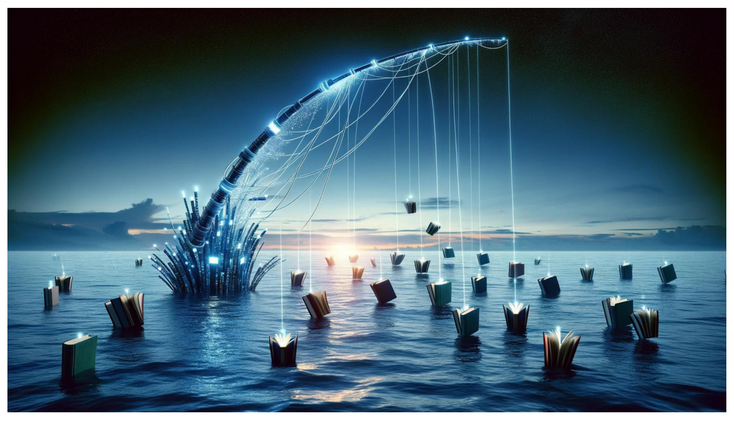


CSV

doi

5 Conclusion

Based on initial tests, it's advisable to approach publication import automation cautiously and ensure manual quality checks are in place – not all metadata are equal, and besides complete, we also want our data to be correct. No database can encompass all sources. While an open, comprehensive database by itself doesn't close the gap, it represents an important step in the right direction. Therefore, it's crucial that we explore OpenAlex more extensively in our daily work with information management. OpenAlex offers many opportunities we have yet to fully explore. Let's continue to delve into this resource and see what we can develop from it.



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