OPEN METADATA SOURCES

COMPARING MAG TO CROSSREF

DATE: 25 MARCH 2022

[PRELIMINARY VERSION]

Executive Summary

In January 2022, OpenAlex was launched as a source of open bibliographic metadata. Intended both as a replacement of and improvement on Microsoft Academic, it provides structured data on publications, authors, institutions and publication venues.

In this project, we assess and compare the value added by OpenAlex to Crossref metadata, both in coverage of publications and other research output (with and without DOIs) as well as in coverage of metadata (including identifiers) for authors, institutions, publication venues and disciplines.

The report currently contains all the graphs comparing metadata coverage of MAG compared to Crossref, and of DOIs vs non-DOIs in MAG, as well as some basic tables. More explanatory text and interpretation of findings will be added in a later version.

Complete data and code are available at:
https://github.com/Curtin-Open-Knowledge-Initiative/open-metadata-report
with all images and data belonging to this report located in /reports/run_20220325_2

Introduction and Background

In January 2022, OpenAlex was launched as a source of open bibliographic metadata. Intended both as a replacement of and improvement on Microsoft Academic, it provides structured data on publications, authors, institutions and publication venues.

Many tools, projects and services relied on Microsoft Academic as source of largely open metadata, and might consider switching to OpenAlex. More broadly, the launch of OpenAlex has increased interest in the potential of open metadata to enable discovery, linking and integration of data on research processes and outputs.

Unlike metadata from closed sources, open metadata can be combined and enriched to provide a rich open metadata landscape. Transparency and provenance allow identifying and addressing existing gaps and biases in coverage and quality.

In this project, we assess and compare the value added by OpenAlex to Crossref metadata, both in coverage of publications and other research output (with and without DOIs) as well as in coverage of metadata (including identifiers) for authors, institutions, publication venues and disciplines.

Data sources

This report was run using the following tables as source data:

- Crossref: academic-observatory.crossref.crossref_metadata20211107
- Crossref Member Data: utrecht-university.crossref.member_data with date 20220311
- MAG: {'Papers': 'academic-observatory.mag.Papers20211206', 'Affiliations': 'academic-observatory.mag.Affiliations20211206', 'Authors': 'academic-observatory.mag.Authors20211206', 'Journals': 'academic-observatory.mag.Journals20211206', 'ConferenceInstances': 'academic-observatory.mag.ConferenceInstances20211206', 'ConferenceSeries': 'academic-observatory.mag.ConferenceSeries20211206', 'PaperAuthorAffiliations': 'academic-observatory.mag.PaperAuthorAffiliations20211206', 'FieldsOfStudy': 'academic-observatory.mag.FieldsOfStudy20211206', 'FieldOfStudyExtendedAttributes': 'academic-observatory.mag.FieldOfStudyExtendedAttributes20211206', 'PaperAbstractsInvertedIndex': 'academic-observatory.mag.PaperAbstractsInvertedIndex20211206', 'PaperFieldsOfStudy': 'academic-observatory.mag.PaperFieldsOfStudy20211206', 'PaperExtendedAttributes': 'academic-observatory.mag.PaperExtendedAttributes20211206', 'PaperResources': 'academic-observatory.mag.PaperResources20211206', 'PaperUrls': 'academic-observatory.mag.PaperUrls20211206', 'PaperMeSH': 'academic-observatory.mag.PaperMeSH20211206', 'doi': 'academic-observatory.mag.doi20211206', 'Author': 'academic-observatory.mag.Author20211206', 'Concept': 'academic-observatory.mag.Concept20211206', 'Institution,Venue': 'academic-observatory.mag.Institution,Venue20211206', 'Work':

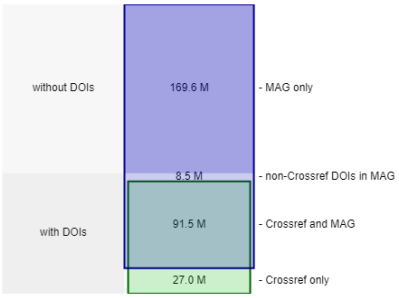
'academic-observatory.mag.Work20211206', 'additional_source_journal_fields': '', 'additional_source_org_fields': '', 'additional_truthtable_fields': '\n , CASE\n WHEN CHAR_LENGTH(journal.Issn) > 0\n THEN TRUE\n ELSE FALSE\n END\n as has_venue_issn,\n CASE\n WHEN CHAR_LENGTH(journal.Issn) > 0\n THEN 0\n ELSE 1\n END\n as count_venue_issn\n '}

Complete data and code are available at:
https://github.com/Curtin-Open-Knowledge-Initiative/open-metadata-report
with all images and data belonging to this report located in /reports/run_20220325_2

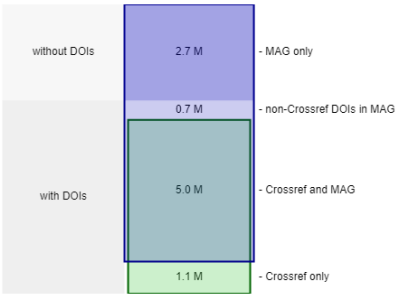
Coverage of MAG vs Crossref

Comparing coverage

Overview

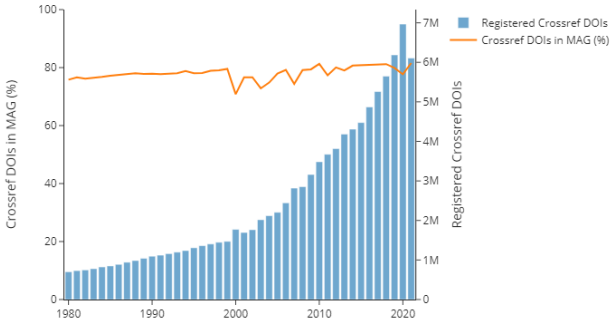


overall comparison - all time

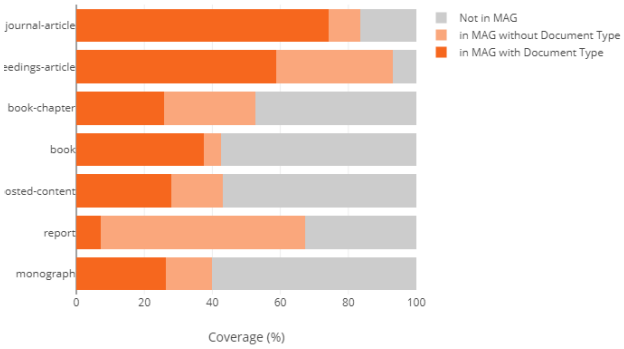


overall comparison - 2021

By year and publication type



coverage by publication date - all time

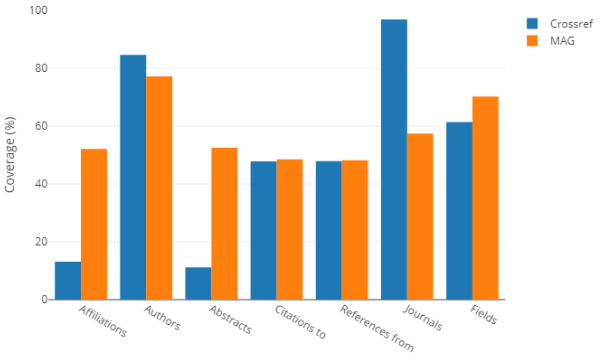


coverage by publication type - all time

Value Add of MAG to Crossref

Overview

Comparing coverage of metadata types in Crossref and MAG



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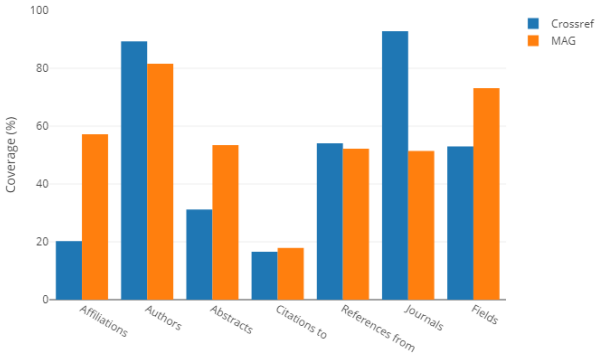

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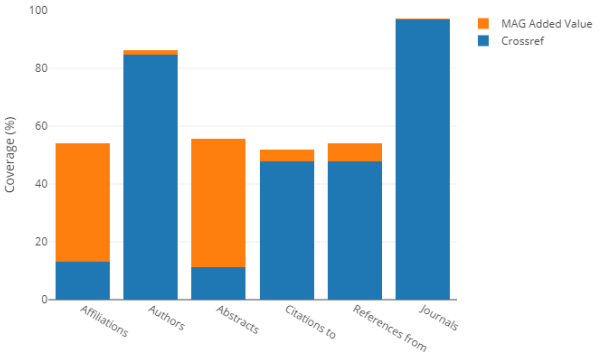

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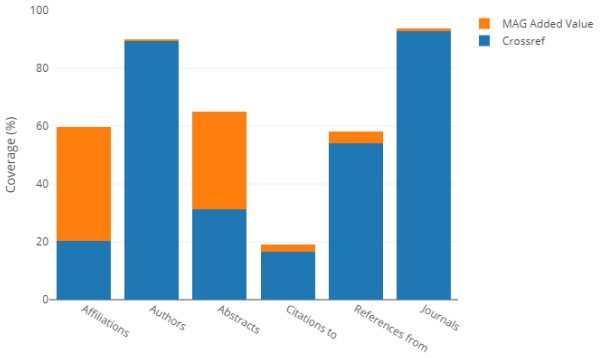
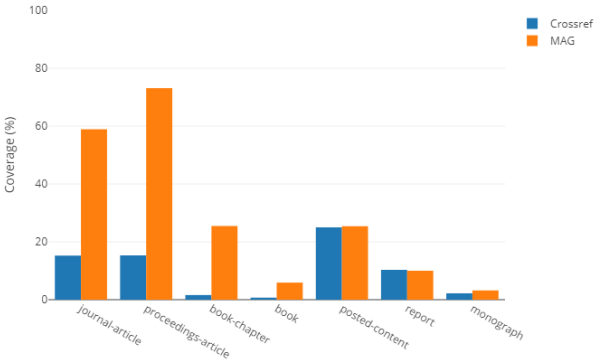


coverage added value - 2021

Details

Metadata coverage in MAG and Crossref by publication type

Affiliations



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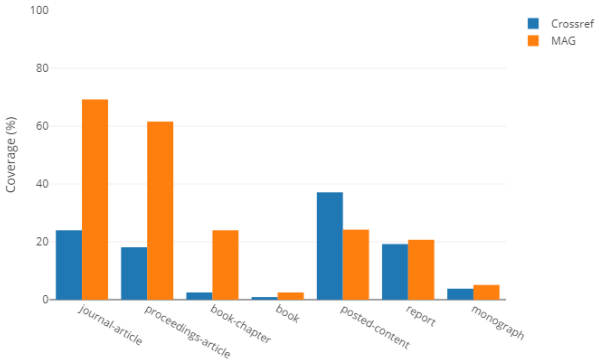

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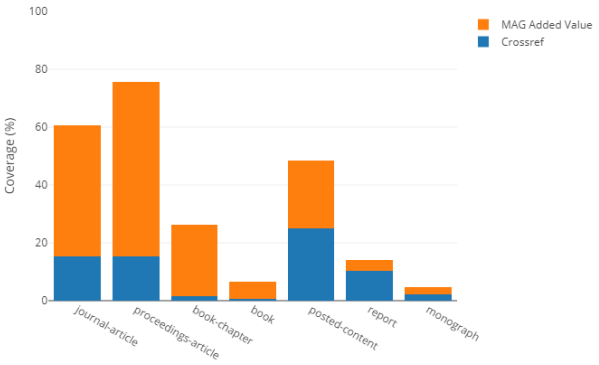

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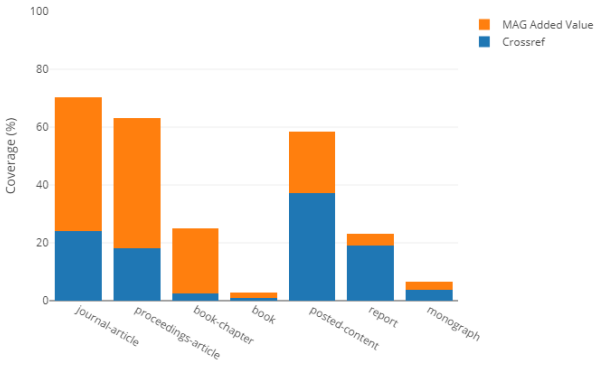

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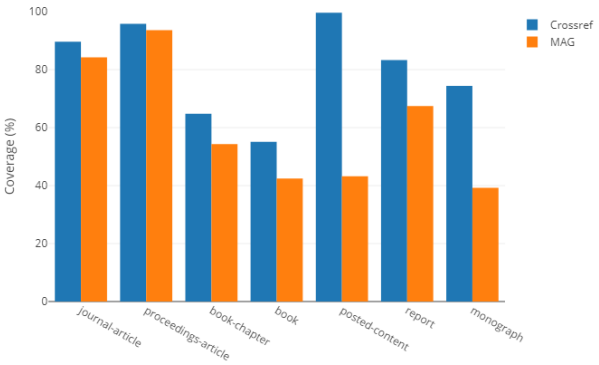
Authors



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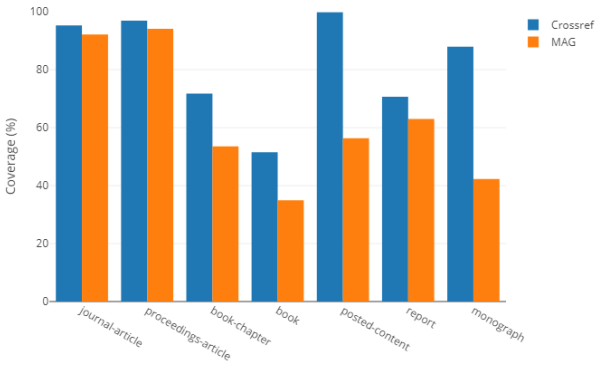

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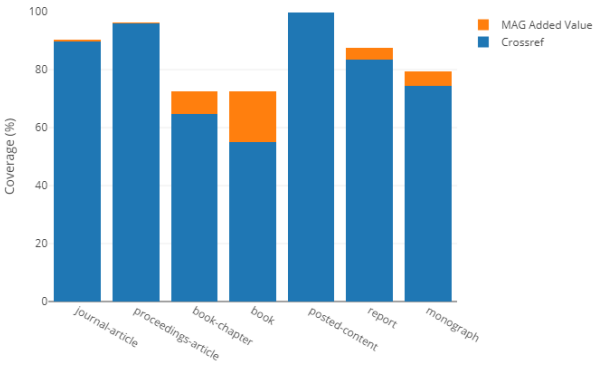

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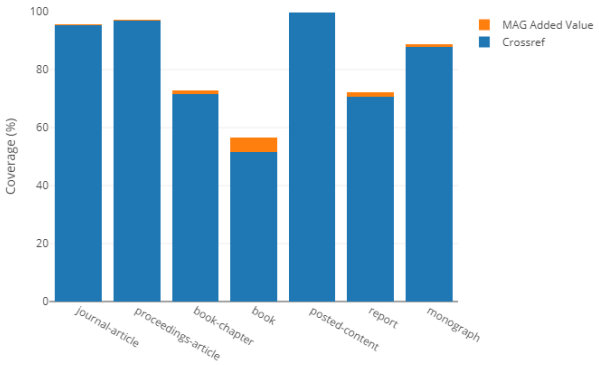

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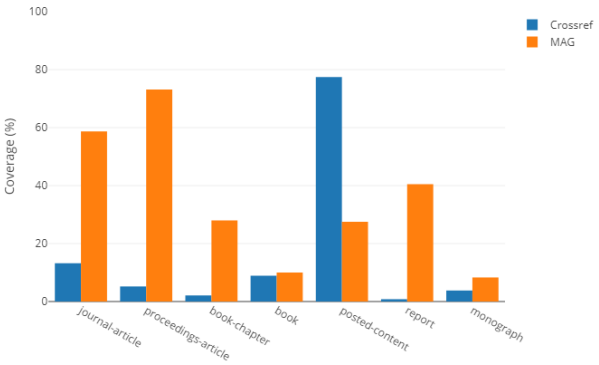
Abstracts



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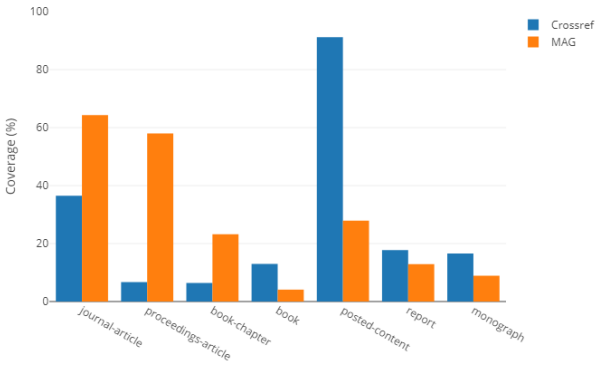

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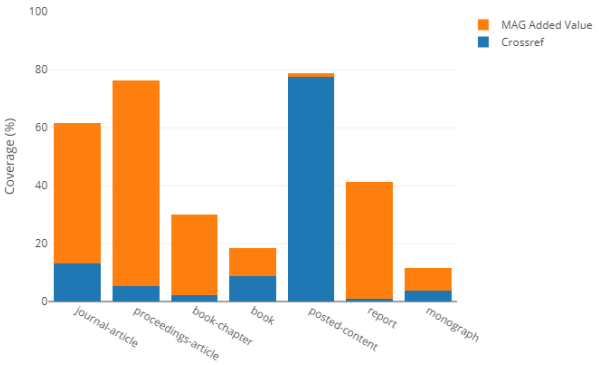

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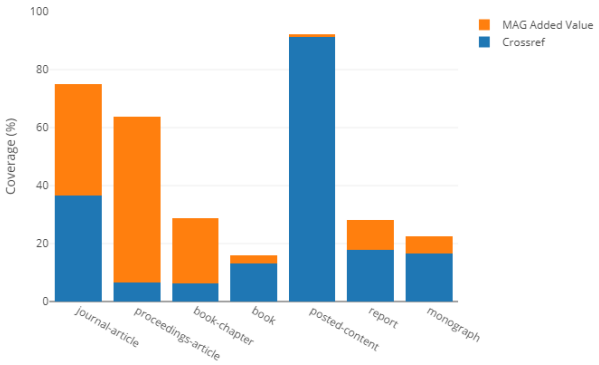

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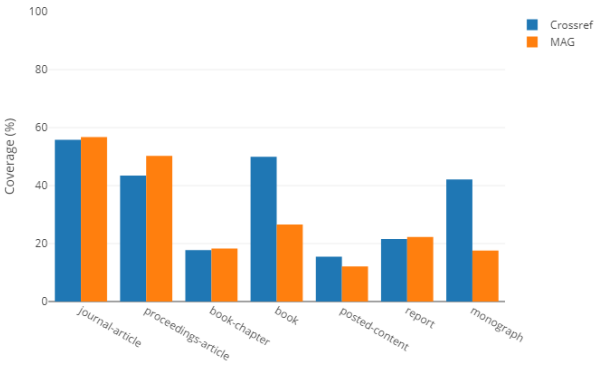

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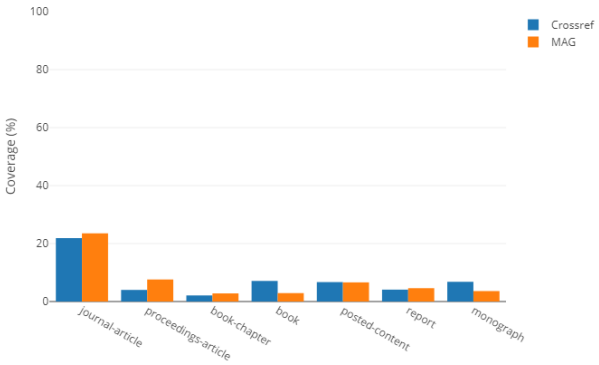

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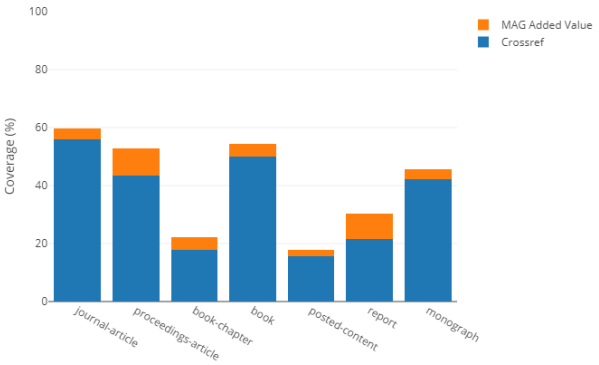

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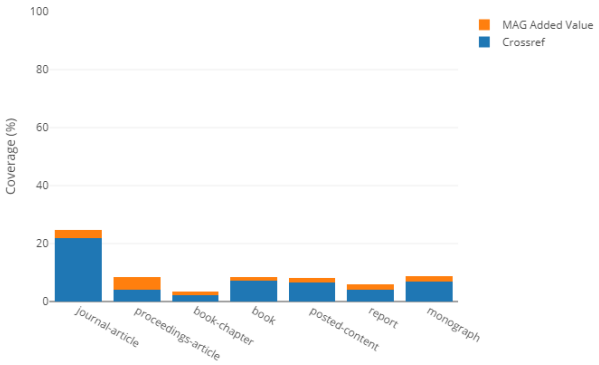

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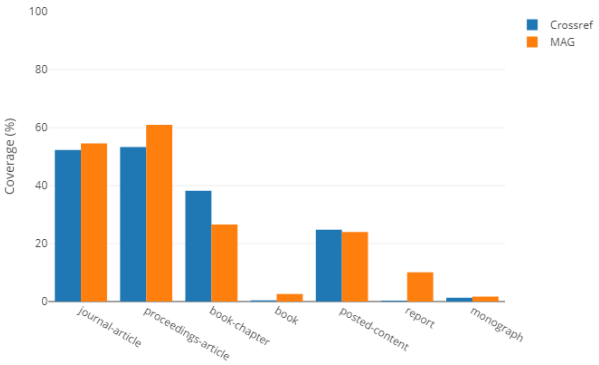

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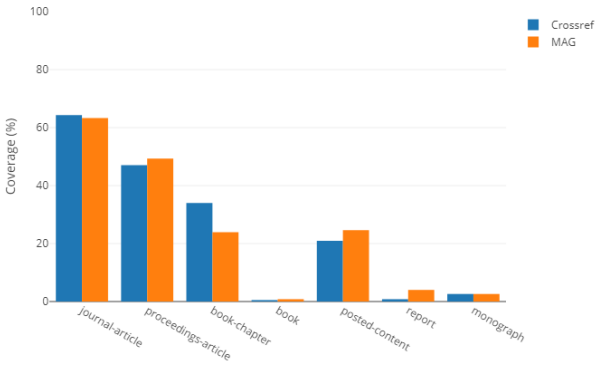

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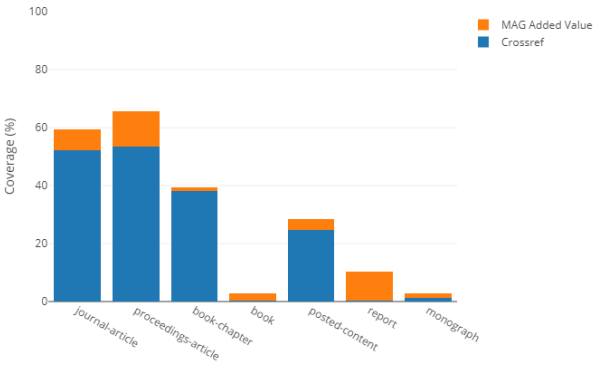

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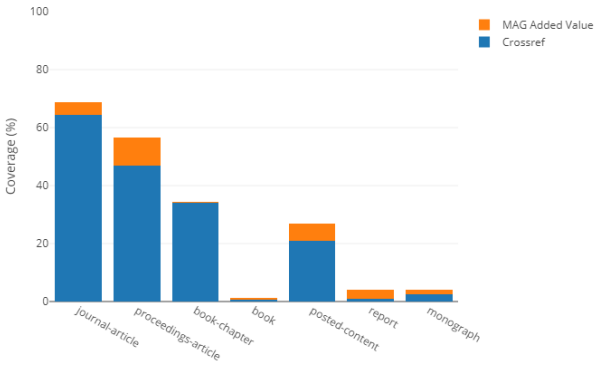

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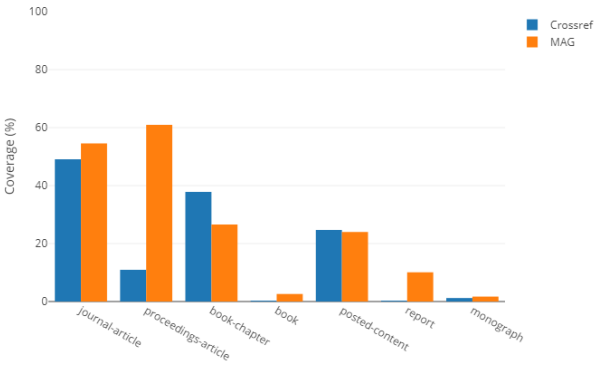

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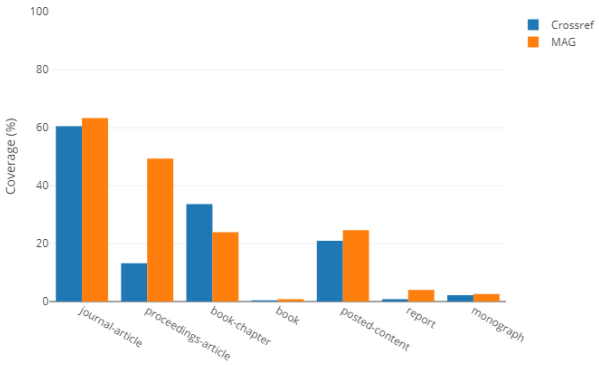

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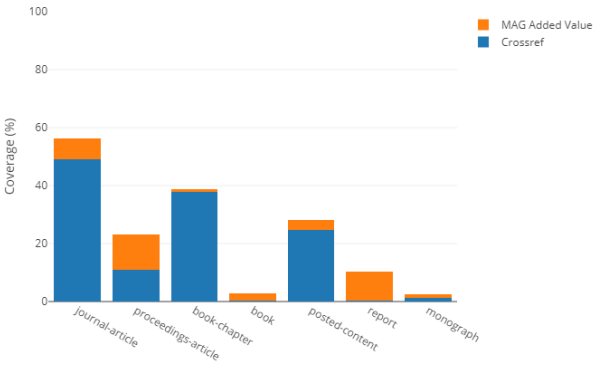

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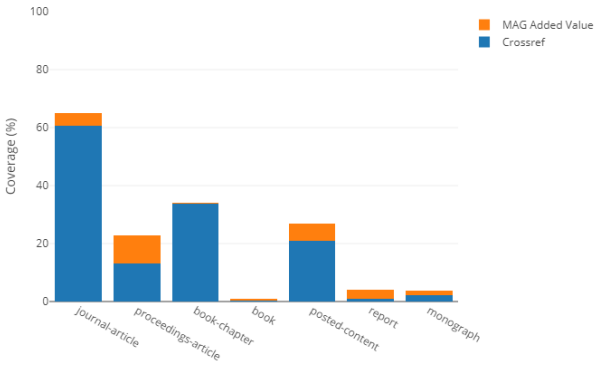

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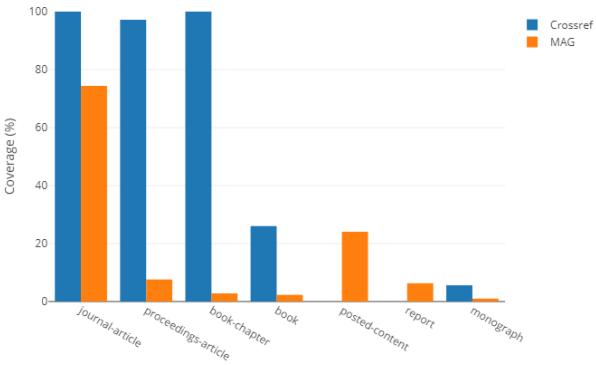
Journals



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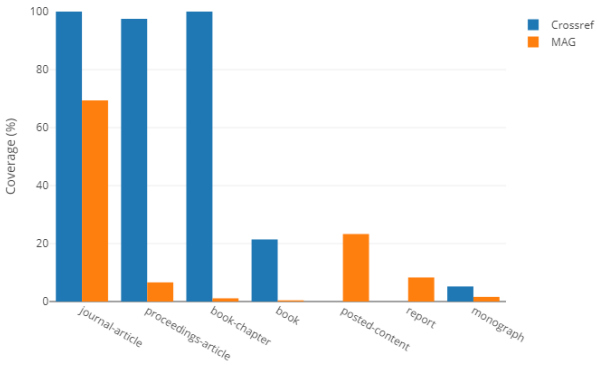

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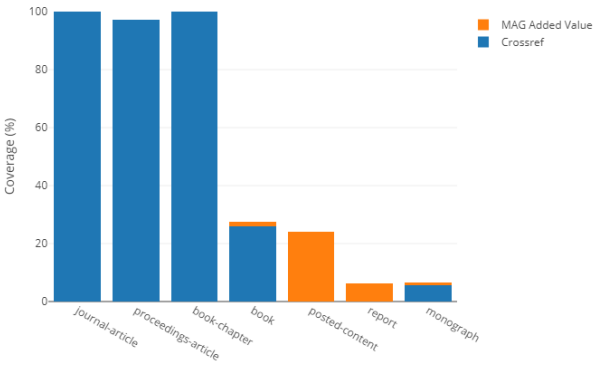

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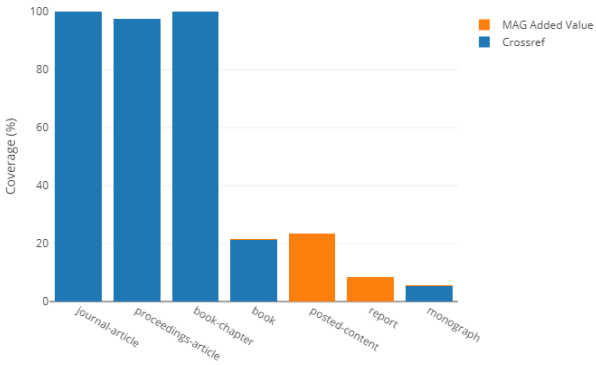

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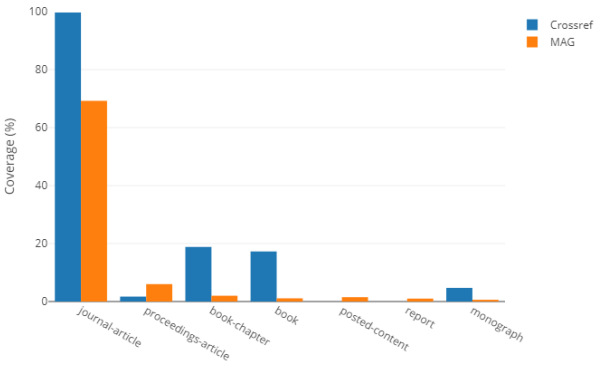

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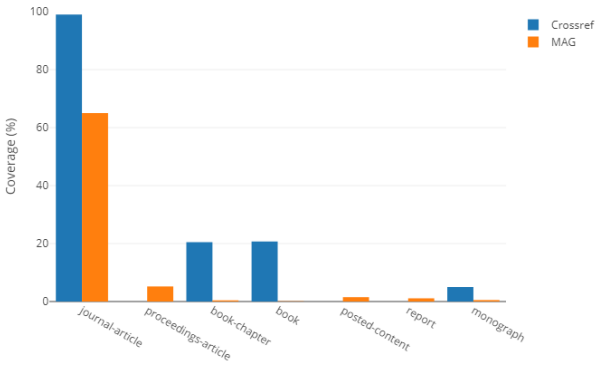

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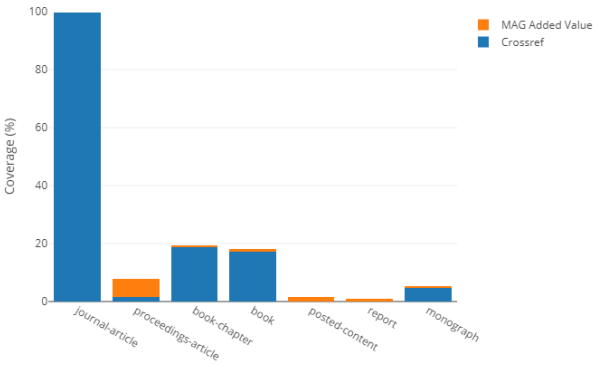

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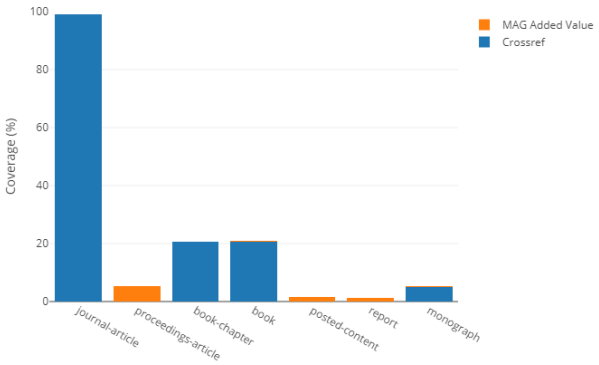

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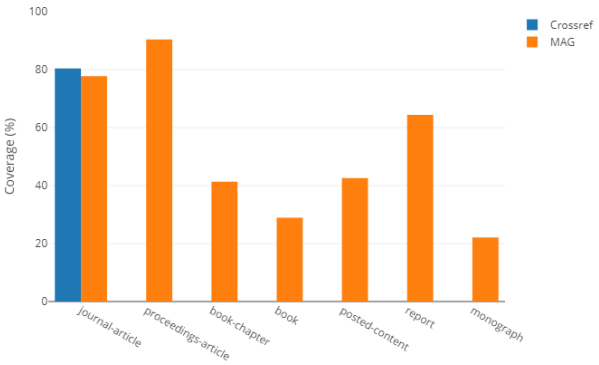

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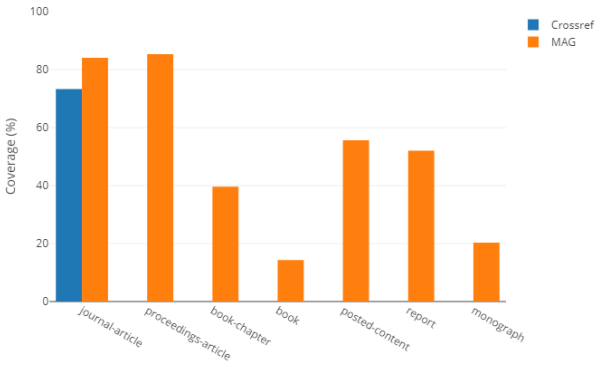

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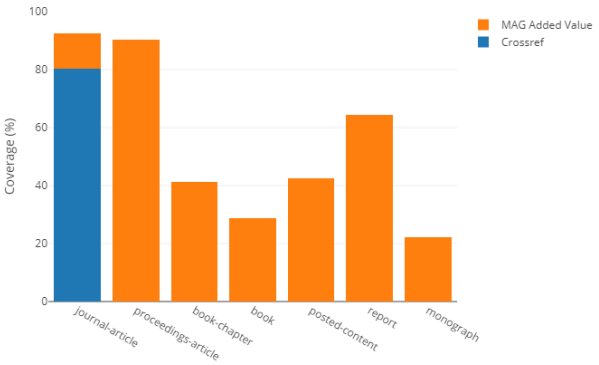

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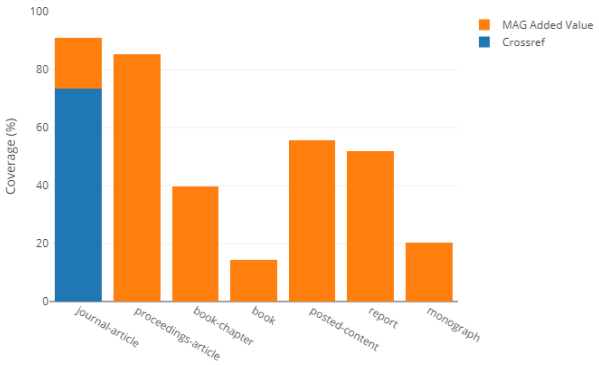
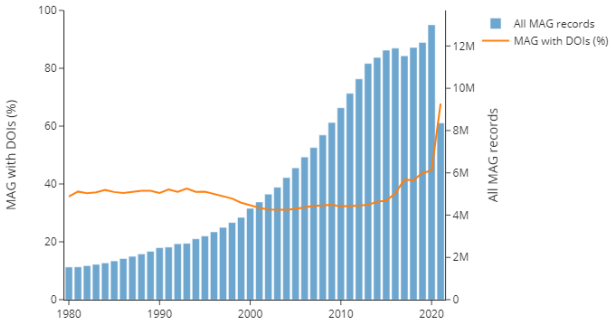


coverage added value - 2021

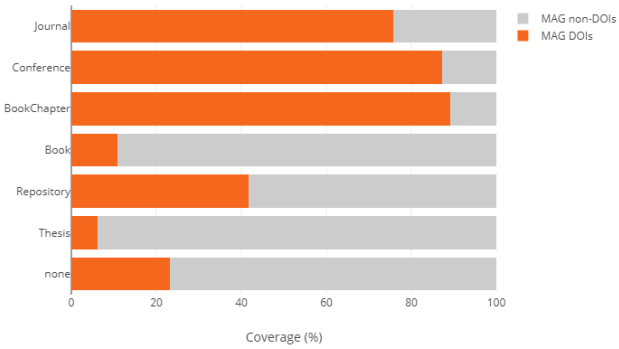
MAG Coverage Beyond Crossref

DOIs vs non-DOIs

By year and publication type



coverage by publication date - all time

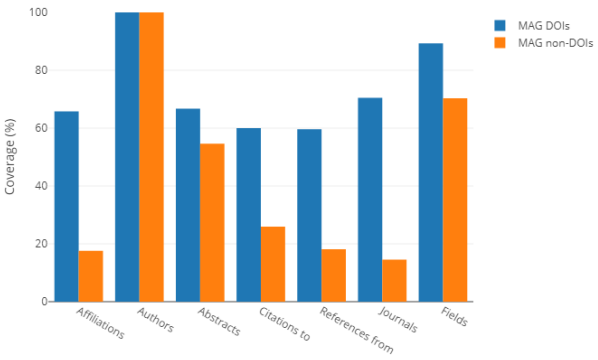


coverage by publication type - all time

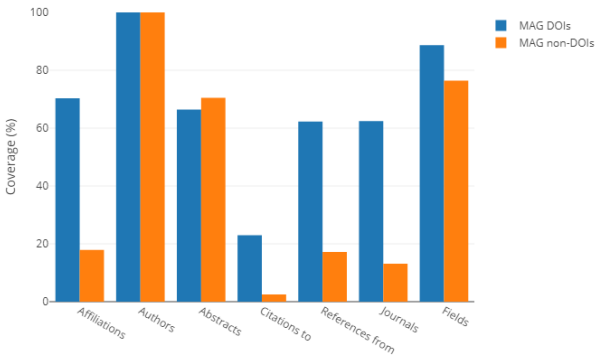
Metadata Coverage

Overview

Comparing coverage of metadata types for DOIs and non-DOIs in OpenAlex



coverage comparison - all time



coverage comparison - 2021

Appendix A - Tables

This section contains tables with summary counts. More tables will be added in a later version.

Crossref Current = 2019-2021
Focus Year = 2021

MAG Coverage

Table 1. MAG Metadata Coverage of Crossref DOIs

Time Frame	Crossref DOIs	MAG Coverage of DOIs	Author Strings	Author ORCIDs	Affiliation Strings	Abstracts	References	Field Classification	Venue Names	ISSNs
All Time	118461605	91462433	91462433	nan	61689733	62146335	57132907	83150330	67960881	62851994
Crossref Current	19260933	15334945	15334945	nan	10671180	10015261	9374326	13580673	9310797	8502806
Focus Year	6107260	4981260	4981260	nan	3493088	3260585	3186422	4461714	3138592	2881182

Crossref Coverage

Table 2. Crossref Metadata Coverage of Crossref DOIs

Time Frame	Crossref DOIs	Author Strings	Author ORCIDs	Affiliation Strings	Abstracts	Open Abstracts	Field Classification	Venue Names	ISSNs
All Time	118461605	100171371	7271694	15551233	13270031	51054077	72714610	114769880	93664137
Crossref Current	19260933	16807067	5000023	3789550	5088509	8996597	9368659	18052999	13958888
Focus Year	6107260	5452036	1916769	1234333	1908044	3031935	3235386	5667896	4582299