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Journals preserved or how to turn Diamond into JASPER

The increase in the number of digital journals has redefined the respective roles of libraries and publishers in the selection, provision and preservation of this content. A new player has emerged, i.e. the archiving agency specializing in long-term digital preservation. Open access journals are poorly preserved, as shown by two recent studies based on an analysis of titles indexed by DOAJ. This worrying finding has motivated DOAJ, CLOCKSS, Keepers Registry, Internet Archive and Public Knowledge Project to join forces to propose an archiving solution for journals without article processing charges. The JASPER project resulted in the creation of a tool and a workflow allowing the preservation of a dozen journals. The next step is to go to scale (more journals archived, more agencies involved), conditioned subject to the mobilization of external funding.

Keywords

long-term preservation; open access journals; scholarly content; JASPER project

A few observations on the production of open access journals since 2000

The selection of academic literature, including journals, their long-term preservation and their dissemination are three essential pillars of research in any field of knowledge.

Libraries have long been the main organizations involved in these three processes through the development of their collections, the management of storage and reading rooms and services to researchers. The expansion of online journals has been evident since the early 2000s, increasing from 13,278 in 2001 to 83,507 in 2010 and 332,954 in 2022 in the ISSN International Centre database, a 25-fold increase over the entire period. The major commercial academic publishers have broadened their scope of intervention by taking on a more important role in the processes of preservation and communication of digital content considered as flexible and marketable assets, for example, through the constitution of licensed bundles of titles or the sale of complete corpora. They have therefore developed a new commercial policy for this content, supported by their increased control of preservation and distribution via online platforms. Publishers, along with libraries, have also started to rely on specialized archiving agencies such as LOCKSS (2001), Portico (2005) and CLOCKSS (2006) to benefit from innovative preservation and communication services. The topicality and importance of digital archiving issues have also led to the creation of the annual iPRES international conference series, which has been a reference since 2004.

The roles of libraries, publishers and archiving have thus evolved in their respective approaches to digital content while the earliest statements on open access to scientific content were being published. The well-known statement of the Budapest Open Access Initiative¹ was published in 2002. The signatories of this statement advocated two complementary strategies: the creation of open archiving services so that researchers can preserve their own scientific output and the advent of a new type of journal, namely open access (OA) journals. The latter was to offer free dissemination of scientific articles based on a financial model that leveraged contributions from research foundations, governments and universities rather than subscription fees or paid access.



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2 Since then, there has been an expansion of OA journals on all continents, thanks to numerous incentives such as those put in place by Latin American countries, Plan S in Europe, or by Indonesia with the 2019 Law on National Knowledge System and Technology requiring the implementation of OA licences for research publications to ensure public access to current research. Since 2013, the ISSN International Centre and its network of National Centres have published online a freely accessible database of OA academic journals, i.e. ROAD. The number of journals reported in ROAD multiplied by seven between 2013 and 2021, going from 6,856 titles to 47,427. The increase is even greater in DOAJ even though this service makes a selection in OA journals submitted by publishers. DOAJ indexed some 500 journals in 2003, a little more than 3,500 in 2008 and 16,623 in 2021, i.e. a 33-fold increase in the number of titles.² This very significant increase is corroborated by a study published in 2011 which then distinguished three periods in the OA movement, namely the Pioneering years (1993–1999), the Innovation years (2000–2004) and the Consolidation years (2005–2009). ‘Since the year 2000, the average annual growth rate has been 18% for the number of journals [...]. This can be contrasted to the reported 3.5% yearly volume increase in journal publishing in general.’³

Publishing is good, preserving is better

While the growth in the number of OA digital journals is well quantifiable and has been widely studied, it is only recently that information science researchers have turned their attention to the issue of their preservation. In early 2021, a seminal paper⁴ showed that 174 journals had disappeared from the web between 2000 and 2019, among which social sciences and humanities and physical sciences and mathematics journals were over-represented. Their geographical distribution was contrasted, with North America and South Asia being most affected by this phenomenon presumably because this type of publication is not valued in the academic career. The opposite seemed to be true in Latin America, where few journals had disappeared. According to the same study, the average lifespan of an OA journal appeared to be between six and eight years. In the course of their investigations, these researchers also identified nearly 900 DOAJ-indexed journals that appeared to have ceased publication even though they were still accessible online. The authors emphasized the importance of self-archiving in academic repositories as a preservation of first resort, citing another study that stated that 81% of a sample of 620,000 OA articles were preserved in repositories. Their conclusion was that responsibility for the preservation of OA journals and their content should be shared among multiple actors to be effective.

‘the average lifespan of an OA journal appeared to be between six and eight years’

A very comprehensive study⁵ published in March 2021 focused solely on diamond OA journals, i.e. a scholarly publication model in which journals and platforms do not charge fees to either authors or readers. According to the authors, ‘permanent preservation is the requirement seeing the lowest compliance among journals at 28.9%, only 19.1% for OA diamond journals. [...] This puts a large share of OA diamond journals at risk.’ The few diamond OA journals that were preserved within the research sample relied on national libraries and services such as LOCKSS, Public Knowledge Project Private Network, CLOCKSS and Portico. Based on these findings, the authors developed 20 recommendations, among which one focused on content preservation. They thus suggested cOAlition S endorse more archiving services and support, along with other funders, the initiatives these services would take to widen the preservation of OA content. Keepers Registry, the ISSN International Centre’s service that aggregates information from these agencies regarding journal preservation, was also mentioned as a prominent source of information.

‘JASPER (JournAIS are Preserved forevER) was born out of a meeting between the archival agencies and DOAJ’

Taking action with JASPER

JASPER (JournAIS are Preserved forevER) was born out of a meeting between the archival agencies and DOAJ as part of the Keepers Registry Technical Advisory Committee.

3 This committee, made up of representatives from contributing repositories, user communities and experts, meets approximately three times a year. It advises the ISSN International Centre on the development of the Keepers Registry and the inclusion of new agencies. At a 2020 meeting, the committee discussed the above-mentioned studies in which DOAJ was involved and agreed that it was important to tackle the issue by providing an archiving solution to diamond OA journals. This was the rationale behind the press release issued by DOAJ⁶ on November 5, 2020.

This programmatic text places DOAJ at the centre of the game as a database for OA journals that has established privileged links with publishers. The focus was swiftly put on journals that do not impose article processing charges (APCs), i.e. those perceived to have more fragile economic models. Sixty per cent of diamond journals 'report annual costs in 2019 as coming in under \$/€10,000' and are 'largely dependent on volunteers'.⁷ For the first phase of the initiative, CLOCKSS, Internet Archive and Public Knowledge Project Private Network volunteered to offer archiving solutions to DOAJ journals, while Keepers Registry joined the project to act as an information hub for archived journals.

'The focus was swiftly put on journals that do not impose article processing charges'

CLOCKSS is a collaboration of the world's leading academic publishers and research libraries to preserve journals and books. CLOCKSS operates 12 archive nodes at leading academic institutions worldwide. Internet Archive is a non-profit digital library that owns and operates its own non-profit data centres and provides open source tools and services for digitization, web archiving, digital preservation and web and data services, including the Wayback Machine. Keepers Registry is the global monitor of the archiving arrangements for continuing resources managed by the ISSN International Centre and fuelled by reports from contributing archiving agencies. The Public Knowledge Project is a multi-university initiative developing (free) open source software and conducting research to improve the quality and reach of scholarly publishing. It has launched a Preservation Network, a freely available private LOCKSS network for any open journal system (OJS) user meeting certain technical criteria.

Since November 2020, thanks to monetary and in-kind contributions from the organizations involved, a system for retrieving files deposited by journals with the DOAJ has been built to transfer them, as well as the associated documentation, to the Internet Archive and CLOCKSS. This system has been tested with a score of journals among all those that have expressed interest in participating. The DOAJ Seal is awarded to journals that demonstrate best practice in OA publishing. Around 10% of journals indexed in DOAJ have been awarded the Seal. One criterion for the Seal is having the journal content preserved in a long-term digital preservation service and, thanks to JASPER, the journal Alphaville⁸ is now archived with CLOCKSS.

'a system for retrieving files deposited by journals with the DOAJ has been built to transfer them'

The Public Knowledge Project, the producer of the OJS publishing tool, revised its documentation to better explain the upload process to its Private Network archiving platform. The Internet Archive joined the Keepers Registry, and its archival data was integrated in early 2022. In parallel with these system design and development activities, all organizations involved have participated in numerous professional events to promote the project and its benefits for OA journals. They also communicated on their respective social networks and the DOAJ website opened a specific section dedicated to the project.⁹

After a few months of working together, the project partners have gained experience that will allow them to improve JASPER and the associated workflows in phase 2 of the project. DOAJ manages a database of OA journals published on all continents. It appears necessary to translate the documentation into several languages to hopefully reach a large number of journals. Successfully scaling up and being able to interact with more people also means automating the onboarding process, including its administrative aspects, to achieve a

- 4 good level of co-operation and to set up a contribution mechanism. The lack of metadata at the article level is another difficulty that emerged during phase 1. While the study mentioned above indicated that '62% of Diamond OA articles have a DOI', we discovered that the descriptive metadata at the article level, which is also the metadata attached to the associated DOI, was at best incomplete and at worst non-existent. This is in contradiction of the FAIR principles, notably F2 – Data are described with rich metadata and F4 – Metadata are registered or indexed in a searchable resource. Lastly, the information contained in DOAJ concerning the mode of financing is sometimes incomplete and does not ensure that the journal fully follows the diamond model.

'The lack of metadata at the article level is another difficulty that emerged'

You can support JASPER!

At the time of writing, phase 2 of the project is about to begin. JASPER partners are actively seeking funding to build on their prior work and prototype to expand this service to hundreds of additional journals currently in DOAJ that qualify for participation. Work will include:

- publisher recruitment to join the project and index their journal in DOAJ
- the inclusion of additional archiving agencies, notably those participating in Keepers Registry, to broaden the service offering
- further development of the systems integrations between partners
- support for the preservation infrastructure for long-term archiving and access
- and project staffing and related outreach, communications, user support and business and sustainability planning.

'JASPER partners are actively seeking funding ... to expand this service'

JASPER partners expect hundreds of publishers to participate in JASPER, with thousands of titles and issues preserved and permanently accessible as a result. The project will strive to establish open source technical integrations between project partners that will widen the gamut of collaborations. Business development plans and economic cost models that are validated by participating publishers will be set up and shared under an open licence.

If you are concerned by the continuity of access to the scholarly record or if you work for an organization, e.g. university, scholarly society or publishing entity that issues OA journals and cares about their long-term preservation, then you should consider getting in touch with JASPER partners (preservation@doaj.org). Any proposal for co-operation is welcome to allow JASPER to move forward and thus benefit the entire community of researchers, publishers, libraries and archiving organizations.

Abbreviations and Acronyms

A list of the abbreviations and acronyms used in this and other *Insights* articles can be accessed here – click on the URL below and then select the 'full list of industry A&As' link: <http://www.uksg.org/publications#aa>.

Competing interests

The author has declared no competing interests.

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