



2021 SCOSS ANNUAL REPORT FORM

NAME OF THE REVIEWED INFRASTRUCTURE: OpenCitations

APPLICATION FORM: https://sparceurope.org/wp-content/uploads/2019/12/OpenCitations-APPFormSCOSS_Final.pdf

YEAR IN THE CYCLE:

1/3

2/3

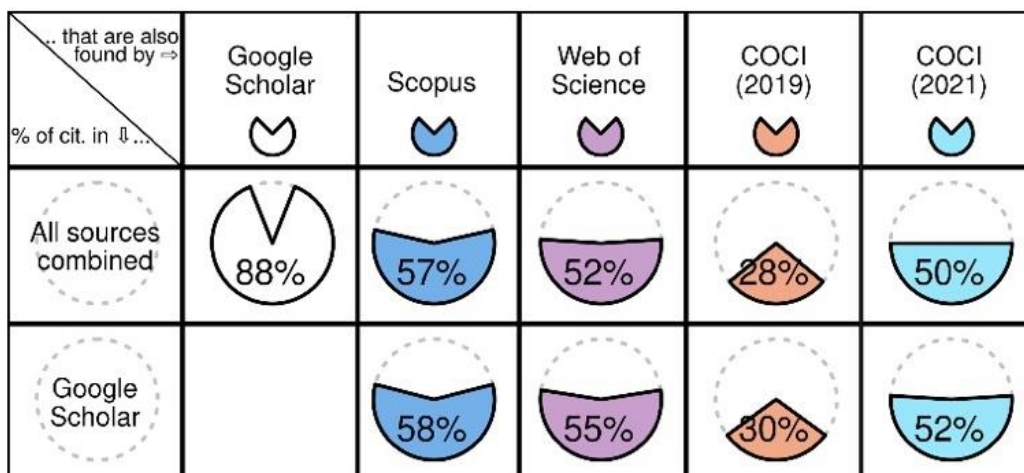
3/3

1. Discuss the status of the most important activities and milestones planned as specified in the Application Form (see section 6 of the Application Form). If there are important omissions or milestones that have not been achieved, please explain in the Additional Comments section below.

Activity/Milestone 1: Collecting open references from scholarly publishers

Status:

- During 2021, OpenCitations' largest index [COCI \(the OpenCitations Index of Crossref open DOI-to-DOI citations\)](#) was able for the first time to collect the citation links which had recently been opened by Elsevier and the American Chemical Society. In 2021, we created 3 releases of COCI. The last release of COCI (November 2021), based on open references to works with DOIs within the Crossref dump dated October 2021, contains information on 1,235,170,583 citation links from 69,897,400 bibliographic resources.
- A recent analysis run by Alberto Martín-Martín (Facultad de Comunicación y Documentación, Universidad de Granada) and published on OpenCitations Blog on October 27, 2021 shows that the citation coverage provided by OpenCitations is approaching parity with that of the leading commercial citation indexes, Web of Science and Scopus, offering a viable alternative upon which to base open and reproducible metrics of academic performance.



You can find the post here: <https://opencitations.wordpress.com/2021/10/27/coverage-of-open-citation-data-approaches-parity-with-web-of-science-and-scopus/>

Activity/Milestone 2: Expand the coverage of open citations across the entire scholarly domain

Status:

- OpenCitations Meta: OpenCitations has just commenced the development of this new database to hold comprehensive bibliographic metadata in house. This will speed request responses by avoiding external API calls to Crossref, ORCID, etc., and permit us for the first time to index citations involving works lacking DOIs.
- In this way, OpenCitations will be able to expand its citation coverage to include both Crossref references to non-DOI works and also references present within non-DOI publications.
- We have started working on new citation indexes. We intend to create a new OpenCitations index of [NIH-OCC](#), enabling this entire corpus *and* other OpenCitations indexes to be searched via a single API. In addition, we plan to index the citations in [DataCite](#) and other sources of open references.

Activity/Milestone 3: New Developers

Status: During 2021 we involved in our projects young researchers and recently graduated developers from the University of Bologna and other institutions. In particular:

- Gabriele Pisciotta (University of Pisa) and Simone Persiani (University of Bologna), appointed thanks to a grant from the WikiCite Initiative, have worked with Silvio Peroni, Giovanni Colavizza and Marilena Daquino on the project "[Wikipedia Citations in Wikidata](#)", by developing a codebase to enrich Wikidata with citations to scholarly publications that are currently

referenced in English Wikipedia. Part of the work concerned the development of libraries for handling data compliant with the OpenCitations Data Model (OCDM);

- Giuseppe Grieco (University of Pisa) was appointed as a Software and Systems Developer to take charge of all the technical development related to the OpenCitations services.
- Thanks to the support from the [OpenAIRE Nexus project](#), the OpenCitations team has recently welcomed a new Software Developer, Arcangelo Massari (University of Bologna), to take care of the development of the new database OpenCitations Meta and the development and evolution of a new library (developed during his master thesis) to query OCDM-compliant data in time (i.e. considering provenance information and change tracking);
- Last December, OpenCitations published a [job advert](#) for a technical infrastructure chief and full-time developer to be appointed by the Research Centre for Open Scholarly Metadata at the University of Bologna from February 2022.

Activity/Milestone 4 Governance and legal administration

Status:

- During 2021, we worked on developing our open governance structure. For administrative convenience, OpenCitations is managed by the Research Centre for Open Scholarly Metadata at the University of Bologna. Currently, the organizational bodies included in the OpenCitations governance are: the Directors, the International Advisory Board, and the Council. All these bodies are regulated and described in two documents, “[Organizational Bodies and Finances](#)”, and “[Rules for Membership](#)” which specifically describes the criteria for Membership of OpenCitations. In November 2021, we held our International Advisory Board Meeting and in December 2021 the Annual Council Meeting.
OpenCitations complies with the [Principles of Open Scholarly Infrastructure](#), and we are currently working on defining stakeholder governance, starting from the International Advisory Board. We intend to involve the Board in the strategic debate on OpenCitations by creating two working groups, one about the Governance evolution and one about the Community Building. This structure will be developed during our 2022 meetings.
- In June 2021 we appointed Claudio Fabbri as our Research Manager to take responsibility for all the day-to-day administrative activities of OpenCitations, including financial arrangements with those organisations supporting OpenCitations and bureaucratic interactions involving our host institution, the University of Bologna.

Activity/Milestone 5 Community Development

Status:

- In July, we appointed Chiara Di Giambattista as our Communications Director and Community Development Manager to take care of all communications and social interactions made on behalf of OpenCitations, in terms of outreach to the scholarly community, contacts with present and potential supporting organisations, and OpenCitations' communications via social media. In collaboration with the Directors, she is developing a comprehensive mission statement and communications strategy for OpenCitations, designed to enhance the community's understanding of OpenCitations' global mission and awareness of its financial needs, to increase usage of OpenCitations services, and to foster collaborative interactions with like-minded infrastructures and institutions.
- We produced an OpenCitations Communication Information Flow document to collect the guidelines referring to the role of the Communications Director and the practical information about social media management: [Communication Workflow](#)
- We monitored OpenCitations communication strategy and media resources by using the [PESO model](#) visualization.
- We enhanced the communication of the OpenCitations developments using OpenCitations Blog and social media.

OpenCitations blog: We increased the rate of posts published, with an average of 4 posts *per* month from July 2021. We collaborated with external blogs and scholars:

1. OpenCitations post "[Wikipedia Citations in Wikidata](#)" was firstly published on Diff, the Wikimedia community blog;
2. OpenCitations blog hosted the guest post "[Coverage of open citation data approaches parity with Web of Science and Scopus](#)" by Alberto Martín-Martín;
3. OpenCitations hosted the guest post "[Performing live time-traversal queries on RDF datasets](#)" by Arcangelo Massari, who recently graduated under Silvio Peroni at University of Bologna with an OpenCitations-related thesis.
4. We republished Silvio Peroni's post [Open citations in Informatics: current status and lines of research](#), first published in his own personal blog QWERTY: <https://querty.hypotheses.org/22>

In 2022 we plan to host more posts reporting project work by undergraduates who are currently doing research on OpenCitations at the University of Bologna.

The five most recent posts are as follows:

- [Five reasons why 2021 has been a great year for OpenCitations](#)
- [Open citations in Informatics: current status and lines of research](#)
- [OpenCitations receives the Open Publishing Award in Open Data](#)
- [Performing live time-traversal queries on RDF datasets](#)
- [Coverage of open citation data approaches parity with Web of Science and Scopus](#)

Social Media Communication: We increased OpenCitations interactions on Twitter and reactivated OpenCitations' LinkedIn profile. Social Media proved crucial in sharing the blog contents and the growth of OpenCitations followers base, and determined the growth in the number of visitors on OpenCitations blog.

Using the OpenCitations logo and colors, we defined the OpenCitations graphic identity on Social Media platforms.

- During 2021, OpenCitations participated in numerous events and conferences that helped reach out to a wider community.

LIBER Webinar 2021

February 26, 2021

A webinar entitled 'How can libraries help keep Open Science infrastructure free and independent?' with a joint presentation dedicated to the relationships between libraries and Open Science infrastructures, by Kevin Stranack (Managing Director of the Public Knowledge Project), Vanessa Proudman (SCOSS), and Niels Stern (director of OAPEN and co-Director of DOAB). Slides available at:

Proudman, V., Peroni, S., Stern, N., & Stranack, K. (2021, February 26). LIBER Webinar: How can libraries help keep Open Science infrastructure free and independent?. LIBER Webinar, Virtual Event. Zenodo. <https://doi.org/10.5281/zenodo.4564346>

OpenAIRE-Nexus Public Launch Event

March 10, 2021

A session entitled 'OpenAIRE-Nexus: Portfolio MONITOR' with a joint presentation dedicated to introducing OpenCitations in the context of the H2020 OpenAIRE-Nexus project, with Claudio

Atzori, Ioanna Grypari, Sandro La Bruzzo, Jochen Schirrwagen, and Dimitris Pierrakos. Slides available at:

Atzori, C., Grypari, I., La Bruzzo, S., Peroni, S., Schirrwagen, J., & Pierrakos, D. (2021, March 10). OpenAIRE-Nexus: Portfolio MONITOR. OpenAIRE-Nexus Public Launch Event, Virtual Event. Zenodo. <https://doi.org/10.5281/ZENODO.4597514>

(As)saggi di OpenScience 2021

April 7, 2021

A webinar entitled '(As)saggi di OpenScience: conversazioni in tema di accesso aperto - Dati, metadati e accesso libero alle conoscenze' (in Italian) with a presentation about OpenCitations to the Italian library community. Slides available at:

Peroni, S. (2021, April 7). Dati della ricerca e citazioni aperte. (As)saggi di OpenScience: conversazioni in tema di accesso aperto - Dati, metadati e accesso libero alle conoscenze, Virtual Event. Zenodo. <https://doi.org/10.5281/zenodo.4670261>

JISC Webinar 2021

April 20, 2021

A webinar entitled 'Sustaining the future of key open research infrastructure services' with a joint presentation dedicated UK higher education institutions and how Jisc members can concretely engage with and support these infrastructures, by Kevin Stranack (Managing Director of the Public Knowledge Project), Vanessa Proudman (SCOSS), Tom Mosterd (Community Manager of DOAB and OAPEN), and Niels Stern (director of OAPEN and co-Director of DOAB). Slides available at:

Peroni, S., Proudman, V., Stern, N., Stranack, K., & Mosterd, T. (2021, April 20). Sustaining the future of key open research infrastructure services. JISC Webinar, Virtual Event. Zenodo. <https://doi.org/10.5281/zenodo.4704701>

LIS Bibliometrics 2021

April 28, 2021

A workshop organised to present the use of OpenCitations REST APIs to the LIS Bibliometrics community. Slides available at:

Peroni, S. (2021, April 28). Workshop: OpenCitations. LIS Bibliometrics 2021 - New tools and new technologies: bibliometrics in action for a new decade, Virtual Event. Zenodo.

<https://doi.org/10.5281/zenodo.4726536>

Metricsseminarium 2021

May 19, 2021

A presentation at the event "Metricsseminarium" organised by The Association of Swedish Higher Education Institutions, where OpenCitations was introduced to that community. Slides available at:

Peroni, S. (2021, May 19). Using open citations data for transparent and reproducible

bibliometrics. Metricsseminarium, Virtual Event. <https://doi.org/10.5281/ZENODO.4772999>

OpenAIRE Tech-Clinic Webinar 2021

June 7, 2021

A webinar to introduce OpenCitations to the OpenAIRE community. Slides available at:

Peroni, S. (2021, June 7). OpenAIRE Tech-Clinic Webinar—OpenCitations. OpenAIRE Tech-Clinic

webinar, Virtual Event. Zenodo. <https://doi.org/10.5281/ZENODO.4905861>

FinELib webinar 2021

June 22, 2021

A webinar to introduce OpenCitations to the FinELib consortium. Slides available at:

Peroni, S. (2021, June 22). OpenCitations FinELib webinar. OpenCitations Webinaari, Virtual

Event. Zenodo. <https://doi.org/10.5281/zenodo.5012518>

LIBER annual conference 2021

June 24, 2021

We participated in the session 'How Can Open Infrastructures Support the Role of Research Libraries?' with a presentation dedicated to the benefits of Open Infrastructures for libraries, dialoguing with James MacGregor (interim Managing Director of the Public Knowledge Project), Joanna Ball (Head of Roskilde University Library), and Niels Stern (director of OAPEN and co-Director of DOAB). Slides available at:

Napolitano, Maaïke, Limani, Fidan, Ball, Joanna, Stern, Niels, Peroni, Silvio, Blotière, Emilie, & Lombardo, Tiziana. (2021, June 30). LIBER 2021 Session #5: How Can Open Infrastructures Support the Role of Research Libraries?. Zenodo. <https://doi.org/10.5281/zenodo.5044765>

Open Science Fair 2021

September 21, 2021

OS Fair is an event organized by OpenAIRE, in collaboration with some key international initiatives in the area of Open Science. OpenCitations was involved in the Lightning Talk “ScholarXplorer and OpenCitations as the new frontier of open citation indexing” and organized the workshop “The perils of being invisible. Collective funding models for Open Science infrastructure” together with Niels Stern (DOAB/OAPEN) James MacGregor (PKP), Agata Morka (SPARC Europe/SCOSS), Jon Treadway (the Great North Wood Consulting), Jean-Francois Lutz (University of Lorraine) and Vanessa Proudman (SPARC Europe). Slides and record of the event available at:

Bardi, A., La Bruzzo, S., Manghi, P., & Peroni, S. (2021, September 21). ScholarXplorer and OpenCitations as the new frontier of open citation indexing. Open Science Fair 2021, Virtual Event. Zenodo. <https://doi.org/10.5281/zenodo.5519362>

Peroni, S., Stern, N., MacGregor, J., Morka, A., Treadway, J., & Lutz, J.-F. (2021, September 21). The Perils of Being Invisible. Collective funding models for Open Science Infrastructure. Open Science Fair 2021, Virtual Event. <https://www.youtube.com/watch?v=pJK2hJpxobA>

OASPA Conference 2021

September 23, 2021

The 2021 conference was entitled “Designing 21st Century Knowledge Sharing Systems”. We took part in the Poster Lightning Talks Session 3 with the title “OpenCitations – what does the future hold?”. You can find the poster here:

Shotton, David, Peroni, Silvio, & Di Giambattista, Chiara. (2021). OpenCitations - what does the future hold?. Zenodo. <https://doi.org/10.5281/zenodo.5526713>

Open Access Tage 2021

September 27, 2021

OAT is an annual event dedicated to Open Access initiatives and community. We held the Workshop “How Open Infrastructure Benefits Libraries?” together with James MacGregor (Public Knowledge Project) and Niels Stern (OAPEN). Slides at:

Peroni, S., Stern, N., & MacGregor, J. (2021, September 29). How Open Infrastructures Benefit Libraries. Open Access Tage 2021, Virtual Event. Zenodo.

<https://doi.org/10.5281/ZENODO.5535314>

Beilstein Symposium 2021

October 6, 2021

The Beilstein OpenScience Symposium is an annual event that gathers leaders in the FAIR and Open Data movement. We gave a short presentation “Open Citations, an Open Infrastructure to Provide Access to Global Scholarly Bibliographic and Citation Data” during the Poster Flash Talk Presentation. The poster and slides are available here:

Peroni, Silvio, Shotton, David, & Di Giambattista, Chiara. (2021). Open Citations, an Open Infrastructure to Provide Access to Global Scholarly Bibliographic and Citation Data (1.0).

Zenodo. <https://doi.org/10.5281/zenodo.5553040>

Peroni, S. (2021, October 6). Open Citations, an Open Infrastructure to Provide Access to Global Scholarly Bibliographic and Citation Data—Poster Flash Talk Session slides. Beilstein Open Science Symposium 2021, Virtual Event. Zenodo. <https://doi.org/10.5281/zenodo.5553025>

European Computer Science Summit 2021

October 27, 2021

ECSS is an annual event organized by Informatics Europe and involving academics, industry leaders, decision makers and others interested in Informatics/Computer Science research and education in Europe. We participated in the “National Informatics Associations Workshop”, an annual workshop organised by Informatics Europe in collaboration with the National Informatics Associations in Europe. This year the workshop addressed the themes Informatics in Interdisciplinary Curricula and Research Evaluation in Informatics. Slides at:

Peroni, S. (2021, October 27). Open citations in Informatics. European Computer Science Summit 2021, Madrid, Spain. Zenodo. <https://doi.org/10.5281/zenodo.5602878>

Austrian DataCite Consortium webinar 2021

November 19, 2021

Introduction of OpenCitations in the context of the community around the Austrian DataCite Chapter. Slides at:

Peroni, S. (2021, November 19). Current and future sources of open citations. Austrian DataCite Consortium 2021, Virtual Event. Zenodo. <https://doi.org/10.5281/zenodo.5713191>

FORCE2021 Conference

December 7-9, 2021

FORCE2021 is the annual conference for FORCE11. This year's theme was "FORCE2021: Joining Forces to Advance the Future of Research Communications". We participated in the "Community Presentations Session" and in the "Community Discussion on Open Metadata". During the closing session, we received the [Open Publishing Award in Open Data](#). The slides are available here:

Peroni, Silvio. (2021, December 8). OpenCitations, an open infrastructure improving the metric-based research assessment. FORCE 2021, Virtual. Zenodo.

<https://doi.org/10.5281/zenodo.5767271>

- On December 13 we held the **OpenCitations Annual Webinar** for the OpenCitations Council members, during which the OpenCitations directors provided an overview on OpenCitations and presented the latest updates and future developments. The Webinar slides are available here:

Peroni, Silvio, & Shotton, David. (2021, December 13). OpenCitations Members Webinar.

Zenodo. <https://doi.org/10.5281/zenodo.5778838>

- In 2021, we were involved in two funding applications and R&D projects:

OpenAIRE Nexus

OpenCitations was involved (through the University of Bologna) in the preparation of a European consortium bid, with other ten partners, several of which were already working actively in OpenAIRE, in response to an H2020 call ([INFRAEOSC-07-2020 - Increasing the service offer of the EOSC Portal](#)). The funded [OpenAIRE Nexus project](#) started on 1 January 2021. The main aim of the project is to create a framework of services for assisting in publishing research, monitoring its impact, helping promote its discovery, and integrating it into the European Open Science Cloud (EOSC) for the benefit of the open science community worldwide. OpenCitations' role in this is to provide open bibliographic citations as part of the open data components of OpenAIRE and the EOSC. The support received from OpenAIRE Nexus made it possible to appoint a new Software Developer to work on OpenCitations Meta.

RISIS2 Project

[The Research Infrastructure for Science and Innovation Policy Studies \(RISIS\)](#) is a project funded by the European Union under [Horizon2020](#) Research and Innovation Programme Grant Agreement. RISIS2 gathers 18 partners aiming to transform the field of STI studies into an advanced research community. OpenCitations was involved in the project in December 2021 through a third-party agreement. OpenCitations' objectives will be to create the first release of OpenCitations Meta and to work on a new citation index of open references, based on the holdings of DataCite (DOCI).

2. Provide a complete and clear report on income and expenditure referring directly to the planned budget as specified in Application Form (insert page number from your Application Form regarding planned budget).

Expenditure for the year 2021 (p.14 of the SCOSS funding application form)

Salaries for a computer specialist, one Policy Advocate and Community Outreach Officer, and the OpenCitations Manager / Accountant / Administrator	€ 74.602,00
Costs of conference attendance	€ 45,95
Consumables and Crossref subscriptions	€ 604,38
Total	€ 75.252,33

Income for the year 2021

Brock University
California Digital Library

CERN
Curtin University
EPF Lausanne
ETH Zürich
French Open Science Committee
Griffith University
Hochschule Luzern
Institut Français de Recherche pour l'Exploitation de la Mer
Katholieke Universiteit Leuven
MacEwan University
Memorial University of Newfoundland
MTA Library and Information Centre
Queensland University of Technology
Schweizerischer Nationalfonds

Spanish National Research Council
Tampere University including Tampere University Hospital
Universität Bern
Universität St Gallen
Universität Zürich
Université de Neuchâtel
University of Adelaide
University of Canterbury
University of Guelph
University of Helsinki including Helsinki University Central Hospital
University of Lapland
University of New Brunswick
University of New South Wales
University of Ottawa

University of Toronto	
University of Waterloo	
University of Windsor	
Zürcher Hochschule der Künste	
Total	€ 229.364

3. Provide a complete and clear summary of the funding committed through the SCOSS campaign to date.

Summary of pledges for 2021

Funder name	Country
Universität Bern	Swiss
Université de Fribourg	Swiss
Université de Neuchâtel	Swiss
Universität St Gallen	Swiss
Universität Zürich	Swiss
ETH Zürich	Swiss
EPF Lausanne	Swiss
HSLU	Swiss
Zürcher Hochschule der Künste	Swiss

Schweizerischer Nationalfonds	Swiss
CERN	Swiss
Spanish National Research Council	Spain
California Digital Library	USA
Tampere University including Tampere University Hospital	Finland
University of Helsinki including Helsinki University Central Hospital	Finland
University of Lapland	Finland
University of Management and Technology	Pakistan
Institut Français de Recherche pour l'Exploitation de la Mer	France
Université Paris-Saclay	France
European University Institute	Italy
MTA Library and Information Centre	Hungary
Universitäts- und Landesbibliothek Darmstadt	Germany
TOTAL PLEDGES IN 2021	€ 227,862

*add rows as relevant

4. Specify how and whether the received money was spent in relation to plans outlined in the Application Forms.

The received money has been spent as explained in the table above “Expenditure for the year 2021 (p.14 of the SCOSS funding application form)”. In particular, it was necessary to:

- pay the salaries of a Research Manager, a Communication and Community Manager and a Software and Systems Developer who are currently working at OpenCitations;
- sustain the costs of Silvio's participation in the European Computer Science Summit conference, held in Madrid, 25 to 27 October 2021 (Meals);
- pay OpenCitations subscription to Crossref.

5. What made it difficult to prepare this Annual Report? How can we improve this process next time?

We suggest pre-organizing the milestones part into specific main fields, i.e. "Governance and Sustainability", "Community Development", "Technical Development", "Pledges and Grants", in order to facilitate the filling-out.

SUBMISSION DATE ...04/02/2022...

THIS REPORT WAS PREPARED BY

Silvio Peroni (Director)

David Shotton (Director)

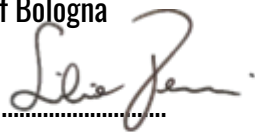
Chiara Di Giambattista (Communications and Community Manager)

Claudio Fabbri (Research Manager)

AFFILIATION

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SIGNATURE



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Chiara Di Giambattista