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Open Access: what's in it for me as an early career researcher?

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Abstract

When entering the research world, Early Career Researchers (ECRs) may encounter difficulties building a good reputation for their research, its quality and the research results. Open access is the movement that could assist ECRs to: (a) widely disseminate their scholarly outputs, (b) demonstrate the research and societal impact of their work and, (c) organise online research portfolios that can be accessed by all researchers, as well as prospective employers.

Keywords   Scholarly Communication

Context   In the current scholarly communications domain ECRs encounter challenges trying to establish themselves as researchers and make the quality of their research work known amongst their research community [Bazeley, 2003]. ECRs need to entrench themselves not only amongst their subject field peers but also in interdisciplinary fields; in the 2014 Research Excellence Framework (REF), a periodical research assessment exercise in the U.K., 80% of the submitted research that demonstrated a societal impact was interdisciplinary [Rylance, 2015]. Through interdisciplinary research ECRs can prove that the impact of their research affects both economic growth and societal wellbeing. In addition, ECRs need to perform well in journal and publication metrics, which are essential components for career promotion, bidding and being awarded grants, since funding bodies decide on resources' allocation based on these metrics [Hobbs, 2006; Sastry and Bekhradnia, 2014].

In this highly competitive environment, the open access movement can help ECRs promote effectively both their research work and research outputs. According to the Budapest Open Access Initiative [2001], the definition of open access, applies to literature that has

> "free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself."

Technological innovations, such as the low cost of Internet connection and the personal computer, along with the author's willingness to grant access rights to the users of these research outputs, have made the application of open access possible [Suber, 2012].

Open access can be delivered via two routes: open access journals and open repositories. Open access journals function the same way as traditional subscription based journals; they have editorial boards, conduct peer-reviews and have a publication periodicity. The only difference from traditional journals is that open access journals do not charge a publication fee to the end user, but provide access to their research outputs free of charge to anyone in the world. In order to financially sustain their publications, open access journals have developed alternative business models [OASIS, 2012], such as advertising, crowdsourcing, institutional subsidies, article processing charges and submission fees.

The repositories, on the other hand, are divided into two categories; the institutional repositories, which collect the research outputs of one institution, and the subject/disciplinary repositories, which hold subject-specific content. For example the repository arXiv.org (http://arxiv.org/), which is the first established subject repository, has a collection of outputs in physics, mathematics and computer science. The biggest difference between open access journals and repositories is that the latter do not conduct peer-review, but they may host outputs that have been peer-reviewed somewhere else [Suber, 2012].

For the past fifteen years the availability of open access research outputs has grown dramatically [Morrison, 2015]. In a 2003 study McVeigh [2004] discovered that only 2.9% of journal articles were published openly accessible, while in 2006 this number increased to 8.1% and the percentage of journal articles deposited in repositories was close to 11.3% [Björk, Roos and Lauri, 2011]. In 2010 the total amount of open access publications had reached 23% [Gargouri et al., 2012]. Laakso and Björk [2012] found that in 11 years (2000–2011) almost 350,000 articles were published in pure open access and hybrid journals. In August 2015, the Directory of Open Access Journals (https://doaj.org/), a database that indexes quality open access journals, listed around 10,501 journals from all over the world and from all scientific fields. At the same time, the Directory of Open Access Repositories (http://www.opendoar.org/) listed about 2,953 repositories. In addition, a list of subject repositories from the Open Access Directory (http://oad.simmons.edu/), a wiki on factual lists on open access, listed more than 100 disciplinary repositories. In the U.K. only, according to a study from Björk, Roos and Lauri [2011], seven-eighths of the 40% of the U.K.'s research outputs are provided open access via repositories.

Open access does not limit the researchers' freedom to choose their favourite journal title in which to publish their research. On the contrary, open access aims to provide researchers with an appropriate open access publication route, irrelevant of their decision of where they choose to publish. If researchers cannot find a prestigious open access journal in their subject field and decide to publish their outputs in a subscription based journal, they can still self-archive, i.e. deposit a suitable version of the output, in a repository. Open access delivered through self-archiving can be either immediate or delayed. Open access that is delayed, occurs after an embargo period during which the publication needs to remain closed access [Suber, 2012].

Publishing qualities and open access

When the first journal, the *Journal des Sçavans*, was published it aimed to improve communication between scholars. Publishing, in its original concept, was only a means for scholars to share information and knowledge amongst peers [Peek and Newby, 1996]. About 350 years later the scholarly communications practices changed and the structure turned into something more than just information exchange. There are three prominent challenges hardships in the current system. Firstly, copyright restricts access and the use and reuse of important scientific information [Geneva, 2003]. Secondly, journal subscription prices keep growing faster than inflation [Bosch and Henderson, 2013], causing renewal affordability issues hardships to libraries. Finally, the journal impact factor, a quantitative indicator resulting from the average number of cited articles in a journal, which denotes a journal's quality and prestige; the impact factor is perhaps the most important research evaluation tool, which has been widely discussed and its ability to reveal qualitative research has often been questioned [Seglen, 1997; Vanclay, 2011; Saha, Saint and Christakis, 2003; Kurmis, 2003].

Unfortunately, ECRs have inherited a malfunctioning scholarly communications system in which they are asked to perform research, publish their research outputs, distinguish themselves and eventually flourish in their research careers.

According to Sompel et al. [2004] the development of a new scholarly communications system is crucial and must fulfil four indispensable operations:

1. Registration: allowing the recognition of previous scholarly results.

2. Certification: establishing the validity of a scholarly claim.

3. Awareness: allowing actors in the system to remain aware of new claims.

4. Archiving: maintaining the scholarly record over time.

When these four operations are combined, a "value chain" concept emerges in the scholarly communications system where all of its entities are structured together. When publishing a research output the publisher documents the submission date of the output (registration), conducting peer reviews certifies the arguments made in it (certification) and the published paper with its citations satisfies the recognition requirement (awareness). Databases or repositories preserve the scholarly output over time (archiving) and achieve the goal of their preservation and maintenance.

Open access publications successfully apply these aforementioned operations via the open access publication routes (Table 1). The registration, awareness and archiving components can be achieved via both routes - the open access journals and repositories — since they both have the ability to record an output's submission date, allow the actors in the system to remain aware of the new publications and preserve a research output for future use. Peer review is the sole component that can be assigned to journals only, since conducting peer review is traditionally an action performed by journals and not by repositories; as it has already been mentioned, outputs that have been peer-reviewed by journals oftentimes are self-archived in repositories.

This demonstrates that publishing and disseminating a research output via an open access route can fulfil all the requirements of the scholarly communications system.

Table 1. Open access application of publishing qualities.

	Registration	Certification	Awareness	Archiving
	Intellectual Property	Research validity certification	Research accessibility assurance	Research output preservation for future use
Open access journals	✓	✓	✓	✓
Institutional or subject repositories	✓		✓	✓

Simultaneously, it allows ECRs the opportunity to provide their research publications to readers free of cost and free of most copyright restrictions. When ECRs disseminate their research openly to everyone, they can enjoy immediate visibility of their research, transparent management of the information and increase their impact. Others can read, use, re-use, build, crawl and text-mine the existing research outputs. All this, promotes science, enhances education, and brings back to the public access to knowledge through the research they have funded and allows equal opportunities for learning. Therefore, the benefits of open access are not limited to authors only, but extend to researchers and the general public as well.

How can open access benefit early career researchers?

Recently we are experiencing two shifts in the way funding bodies assess the quality of research and allocate grants. Firstly, they are introducing mandatory open access policies, the implementation of which is essential, since non-compliance with these requirements may result in researchers risking their funding. Therefore, it can safely be stated that currently open access is not applied merely by those who envision an improved scholarly communications landscape, but is gaining recognition and support from one of the most important research stakeholder groups. Secondly, funders are interested in seeing that the researchers they fund are in a position to demonstrate adequately both the research results and the research impact.

Open access citation impact

From 2001 up until the present, many studies have been conducted showing how articles that are openly accessible to everyone in the world, gain a citation advantage over those outputs that are behind an access barrier [SPARC Europe, 2014]. According to the current bibliography there is at least one study for every scientific field, which proves that the open access citation advantage is prominent. Some of the most recent studies are for example the report from Donovan, Watson and Osborne [2014] who demonstrate that there is a citation advantage of 53% in the law review articles. In the field of civil engineering, it was discovered that open access articles received 29% more citations [Koler-Povh, Juznic and Turk, 2014]. Frisch et al. [2014] studied the area of cytopathology and discovered that the open access publications of the same author gained a higher citation than the closed access articles. Economics, research conducted on 639 articles published in 2005 from 13 economics journals, discovered that open access journals gain significantly higher citations [Wohlrade and Birkmeier, 2014].

A citation advantage does not only seem to be a privilege gained by articles that are provided openly. Pinowar and Vision [2013] investigated whether the open provision of data would increase an article's citation, to discover that authors who had made their articles available openly via a repository and created the relationship between the data and the research paper received 9% more citations than comparable papers that had not provided the dataset. The citation benefit becomes more important for ECRs, since they need to establish a reputation in their field and make their research known. By providing their outputs openly accessible ECRs not only gain more citations, but they can also create an online portfolio and showcase their work to everyone who may be interested to discover the full corpus of their research. Such examples are useful for prospective employers, funders or other researchers who are looking for project collaborators, located either nationally or internationally.

Research and societal impact

ECRs cannot be limited to the production of quality research results only. They need to demonstrate a research impact, but more importantly they have to be in a position to demonstrate a societal impact for their research. The Higher Education Funding Council for England (HEFCE) conducts a periodic research quality exercise, the REF. The standards and proportions that influence the quality of the conducted research in this exercise are [HEFCE, 2011]:

- the research outputs by 65%

- their impact by 20%, which will increase in the forthcoming REF periods, and

- their environment.

The importance of the research and societal impact is also an essential feature of the European Union Seventh Framework Programme, which has devoted plenty of effort to discover the "impacts at the level of [the project's] organisation, market or society…" [Arnold et al., 2011, p. 4]. In Horizon 2020 [European Commission, 2014], the European Union's current funding programme, it is noted that the research and societal impact must be considered during the project proposal and must be followed throughout the period of the research, up until the dissemination of the project's results and the end of the project. At this point, it is crucial to mention that this research framework indicates that proof of impact needs to be demonstrated throughout the whole research life cycle and not just the research results.

Funders are not solely interested in a research output in the form of an article, but in the wider concept of having the research results delivered, disseminated and integrated effectively to all research stakeholders and the marketplace. To secure research funding ECRs need to successfully address the societal impact of their publications, which can be accomplished when all the components of the research life cycle are openly available. Such components can be research data, software code, publications, educational resources, reports and policy briefs.

To succeed in this ECRs are required not only to apply open access to their research publications, but also to move a step forward and consider the adoption and

implementation of open science. According to its definition, open science is, "the conduction of science in a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, with terms that allow reuse, redistribution and reproduction of the research" [FOSTER, 2014]. Therefore, currently there is a tendency to move from the open accessibility of the results of a research output only, to openness throughout the whole research life cycle, with workflows to enable clarity, reproducibility, collaboration, knowledge circulation and transfer.

With open science ECRs can enable the results and the knowledge produced in the research project to be conveyed to society. Apart from applying open access to the research results, some common practices for enabling open science are:

– Opening up of the research datasets to make them discoverable, understandable and re-usable.

– Register publications, datasets and software with Digital Object Identifiers (DOIs) to enable discoverability.

– Accompany the research publication with the data sets to enable research reproducibility.

– Use the open science tools and adopt open science practices to establish the connection between the research project and the societal impact [Grigorov et al., 2015].

How to promote Open Access

The ECRs of today, who are the researchers of tomorrow, can grasp the opportunity that the Internet has to offer and disseminate their articles using the two available routes to open access, the open access journals and open repositories. In order to succeed in the promotion of open access and produce a wider adoption of open access practices from their peers, ECRs can organise discussions on the benefits of open access and use personal examples taken from their own experiences in their research career. When co-authoring research outputs they can consider the possibility of requesting either a publication in an open access journal or self-archiving the output in a repository. It is essential for ECRs to examine the open access benefits with their supervisors and the leading researchers in their institutions. The arguments that could be used to convince senior researchers, whose open access practices are not perhaps part of their publishing culture [Research Information Network, 2010], could be that open access currently is a funder requirement and compliance is essential to secure future funding. In addition, some other advocacy arguments could be that open access increases the papers' citation rate and that with open access authors can retain use and distribution rights for themselves. Furthermore, by demonstrating the benefits of open access in practice they can bring other researchers closer to adopting open access best practices too. For example, whenever ECRs are asked to send a copy of a research output to their peers they could send the link of the archived paper in the repository, rather than the file itself [Suber, 2007].

At an institutional level, ECRs can use informal channels to spread the open access message, such as discussions, posts in student association's blogs, or articles at the

institution's newspaper. They can also form groups with their classmates, colleagues and peers, meet on a regular basis and discuss open access and the alternative solutions that the movement has to offer to the existing dysfunctional scholarly communications system. ECRs should also be aware of some of the unfortunate myths around open access. Some of the common arguments often used include the myth that open access avoids peer-review, or that open access revokes copyright, or that a publication without a subscription cost is a low quality publication. When encountering such cases ECRs can direct others to Peter Suber's book *Open Access* [2012], which is a very good start to demystify those myths or other reading in the open access literature.

Early career researchers can also express their open access interest to the librarians within their institution. Librarians are all too familiar with the journal subscription crisis, journal subscriptions rise higher than inflation [Frazier, 2001; Bosch and Henderson, 2013] and even the wealthiest universities cannot afford to renew journal subscriptions [Sample, 2012], and feel this effect first hand. They are also aware of the transformation of the scholarly communications system, during the previous two decades, but are also in a position to point out the emerging trends and practices towards open access and open science [Suber, 2007].

Open Access projects

General awareness of the development of open access has seen a significant growth and as a result there are many projects related to open access. Here the author presents a selection of projects that she benefitted from and has personally used while she was a doctoral student. These resources will assist ECRs in their search for open access scientific publications or in their effort to promote the open access movement.

COnnecting REpositories — CORE

CORE (http://core.ac.uk/) is one of the largest search engines for open access articles from all over the world. At the time of writing this paper, CORE was harvesting around 700 repositories and open access journals, had over 20 million records and around 2 million full-texts. The aim of this project is to collect all open access research outputs and make them discoverable from one place. By searching the CORE search engine, users are in a position to discover freely available peer-reviewed research outputs.

Open Access Button — OA Button

The goal of the OA Button (https://www.openaccessbutton.org/) project is to discover the number of research outputs that are behind a subscription paywall. The OA Button users can mark the research outputs they cannot access by downloading the OA Button bookmarklet. When users bookmark those restricted items, the system automatically connects to CORE and Google Scholar and searches for an available open access version of the same research output.

Open Access Tracking Project (OATP)

The OATP (http://tagteam.harvard.edu/hubs/oatp/items) uses social tagging to collect all the latest developments in open access to scientific research; the project does not limit itself to open access news only, but contains resources about open data, open educational resources and anything related to open science. The project's aims are to provide a real-time information service with news related to open access and to organise open access knowledge. Those who are interested in the latest developments of open access can subscribe to the daily news feed.

SPARC Europe Open Access Diary

In an effort to capture open access progress in Europe, the SPARC Europe Open Access Diary (http://sparceurope.org/oadiaryeurope/) collects data related to Europe from the OATP and then highlights the most important news, such as open access funders' policies, presentations, and other news related to the movement. Users can visit this site to get information about the open access progress in their country or get information about the progress of open access in Europe.

Right to Research Coalition — R2RC

The R2RC (http://www.righttoresearch.org/) is a student and early career researcher organisation that aims to promote open access. The coalition members support the position that students should have access to *all* research articles they require and not only to those that their institutions subscribe to. Users can join the R2RC for two reasons: to become educated about open access and to promote open access in their institutions or subject fields.

OpenCon

The OpenCon (http://www.opencon2015.org/) is an annual conference aimed at students and early career researchers who are interested in the promotion of open access, open data and open science in general. The conference offers funding opportunities for students, while for those who cannot attend the conference, there is also free to access satellite live streaming.

Open Access Week

Every year, during the third week of October, the scholarly community celebrates the International Open Access Week (http://www.openaccessweek.org/) with events that take place world-wide. These events can be registered on the open access week website, which also contains plenty of open access ready to use advocacy material. Users can visit this resource to discover an open access event in their area, get ideas for open access events and download a variety of open access materials.

Facilitate Open Science Training for European Research — FOSTER

The FOSTER (https://www.fosteropenscience.eu/) project maintains a portal that contains resources on open science. According to the open science taxonomy (https://www.fosteropenscience.eu/resources) open access is a fundamental concept in the open science structure, therefore the users who visit this project will be in a position to discover resources and online courses relating not only to open access, but to all open science components.

Open Researcher and Contributor ID (ORCID)

ORCID (http://orcid.org/) assigns a unique identifier to researchers, by which they can identify themselves and link their publications. The use of this ID enables researchers to map a whole project, by linking grant submissions to research outputs. Currently, some funding agencies require the use of ORCID IDs as part of their policies' compliance requirements.

Conclusions

In this competitive, yet malfunctioning, scholarly communications system, ECRs can increase the visibility of their research outputs by choosing to open up the findings of their research. Open access increases the number of citations of the research outputs, assists with demonstrating a research and societal impact for their research, enables compliance with funders' open access policies and, when funders' open access requirements are fully implemented, it secures research funding. Open access advocacy is a crucial strategy for the promotion of open access and ERCs could efficiently and effectively speed up the adoption of open access by sharing their testimonies on how they have used and benefited from open access.

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References

Arnold, E., Mahieu, B., Stroyan, J., Campbell, D., Carlberg, M., Giaracca, F., Horvath, A., Jávorka, Z., Knee, P., Meijer, I., Sidiqi, S. and Wagner, C. (2011). *Understanding the long term impact of the framework programme: Final report to the European Commission. EPEC*. URL: http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/long_term_impact_of_the_fp.pdf.

Bazeley, P. (2003). 'Defining 'early career' in research'. *Higher Education* 45 (3), pp. 257–279. DOI: 10.1023/A:1022698529612.

Björk, B. C., Roos, A. and Lauri, M. (2011). 'The Development of Open Access Journal Publishing from 1993 to 2009'. *PLoS One* 6 (6), e20961. DOI: 10.1371/journal.pone.0020961.

Björk, B. C., Welling, P., Laakso, M., Majlender, P., Hedlund, T. and Guõnason, G. (2010). 'Open access to scientific journal literature: Situation 2009'. *PLOS One* 5 (6), e11273. DOI: `10.1371/journal.pone.0011273`.

Bosch, S. and Henderson, K. (2013). *The Winds of Change: Periodicals Price Survey.* URL: `http://lj.libraryjournal.com/2013/04/publishing/the-winds-of-change-periodicals-price-survey-2013`.

Budapest Open Access Initiative (2001). *Read the Budapest Open Access Initiative.* URL: `http://www.budapestopenaccessinitiative.org/read`.

Donovan, J. M., Watson, C. A. and Osborne, C. (2014). *The open access advantage for American Law Reviews.*

European Commission (2014). *Consultation on "Science 2.0: Science in Transition".* URL: `https://ec.europa.eu/research/consultations/science-2.0/consultation_en.htm`.

FOSTER (2014). *Open Science Definition*. URL: `https://www.fosteropenscience.eu/foster-taxonomy/open-science-definition`.

Frazier, K. (2001). 'The librarians' dilemma — contemplating the costs of the "Big Deal"'. *D-Lib Magazine* 7 (3). URL: `http://www.dlib.org/dlib/march01/frazier/03frazier.html`.

Frisch, N. K., Nathan, R., Ahmed, Y. K. and Shidham, V. B. (2014). 'Authors attain comparable or slightly higher rates of citation publishing in an Open Access journal (CytoJournal) compared to traditional cytopathology journals — a five year (2007–2011) experience'. *Cytojournal* 11 (10). DOI: `10.4103/1742-6413.1317201439`.

Gargouri, Y., Larivière, V., Gingras, Y., Carr, L. and Harnad, S. (2012). 'Green and Gold Open Access percentages and growth, by discipline'. In: *17th International Conference on Science and Technology Indicators (STI).* (Montreal, CA, U.S.A. 5th–8th September 2012). URL: `http://eprints.soton.ac.uk/340294/`.

Geneva, H. (2003). 'On-line publishing in the 21st Century: Challenges and opportunities'. *D-Lib Magazine* 9 (10). URL: `http://www.dlib.org/dlib/october03/henry/10henry.html`.

Grigorov, I., Elbaek, M., Rettberg, N. and Davidson, J. (2015). 'Winning Horizon 2020 with Open Science'. Publication by FP7 FOSTER (GA 612 425) and FP7 OpenAIRE (GA 246 686). DOI: `10.5281/zenodo.12247`.

Higher Education Funding Council of England (2011). *Weighting of research impact confirmed for 2014 Research Excellence Framework.* URL: `http://www.hefce.ac.uk/news/newsarchive/2011/Name,94286,en.html`.

Hobbs, R. F. (2006). 'How should we rate research? The U.K.'s current system can be improved but shouldn't be discarded'. *British Medical Journal* 332 (7548), pp. 983–984. URL: `http://www.bmj.com/content/332/7548/983`.

Koler-Povh, T., Juznic, P. and Turk, G. (2014). 'Impact of Open Access citation of scholarly publications in the field of civil engineering'. *Scientometrics* 98 (2), pp. 1033–1045.

Kurmis, A. P. (2003). 'Understanding the limitations of the journal impact factor'. *Journal of Bone and Joint Surgery* 85 (12), pp. 2449–2454.

Laakso, M. and Björk, B. C. (2012). 'Anatomy of open access publishing: a study of longitudinal development and internal structure'. *BMC Medicine* 10, p. 124. DOI: `10.1186/1741-7015-10-124`.

McVeigh, M. (2004). *Open Access Journals in the ISI Citation Databases: Analysis of Impact Factors and Citation Pattern. A citation study by Thomson Scientific*. URL: `http://ip-science.thomsonreuters.com/m/pdfs/openaccesscitations2.pdf`.

Morrison, H. (2015). 'Dramatic growth of open access 2015 first quarter'. *The Imaginary Journal of Poetic Economics. Weblog*. URL: http://poeticeconomics.blogspot.co.uk/2015/04/dramatic-growth-of-open-access-2015.html.

OASIS (2012). *Open Access Journals: business models. Open Access Scholarly Information Sourcebook: Practical Steps for Implementing Open Access*. URL: http://www.openoasis.org/index.php?option=com_content&view=article&id=347&Itemid=377.

Peek, R. and Newby, G. B., eds. (1996). Scholarly Publishing: The electronic frontier. Cambridge, Massachusetts, U.S.A.: MIT Press.

Pinowar, H. A. and Vision, T. J. (2013). 'Data reuse and the open citation advantage'. *PeerJ* 1, e175. DOI: 10.7717/peerj.175.

Research Information Network (2010). *Open to All? Case studies for openness in research. A joint RIN/NESTA report*. URL: http://www.rin.ac.uk/system/files/attachments/NESTA-RIN_Open_Science_V01_0.pdf.

Rylance, R. (2015). 'Great giving: Global funders to focus on interdisciplinarity'. *Nature* 525 (7569), pp. 313–315. DOI: 10.1038/525313a.

Saha, S., Saint, S. and Christakis, D. (2003). 'Impact factor: a valid measure of journal quality?' *Journal of the Medical Library Association* 91 (1), pp. 42–46. URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC141186.

Sample, I. (2012). *Harvard University says it can't afford journal publishers' prices*. URL: http://www.theguardian.com/science/2012/apr/24/harvard-university-journal-publishers-prices.

Sastry, T. and Bekhradnia, B. (2014). *Using metrics to allocate research funds: initial response to the Government's consultation proposals*. URL: http://www.hepi.ac.uk/wp-content/uploads/2014/02/23RAEandmetricsfullreport.pdf.

Seglen, P. O. (1997). 'Why the impact factor of journals should not be used for evaluating research'. *British Medical Journal* 314 (7079), pp. 498–502. URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2126010/?tool=pmcentrez.

Sompel, H. V., Payette, S., Erickson, J., Lagoze, C. and Warner, S. (2004). 'Rethinking scholarly communication: Building the system that scholars deserve'. *D-Lib Magazine* 10 (9). URL: http://www.dlib.org/dlib/september04/vandesompel/09vandesompel.html.

SPARC Europe (2014). *The Open Access Citation Advantage: Summary of results of studies*. URL: http://sparceurope.org/oaca_list/.

Suber, P. (2007). *What can you do to promote open access*. The SPARC Open Access Newsletter. URL: http://legacy.earlham.edu/~peters/fos/do.htm.

— (2012). Open access. Boston, MA, U.S.A.: MIT Press.

Vanclay, J. K. (2011). 'Impact factor: Outdated artifact or stepping-stone to journal certification?' *Scientometrics* 92, pp. 211–238.

Wohlrade, K. and Birkmeier, D. (2014). *Do Open Access articles in economics have a citations advantage?* URL: http://mpra.ub.uni-muenchen.de/56842/1/MPRA_paper_56842.pdf.

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