



## Open Science helps researchers get the impact they deserve

By Max Haring

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### A more transparent future for academic publishing thanks to Science 2.0

Publishing your research results is not easy. Writing an article takes a lot of time and effort but even finding the right journal can be a chore: in May 2015, Elsevier's [Scopus](#) features 23,600 journals, Thomson Reuters' [Web of Science](#) includes 17,066 titles and the Directory of Open Access Journals ([DOAJ](#)) has 10,580 journals that offer Open Access. Any topic of general interest is most likely catered for by numerous journals—open access and traditional—in a wide range of impact and quality. And there are many other decisions to be made before results can be published.

### Overcoming publishing hurdles

From my experience at Springer I know that most established journals have rejection rates well above 50%. This means that the majority of submitting researchers will be disappointed. This often happens before peer-review and for many not because their study was flawed: a rejection before peer-review simply indicates the researcher picked the wrong journal. It could be that the topic of the study is not something covered by the journal, or that the topic is right but the study may not have had the level of impact the journal was looking for.

When looking for a journal to publish their work, researchers also need to take into account factors like publication licenses; they can choose between subscription, hybrid or full open access [with several possible licenses](#). When an article fee is in place a researcher needs to investigate [funding possibilities](#) or institutional membership such as with [Biomed Central](#).

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They also need to be aware of different peer-review models, be it open, single or double blind. In addition they need to take into account funder and institutional mandates for data preservation and manuscript deposition in institutional repositories. It is a lot of work.

And the stakes are high. Not complying with funder rules means future funding can be [jeopardised](#) whereas publishing in high-impact journals is still needed to advance a research [career](#). And there are more potential pitfalls: for example, not following rules for publishing- or medical ethics may lead to a retraction and bad [press](#), as shown by the [complexity](#) of the case associated with the recent publication of an analysis of the HeLa cells genome without the [Lack family's consent](#).

### Mega-journals rise

In response to this increase level of complexity in publishing we have seen an increase in popularity of the [mega-journals](#), initiated by [PloS One](#). These journals are peer-reviewed open access journals focused on a broad discipline such as physics, biology and/or medicine. They distinguish themselves by exerting low selectivity before accepting articles. And they focus on providing author services; making submission easy and peer-review more efficient. Traditional publishers' mega-journals include Springer's [SpringerPlus](#) and Nature's [Scientific Reports](#), among others.

Publishers often link low-impact mega-journals to established high-impact titles, giving rise to a journal 'dichotomy'. Namely, a set of prestigious journals working together with a mega-journal help authors publish their work efficiently and conveniently.

The focused high-impact journals are very selective and peer-review is extensive: the researcher is often asked for additional experiments to strengthen their case and the manuscript will go through several rewrites. That is a lot of effort but the reward is high: publishing in a high-impact journal seriously helps in advancing the research career of its authors.

Only a limited number of manuscripts make the cut and many are rejected before or after peer-review. These manuscripts may subsequently be offered a seamless transfer to the associated mega-journal. The inclusive scope means the work will not be rejected because the topic is not covered or the study lacks prestige. And peer-reviews are included to allow for a quick decision.

This trend of associating high-impact journals with mega-journals is likely to continue. And more traditional journals may have a hard time competing with the convenience delivered by mega-journals. Perhaps, we will also see a separation between publication of data and the publication of the interpretation thereof; we might see journals for articles that not contain data but only discuss data published in an open research data platform.

Fast forward some years, and a few mega-journals might dominate lower impact ranges, while specialised journals will capture higher-impact work. Because the mega-journals are large and interdisciplinary this makes the impact factor, which reflects citations for the entire journal and not an individual article, less important. Instead, we rely on alternative metrics to look at the 'story' of a paper: did it have impact on society—via social media—or on patients—via blogs, patients groups, etc.—or on academics—via citations. These results should be interpreted carefully using new tools, such as [Altmetric](#).

### Open metrics: measure impact beyond citations

Most mega-journals are Open Access and that offers many advantages to authors. Choosing Open Access for a journal article or dataset ensures compliance with most funder mandates, such as that of projects funded under [Horizon 2020](#). Meanwhile, the large potential audience for open research often results in an attractive citation advantage, as [demonstrated](#) in studies by SPARC Europe.

In addition, publishing Open Access allows the article to be shared and discussed without copyright restrictions on post-publication networking platforms for researchers, such as Mendeley, ResearchGate and PubPeer.

Being open also means that some research may be suitable for [citizen science](#) project, giving the public an opportunity to engage with the research. Meanwhile, scientists are increasingly encouraged to engage with the

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public, as demonstrated by the initiative of the [European Southern Observatory](#). This approach is also supported by funds from the Horizon2020 'Science with and for society' [scheme](#).

Open Access publishing also helps to measure impact in a broader way. Open Access makes it possible to rely on alternative metrics, or [altmetrics](#), to combine academic citations with social media mentions and likes, post-publication discussions and download numbers into new and informative scores, such as Springer's altmetrics for books, [bookmetrix](#). The combination of all these various way of measuring the success of research does not just rate an article but also help to explain the story of its impact beyond academia.

A big advantage of this new approach is that it allows a researcher to be rewarded for research that was not cited a lot by peers but made an impact to others, that made an impact on society. An example could be a nature conservation papers discussing ecology of a certain region. The impact of such an article is local and it will probably not receive a lot of academic citations. But the importance for the region can be significant and the researcher should receive credit accordingly.

Because everything is open the impact scores are transparent and for everyone to verify and understand. And this helps an article to get the appreciation it deserves without the need for the rub-off prestige from a high-impact journal. Making research open, not just for articles but also for [data publication](#), peer-review, discussions and metrics, helps all researchers to publish effectively, transparently and with the highest possible [impact](#), not only for academics, but on society as a whole.

[Max Haring](#)

Max is the executive editor for [SpringerPlus](#), Springer's peer-reviewed open access mega journal for research in all disciplines.

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