WHITE PAPER

# Supporting Value: How Rigorous Processes & Collaborations Help Ensure Research Integrity

Predatory journals are on the rise. Researchers at every level, from early career to senior, may unwittingly publish in such journals. But the contrast with reputable journals is quickly apparent in the lack of professionalism that pervades the look, requirements and procedures of such journals. Rigorous processes implemented by reputable publishers may take time, but they help ensure that published research meets high ethical and quality standards, preserves scientific integrity, protects researchers from unwarranted use of their text and data, and remains accessible and discoverable for years to come. Further, reputable publishers are collaborating to make some of these processes easier and faster, without sacrificing accuracy and credibility.

ELSEVIER

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## Introduction

In response to what it terms "an emerging challenge" – namely, to ensure that scholarly publications are visible, impactful and trusted – STM, the global trade association for academic and professional publishers, issued a statement[1] in August 2018 that began as follows:

- The last decade has seen a worrying increase in the number of unethical research publications, as well as an exponential rise in so-called 'predatory' journals and publishers
- High levels of trust are vital to ensuring that the publication and sharing of research results helps to advance research, the global pool of knowledge and the careers of researchers and investigators
- Publication practices vary across both academic disciplines and countries, but there are common ethical standards and behaviors that ensure that articles that are published in trustworthy peer-reviewed journals are of the highest standards

There is no standard definition of "predatory journal," a term first used by Beall[2] to describe what he called "counterfeit journals" that "exploit the open-access model…and publish journals of questionable and downright low quality."

Shamseer et al[3] take a more process-driven approach, defining predatory journals as those that "actively solicit manuscripts and charge publication fees without providing robust peer review and editorial services." The authors compared 93 potential predatory journals identified from Beall's list[4] of predatory journals and publishers; 99 presumed legitimate open access journals; and 100 presumed legitimate subscription-based journals. Among the findings were spelling errors on predatory journals' homepages; distorted or possibly unauthorized images; fake impact factors; and editors or editorial board members with unverified affiliations.

## Should senior researchers be concerned?

In a word, yes. When senior researchers author articles that appear in questionable journals, often it is the result of delegating details related to submissions of "lesser" papers to junior authors, who may unwittingly consign a solid paper to a questionable journal[5]; if a senior author isn't paying attention to where the work is submitted, it may well be lost among papers of poor quality. Occasionally, even a senior researcher may be duped by a journal with a name or look close to that of a reputable journal.

Importantly, when articles published in predatory journals are cited in reputable journals and included in scholarly databases, poor science may be – albeit inadvertently – legitimized and perpetuated, potentially confounding future research.

Rigorous publication processes help ensure research integrity. For researchers, the most visible are article submission and peer review, both of which may be arduous and time-consuming. These processes now are the focus of cross-publisher initiatives that aim to make them more rapid and more transparent, given that they are vital for accuracy and trustworthiness. Peer review may feel slow because authors traditionally have not been kept informed about what's happening during peer review. Preprint servers that enable papers to be posted before or in parallel with peer review are helping to address that issue.[6]

Other processes that may not be visible to journal readers and researchers are also time-consuming and resource-intensive, mainly for publishers (see "Rigorous publication processes," page 4). Yet legitimate publishers accept that they are part of the costs of producing credible scholarly journals.

The system isn't perfect and honest errors (versus outright efforts to dupe) do occur. As in science, the industry strives to learn, build and, when feasible, improve upon current systems.

As STM noted, "we not only reaffirm our commitment to common ethical standards, but also state our desire to work collaboratively, across the entire scholarly communication ecosystem."[1]

This white paper highlights the publication processes and joint initiatives that are in place to protect both the credibility of science and the researchers who contribute to the advancement of it.

## SECTION ONE: Rigorous publication processes

Unlike predatory publishers that solicit manuscripts, charge researchers for publication costs but don't provide the services that can be expected from a scientific publisher, reputable publishers consistently apply rigorous processes from article submission through publication in order to:

- Thwart plagiarism and inaccurate image duplication. Reputable publishers use software such as Turnitin to check submissions for plagiarism and bring in experts when plagiarism is suspected. They also are taking steps to identify problematic images, particularly those with distortions and manipulations associated with inaccurate data.[7] One initiative that aims to route out problematic images is the HEADT Centre at the University of Humboldt, Berlin, Germany[8] supported by Elsevier, which is developing a databank of such images that all publishers can access and contribute to.
- Ensure content quality, integrity and reliability through robust peer review. Reputable publishers are committed to peer review, even while working to change it (see Collaborations, page 6). Indeed, a recent article[9] published in the European Journal of Internal Medicine suggests that peer review is experiencing "a new upturn" and in the process, "it is getting more open and collaborative."

Nonetheless, the authors state, "those same ethical principles which guided it from its very origin should remain untouched and be firmly consolidated," particularly with respect to "competence, conflict of interest, willingness to discuss decisions, complete transparency and integrity."

Reputable journals provide authors with information on their journal peer-review process works – e.g., whether it's single/double or open, the average time it takes, the rejection/acceptance rate.

The concept of open peer review is gaining traction; however, there are at least 22 different definitions of what that means.[10] A recent survey showed a generally favorable response to some traits generally associated with open peer review, including open interaction (the wider community can contribute to the process), open reports (reviews published alongside the article) and final-version commenting; however, more than half of respondents were against opening reviewer identities to authors.[11]

Right now, less than 3% of scientific journals allow peer reviews to be published[12] but, despite the challenges, this is predicted to increase as some of the collaborations described (below), and others, gain traction. Recently, Wiley announced a new open peer review workflow.[13]

- Enable durability. A predatory publisher can easily set up a website and post articles on it. But how long will the website last? If it's not there in five years, it's likely that the published articles won't be around, either. In reputable journals, every article has a digital object identifier that provides an "actionable, interoperable, persistent link."[14] Copies of all articles are also deposited in libraries such as Portico,[15] to ensure usability, accessibility and discoverability well into the future.
- Facilitate author education. Predatory publishers are unlikely to be concerned about the professional preparation of a manuscript or ethical considerations, such as disclosures of study funding or conflicts of interest. Reputable publishers include comprehensive authors' guides, provide educational resources and conduct workshops to help authors submit articles that meet the journal's standards and requirements the first time around.
- Facilitate information navigation and assessment. Reputable publishers use tools and technologies to enable optimum content utility, helping to ensure that published articles are quickly discoverable by other researchers, including potential collaborators; easy to search and navigate, which can facilitate citation; and visible in trusted journal brands.
- Facilitate data sharing. Funding organizations, including the US National Institutes of Health and the National Science Foundation, are making access to primary data, samples and other supporting research materials open to all. Europe's Open Research Data Pilot aims to make the research data generated by Horizon 2020[16] projects accessible "with as few restrictions as possible, while at the same time protecting sensitive data from inappropriate access."[17]

These efforts are important because data sharing makes research more controllable and replicable; avoids unnecessary duplication of efforts, thereby making more money available for novel research; can increase the statistical power of analyses in cases where researchers have acquired similar datasets; and can foster collaborations as well as multidisciplinary studies.

These efforts also are only as valuable as the quality of the included data. Publishing in reputable journals makes it more likely that a research team's data will be considered worthy of consideration.

# SECTION TWO: Collaborative initiatives and tools

Elsevier and other reputable publishers are working individually and together with each other and with researchers and nonprofit organizations to improve their processes, enabling authors to submit and publish high quality articles in authoritative journals.

Following is an overview of collaborative organizations and initiatives in key areas important to reputable publishers:

## Standards

Reputable publishers are members of organizations that support and facilitate the highest publishing standards.

### STM

The International Association of Scientific, Technical and Medical Publishers (STM) is the leading global trade association for academic and professional publishers. It has over 120 members in 21 countries who, as of 2012, published close to two-thirds of all journal articles and tens of thousands of monographs and reference works.

https://www.stm-assoc.org/

### COPE

The Committee on Publication Ethics aims to "move the culture of publishing towards one where ethical practices become the norm."

https://publicationethics.org/

### CrediT

This Consortia Advancing Standards in Research Administration Information (CASRAI) initiative provides a standard taxonomy that supports the way authors describe the specific contribution they've made to a paper.

https://casrai.org/credit/

### NISO

The National Information Standards Organization produces information standards that enable publishers, libraries and software developers to work together and collaborate on mutually accepted operational standards.

https://groups.niso.org/home

## Peer review

Surveys show that although it can be improved, most members of the scientific community agree that peer review is the best system in place for ensuring quality and integrity. Recognizing the need for improvement in various facets of the process, these initiatives are underway.

### ORCID

ORCID provides an Open Researcher and Contributor ID — a unique, persistent digital identifier — to every researcher, supporting automated links between manuscript and grant submissions as well as peer review contributions through Mendeley.

https://orcid.org/blog/2017/09/15/peer-review-orcid-community

### PEERE

New Frontiers of Peer Review aims to improve efficiency, transparency and accountability of peer review through a trans-disciplinary, cross-sectorial collaboration. The objective is to analyze peer review in different scientific areas and evaluate the implications of different models of peer review.

To help PEERE achieve this goal, Elsevier, Springer Nature and Wiley have agreed on a data sharing protocol that enables the organization to have access to peer review data for some of their journals.

http://www.peere.org/

### Sense about science

Sense About Science is an independent charitable trust, championing evidence, scientific reasoning and a public discussion of scientific issues. For the past 12 years, the organization has worked to promote an understanding of peer review among journalists, policymakers and the public as well as to engage and inspire early career researchers to stand up for science in public debates around the world.

http://senseaboutscience.org/

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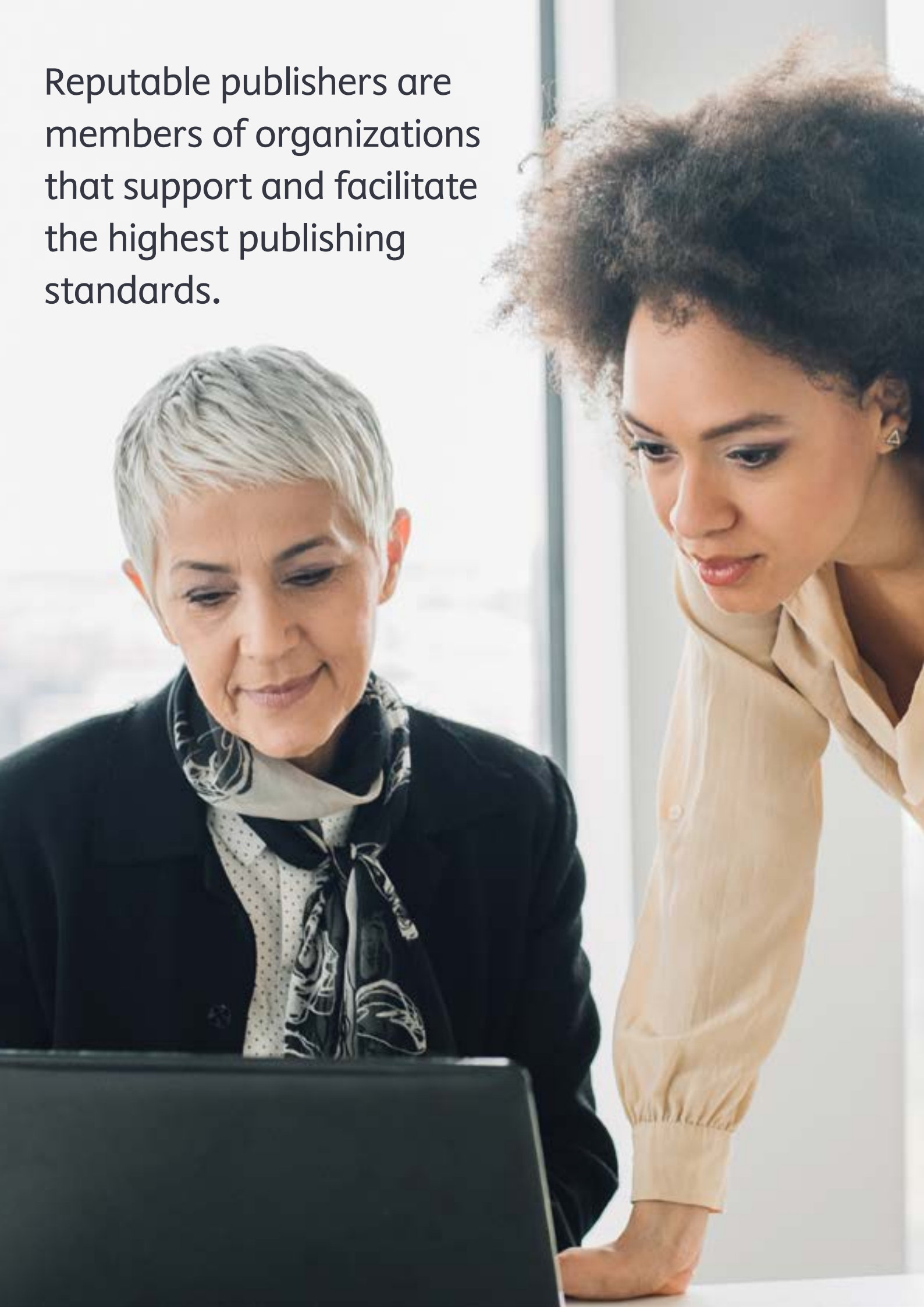


## Submissions

Many reputable publishers offer authors some type of transfer service to support the need for multiple submissions; if an article is rejected by one of its journals, the submission application can easily be transferred to another of its journals, often recommended by the publisher. Examples include:

### Article Transfer Service

Enables rapid manuscript transfers among Elsevier journals.

https://www.elsevier.com/authors/journal-authors/submit-your-paper/submit-and-revise/article-transfer-service

### Cogent Transfer Service

Enables rapid manuscript transfers among Taylor & Francis/ Routledge journals.

https://www.cogentoa.com/editorial-policy/the-cogent-transfer-service

### Manuscript Transfer Program

Enables rapid manuscript transfers among Wiley journals.

https://authorservices.wiley.com/open-science/open-access/about-wiley-open-access/manuscript-transfer-program.html

### MECA: Manuscript Exchange Initiative

Working on providing a common approach to moving manuscripts between platforms and publishers.

https://www.manuscriptexchange.org/wp-content/uploads/2018/06/MECA_JATS-Con_2018_for_distribution.pdf

### Penelope

The Equator network provides this tool to help authors ensure that their manuscripts meet journal requirements.

https://www.penelope.ai/

### The Transfer Desk

Enables rapid article transfers among Springer journals.

https://www.springer.com/gp/authors-editors/journal-author/the-springer-transfer-desk

## Data sharing

As noted above, funding organizations in the US and Europe increasingly are requiring public access to the data underpinning published research. Elsevier and other reputable publishers support the STM principle that "raw research data should be made freely available to all researchers."[18] The following collaborative organizations are working in this direction.

### CrossRef

Facilitates article registration, linking, data sharing and discovery.

https://www.crossref.org/

### Force11

Committed to the concept that "sound, reproducible scholarship rests upon a foundation of robust, accessible data."

https://www.force11.org/datacitationprinciples

### Pistoia Alliance

This global, not-for-profit alliance of life science companies, vendors, publishers, and academic groups work together to promote innovation in R&D through collaborations.

https://www.pistoiaalliance.org/

### Research Data Alliance

RDA is a community-driven organization launched in 2013 by the European Commission, the United States National Science Foundation and National Institute of Standards and Technology, and the Australian Government's Department of Innovation. The goal is to build a social and technical infrastructure that enables open sharing of data globally.

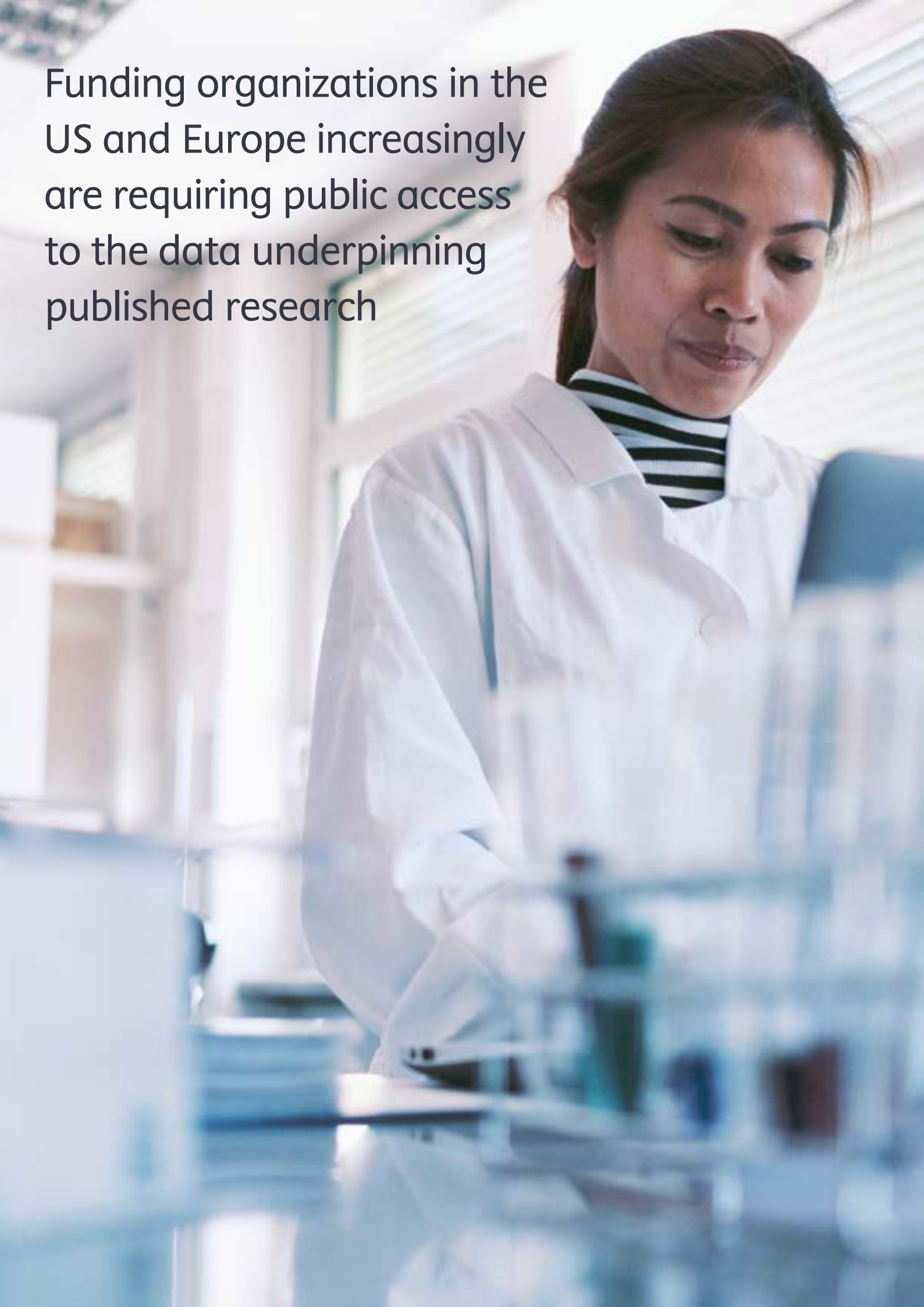
https://www.rd-alliance.org/

### Scholix

Scholix stands for "(a Framework for) Scholarly Link Exchange." Through a consensus achieved by journal publishers, data centers, and global service providers, the aim is to create an open global information ecosystem to collect and exchange links between research data and literature.

http://www.scholix.org/

Funding organizations in the US and Europe increasingly are requiring public access to the data underpinning published research



## Looking Ahead

Predatory publishers are unlikely to perform rigorous processes, respect scientific publishing standards, or join organizations in which publishers, researchers, and other stakeholders work together to effect meaningful change. Ongoing and emerging collaborative initiatives are reinforcing the robust requirements for publication in reputable journals, and at the same time making it easier and faster to do so.

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17. https://www.openaire.eu/what-is-the-open-research-data-pilot
18. https://www.stm-assoc.org/public-affairs/resources/brussels-declaration/


## RESOURCES

The following freely available compilations of articles and tools can be used to support research accuracy, the quality of research articles and the quality of the journals and publishers.

**Elsevier Reviewer Hub**
Help for reviewers: how to conduct a review, manage it, structure it and receive credit for your work.
https://www.elsevier.com/reviewers

**Elsevier Researcher Academy**
Compilation of numerous online resources to support researchers in preparing a submission, writing an article, selecting a journal, navigating peer review, and ensuring visibility and social impact.
https://researcheracademy.elsevier.com/learn

**Equator Network**
Online library for health research reporting, including guidelines and toolkits.
http://www.equator-network.org/

**Reporting checklists for medical researchers**
Checklists that help authors report research "clearly and fully."
http://www.goodreports.org/

**StatCheck**
Enables an author to check a PDF, DOCX or HTML file for errors in statistical reporting.
http://statcheck.io/

**StatReviewer**
Automated review of statistical and reporting integrity for scientific manuscripts, with a report that resembles an actual peer review or a checklist, depending on journal-specified guidelines.
http://www.statreviewer.com/

**Think Check Submit**
A simple checklist researchers can use to assess the credentials of a journal or publisher.
https://thinkchecksubmit.org/