

# **Scholarly Publishing at Helmholtz**

**Status Quo, Scenarios for Scholar-Led  
Publishing – A Discussion Paper**

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## Contents

Scholarly publishing: Status quo and need for action.....	2
Publishing corporations dominate the scholarly publishing system .....	2
AI: New dimensions for the scholarly publishing ecosystem .....	3
Strengthening the strategic autonomy of science: Scholar-led publishing as a solution.....	4
Stakeholder groups for an implementation of scholar-led publishing .....	5
Next steps .....	6

# Scholarly publishing: Status quo and need for action

Accessible publication of the results, data and ideas resulting from research is a fundamental part of how science functions, how it advances, and how scientific evidence is used in different settings, from health care to disaster response to education.<sup>1</sup>

Access to research results and research products through publication is at the core of scientific work. The discussion about by whom and with what interests the future of the scholarly publishing system should be controlled and further developed will fundamentally determine the future of scientific work, and thus key questions of scientific self-concept and the autonomy of scientific action.

Extensive developments are taking place at a very dynamic pace in the scholarly publishing system. Key factors are digitalization and open access as standard in scholarly publishing. Furthermore, the steadily increasing monopoly structures of publishers and accompanying changes in their business models, as well as the increasing use of AI-based tools have a great influence.

To publish their research results, researchers submit knowledge to publishing service providers, usually in the form of publication-ready manuscripts. Researchers enable this free of charge for the publishers, as part of their scientific work. The assurance of the quality of scholarly manuscripts by performing editorial or review activities for scholarly journals also takes place in this framework. However, scientific institutions and their employees not only supply the publishers with these "raw materials" on which highly lucrative business models are based; paradoxically, they also pay the publishers for access to these very materials. Institutions in Germany spend hundreds of millions annually on the services of these providers; globally, the business field of academic publishing is now a billion-euro market.<sup>2</sup>

Although transformative agreements with large commercial providers<sup>3</sup> create advantages for science in the sense of open access to scholarly articles, they encourage further market monopolies. Transformative agreements should be viewed and further developed as an interim step toward necessary structural reforms but should not be considered permanent solutions. The original objective of encouraging a comprehensive switch to purely open access models by means of transformative agreements has not been achieved to date.<sup>4</sup>

## Publishing corporations dominate the scholarly publishing ecosystem

In addition, the large publishing corporations are increasingly consolidating the entire ecosystem of scholarly publishing in the hands of a few: by providing integrated tools for researching, analyzing, and creating manuscripts, these publishers guide authors

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<sup>1</sup> International Science Council. The Future of Scientific Publishing: <https://council.science/actionplan/why-scientific-publishing-matters>.

<sup>2</sup> Hagve, M. (2020). Pengene bak vitenskapelig publisering [The money behind scientific publishing]. *Tidsskrift for Den Norske Legeforening*. <https://doi.org/10.4045/tidsskr.20.0118>

<sup>3</sup> Such as those negotiated by DEAL: <https://deal-konsortium.de/en/>

<sup>4</sup> Frank Vrancken Peeters: Das Wissenschaftsrat am Laufen halten [Keeping the Wheel of Science Turning]. (2022). *buchreport*. <https://www.buchreport.de/news/das-wissenschaftsrat-am-laufen-halten/>

to their own journals by making submission easier. Through linking, secondary exploitation (e.g., articles about recently published works), or the restriction of search results to publications in their own journals, publishers promote and disseminate mainly their own offerings. When manuscripts are rejected, they are forwarded via internal mechanisms to other journals owned by the publisher. Furthermore, the publishing corporations often buy up established tools for scientific work and integrate them into their ecosystems. When using these tools, authors are often unaware that they are already operating in a specific publishing context (and that they will also be staying there).<sup>5</sup>

As the development of digital data analysis and data tracking progresses, more and more possibilities are opened up for the centralized holding and compiling of first-party data<sup>6</sup> following the example of large tech companies such as Google or Amazon. Through potentially ever deeper secondary exploitation, for example, trends can be identified, and profiles of researchers can be created, which enables the publishers to conduct target-group-specific advertising and to analyze the data for the design of new consultancy offerings and data services, inter alia for application in research assessment.<sup>7</sup>

It goes without saying that information offerings about the publishers of the platforms can also be used beyond scientific criteria to specifically guide searchers to the publishers' own journals ("Amazon effect"). Noteworthy in this context is, for example, the fact that the listed company RELX (Elsevier) was able to achieve a profit margin of over 60% last year, which is comparable to that achieved by Apple and Google. The net profit (before tax) for 2022 increased by around 13%.<sup>8</sup> These numbers suggest that this worrying development is well underway. Thus, actors that are neither active in nor primarily committed to science are acquiring significant influence on research-content and career-relevant decisions as well as on the marketing of highly relevant knowledge-based information.

## AI: New dimensions for the scholarly publishing ecosystem

With the spread of artificial intelligence (AI) and systems based on large language models, this development will reach a new dimension. Knowledge mining based on these technologies offers not only new ways of gaining in-depth knowledge from data sources but also further potential for subtle ways of exerting influence on the strategic planning of scientific organizations and institutions. Furthermore, there is a danger that proprietary mechanisms and tools will establish themselves in the context of research assessment.<sup>9</sup>

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<sup>5</sup> Siems, Renke. (2023). "Überwachen und Strafen" - Tracking und Kontrolle des Forschungszyklus [Surveil and Punish - Tracking and Control of the Research Cycle]. *ABI Technik*, 43(2), 86-95. <https://doi.org/10.1515/abitech-2023-0016>

<sup>6</sup> First-party data are data that providers can collect and preserve based on their own systems and sources.

<sup>7</sup> Deutsche Forschungsgemeinschaft (2021). Data Tracking in Research: Aggregation and Use or Sale of Usage Data by Academic Publishers: A Briefing Paper of the Committee on Scientific Library Services and Information Systems of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation). <https://doi.org/10.5281/zenodo.5937995>

Buranyi, S. (2017). Is the staggeringly profitable business of scientific publishing bad for science? *The Guardian*. <https://www.theguardian.com/science/2017/jun/27/profitable-business-scientific-publishing-bad-for-science>

<sup>8</sup> RELX (2023). RELX 2022 Results. <https://www.relx.com/media/press-releases/year-2023/relx-2022-results>

<sup>9</sup> German Science and Humanities Council (WR). (2022). Recommendations on the Transformation of Academic Publishing to Open Access. 124 pp. (see Sections 1.2.c and 1.2.d). [https://www.wissenschaftsrat.de/download/2022/9477-22\\_en.pdf?\\_blob=publicationFile&v=22](https://www.wissenschaftsrat.de/download/2022/9477-22_en.pdf?_blob=publicationFile&v=22)

The fact that publishing corporations are increasingly consolidating the entire scholarly publishing ecosystem in the hands of a few, collecting significant amounts of first-hand usage data in a largely unregulated way, and can analyze, link, and interpret these data to a hitherto unknown extent by means of the advancing possibilities of artificial intelligence and the technologies of knowledge mining is increasingly endangering the sovereignty of science.

## Strengthening the strategic autonomy of science: Scholar-led publishing as a solution approach

Over the past year, various organizations, professional associations, research performing and research funding organizations, and policymakers have published statements calling for decision-making authority and responsibility to once again be more in the hands of science. The transformation of the scholarly publishing system to open access as standard has laid the basis whereby scholar-led publishing models can be considered for this purpose.

These demands were also formulated by the Council of the European Union in its Conclusions:

[The Council of the European Union] NOTES that the current system of scholarly publishing is operated by various for-profit and not-for-profit organisations and RECOGNISES with concern that the increasing costs of paywalls for access to scientific publications and for scholarly publishing cause inequalities and are becoming unsustainable for public research funders and institutions accountable for the spending of public funds, decreasing funding available for research; HIGHLIGHTS the importance of not-for-profit open access publishing models that do not charge fees to authors or readers and where authors can publish their work without funding/institutional eligibility criteria; NOTES the variety of models that do not depend on article processing charges or similar per-unit charges and STRESSES the importance of supporting the development of such models led by public research institutions.<sup>10</sup>

Scholar-led publishing underscores the role of the researchers themselves in assuring the quality of the published scientific results and their distribution channels. This can be realized through appropriate governance approaches, sustainable infrastructures, and suitable quality assurance measures within the scientific domain itself – and the simultaneous acceptance of these new approaches in research assessment. Diamond open access, whose business models are not profit oriented, are a promising vehicle in this regard.

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<sup>10</sup> Council of the European Union, Council Conclusions on High-Quality, Transparent, Open, Trustworthy and Equitable Scholarly Publishing (approved on 23 May 2023): <https://data.consilium.europa.eu/doc/document/ST-9616-2023-INIT/en/pdf>

Deutsche Forschungsgemeinschaft. (2023). Statement of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) on European Council Conclusions on "High-Quality, Transparent, Open, Trustworthy and Equitable Scholarly Publishing." <https://www.dfg.de/re-source/blob/203662/2cdad4a0000071c43f2fae244c8a2614/stellungnahme-wiss-publizieren-en-data.pdf>

Federal Ministry of Education and Research (BMBF), Standing Conference of the Ministers of Education and Cultural Affairs of the Länder (KMK). (2023). Open Access in Germany. Joint Guidelines of the Federal Government and the Länder (8. Promoting Diversity, Minimizing Market Concentration). [https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/FS/772970\\_Open\\_Access\\_in\\_Deutschland\\_en.pdf?blob=publicationFile&v=4](https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/FS/772970_Open_Access_in_Deutschland_en.pdf?blob=publicationFile&v=4)

# Stakeholder groups for an implementation of scholar-led publishing

A first Helmholtz-wide forum event<sup>11</sup> in April 2023 documented the wide interest in the topic from within the Association and showed by means of several examples that an extensive landscape of scholar-led implementation options already exists in the natural sciences.

One important result of the event was the confirmation that the successful implementation of scholar-led publishing depends on the interplay of three key stakeholder groups:

- **Scientific communities**

Scientific communities are a key element here. Their impetus and commitment are at the core of a strategy for implementing scholar-led models. They formulate their needs and use their existing structures and networks. On the one hand, their members are the relevant publishing authors and readers; on the other hand, their engagement in the editorial process is indispensable. The switch to scholar-led models or the founding of new scholar-led journals always takes place on the initiative of a scientific community.

- **Libraries**

Funding models for scholar-led publishing assign an important role to libraries. Support for scholar-led-capable business models that are not financed through publication charges must become an integral task for libraries when using their budgets. Financial support from libraries, but also support in the form of various advisory and supportive measures, is thus one of the elementary foundations for the success of scholar-led models.

- **Publishing service providers**

Publishing service providers that provide the technical and, where applicable, organizational basis for scholar-led publishing are also indispensable. These services can be provided by scientific infrastructures (e.g., libraries), non-profit service providers or - regulated by appropriate governance - also by commercial providers.

The central guiding principle for the successful implementation of scholar-led publishing is to retain or regain the strategic autonomy of science. This requires:

- appropriate governance models,
- regulation of financial flows,
- and sustainable use of funds and resources.

Successful implementation of scholar-led publishing guarantees publishing channels that are not controlled by commercial interests, and thus contributes to a shift toward quality instead of quantity.

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<sup>11</sup> Ferguson, L. M., Meistring, M., Bertelmann, R., van Edig, X., Elm, J., Lexis, H., Milius, S., Bauin, S., Schwennsen, F., Singstad, B.-J., Tobias, R., Tsoukala, V. (2023). Helmholtz Open Science Forum "Scholar-Led Publishing at Helmholtz" (Helmholtz Open Science Briefing), Potsdam: Helmholtz Open Science Office, 119 pp. <https://doi.org/10.48440/os.helmholtz.064>

The Helmholtz Open Science Policy already offers several suggestions in this regard: "In order to organize open science according to the above-mentioned principles, Helmholtz will:

- [...] support researchers in implementing it by providing infrastructures [...];
- develop and expand central open science infrastructures, such as publication platforms, in-house publishers, repositories, and consultancy services, and will promote the networking of these infrastructures at international level;
- ensure the funding of these digital information infrastructures for science;
- bear the costs of publishing services provided by publishers and other service providers on condition that their pricing and cost structures are reasonable and transparent [...]."<sup>12</sup>

## Next steps

With the Helmholtz Working Groups Open Science and Library and Information Management, initial thoughts on strategies for action on the part of the various stakeholder groups have already been discussed. This discussion process will be continued and extended to include further groups. Ideas and suggestions are welcome!

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<sup>12</sup> Helmholtz Association (Ed.). (2022) Helmholtz Open Science Policy. Version 1.0. Adopted by the 119th Assembly of the Members of the Helmholtz Association on 20-21 September 2022, 9 pp. <https://os.helmholtz.de/en/open-science-in-helmholtz/open-science-policy/>



