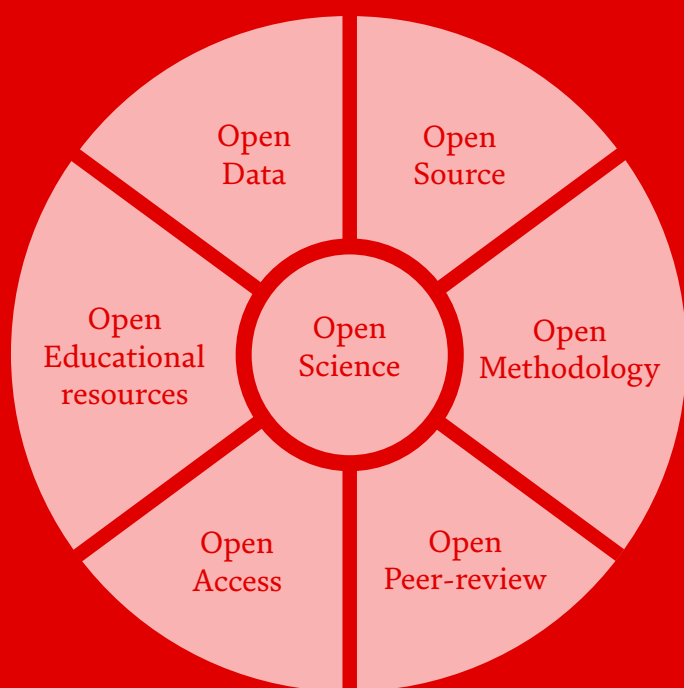


Engage with Open Science





**Welcome to the world of
Open Science!**

Engage with Open Science

This guide has been developed to provide researchers with insights into the principles of Open Science and their contribution to openness, transparency, and collaboration in scientific research. It outlines the significant milestones, organisations, and topics, including data management and preprints. Researchers can apply these concepts to their work, fostering greater accessibility, reproducibility, and impact within the scientific community.

Open Science: An Introduction

The world of Open Science can seem daunting for researchers who are used to the traditional publishing process. It can be challenging to navigate the many tools, resources, publishing options, and training materials available to researchers. However, with guidance, embracing Open Science principles can be a rewarding experience with benefits for the researcher and the wider scientific community. This resource outlines the core principles and initiatives to help researchers navigate the landscape of Open Science and confidently implement Open Science practices in their work. It also serves as a valuable tool for anyone interested in understanding Open Science and its advantages for the broader community, promoting a culture of collective learning and advancement.



Three Reasons to Engage with Open Science

1. Researchers

can further their careers by embracing Open Science as it can increase the visibility of their work, providing a competitive edge by building citations and generating opportunities to collaborate.

2. Individual

researchers who commit to Open Science best practices contribute to the collective advancement of robotics research.

3. Open Science

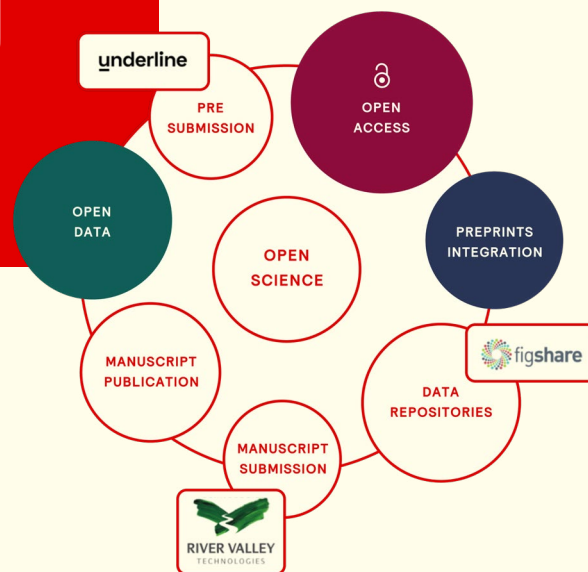
principles align with the conference's spirit of collaboration, knowledge sharing, and pushing the boundaries of scientific discovery.

Whether you are new to Open Science or looking for more information, this guide has something for everyone. So, we invite you to explore the world of Open Science with us!





What is Open Science?



The Open Science movement seeks to remove barriers to scientific knowledge, making the research process more transparent, inclusive, and rigorous. It enables wider participation and makes research easier to review, refute, improve, and reuse. It can fundamentally change how research is carried out, who is involved and how it is valued.

UNESCO describes the principles of Open Science as ‘open access to the record of science and to the data of science; access to the digital infrastructures that enable widespread engagement and communication; and open engagement between scientists and other societal actors.’

Open Science is increasingly recognised as a critical accelerator for achieving the United Nations Sustainable Development Goals.



1. Budapest Open Access Initiative:

The 2002 Budapest Open Access Initiative (BOAI) is a landmark declaration in support of free, immediate, and unrestricted online availability of research articles. It outlined the benefits and proposed strategic steps to “accelerate progress in the international effort to make research articles in all academic fields freely available on the Internet”.

As a signatory of the Budapest Open Access Initiative, IntechOpen is paving the way for future research by making scholarly articles available to everyone.



Discover more

2. Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020:

The Horizon 2020 (H2020) Programme is the European Union’s flagship research and innovation programme, providing funding for research in a wide range of fields, from health and energy to digital technologies and social sciences. As part of its commitment to promoting Open Science, the H2020 Programme has established guidelines for open access to scientific publications and research data.



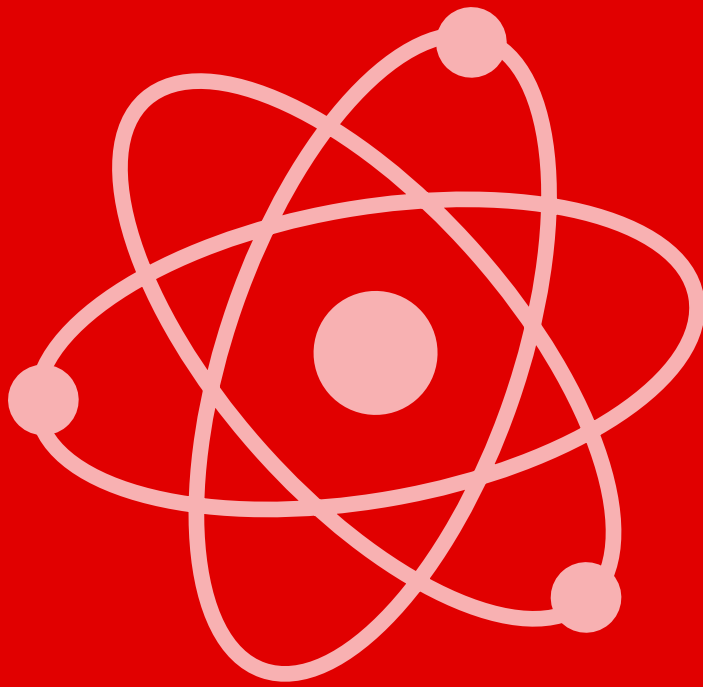
Discover more

IntechOpen follows the H2020 guidelines and ensures that its scientific publications can be:

- copied
- shared
- searched
- linked,
- crawled
- mined for text and data

DISCOVER MORE →





Open Science principles

1. FAIR Principles:

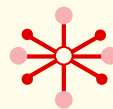
The FAIR Principles offer a framework for the creation and use of FAIR data that can be used by both human users and machines. FAIR stands for :



FINDABLE



ACCESSIBLE

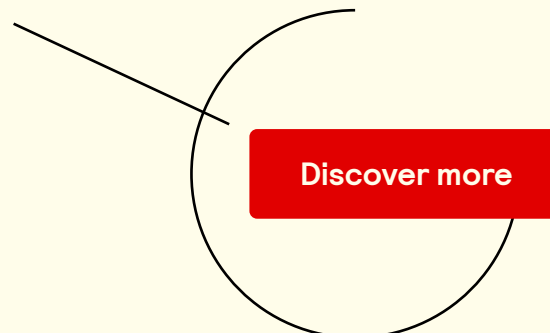


INTEROPERABLE



REUSABLE

and its principles aim to maximise the potential of research data. FAIR data principles can contribute to better data management, making research more [efficient and effective.



2. The Principles of Transparency and Best Practice in Scholarly Publishing:

- The Directory of Open Access Journals (DOAJ) is a community-curated online directory that indexes and provides access to high-quality, peer-reviewed open access journals.
- The DOAJ has established a set of clear and transparent criteria for inclusion in its directory, which includes standards for quality, openness, and editorial processes.

By providing easy access to high-quality, peer-reviewed research, the DOAJ helps to support the advancement of scientific knowledge and promote global research collaboration.

DISCOVER MORE →





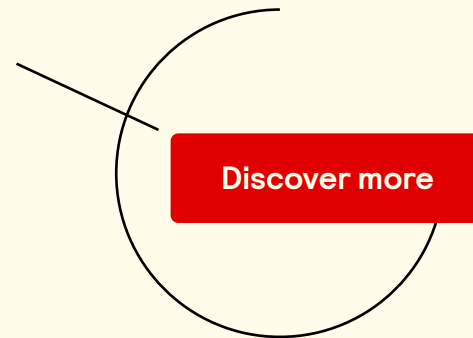
Licensing and Author's rights



One of the key aspects of Open Science is the use of open licences that allow authors to retain control over their works while also making them openly available to the public. They protect authors' rights, enabling researchers to maintain control over their works, while ensuring that they are widely available for others to use and build upon.

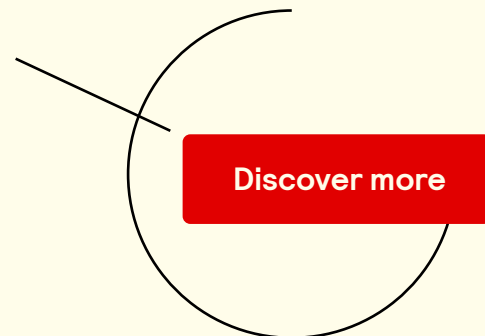
1. Creative Commons:

Creative Commons licenses are a set of standardised permissions that allow creators to easily specify how others can use their work, providing a balance between copyright protection and sharing. These licenses enable creators to choose from a range of permissions, such as allowing or prohibiting commercial use, requiring attribution, or permitting modifications to their original work. By utilising Creative Commons licenses, creators can retain certain rights while granting permissions to others, promoting collaboration, sharing, and innovation.



2. Crossref:

Crossref is a non-profit organisation that provides digital object identifiers (DOIs) for scholarly content. DOIs are unique identifiers that link research outputs to their underlying digital objects, such as journal articles, books, and datasets.



IntechOpen uses Crossref and DOIs to ensure that its publications are :



DISCOVERABLE



CITABLE



ACCESSIBLE

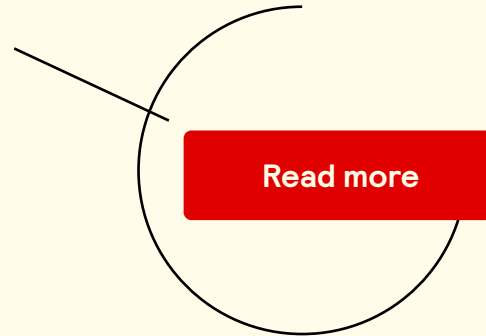
to the research community.

3. COPE: Guidelines:

The Committee on Publication Ethics (COPE) is a non-profit organisation dedicated to promoting ethical practices in academic publishing. COPE provides guidelines to help journal editors and publishers maintain high standards of ethical conduct in their work.

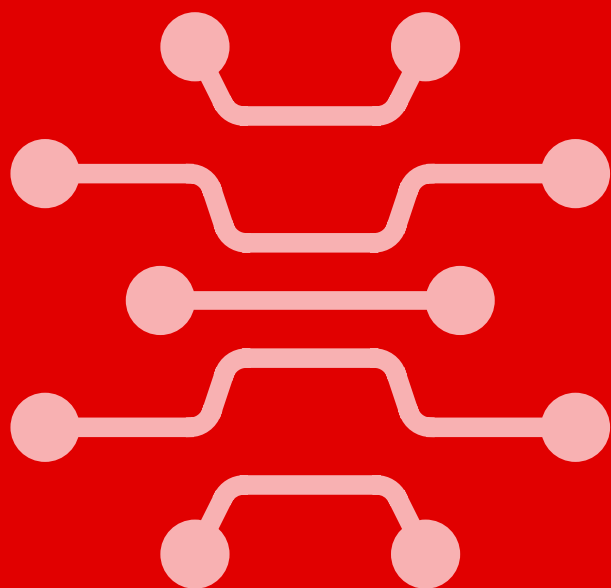
IntechOpen is a Committee on Publication Ethics (COPE) member and fully adheres to its Core Practices. COPE's wide-ranging guidelines cover :

- plagiarism
- duplicate publication
- data fabrication
- manipulation
- authorship issues
- conflicts of interest



Journal editors and publishers can follow these guidelines to ensure their publications are of high quality and adhere to ethical standards.





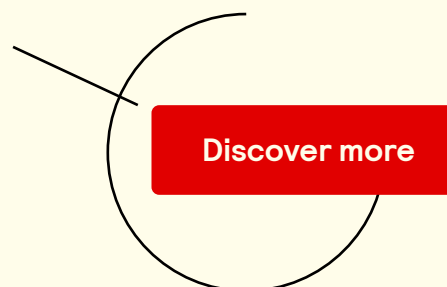
Data Management Plan

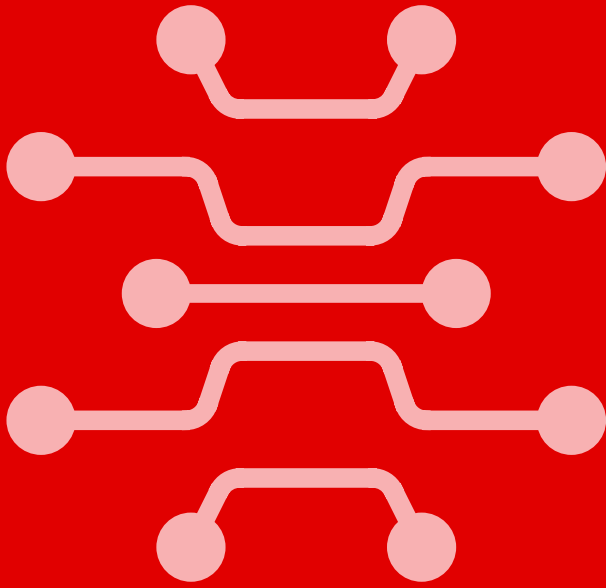
OpenAIRE Guidelines for Data Management Plan:

A data management plan (DMP) is an important tool. It outlines how research data will be collected, managed, and shared throughout the research process.

The OpenAIRE Guidelines for Data Management Plan provide a framework for researchers to develop a comprehensive plan for managing research data. Based on best practices in data management, they are aligned with international standards and initiatives, such as the FAIR principles.

The OpenAIRE Guidelines emphasise the importance of open data and cover various aspects of data management; data collection, storage, access, sharing, and preservation. They encourage researchers to clearly define the types of data they will collect and how they will store and share data.





Open Data

Open data refers to data that is freely



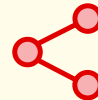
ACCESSIBLE



USABLE



REUSABLE



SHARABLE

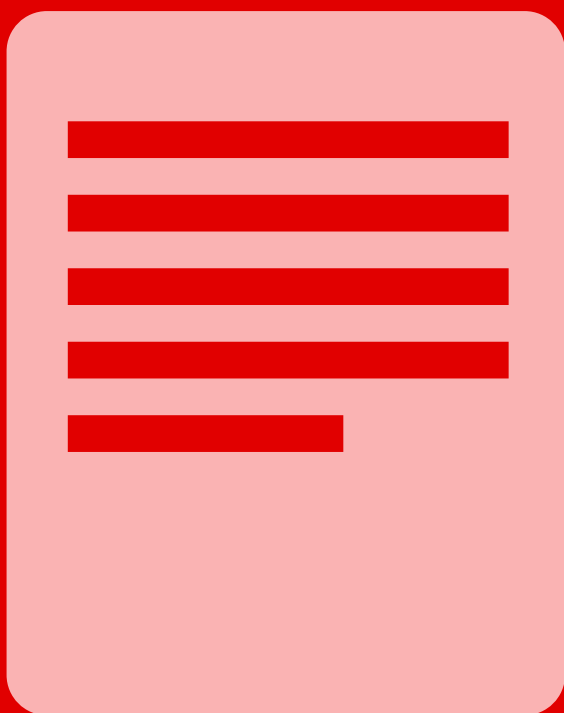
by anyone, with minimal restrictions usually limited to attributing the source and maintaining a similar sharing approach. By making data openly available, researchers enable others to reproduce and build upon their findings, thereby increasing the potential for new discoveries and fostering collaboration and innovation. Ultimately, the availability of publicly accessible data underscores the transformative power of collective knowledge, facilitating interdisciplinary collaborations and data-driven discoveries.

IntechOpen has partnered with Figshare to enhance the accessibility and visibility of their authors' research data. Through this collaboration, authors are provided with a platform to securely preserve and share their research data.

For more information about open data in the context of Open Science and its influence on the scientific community, feel free to join us at our next webinar session.

DISCOVER MORE →



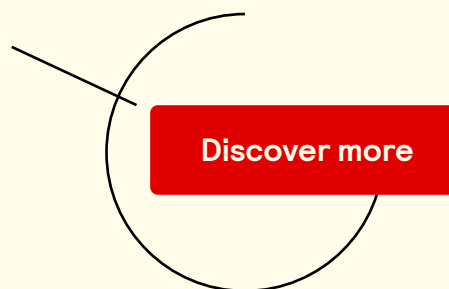


Preprint servers

Preprint servers support Open Science by allowing researchers to share their work publicly before undergoing peer review. Research findings are disseminated more rapidly, encouraging collaboration and feedback from other researchers. Researchers can establish priority for their work and receive credit for their contributions, avoiding the delays associated with the traditional publishing process.

Preprints have become an increasingly important component of the Open Science landscape, helping to foster transparency, openness, and innovation in research.

IntechOpen recognises the value of preprints and has introduced policies that support authors' use of preprints. Deepen your knowledge about preprints and how they support researchers and authors in today's academia via our webinar.





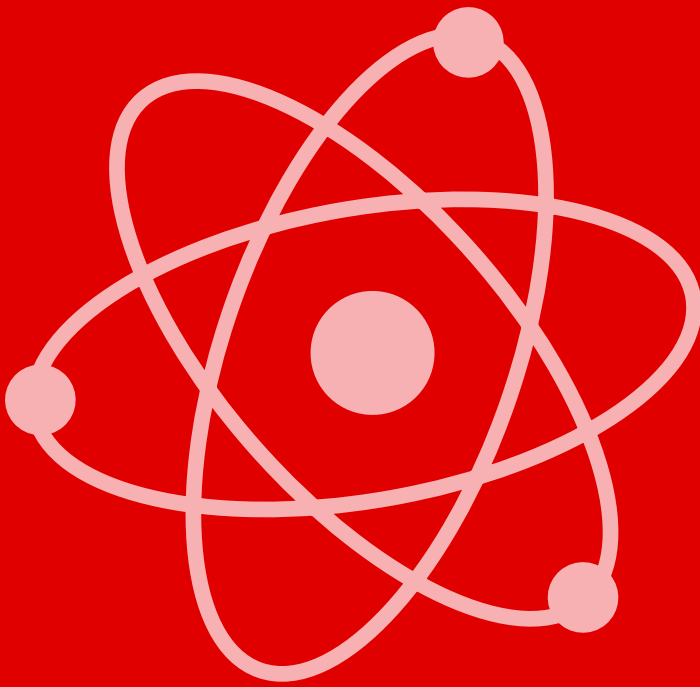
(Open) Peer Review

The process of peer review involves having an author's scholarly work, research, or ideas critically assessed by experts in the relevant field before publishing a paper, ensuring its accuracy and credibility.

IntechOpen is dedicated to publishing high-quality content and as members of the Committee on Publication Ethics (COPE) we aim to ensure the objectivity and integrity of the peer review process. All IntechOpen reviewers and editors are instructed to review submissions in line with the COPE Ethical Guidelines for Peer reviewers.

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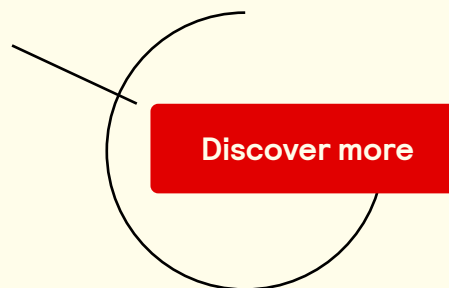
Open peer review is a transparent and collaborative approach that promotes transparency and accountability in the evaluation and validation of scientific research. In this process, reviewer comments, identities, and sometimes even pre-publication versions of the manuscript are openly shared, aligning with the principles of Open Science. By making traditionally hidden aspects of peer review publicly available, open peer review encourages broader participation in research assessment, fostering engagement, trust, and a more inclusive and collaborative scientific community.



Get Involved with Open Science

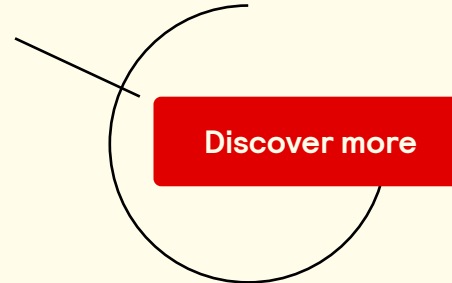
Find out more

To take your Open Science journey further, explore the websites listed below and sign up for the IntechOpen ‘Engaging with Open Science 2023’ webinar series. Each session welcomes expert speakers to discuss core issues in Open Science, including preprints, open data, and open review.



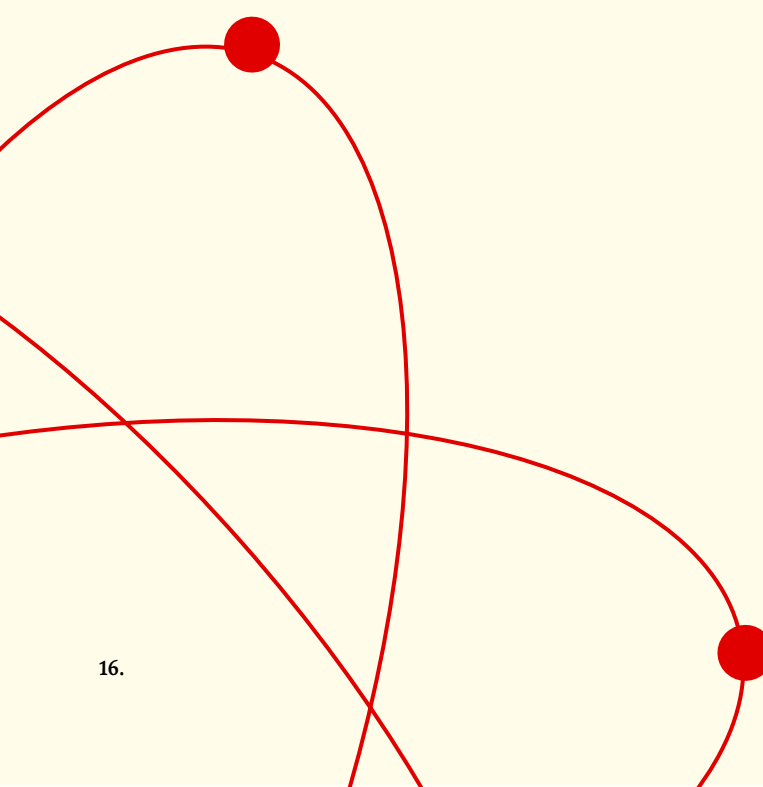
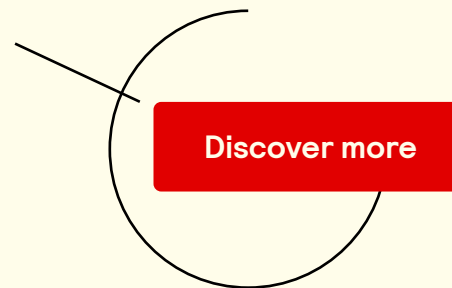
1. Orion Open Science Training Materials:

The ORION Open Science project is a European initiative to promote Open Science practices and increase public engagement in research. As part of this initiative, the project has developed a range of training materials designed to help researchers and institutions adopt Open Science practices and principles.



2. Open Science MOOC:

The ORION Open Science project is a European initiative to promote Open Science practices and increase public engagement in research. As part of this initiative, the project has developed a range of training materials designed to help researchers and institutions adopt Open Science practices and principles.





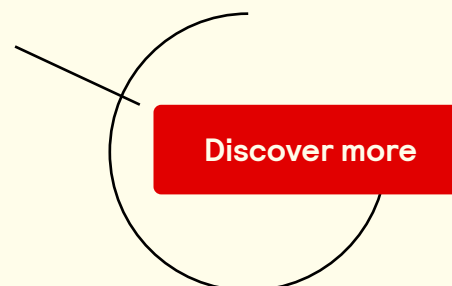
Network and Collaborate

Networking and collaborating are essential components of Open Science. Working together, researchers can share their knowledge, resources, and expertise, accelerating the pace of scientific discovery and innovation.

If you would like to get more involved in the Open Science community, explore the organisations below:

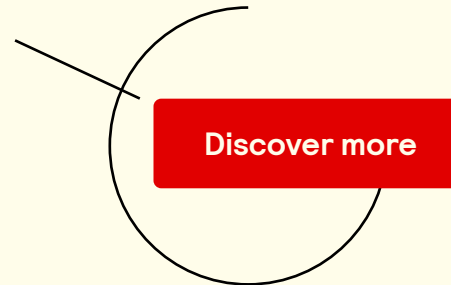
1. Research Data Alliance (RDA):

The Research Data Alliance (RDA) is an international organisation that aims to accelerate research data sharing and exchange. The RDA brings together researchers, data professionals, and other stakeholders worldwide to develop and promote best practices and standards for data management and sharing. The RDA operates as a community-driven organisation, with working groups and interest groups that develop and promote best practices and standards for research data.



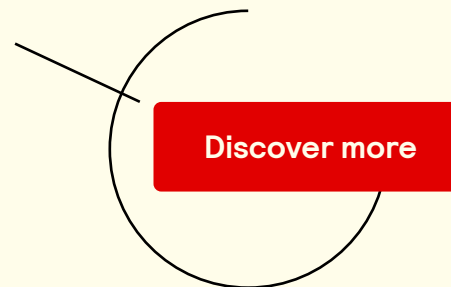
2. FORCE11 Scholarly Communication Institute:

FORCE11 is a community of scholars, librarians, publishers, funders, and other stakeholders committed to advancing scholarly communication and e-scholarship through digital technologies. FORCE11 focuses on a wide range of topics related to scholarly communication, including open access publishing, research data management, peer review, and scholarly metrics.



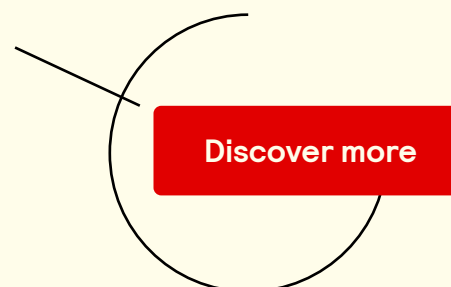
3. The European Open Science Cloud:

The European Open Science Cloud (EOSC) Portal is a web-based platform that provides access to a range of digital services and resources for researchers and scholars across Europe. The portal is designed to support Open Science and facilitate the sharing of research data and other digital resources. The EOSC Portal provides a single point of access to a wide range of resources, including data repositories, computing infrastructure, and research tools.



4. Open Knowledge Foundation (OKF):

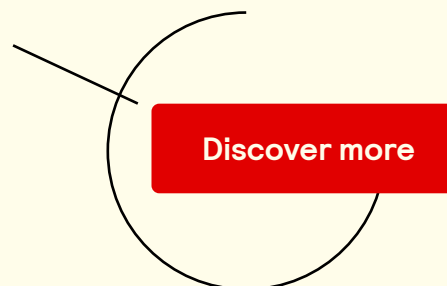
Open Knowledge Foundation (OKF) is an international non-profit organisation that advocates for open knowledge, open data, and open access. The organisation is dedicated to promoting the use and development of open data and supporting the development of open tools and standards that enable people to access and use information more effectively.



5. Sparc Europe

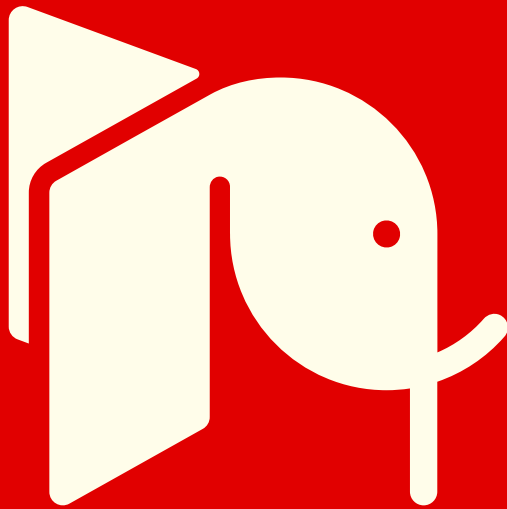
SPARC Europe is a European-based coalition of academic and research libraries, universities, and organisations dedicated to promoting open access to scholarly research and resources. Founded in 2002, SPARC Europe has been a leading advocate for open access publishing and has worked to advance policies and practices that support greater access to research in Europe. SPARC's vision is for open access to be the default for education, research, industry, and science.

SPARC provides guidance on open access policies and compliance, as well as resources on open access publishing models and the benefits of open access publishing.



Goals of SPARC Europe:

- Strengthen Open Access, Open Science and Open Education policy in Europe Advocate for open research and education
- Strive to enable more equity so that all those who wish to publish and share research and education resources openly are better enabled to do so
- Promote diversity in publishing
- Raise the impact of publicly-funded research
- Help sustain the Open Ecosystem



About IntechOpen and Open Science

Launched to make publishing more relevant for the digital age, IntechOpen has grown to become the world's leading publisher of Open Access books. IntechOpen is built on the belief that scientific progress is generated by collaboration and is committed to openly sharing scientific research across the world, making it available for the benefit of all.

In 2022, IntechOpen successfully launched a portfolio of Open Science Journals, including the “AI, Computer Science, and Robotics Technology” journal. This journal showcases research at the intersection of engineering, computer science, and robotics, emphasising its impact on the advancement of humanity. If you are engaged in such research, we invite you to contribute your work and be a part of our mission.

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IntechOpen is a member of the International Association of STM Publishers (STM) and fully supports UNESCO's recommendation on Open Science.

Recommendation on Open Science is the first international standard setting instrument on Open Science which is part of the UNESCO Global Open Science Partnership and supports democratising access to scientific knowledge and promoting collaboration among researchers and scholars worldwide.

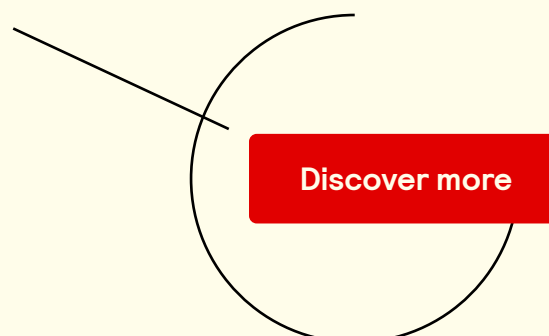
IntechOpen is a member of Open Access Scholarly Publishers Association (OASPA), a global association representing publishers in scientific, technical, and scholarly disciplines. Through collaboration with OASPA, IntechOpen contributes to the exchange of information, the establishment of standards, and the advancement of open access publishing models that promote innovation and foster openness in scholarly communication.

IntechOpen publishes across a wide range of subjects but with a focus on technology, science, and medicine. Researchers worldwide can access IntechOpen content without restriction via the IntechOpen platform and other well-known platforms.

At IntechOpen, we are committed to supporting scientific discovery, prioritising the academic needs of researchers, and providing an Open Access environment to maximise scientific contributions. We aim to improve the quality and availability of scholarly communication by promoting and practising:

✔ Open Access ✔ Open Data ✔ Open Metrics and Impact ✔ Open Source

Join us in our 'Engaging with Open Science 2023' webinar series, where we discuss key developments in Open Science with industry-leading experts and academics.



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