

Unlocking knowledge: The power of data sharing in modern scientific research

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Unlocking Knowledge: The Power of Data Sharing in Modern Scientific Research

Professor Robert Likic MD, PhD
University of Zagreb School of Medicine

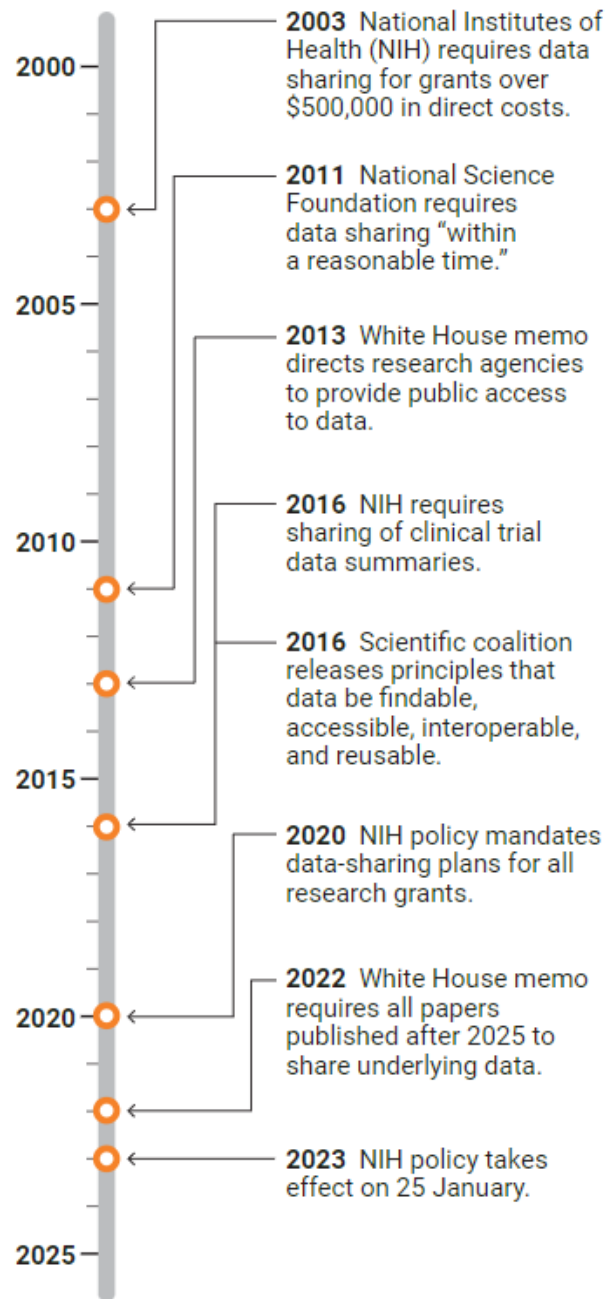


Introduction

- Brief history of data sharing
- Importance in the modern era
- Presentation objective



Major U.S. policies for data sharing



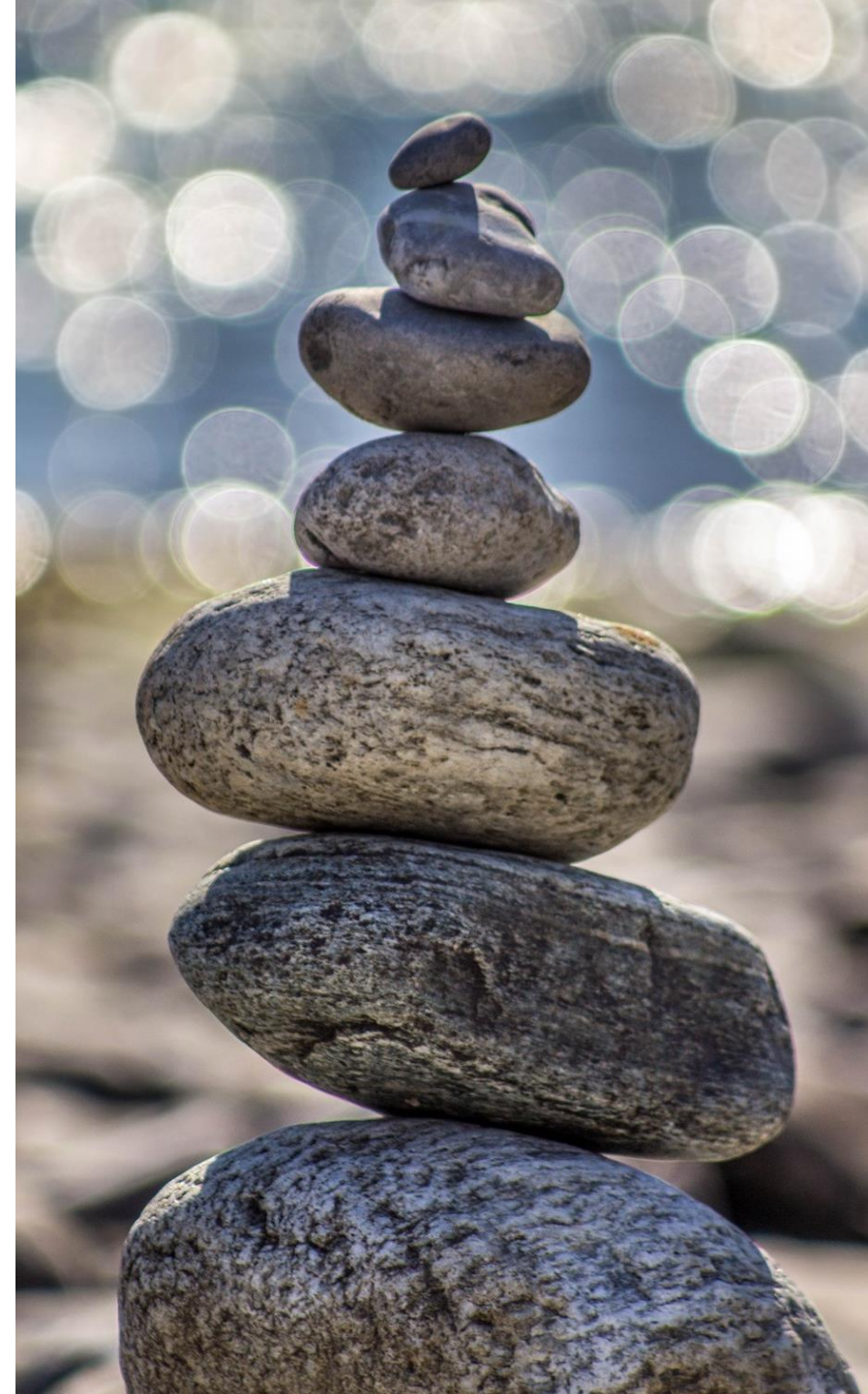
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History

<https://www.science.org/content/article/ready-set-share-researchers-brace-new-data-sharing-rules>

Benefits of Data Sharing

- Accelerating scientific discovery
- Fostering collaboration
- Reducing redundancy





Accelerating Scientific Discovery

- Reproducibility of research
- Meta-analysis through combined datasets



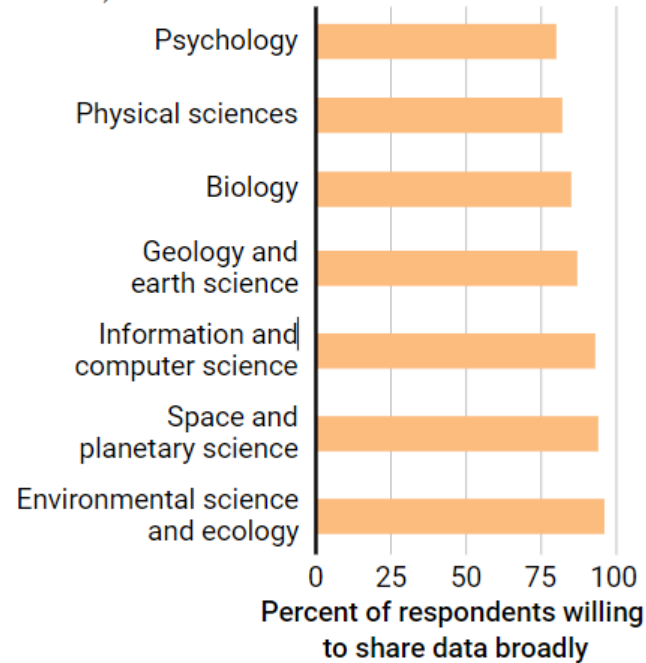
Fostering Collaboration

- Building on others' work
- Encouraging global partnerships

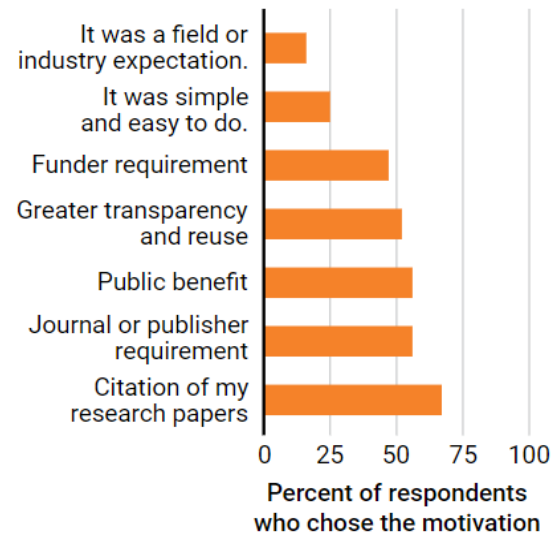
Reducing Redundancy

- Avoiding duplication of efforts
- Efficient use of funding and resources

Across fields, most scientists voice interest in the idea of sharing data, according to a 2017–18 survey of more than 2000 respondents from multiple countries. (Selected categories are shown.)



Researchers say they want professional rewards but also see other benefits, according to a survey of more than 6000 respondents in 2022. (Selected motivations are shown, and respondents could choose more than one reason.)



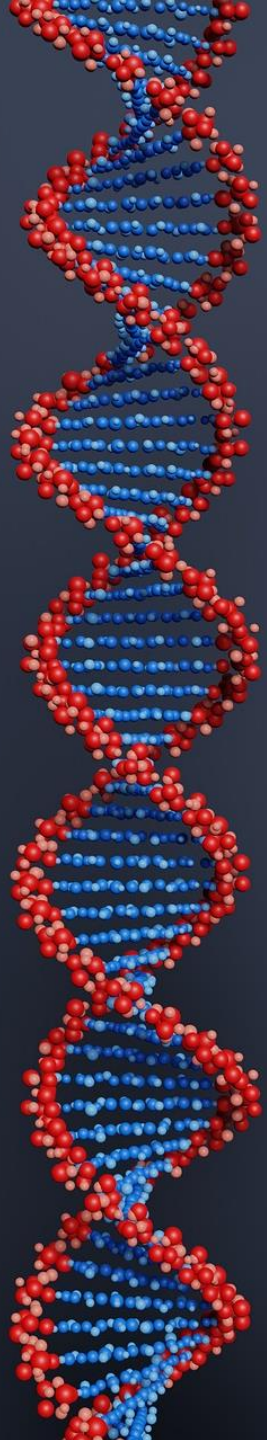
(GRAPHIC) K. FRANKLIN/SCIENCE; (DATA, TOP TO BOTTOM) C. TENOPIR ET AL., *PLOS ONE*, 15(3), E0229003(2020) (2); G. GOODEY ET AL., *THE STATE OF OPEN DATA 2022*, DIGITAL SCIENCE REPORT, [HTTPS://DOI.ORG/10.6084/M9.FIGSHARE.21276984.V5](https://doi.org/10.6084/M9.FIGSHARE.21276984.V5)





Case Studies

- The Human Genome Project
- Global Earth Observation System of Systems (GEOSS)
- COVID-19 research



The Human Genome Project

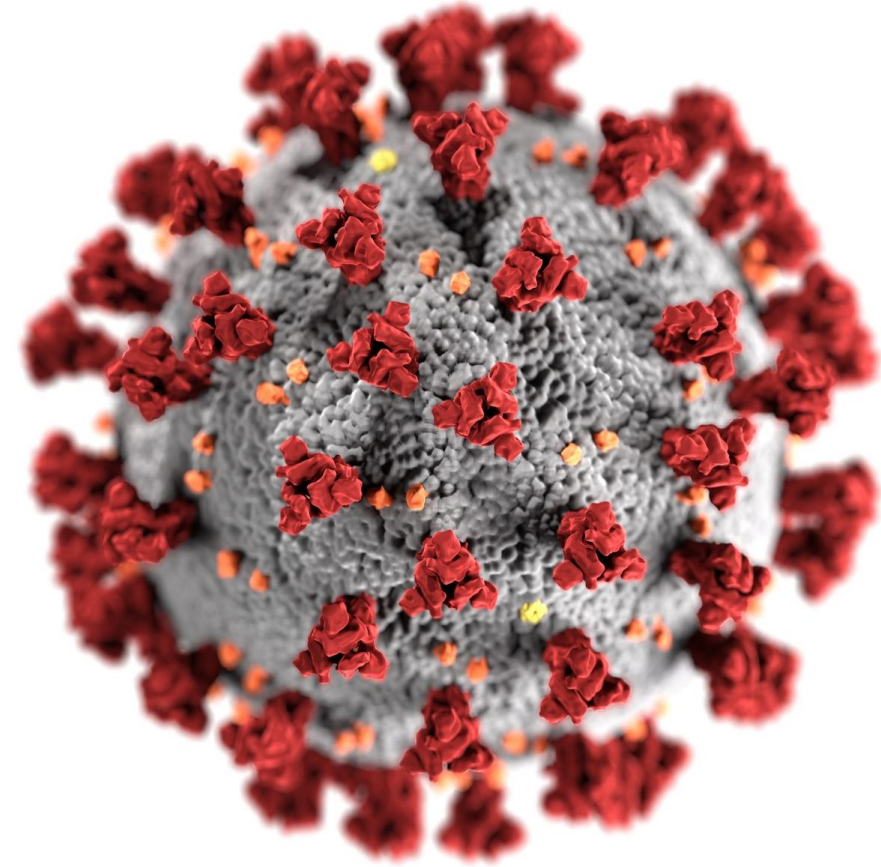
- Collaborative efforts
- Impact on genomics research

GEOSS

- Sharing environmental data
- Enhancing global understanding of Earth systems



COVID-19 Research



- Rapid data and research sharing
- Advancements in vaccine development



Challenges and Barriers

- Data privacy and confidentiality
- Intellectual property and attribution
- Technical challenges and infrastructure



Data Privacy and Confidentiality

- De-identification of sensitive data
- Ethical considerations

Intellectual Property and Attribution

- Proper credit to data creators
- Balancing openness with researchers' rights



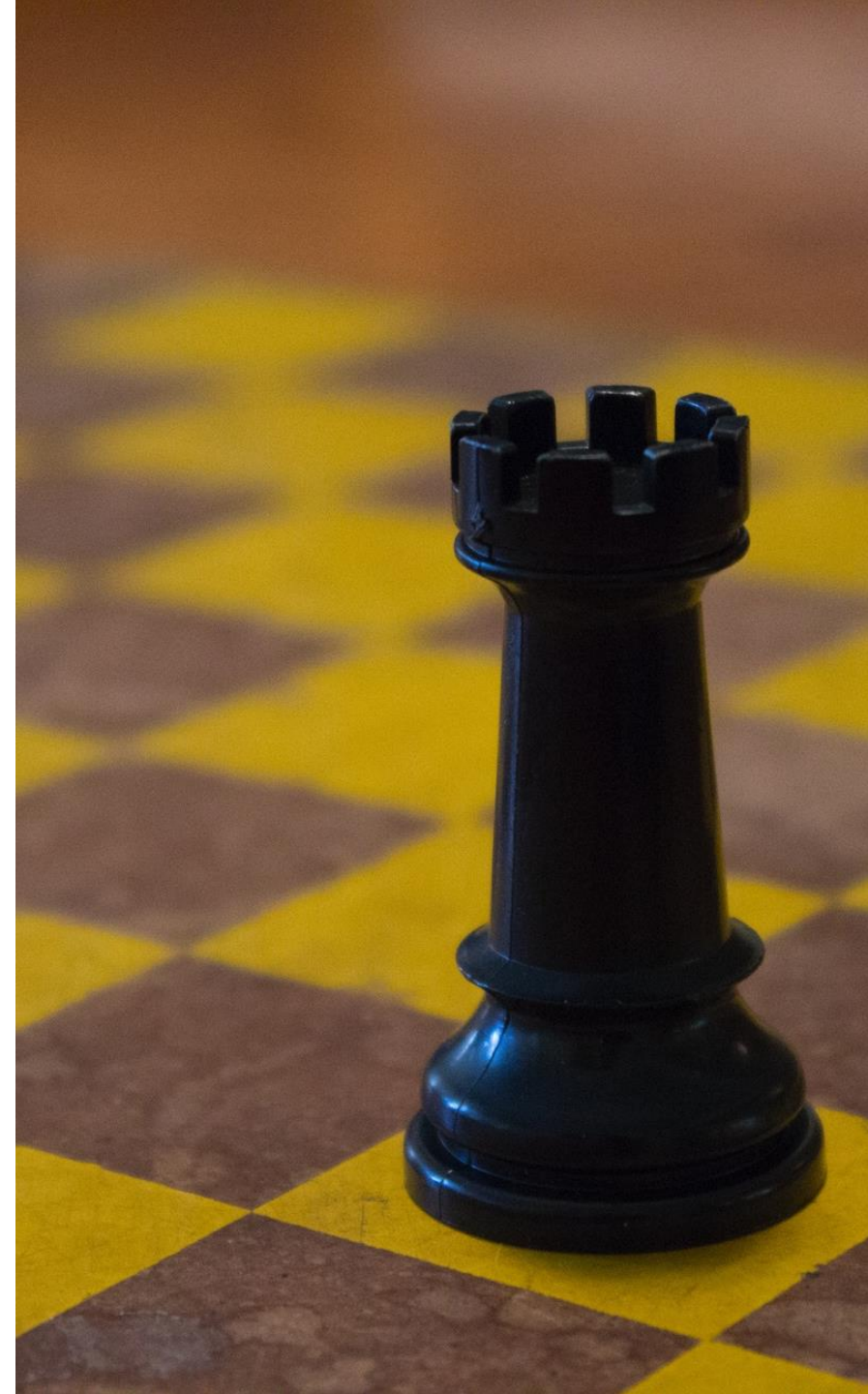


Technical Challenges and Infrastructure

- Data storage and accessibility
- Standardizing data formats and metadata

Strategies for Promoting Data Sharing

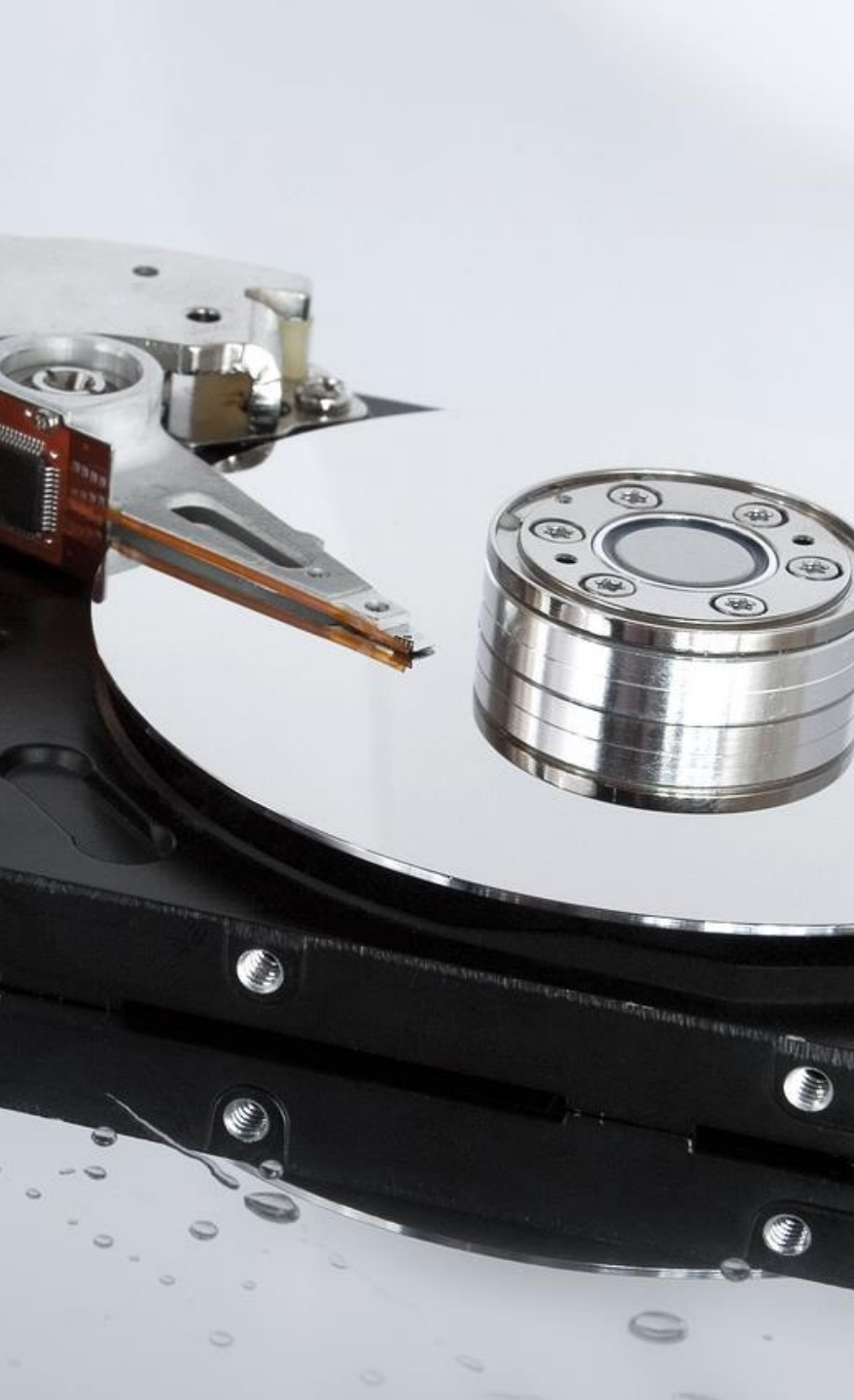
- Data sharing policies and guidelines
- Data sharing platforms and repositories
- Fostering a culture of openness and collaboration





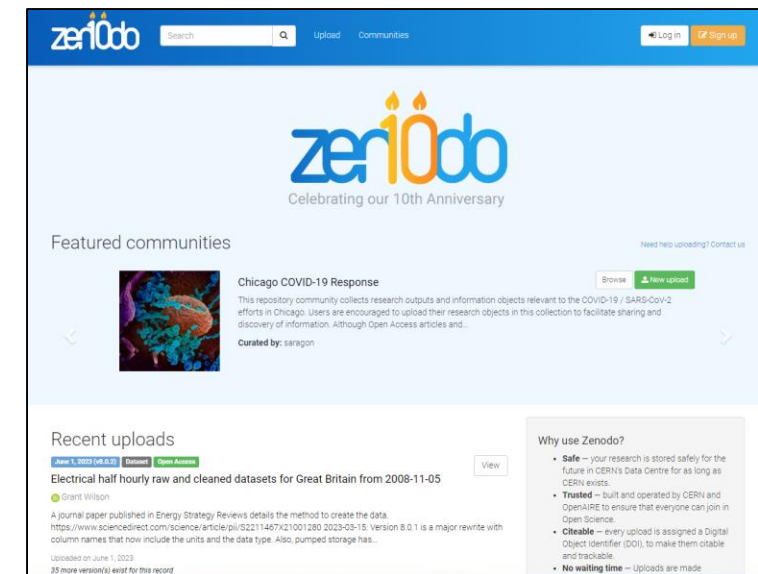
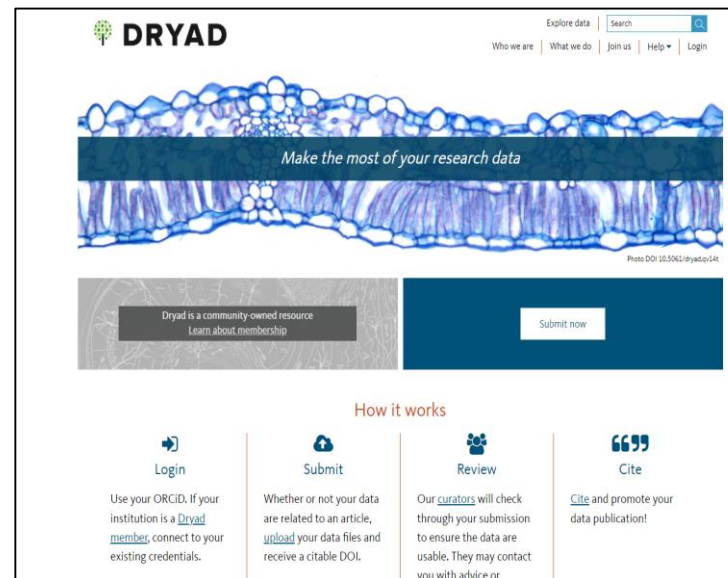
Data Sharing Policies and Guidelines

- Roles of journals, funding agencies, and institutions
- Data sharing mandates and incentives



Data Sharing Platforms and Repositories

- Examples: Dryad, Zenodo
- Encouraging interoperability and reusability



Fostering Openness and Collaboration

- Training and education for researchers
- Recognizing data sharing as valuable contribution



Conclusion

- Recap of importance and benefits
- Call to action for researchers, institutions, and policymakers
- Envisioning a future of accelerated knowledge discovery

