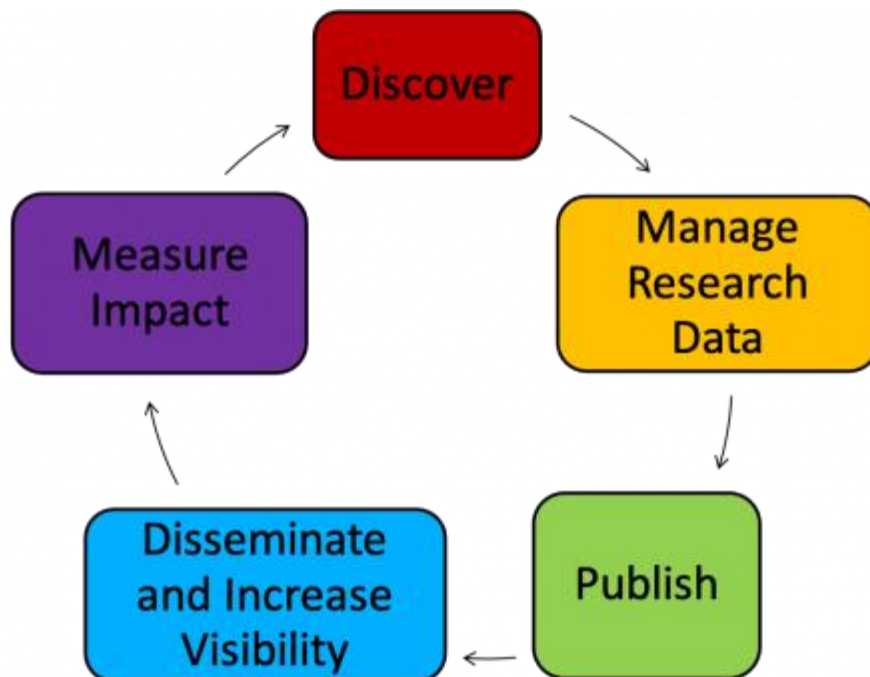**eifl**

KNOWLEDGE WITHOUT BOUNDARIES

EIFL Digital Research Literacy Training Programme Outline for Librarians

Release: November 2020

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Introduction

Digital research literacy comprises the knowledge and skills required to produce quality research outputs in a digital environment.

To support university and research libraries that are helping researchers and students to produce quality research outputs, EIFL compiled a training programme outline, which is organized according to the research cycle, and held 12 webinars to support use of the training outline.

We would like to acknowledge all the people, organizations and projects whose resources are included in the outline. Our special thanks go to the staff of the University of Dublin College Library, especially Julia Barrett, who helped us to create this resource.

How can librarians use this resource?

This resource is organized according to the research cycle: Discover, Manage Research Data, Publish, Disseminate and Increase Visibility, and Measure Impact.

Each section gives an overview of the topic, what the trainer should cover, and what the learner should gain by the end of the training. Each topic includes "Resources for facilitators and learners", with useful material that trainers and learners can use to improve their own knowledge or use in their own training.

We encourage you to become familiar with this training programme and to adapt and use relevant topics to train librarians, students and researchers. In addition to using the content provided in this training programme, we suggest you follow the recommendations below on how to plan, organize and evaluate your training.

Guide "Training Methodologies", Gender and Technology Institute. URL:
https://en.gendersec.train.tacticaltech.org/downloads/en/trainingmethodologies-en.pdf

Guide "Training evaluation", Mind Tools. URL:
https://www.mindtools.com/pages/article/kirkpatrick.htm

"The Open Science Training Handbook", sections "On Learning and Training", "Organizational Aspects" and "Examples and Practical Guidance", p.90-169. URL:
https://zenodo.org/record/2587951

EIFL Open Science train-the-trainer course materials. URL:
https://openplato.eu/course/view.php?id=62

If you would like to suggest new content and resources for consideration, please contact us at:
info@eifl.net

DISCOVER

Find your topic and review literature
Search Google and Google Scholar
Free discovery tools and platforms
Manage your references
Keep up to date on your topic

MANAGE RESEARCH DATA

Managing and sharing research data
Writing a data management plan (DMP)

PUBLISH

Academic integrity
Choosing effective publishing strategy
Using Open Access (OA) routes to increase research impact

DISSEMINATE AND INCREASE VISIBILITY

Institutional repository
Preprints
Persistent identifiers for research outputs, researchers and institutions:
DOIs, ORCID and ROR
Social media for research

MEASURE IMPACT

Introduction to research metrics
Make your work count

Research Lifecycle – Discover

This section helps students and researchers to identify their research topics; to plan and perform a literature review; to run searches using free tools; to use reference/citation management tools, and how to stay up to date with chosen research topic.

We identified five topics that researchers and students must know well:
- Find your topic and review literature.
- Search Google and Google Scholar.
- Free discovery tools and platforms
- Manage your references.
- Keep up to date on your research topic.

Find your topic and review literature

This training outlines a process for selecting a research topic, narrowing the topic down to a specific research question, and carrying out literature review.

By the end of this training, learners should:
- Be able to define a research topic.
- Be able to conduct a literature review.

Training Outline:
- Select a topic for your research.
- Collect background information about your topic.
- Define your topic as a focused research question.
- Perform a literature review.

Resources for facilitators and learners

Videos, online tutorials:
- "How to Develop a Good Research Topic", Kansas State University Library. URL: https://www.youtube.com/watch?v=nXNztCLYgxc
- Tutorial: Creating an effective search strategy, University of Minnesota Libraries. URL: https://www.youtube.com/watch?v=EF2YHNbFGgM
- "Asking Questions to Explore Your Topic", University of Guelph. URL: https://youtu.be/azPLz8WiuuA
- "Four Steps to Narrow Your Research Topic", University of Guelph. URL: https://youtu.be/rpCbSjIdXlM
- "How to Write a Literature Review", University College Dublin. URL: https://youtu.be/ouY2FH0BKkQ
- "How to write a literature review", University College Dublin. URL: https://www.ucd.ie/library/elearning/litreview
- The Literature Review: A Roadmap, Florida Atlantic University Libraries. URL: https://youtu.be/KVjx_TjViJY

Library guides:
- "Finding and Exploring Your Topic", University of Michigan. URL: https://guides.lib.umich.edu/c.php?g=283095&p=1886088
- "Find background information", University of Guelph. URL: https://guides.lib.uoguelph.ca/BackgroundInformation
- "Literature Review: Conducting & Writing", University of West Florida. URL: https://libguides.uwf.edu/c.php?g=215199&p=1420520

Examples of presentations, handouts and worksheets:
- Richard Bruce Lamptey. "Library Research Methods - Information Retrieval and Literature Review", Kwame Nkrumah University of Science and Technology. URL: https://www.eifl.net/sites/default/files/resources/library_research_training.pptm
- Handout and Worksheet "Developing a research question", University of Guelph. URL: https://learningcommons.lib.uoguelph.ca/item/developing-research-question-worksheet
- "Research Worksheets and Handouts". College of Dupage. URL: https://codlrc.org/IL/handouts

Search Google and Google Scholar

This training outlines effective searching techniques when using Google, Google Scholar and other Google resources. It also provides tips for evaluating search results.

By the end of this training, learners should:
- Be able to conduct effective searches on Google and Google Scholar using advanced search options and limits.
- Be able to evaluate search results.

Training Outline:
- How to conduct effective searches of Google using advanced search options and limits, for example:
  - Building search strings using Google functionality
  - Using Google limits e.g. by site, filetype and type of resource material
  - Using operators
  - Filtering search results
  - Setting up alerts
- How to conduct effective searches of Google Scholar, for example:
  - Planning and building searches
  - Following a citation trail and searching within that trail
  - Generating citations
  - Saving articles to your Scholar Library; downloading articles from your library
  - Setting up alerts
  - Link to your own library's subscriptions
  - Improve Google Scholar's functionality by linking to Publish or Perish
- Use of other Google services such as Google Books and Google News.
- Evaluating authority and websites - evaluating the quality of websites located and the authority of an author.

Resources for facilitators and learners

Videos, online tutorials:
- "Using Google Scholar to find academic information", University College Dublin. URL:https://www.ucd.ie/library/elearning/googlescholar
- "Evaluating Information on the Web", University College Dublin. URL:https://www.youtube.com/watch?v=z5c6f6ynWpU&feature=youtu.be
- "Choose the Best Info: Apply Authority", University of Guelph. URL:https://youtu.be/ig1fMWQdayU

Examples of presentations:
- Julia Barrett. "Searching Google, Google Scholar and Other Google Resources: Science, Technology, Medicine", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=32055823
- Julia Barrett. "Searching Google, Google Scholar and Other Google Resources: Humanities & Social Sciences", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=32002806

Examples of practical exercises, handouts and tip sheets:
- "Google Cheat Sheet", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31654483
- Google Search Operators: The Complete List (44 Advanced Operators) by Joshua Hardwick. URL: https://ahrefs.com/blog/google-advanced-search-operators/
- "Search Modifiers Cheat Sheet", University of Guelph. URL: https://learningcommons.lib.uoguelph.ca/item/search-modifiers-cheat-sheet
- "Boolean Operators Cheat Sheet", University of Guelph. URL: https://learningcommons.lib.uoguelph.ca/item/boolean-operators-cheat-sheet
- "Sample Exercises for practicing Google and Google Scholar", University College Dublin. URL: https://www.eifl.net/sites/default/files/resources/sample_excercises_google.docx
- Always check Google Scholar website for tips, as they are mostly up to date:
  - Google Scholar Search Overview:https://scholar.google.com/intl/en/scholar/help.html#overview
  - Google Scholar Search Tips:https://scholar.google.com/intl/en/scholar/help.html#searching
  - Google Scholar Email alerts:https://scholar.google.com/intl/en/scholar/help.html#alerts
  - Google Scholar library:https://scholar.google.com/intl/en/scholar/help.html#library

Free discovery tools and platforms

This training outlines various freely available discovery tools and platforms to locate theses and dissertations, freely available journal articles, books, images, newspapers, statistics and datasets, patents, etc.

By the end of this training, learners should:
- Be familiar with various discovery platforms and subject repositories to locate content in open access and know their functionalities.
- Know how to find open access versions of publications.

Training Outline:
- Disciplinary/subject repositories such as PubMed Central and Europe PMC (Biomedical and Life Sciences), arXiv (Physics, Mathematics, Computer Sciences, Quantitative Biology, Quantitative Finance, Statistics, Electrical Engineering and Systems Science, and Economics), Humanities Commons (Humanities), etc.
- Discovery platforms to locate theses and dissertations, freely available journal articles, books, images, newspapers, statistics, datasets, such as Open Access Button, BASE, CORE, OATD, DART Europe, OpenAIRE Explore, GoTRIPLE, re3data, The Lens.
- Using AI based literature review tools: potential and limitations.
- Websites to find images, such as Wikimedia Commons, Pixabay, etc.
- Browser extensions to find open access articles, such Unpaywall, Open Access Button, Google Scholar Button, CORE Discovery, Kopernio; using Zotero to find open access articles thanks to integration with Unpaywall.

Resources for facilitators and learners

Videos, examples of presentations, practical exercises and tip sheets:
- Julia Barrett. "Freely Available Tools and Resources for your Research", University College Dublin. URL:http://libguides.ucd.ie/ld.php?content_id=32145053
- Joe Mcarthur. "Delivering Open Access content", Open Access Button. URL: https://docs.google.com/presentation/d/1jhHW7Bxe7Ok68viDU2oZYjF3HmGukYCL9XzvljLoqRA/export/pptx
- Sample Exercises for practising DART Europe, BASE, Registry of Research Data Repositories and the Creative Commons Image Portal: https://www.eifl.net/sites/default/files/resources/sample_excercises_dart.docx
- "How can I get access to the article I need", EIFL clickable tip sheet. URL: https://www.eifl.net/resources/eifl-poster-how-can-i-get-access-article-i-need
- "AI-Driven Search Engines: A Comparative Study", SLA Europe. URL: https://www.youtube.com/watch?v=dCwh3-Voea4
- Tay, Aaron. 'List of Academic Search Engines That Use Large Language Models for Generative Answers Using Retrieval Augmented Generation (RAG)'. Aaron Tay's Musings about Librarianship. Accessed 16 November 2023. URL.https://musingsaboutlibrarianship.blogspot.com/p/list-of-academic-search-engines-that.html

Manage your references

This training provides an overview of a range of freely available and other tools researchers can use to manage their references, such as Mendeley, Zotero and JabRef. The purpose is to assist researchers in deciding which service is appropriate for their specific needs.

By the end of this training, learners should:
- Have good knowledge about reference management.
- Be familiar with tools for reference management.

Training Outline:
- Why referencing is important - avoiding plagiarism and verifying sources used.
- An overview of free tools Mendeley, Zotero and JabRef. (If your institution has subscribed to EndNote or RefWorks, teach learners how to use those tools).
- Notable features of each tool and a comparison of the tools.

Resources for facilitators and learners

Videos, online tutorials:
- "Plagiarism: Avoid it at all costs!" University College Dublin. URL: https://www.ucd.ie/library/elearning/plagiarism
- "Understanding and Avoiding Plagiarism: Types of Plagiarism", University of Guelph. URL:https://youtu.be/GW3BzAG8aaY
- "Understanding and Avoiding Plagiarism: From Passage to Paraphrase", University of Guelph. URL:https://youtu.be/auUHRv1vIgw
- "Cite Your Sources: When / Why to Cite", University of Guelph. URL: https://www.youtube.com/watch?v=rsN_EQ3awF0
- "Mendeley: How to use the Citation Plugin in Word", University of Guelph. URL: https://youtu.be/t6c78uqn6EI
- "Zotero: How to Organize Your References", University of Guelph. URL: https://www.youtube.com/watch?v=MVONwsM5OxY
- "Formatting with Latex and JabRef", Centre for Postgraduate Studies. URL: https://www.youtube.com/watch?v=6ZPHcdJCIT0

Library guides:
- "Academic Integrity - Referencing, Citation & Avoiding Plagiarism", University College Dublin. URL: https://libguides.ucd.ie/academicintegrity/overview
- "Cite Your Sources", University of Guelph. URL: https://guides.lib.uoguelph.ca/CiteYourSources
- "Zotero", University of Guelph. URL: https://guides.lib.uoguelph.ca/Zotero
- "Citation Managers Comparison Chart", University of Guelph URL:https://guides.lib.uoguelph.ca/ManageYourSources/CompareTools

Examples of presentations, practical exercises and handouts:
- Presentation "Reference Management", University of York. URL: https://docs.google.com/presentation/d/1yXwsj5xiQ1VvcOjNQyAig2rvLBboZYpc6gjtnJDxFxU/edit#slide=id.p

- Jevgenija Sevcova. "Bibliographic reference management: Introduction to Zotero 5", EIFL. URL: https://drive.google.com/open?id=1KW4RWdULKun7-JsZUibZoNZ6MmyVQQUf
- Jevgenija Sevcova. "Bibliographic reference management: Introduction to Zotero 5. Practical exercises", EIFL. URL: https://drive.google.com/open?id=13OeuBjidrCopoBd0Lna7I588tLAlAIZw
- "Zotero" handout, worksheet and troubleshooting guide, The University of Oklahoma, OSF. URL: https://osf.io/twx5q/
- "Mendeley" worksheet, Wilfrid Laurier University Library. URL: https://library.wlu.ca/sites/default/files/pdfs/tutorials/mendeley-worksheet.pdf

Keep up to date on your research topic

Keeping current with new research can be a challenge. This training will cover strategies and tools that can be used to help researchers stay up to date with the published literature in their topic.

By the end of this training, learner should:
- Know how to keep up to date with new research in their area using email alerts, RSS Feeds, Table of Contents (TOC) Alerts and Conference Alerts.
- Be familiar with online tools (social media, blogs, podcasts, email lists) that can help them to keep up to date with research.

Training Outline:
- How to identify the main sources of current awareness in your area.
- How to effectively use these sources to stay abreast of developments in your area.
- How to create saved search alerts for new articles and dissertations on your topic.
- How to set up Table of Contents alerts for your favourite journals.
- How to use RSS feeds.
- How to find out when a key article has been cited by someone else.
- How to use social media tools such as blogs and Twitter to hear the buzz around new research.

Resources for facilitators and learners

Library guide:
- "Keeping Your Research Current", University of Western Australia. URL: https://guides.library.uwa.edu.au/keepingresearchcurrent

Example of presentation slides:
- Michael Ladisch, "Keeping Current in Your Field of Research", University College Dublin. URL: https://www.ucd.ie/t4cms/Guide106.pdf

Research Lifecycle – Manage Research Data

Research data management (RDM) refers to the organization, storage, preservation, and sharing of data that was generated or collected and used in a research project. RDM is a good research practice and many research funding agencies now require researchers to develop data management plans and share research data underlying publications. Managing and sharing research data is a very complex area. This section aims to equip researchers and students with data management knowledge and skills that support the long-term preservation, access, and reuse of data.

We identified two topics that researchers and students should know well:
- How to manage and share research data, including data protection and ethics, open licensing, FAIR data.
- Writing a data management plan (DMP).

Managing and Sharing Research Data

This training covers the key issues involved in managing research data and the overall benefits of following best practice in this area.

By the end of this training, learners should:

- Understand which data they can make open and which need to be protected.
- Understand the FAIR and CARE data principles.
- Be able to select which data to keep and find an appropriate repository for them.
- Understand funder requirements regarding data.
- Understand what personal data are and how they can protect them, what to consider when developing consent forms, how to store data securely and how to anonymize data.
- Understand how to re-use data and how to select the appropriate licence for their data.
- Understand research data management for basic quality assurance, replicability and reusability.
- Learn tips for how to get maximum impact from their research data.

Training Outline:
- Why data management is important. What are the efficiencies and the drivers (micro / macro)?
- Data organization, documentation and metadata.
- Data storage and back-up.
- Legal and ethical requirements.
- Data sharing and re-use.
- Long-term preservation.
- FAIR and CARE data principles.
- Data management responsibilities.

Resources for facilitators and learners

Online courses:
- As this is a complex area, to deepen your knowledge, we suggest you complete five short courses developed by FOSTER:
  - "Managing and Sharing Research Data", FOSTER. URL: https://www.fosteropenscience.eu/node/2328
  - "Data protection and Ethics", FOSTER. URL: https://www.fosteropenscience.eu/node/2330
  - "Open Licensing", FOSTER, URL: https://www.fosteropenscience.eu/node/2415
  - "Assessing the FAIRness of data", FOSTER. URL: https://www.fosteropenscience.eu/node/2644
  - "Use open data in teaching", FOSTER. URL: https://www.fosteropenscience.eu/node/2656
- "Data Management Expert Guide", CESSDA. URL:https://www.cessda.eu/Training/Training-Resources/Library/Data-Management-Expert-Guide
- "MANTRA Research Data Management Training" – an online course for those who manage digital data as part of their research project, The University of Edinburgh. URL: https://mantra.ed.ac.uk/
- "Research Data Management and Sharing" on Coursera offered by The University of North Carolina at Chapel Hill and The University of Edinburgh. URL: https://www.coursera.org/learn/data-management
- Jeffrey Pomerantz. "Metadata MOOC", originally taught on Coursera, created for the University of North Carolina at Chapel Hill. URL: https://www.youtube.com/playlist?list=PLkp3pG2Rd3yqfIn313V32fXG4nng9Tb-H
- "OS101 Module 3: Open Data". NASA TOPS Open Science 101 Materials. https://github.com/nasa/Transform-to-Open-Science/tree/open-science-101/Module_3.

Webinars:
- Webinar recording and slides: "Research data management and open data: Training approaches", Obrad Vučkovac; Irena Nježić. URL: https://youtu.be/l8yh3f8Tbv8?si=Tcc84fI9PO3-yEll. In this EIFL train-the-trainer bootcamp session Obrad Vučkovac talks about research data management and FAIR (Findable, Accessible, Interoperable and Reusable) data principles. Irena Nježić provides an overview of research data management plans and talks about research data publishing. Presentations and other support materials are available athttps://openplato.eu/course/view.php?id=62#section-7
- Webinar recording and slides: "How to train students and researchers on the topic, Managing and Sharing Research Data", David Ball, David Ball Consulting; Samuel Simango, Stellenbosch University Library; Obrad Vučkovac, Vinca Institute of Nuclear Sciences, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-managing-and-sharing-research-data
- The CARE Principles of Indigenous Data Governance, Ontologies in Agriculture. URL: https://www.youtube.com/watch?v=309QIZt9H74

Library guide:
- "Research Data management", University College Dublin. URL: https://libguides.ucd.ie/data

Examples of presentations, practical exercises, guides and tip sheets:

- Obrad Vučkovac. "Research Data Management". URL: https://openplato.eu/mod/resource/view.php?id=1257
- Obrad Vučkovac. "FAIR principles". URL: https://openplato.eu/mod/resource/view.php?id=1112
- Irena Nježić. "Data publishing". URL: https://openplato.eu/mod/resource/view.php?id=1120
- Amanda Doran. "Managing your research data: all disciplines", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=32467252
- Information sheet "Where to submit data", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31886647
- Guide for Researchers "How do I know if my research data is protected", OpenAIRE. URL: https://www.openaire.eu/how-do-i-know-if-my-research-data-is-protected
- Guide for Researchers "How do I license my research data", OpenAIRE. URL: https://www.openaire.eu/how-do-i-license-my-research-data
- Guide for Researchers "Can I reuse someone else's research data", OpenAIRE. URL: https://www.openaire.eu/can-i-reuse-someone-else-research-data
- Guide for Researchers "How to comply with Horizon Europe mandate for Research Data Management", OpenAIRE. URL: https://www.openaire.eu/how-to-comply-with-horizon-europe-mandate-for-rdm
- Guide for Researchers "RDM in Horizon Europe proposals", OpenAIRE. URL: https://www.openaire.eu/rdm-in-horizon-europe-proposals
- Guide for Researchers "How to identify and assess Research Data Management costs in H2020 projects", OpenAIRE. URL: https://www.openaire.eu/how-to-comply-to-h2020-mandates-rdm-costs
- Guide for Researchers "How to make your data FAIR", OpenAIRE. URL: https://www.openaire.eu/how-to-make-your-data-fair
- Guide for Researchers "How to find a trustworthy repository for your data", OpenAIRE. URL:https://www.openaire.eu/find-trustworthy-data-repository
- Guide for Researchers "Data formats for preservation, OpenAIRE. URL: https://www.openaire.eu/data-formats-preservation-guide
- Guide for Researchers "How to deal with non-digital data", OpenAIRE. URL: https://www.openaire.eu/non-digital-data-guide
- Guide for Researchers "How to deal with sensitive data", OpenAIRE. URL: https://www.openaire.eu/sensitive-data-guide
- Guide for Researchers "Raw data, backup and versioning", OpenAIRE. URL: https://www.openaire.eu/raw-data-backup-and-versioning
- "Research Data Management Adventure game", University of Bath Library and Stellenbosch University Library and Information Service.URL: https://rdm-games.gitlab.io/rdm-adventure
- "Training on research data management for social sciences", CESSDA. URL:https://www.cessda.eu/Training/Training-Resources
- "Research Data Management Handbook: A primer on managing your research data", OpenAIRE. URL:https://www.openaire.eu/rdm-handbook
- **"**CARE Principles for Indigenous Data Governance". URL: https://www.gida-global.org/care

- "RDMkit", ELIXIR-Europe. The Research Data Management toolkit for Life Sciences: Best practices and guidelines to help you make your data FAIR (Findable, Accessible, Interoperable and Reusable) URL: https://rdmkit.elixir-europe.org/
- "FAIR Game": Use this checklist: Jones, Sarah, &Grootveld, Marjan."How FAIR are your data?". URL: https://doi.org/10.5281/zenodo.1065991 to analyse these four datasets: URLs: https://zenodo.org/records/3722948, https://zenodo.org/records/10122211, https://doi.org/10.7910/DVN/VK3CP9 and https://doi.org/10.7910/DVN/GX3TDM
- "FAIRsharing.org": A curated, informative and educational resource on data and metadata standards, inter-related to databases and data policies. URL: https://fairsharing.org
- D.B. Deutz, M.C.H. Buss, J. S. Hansen, K. K. Hansen, K.G. Kjelmann, A.V. Larsen, E. Vlachos, K.F. Holmstrand. How to FAIR: a Danish website to guide researchers on making research data more FAIR; URLs: https://howtofair.dk and https://doi.org/10.5281/zenodo.3712065
- "FAIR assessment tool: F-UJI", FAIRsFAIR. URL: https://www.fairsfair.eu/f-uji-automated-fair-data-assessment-tool
- "FAIR Data Self-assessment Tool", ARDC. URL: https://ardc.edu.au/resource/fair-data-self-assessment-tool
- "FAIR assessment tool: SATYFID",DANS (Self-Assessment Tool to Improve the FAIRness of Your Dataset). URL: https://satifyd.dans.knaw.nl
- "DANS Data Game": card and online game developed by the Data Archiving and Networked Services (DANS). URL: https://dans.knaw.nl/en/dans-data-game.
- Data Horror Escape Room, The Vrije Universiteit Amsterdam. URL: https://sites.google.com/vu.nl/datahorror/home.

Book:
- Connie Clare, Maria Cruz, Elli Papadopoulou, James Savage, Marta Teperek, Yan Wang, Iza Witkowska, and Joanne Yeomans. "Engaging Researchers with Data Management: The Cookbook", Cambridge, UK: Open Book Publishers, 2019. URL: https://www.openbookpublishers.com/product/1080

Writing a data management plan (DMP)

This training builds knowledge about management of research data and provides practical skills for writing data management plans.

By the end of this training, learners should:
- Know how to write a data management plan.
- Gain confidence in research data management.
- Have information about existing tools and templates.

Training Outline:
- Overview: What are research data and why should you manage them?
- Ethical and legal considerations.
- Data types.
- Data organization, documentation and metadata.
- Data storage and back-up.
- Data sharing, re-use and long-term preservation.

Resources for facilitators and learners

Videos, webinars:
- Webinar recording and slides: "How to train students and researchers on the topic, Writing a Data Management Plan", David Ball, David Ball Consulting; Ieva Cesevičiūtė, Kaunas University of Technology, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-writing-data-management-plan
- "Data Sharing and Management Snafu in 3 Short Acts", NYU Health Sciences Library. URL: https://www.youtube.com/watch?v=66oNv_DJuPc
- "RDM horror stories", Library of the École Polytechnique Fédérale de Lausanne. URL: https://memento.epfl.ch/event/love-data-week-2020-at-epfl
- DMP & Indigenous Data, Angela Mashford-Pringle. URL: https://www.youtube.com/watch?v=RSnOLV1xhak

Library guide:
- "Research Data Management: Data Management Plans", University College Dublin. URL: https://libguides.ucd.ie/data/dmp

Examples of presentations, templates, guides, exercises and tip sheets:
- Irena Nježić. "Data Management Plan." URL: https://openplato.eu/mod/resource/view.php?id=1117
- "Research Data Management", Science Europe. URL: https://www.scienceeurope.org/our-priorities/research-data/research-data-management, including the "Practical Guide to the International Alignment of Research Data Management" https://www.scienceeurope.org/our-resources/practical-guide-to-the-international-alignment-of-research-data-management, RDM Guidance for Organisations: Core Requirements for Data Management Plansand Criteria for the Selection of Trustworthy Repositories; RDM Guidance for Researchers: Template for Data Management Plansand Guiding the Selection of a Trustworthy Repository; RDM Guidance for Reviewers: Template for a Data Management Plan Evaluation Rubric
- "Data Management template for students", University College Dublin. URL: https://libguides.ucd.ie/data/UCD_DMP_student
- "Data Management templates", University of Bath. URL: https://library.bath.ac.uk/research-data/data-management-plans/university-dmp-templates
- "DMPOnline tool to support researchers to develop and share DMP", DCC. URL: https://dmponline.dcc.ac.uk
- "ARGOS tool to create machine-actionable Data Management Plans", OpenAIRE. URL: https://argos.openaire.eu
- "Data Stewardship Wizard". URL: https://ds-wizard.org
- Coffey, Aoife Marie. "Sample Data Management Plans for training purpose." URL: https://doi.org/10.5281/zenodo.5608377

Research Lifecycle – Publish

A well thought through publishing strategy leads to increased impact of research. This section helps researchers and students to develop effective strategies for publishing their research. It reviews the open access publishing environment and advantages of various open access routes in making research publications more visible and citable.

We identified three topics that researchers and students should know well:
- Academic integrity.
- Choosing an effective publishing strategy.
- Using open access routes to increase research impact.

Academic integrity

Academic integrity is the commitment to and demonstration of honest and moral behaviour in an academic setting. This is most relevant at the university level as it relates to giving credit to other people when using their ideas and work, by acknowledging their contributions. Academic integrity training addresses concepts such as plagiarism and citing, copyright and fake news.

By the end of this training, learners should:
- Understand expectations for sound academic writing, avoiding plagiarism, and appropriate referencing and citation.

Training Outline:
- Key concepts of citation, quotation, plagiarism, referencing, paraphrasing.
- Tips for sound academic writing and avoiding plagiarism.
- How to use plagiarism detection software subscribed by the university. If a university does not have the subscription, show free tools for researchers to use.
- Referencing and citation styles.
- How to identify false and misleading information.

Resources for facilitators and learners

Videos, webinars, online tutorials:
- Webinar recording and slides: "How to train students and researchers on the topic, Academic Integrity", Milica Ševkušić, Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-academic-integrity
- Introduction to Plagiarism: Types and Examples, Florida Atlantic University Libraries. URL: https://www.youtube.com/watch?v=FFTWLx8tZFY
- "Plagiarism: Avoid it at all costs!", University College Dublin. URL: https://www.ucd.ie/library/elearning/plagiarism
- "What is plagiarism?", University of Guelph. URL: https://youtu.be/0qY6Rqp9xOs
- "Understanding and Avoiding Plagiarism: Types of Plagiarism", University of Guelph. URL: https://youtu.be/GW3BzAG8aaY
- "Understanding and Avoiding Plagiarism: From Passage to Paraphrase", University of Guelph. URL: https://youtu.be/auUHRv1vIgw

- "Research Misconduct: Plagiarism and Self-Plagiarism". Taiwan Academic Ethics Education Resource Center. https://www.youtube.com/watch?v=ik6I62xKcEQ
- "4 Ways to Check Your Paper for Plagiarism", University of Guelph. URL: https://youtu.be/jmmF0IyDJkc
- "Cite Your Sources: When / Why to Cite", University of Guelph. URL: https://www.youtube.com/watch?v=rsN_EQ3awF0
- "Authenticity Is the Way to Go: Data Fabrication and Falsification", Taiwan Academic Ethics Education Resource Center. https://www.youtube.com/watch?v=pWShZFXCSm4
- "Fake News Quiz", University College Dublin. URL: https://www.ucd.ie/library/elearning/fakenews
- "Research Integrity materials, project Path2Integrity (videos, a handbook and learning cards)". URLs: https://path2integrity.eu/ri-materials; learning platform: https://learning-p2i.eu/.
- Patricia Brennecke. "Academic Integrity at MIT: A Handbook for Students", Massachusetts Institute of Technology, 2018. URL: https://integrity.mit.edu/sites/default/files/documents/AcademicIntegrityHandbook2018-color.pdf
- "Instructors Educational Resources", International Center for Academic Integrity. URL: https://academicintegrity.org/instructors-educational-resources
- "Scholarly Communication in Crisis: Research Integrity and Open Scholarship", OASPA webinar with Adam Day, Brian Nosek and Dorothy Bishop, and Catriona MacCallum. URL: https://oaspa.org/scholarly-communication-in-crisis-research-integrity-and-open-scholarship
- Getting copyright 'right' in your research, University of Newcastle Library. URL: https://www.youtube.com/watch?v=zlNvyBO22j0
- "Copyright Issues in Academic Research". Taiwan Academic Ethics Education Resource Center. https://www.youtube.com/watch?v=ToTzngY8SIk.
- Evaluating Sources Using SIFT: The Four Moves, Miami Dade College. URL: https://www.youtube.com/watch?v=_MOto4q2alo
- Resource Evaluation - Using the CRAAP Test, High Library - Elizabethtown College. URL: https://www.youtube.com/watch?v=kOlFl6UmRg0

Library guides:
- "Academic Integrity - Referencing, Citation & Avoiding Plagiarism", University College Dublin. URL: https://libguides.ucd.ie/academicintegrity
- "Plagiarism and Academic Integrity", University of Guelph. URL: https://guides.lib.uoguelph.ca/AcademicIntegrity
- "Evaluating information: Fake news", University College Dublin. URL: http://libguides.ucd.ie/evaluating/fakenews
- Fact-Checking Resources, Northeast WI Technical College. URL: https://nwtc.libguides.com/c.php?g=43831&p=8070773
- Reusable LibGuides Boxes: The CRAP/CRAAP/TRAAP Test, Butler University. URL: https://libguides.butler.edu/c.php?g=117303&p=1940068

Examples of presentations, practical exercises, guides and tip sheets:
- "Academic Integrity Board Game", Amanda White, Emma Gogolewski, Tyler Key. URL: https://aibg.amandalovestoaudit.com
- "Questionable Research Practices: Definition, Detection, and Recommendations for Better Practices", Replicability-Index. URL: https://replicationindex.com/2015/01/24/qrps

- "You Quote It, You Note It!" interactive guide developed by Acadia University, Vaughan Memorial Library (English and French). URL: https://library.acadiau.ca/research/tutorials/you-quote-it-you-note-it-2.html
- "Academic integrity", University of Waterloo. URL: https://uwaterloo.ca/academic-integrity
- "Living Guidelines on the Responsible Use of Generative AI in Research". 2024. European Commission. https://research-and-innovation.ec.europa.eu/document/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en.
- Collection of resources: "Academic/Research Integrity", Milica Ševkušić. URL: https://www.zotero.org/groups/2888253/academicresearch_integrity
- Retraction Watch Hijacked Journals Checker (curated list of fake journals mimicking legitimate journals by adopting their titles, ISSNs, and other metadata). URL: https://docs.google.com/spreadsheets/d/1ak985WGOgGbJRJbZFanoktAN_UFeExpE/edit#gid=5255084
- "The Dilemma Game app", Erasmus University Rotterdam. URL: https://www.eur.nl/en/about-eur/policy-and-regulations/integrity/research-integrity/dilemma-game

Articles:
- White, Amanda. "'Interactive Approaches to Learning about Academic Integrity: The Role of Fun and Games". In *Chapters*, 86–99. Edward Elgar Publishing. URL: https://ideas.repec.org/h/elg/eechap/19100_7.html
- Shen, C. and Shah, L. "Predatory publishing practices: what researchers should know before submitting their manuscript". Insights: the UKSG journal, 36(1), p.19.DOI: https://doi.org/10.1629/uksg.631
- ChérifaBoukacem-Zeghmouri. "Predatory journals entrap unsuspecting scientists. Here's how universities can support researchers". Nature. 620, 469 (2023). DOI: https://doi.org/10.1038/d41586-023-02553-1

Choosing an effective publishing strategy

There are many different channels for publishing research, including journal articles, books, book chapters, reports and blogs. The training briefly covers book publishing, and examines journal publishing in more depth. It also looks at how researchers can maximize the impact of their research through a variety of means such as collaboration, increasing discoverability and visibility, and how to communicate, promote and monitor research output.

By the end of this training, learners should:
- Have the knowledge and skills needed to build an effective publishing strategy.

Training Outline:
- Selecting a book publisher.
- Selecting a journal.
- Maximizing the impact of your research through:
  - Ensuring you are easily identifiable
  - Ensuring your research output is visible
- Promoting &Monitoring your research outputs:

- o   Social media (e.g. blogs, Twitter, social networks)
- o   Tracking citations and mentions of your work

Resources for facilitators and learners

Online courses:
- ● "Publishing strategy". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-6-publishing-strategies

Videos and webinars:
- ● Webinar recording and slides: "How to train students and researchers on the topic, Choosing an effective publishing strategy", Niamh Brennan, Trinity College Dublin, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-choosing-effective-publishing
- ● Middlesex University writing boot-camp [6 videos], Harzing - Academic Resources, Middlesex teaching & research support. URL: https://www.youtube.com/watch?v=fm9tQnMjXGU&list=PLimnjL5t2EFSAWjqVkx9w8LB21cEFQjDX
- ● What does peer-reviewed mean?, University of Newcastle Library. URL: https://www.youtube.com/watch?v=NQ91KPoc1ao
- ● Presentations and Papers and Posters Oh My!: Copyright Considerations for Conferences, University of Newcastle Library. URL: https://www.youtube.com/watch?v=AD-jw8X0fYo
- ● "Addressing predatory publishing issues", Tom Olijhoek (DOAJ), Susan Veldsman (ASSAf). URL: https://youtu.be/yBUiwa6RGJU?si=pUL0w4jHG6S4NnSA
- ● "Think. Check. Submit." URL: https://www.youtube.com/watch?v=kmHdR_hlG9Q
- ● "Think Check Submit vs predatory publishing", SLA Europe. URL: https://www.youtube.com/watch?v=LKCmmsqG9jU
- ● "Publishing Due Diligence", Katherine Stephan, Think. Check. Submit. URL: https://youtu.be/bdM6fxP2ZkI?si=2sOvTfXOovrVWKVD
- ● "Writing and Publishing: Resources for Researchers and Scholars", University of Arkansas Libraries. URL:https://uark.libguides.com/c.php?g=538760&p=5062457, including the risks of publishing in predatory journals https://uark.libguides.com/WritingPublishing/Predatory
- ● Deceptive or Predatory Publishers: What They Are & How to Evaluate Them, Florida Atlantic University Libraries. URL: https://www.youtube.com/watch?v=vDVaB6-qpa4

Library guides:
- ● "Publish or Perish", Cambridge Libraries. URL: https://libguides.cam.ac.uk/publishorperish/introduction
- ● "Scholarly Communications-introduction, book publishing, journal publishing", University College Dublin. URL: https://libguides.ucd.ie/publishing
- ● World Intellectual Property Organization, ed. 2024. *Generative AI: Navigating Intellectual Property*. Geneva, Switzerland: World Intellectual Property Organization. https://doi.org/10.34667/tind.49065.
- ● "Avoiding 'Predatory' Publishers and Conferences", University College Dublin. URL: https://libguides.ucd.ie/publishing/predatory

- Braak, P., van Gorp, D., Hukkelhoven, C., & de Roo, T. (2024). Predatory and Questionable Publishing Practices: How to Recognise and Avoid Them. UKB - Dutch Consortium of University Libraries. https://doi.org/10.5281/zenodo.10688081.
- "Scholarly Communications: Promoting publications", University College Dublin. URL: https://libguides.ucd.ie/publishing/promoting
- "Scholarly Communications: Tracking publications", University College Dublin. URL: https://libguides.ucd.ie/publishing/tracking

Examples of presentations, practical exercises, handouts and tip sheets:
- Michelle Dalton, "Effective Publishing Strategy", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31623346
- Michelle Dalton, "Social Media in Research: Promoting, Engaging, Discovering", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31599555
- "Where should I publish my research", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31623185
- "Avoiding deceptive publishers: Recommendations for authors and librarians". URL: https://openplato.eu/mod/page/view.php?id=1074
- "Disputable journals". URL: https://www.zotero.org/groups/5259897/disputable_journals/library
- Stacy Konkiel. "The 30-Day Impact Challenge: the ultimate guide to raising the profile of your research". URL: http://blog.impactstory.org/wp-content/uploads/2015/01/impact_challenge_ebook_links.pdf
- "Identifying predatory academic journals and conferences", UNESCO and InterAcademy Partnership. DOI: https://doi.org/10.54677/VQWQ5022. Language :English, also available in :Français, العربية, Español

Using Open Access (OA) routes to increase research impact

This training covers the OA environment, its drivers and how researchers can take advantage of the various OA routes to get their research output more visible and citable.

By the end of this training, learners should:

- Understand how to publish their work openly and be aware of the advantages of OA.
- Understand different OA models.
- Understand rights retention.
- Be able to find an OA publishing option for their research.
- Know how to find a suitable repository to provide OA and archive their work.
- Know how to publish OA monographs.
- Understand funders' expectations and policies on OA.
- Be aware of the options to secure funding for Article Processing Charges (APCs) where applicable, andavailable discounts or waivers.

Training Outline:
- OA drivers: increased discoverability, visibility and impact; funders' requirements to deposit in an OA repository; publishers' responses; rights retention.
- Get started with OA publishing by finding a suitable journal or a suitable repository for your publications.
- Diamond OA
- APC waivers and discounts.
- Your university's OA / institutional repository – free and long-term stable access and storage; library services including copyright checking. If your university does not have a repository, you can raise awareness about shared OA repositories for depositing research outputs e.g. Zenodo.

Resources for facilitators and learners

Online courses:
- "Open Access Publishing". FOSTER. URL: https://www.fosteropenscience.eu/node/2331
- "Open Research". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-7-open-research
- "OS101 Module 5: Open Results". NASA TOPS Open Science 101 Materials. https://github.com/nasa/Transform-to-Open-Science/tree/open-science-101/Module_5.

Videos, webinars, online tutorials:
- Webinar recording and slides: "Open Access Publishing", Milica Ševkušić. URLs: Video - https://youtu.be/xl24NHO92XY?si=fOx0WI8T2t4ld5V9 Slides - https://openplato.eu/mod/resource/view.php?id=1067
- Webinar recording and slides: "How to train students and researchers on the topic, Using the OA route to increase research impact", David Ball, David Ball Consulting; Obrad Vučkovac, Vinca Institute of Nuclear Sciences, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-about-topic-using-oa-route-increase
- Documentary film (approx. 1 hour) "Paywall – the business of scholarship". The film questions the rationale behind the $25.2 billion a year that flows into for-profit academic publishers, examines the 35-40% profit margin associated with the top academic publisher, Elsevier, and looks at how that profit margin is often greater than some of the most profitable tech companies such as Apple, Facebook, and Google. This film can help to provide a context to OA and why it is important (rather than just an extra administrative burden for researchers). The film can be followed by a panel discussion with some of your researchers and research management staff, maybe during International Open Access Week. URL: https://paywallthemovie.com/
- Short film "What is Open Access", SamenwerkingsverbandHogeschoolbibliotheken (SHB). URL: https://youtu.be/Ne8kTJ0-fEM
- Short film on the power and benefit of Open Access "Sharing knowledge and saving lives: one doctor's story", EIFL. URL: https://vimeo.com/108578135
- Series of short films "My Open Access Story" on benefits of uploading to an Institutional Repository, filmed by University College Dublin as part of International Open Access Week. URL: https://libguides.ucd.ie/openaccess/openaccessstory
- Webinar recording and slides "How to identify credible open access journals and avoid predatory ones", EIFL and CARLIGH. URL: https://eifl.net/resources/webinar-how-identify-credible-open-access-journals-and-avoid-predatory-ones

- "Open Access Explained!" Animation by Jorge Cham, narration by Nick Shockey and Jonathan Eisen. URL: https://youtu.be/L5rVH1KGBCY?si=nu-KY5QGrfBi2nOY
- "OA Mythbusters": Video series by Open Access Book Network seeking to dispel some myths around OA books. URL: https://openaccessbooksnetwork.hcommons.org/oa-mythbusters
- "Creative Commons Kiwi", Creative Commons Aotearoa New Zealand. URL: https://youtu.be/AeTlXtEOpIA?si=evYA5N6HlYIAoRkf
- "Addressing predatory publishing issues", Tom Olijhoek (DOAJ), Susan Veldsman (ASSAf). URL: https://youtu.be/yBUiwa6RGJU?si=pUL0w4jHG6S4NnSA
- "Think. Check. Submit." URL: https://www.youtube.com/watch?v=kmHdR_hIG9Q
- "Publishing Due Diligence", Katherine Stephan, Think. Check. Submit. URL: https://youtu.be/bdM6fxP2ZkI?si=2sOvTfXOovrVWKVD

Library guides:
- "Open Access for Research Impact", University College Dublin. URL: https://libguides.ucd.ie/openaccess
- University College Dublin institutional repository example. URL: https://libguides.ucd.ie/RRU
- Pascal Braak, Hans de Jonge, Giulia Trentacosti, Irene Verhagen, & Saskia Woutersen-Windhouwer. (2020). Guide to Creative Commons for Scholarly Publications and Educational Resources (final). Zenodo. https://doi.org/10.5281/zenodo.4741966
- Braak, P., van Gorp, D., Hukkelhoven, C., & de Roo, T. (2024). Predatory and Questionable Publishing Practices: How to Recognise and Avoid Them. UKB - Dutch Consortium of University Libraries. https://doi.org/10.5281/zenodo.10688081.

Examples of practical exercises, handouts, use cases and tip sheets:
- Infographics on benefits of open access by Danny Kingsley and Sarah Brown. URL: https://aoasg.files.wordpress.com/2013/02/benefitsofopenaccess_cc-by_logo.pdf Information sheet "De-bunking Open Access Myths", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31600722
- Information sheet "Funding Gold Open Access Publishing", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31600723
- Information sheet "How can I make my paper open access?", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31600724
- APC waivers and discounts negotiated by EIFL, Electronic Information for Libraries, URL:https://www.eifl.net/apcs
- "Open Access Primers (various resources)": Web pages created by Open Access Network (texts, videos, links). URL: https://open-access.network/en/information/open-access-primers
- England, Jonathan. 'Myths and Realities around Open Access before and after 2021'. URL: https://doi.org/10.5281/zenodo.4519479
- Peter Suber. "Methods of Rights Retention". URL: https://bit.ly/MethodsRightsRetention
- "Rights retention strategy": cOAlition S resources, part of the online campaign "Publish with Power: Protect your rights". ULR: https://www.coalition-s.org/resources/rights-retention-strategy.
  To help authors, cOAlition S has created:
  - the pre-submission letter template. URL: https://www.coalition-s.org/wp-content/uploads/2022/03/Presubmission_Letter_to_Journal_Publisher_Template.docx

- ○ the submission cover letter template. URL: https://www.coalition-s.org/wp-content/uploads/2022/03/Submission_Cover_Letter_Template.docx
  - ○ user guide about when, how and why to use these templates. URL: https://www.coalition-s.org/wp-content/uploads/2022/05/Authors_templates_user_guide.pdf
  - ○ Author's Rights Quiz (cOAlition S): https://coalitions.typeform.com/rightsretention?typeform-source=www.coalition-s.org
- "Implementing the rights retention strategy for scientific publications: Guide for researchers" (France) https://www.ouvrirlascience.fr/implementing-the-rights-retention-strategy-for-scientific-publications
- Tate, D. "Open Science Policies at the University of Edinburgh: Putting Policy into Practice". Septentrio Conference Series, (1). https://doi.org/10.7557/5.6759 Recording: https://uit.cloud.panopto.eu/Panopto/Pages/Viewer.aspx?id=c7a79fd4-78bd-4a72-9ea2-af49009fafee
- "Licence selector tool". URL: https://ufal.github.io/public-license-selector
- "Creative Commons License chooser". URL: https://chooser-beta.creativecommons.org
- "Avoiding deceptive publishers: Recommendations for authors and librarians". URL: https://openplato.eu/mod/page/view.php?id=1074
- "Disputable journals". URL: https://www.zotero.org/groups/5259897/disputable_journals/library Repository of useful resources such as articles, guides, checklists.
- "Identifying predatory academic journals and conferences", UNESCO and InterAcademy Partnership. DOI: https://doi.org/10.54677/VQWQ5022. Language :English, also available in :Français, العربية, Español

Article:
- Tennant, Jonathan, Harry Crane, Tom Crick, Jacinto Davila, Asura Enkhbayar, Johanna Havemann, Bianca Kramer, et al. "Ten Myths around Open Scholarly Publishing". Copyright, Fair Use, Scholarly Communication, Etc. URL: https://digitalcommons.unl.edu/scholcom/98

Research Lifecycle – Disseminate and increase visibility

This section shows researchers and students how to increase the visibility of research outputs by making them freely and globally available.

We identified four topics that researchers and students should know well:
- Benefits of institutional repositories.
- How sharing preprints can improve research.
- The value of persistent identifiers for research outputs, researchers and institutions: DOIs, ORCID and ROR.
- Social media for research.

Institutional repository

The training explains how an institutional repository increases the visibility of research outputs by making them freely and globally available. It guides researchers through the process of uploading research outputs to an institutional repository, covers library services related to depositing research into an institutional repository, and describes the processes and workflows for submitting research outputs to a repository manager.

By the end of this training, learners should:
- Understand the benefits of institutional repositories and Library services to support researchers.
- Know about different versions of published research, and how to handle them.
- Be able to deposit research outputs in a research repository (if applicable).
- Understand the processes and workflows for submitting research outputs to a repository manager.

Training Outline:
- Introduction to institutional repository, its benefits, policies and workflows.
- Keeping the correct version of a published paper – Author Accepted Manuscripts (AAMs) or postprint (after peer review) in addition to a published version or a Version of Record (VoR).
- How to upload to the institutional repository (if authors in your institution deposit their articles into the repository themselves), including a demonstration and upload practice.
- Library services e.g. copyright checking, workflows in sending papers to the library for uploading into the institutional repository.

Resources for facilitators and learners

Videos and webinars:
- Webinar recording and slides: "How to train students and researchers on the topic, Institutional repository", Milica Ševkušić, Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-about-topic-institutional-repository

- Webinar recording and slides "Creative Commons, repositories and versions of articles", EIFL. URL: https://eifl.net/resources/eifl-webinar-creative-commons-repositories-and-versions-articles
- Webinar recording and slides "Institutional repository management", EIFL and CARLIGH. URL: https://eifl.net/resources/webinar-institutional-repository-management
- "Increasing the visibility and impact of research by using institutional repositories", Professor Aidan Moran, UCD School of Psychology. URL: https://www.youtube.com/watch?v=_rNTas142M4
- "Depositing Author Accepted Manuscripts (AAMs) in institutional repositories", Lorraine Estelle, Iryna Kuchma, EIFL. URL: https://www.eifl.net/resources/eifl-webinar-depositing-author-accepted-manuscripts-aams-institutional-repositories
- "Discover Sherpa Romeo for PUBLISHER OPEN ACCESS POLICIES | Five Minute Friday", Carrie Price. URL: https://youtu.be/nesrAsQ97po?si=Wds6SZ1aT5av8m2V
- "Self-archiving: Leveraging open tools to bridge the gap between opportunity and practice", Delwen Franzen (QUEST Center for Responsible Research). URL: https://youtu.be/nx3OZPZfo4g?si=1cj0ejH1e7Zxp0-p

Library guides: (these are examples from University College Dublin, use your own repository materials)
- "Research Repository UCD: Visibility and Impact". URL: https://libguides.ucd.ie/RRU
- "Repository Visibility and Impact". URL: https://libguides.ucd.ie/RRU/Impact
- "Repository Services for Researchers". URL: https://libguides.ucd.ie/RRU/postsubmission
- "Submitting materials". URL: http://libguides.ucd.ie/RRU/submitting
- "Submit the Correct Version". URL: http://libguides.ucd.ie/RRU/correct-version
- "Copyright and Uploading Papers to Research Repository UCD". URL: https://libguides.ucd.ie/RRU/copyright

Examples of presentations, practical exercises, handouts and tip sheets:
- Ljiljana Radisavljević. "Repositories". URL: https://openplato.eu/mod/resource/view.php?id=1243
- Irena Nježić. "Benefits of repositories and how to choose the best examples to illustrate them". URL: https://openplato.eu/mod/resource/view.php?id=1244
- "Finding Wikipedia links pointing to a repository". URL: https://openplato.eu/mod/page/view.php?id=1246
- "Authors - how to get the right version of your article for deposit in the repository", EIFL. URL: https://www.eifl.net/resources/authors-how-get-right-version-your-article-deposit-repository
- "Differences between Zenodo and institutional repositories". URL: https://docs.google.com/document/d/1ZJnbyf9--1fttoM4lh5j17FvcPV4k0Hw/edit?usp=sharing&ouid=100340778348776368238&rtpof=true&sd=true

Preprints

This training demonstrates to researchers how sharing preprints can improve their research and support open science.

By the end of this training, learners should:

- Know what preprints are.
- Be able to find a suitable preprints platform to share their early findings.
- Understand the pro and cons of sharing preprints.
- Be aware of how sharing preprints can benefit their career progression.

Training Outline:
- What are preprints?
- What do your peers think about preprints?
- Weighing the pros and cons of preprints.
- Want to give it a try? Discipline-specific and general preprint repositories that you can use.
- Preprints in the time of COVID-19.

Resources for facilitators and learners

Online courses:
- "Sharing Preprints", FOSTER. URL: https://www.fosteropenscience.eu/node/2332

Videos and webinars:
- Webinar recording and slides: "How to train students and researchers on the topic, Preprints", Ana Đorđević, Faculty of Chemistry Library, University of Belgrade, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-preprints
- "Preprints", Professor Marcus Munafò, University of Bristol, Dr Jonny Coates, Queen Mary University of London, Dr Jake Ayres, University of Bristol, Nona Pariente, Editor-in Chief, PLOS Biology, UK Reproducibility Network. URL: https://youtu.be/bvPrDSyZ3z4?si=6jsgaFOxh6BZRc6Y
- "What are preprints?", Science Communication Lab. URL: https://youtu.be/2zMgY8Dx9co?si=AtVzVFhdVFOX-J3S
- "Introduction to Preprints", Philip Cohen, Center for Open Science. URL: https://youtu.be/fRvxDVtmQjA?si=KcytoAHNidicR0_a

Library guides:
- "Scholarly Publishing – Preprints", CQUniversity Library. URL: https://libguides.library.cqu.edu.au/c.php?g=760937&p=6675398
- "Open research handbook: Preprints", University of Reading. URL: https://libguides.reading.ac.uk/open-research/preprints
- "Understanding Research Impact: Preprints pros and cons", River Campus Libraries. URL: https://libguides.lib.rochester.edu/c.php?g=776659&p=5570630
- Kristina Hettne, Ron Aardening, Dirk van Gorp, Chantal Hukkelhoven, Nicole Loorbach, Jeroen Sondervan, & Astrid van Wesenbeeck. (2021). A Practical Guide to Preprints: Accelerating Scholarly Communication (1.0). Zenodo. https://doi.org/10.5281/zenodo.5600535
-

Examples of presentations, guides, handouts and tip sheets:
- Preprint Info Center, ASAPbio. URLhttps://asapbio.org/preprint-info
- Preprints in the times of the COVID-19 pandemic,ASAPbio. URL:https://asapbio.org/preprints-and-covid-19

- List of funder policies, ASAPbio. URL: https://asapbio.org/funder-policies
- Directory of Open Access Preprint Repositories. URL: https://doapr.coar-repositories.org/repositories
- "Pre-prints Training Materials", UK Reproducibility Network. URL: https://www.ukrn.org/pre-prints/

Articles:
- Bourne PE, Polka JK, Vale RD, Kiley R. Ten simple rules to consider regarding preprint submission. PLoSComputBiol 13(5): e1005473. https://doi.org/10.1371/journal.pcbi.1005473
- Carneiro, C.F.D., Queiroz, V.G.S., Moulin, T.C. *et al.* Comparing quality of reporting between preprints and peer-reviewed articles in the biomedical literature. *Res Integr Peer Rev* **5,** 16 (2020). https://doi.org/10.1186/s41073-020-00101-3
- Fraser N, Brierley L, Dey G, Polka JK, Pálfy M, Nanni F, et al. (2021) The evolving role of preprints in the dissemination of COVID-19 research and their impact on the science communication landscape. PLoSBiol 19(4): e3000959. https://doi.org/10.1371/journal.pbio.3000959
- Penfold NC, Polka JK (2020) Technical and social issues influencing the adoption of preprints in the life sciences. PLoS Genet 16(4): e1008565. https://doi.org/10.1371/journal.pgen.1008565

Persistent identifiers for research outputs, researchers and institutions: DOIs, ORCID and ROR

This training explains the benefits of persistent identifiers for research outputs, researchers and institutions: DOIs (Digital Object Identifiers), ORCID (Open Researcher and Contributor ID) and ROR (Research Organizations Registry). It outlines the 'research nexus' - a rich and reusable open network of relationships and scholarly records that the global community can build on, where metadata is the thread that is woven to produce such a network. It also covers the benefits of establishing a researcher profile, introduces the main research identifiers and provides deeper knowledge of ORCID (Open Researcher and Contributor ID), which is an internationally recognized, free and essential tool for author disambiguation. Organizational identity is presented via ROR - a global, community-led registry of open persistent identifiers for research organizations.

By the end of this training, learners should:
- Know about various persistent identifiers and the value they bring.
- Know about various online research profiles.
- Know how to use ORCID to manage research identity.
- Know how to use ROR to manage organizational identity.

Training Outline:
- Overview of persistent identifiers for research outputs, researchers and research organizations (DOIs, ORCIDs, RORs)
- Overview of researcher profile tools (ORCID, Scopus Author Identifier, Web of Science Researcher ID, Google Scholar Profiles).

- What is ORCID? How to make the most of your ORCID.
- What is ROR? How to use ROR?

Resources for facilitators and learners

Online courses:
- "Identifiers". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-2-identifiers

Videos, webinars, online tutorials:
- "What is a DOI?" The Claremont Colleges Library. URL: https://www.youtube.com/watch?v=n_SwKWWS3DI
- "The DOI for data." PaNOSC EOSC. URL:https://www.youtube.com/watch?v=ekn0qicVFJM
- "How To Find DOIs on CrossRef." Bellack Library. URL: https://www.youtube.com/watch?v=VRrcVqtIegM
- "Crossref Services for Librarians and Journal Editors", Johanssen Obanda, Luis Montilla, Madhura Amdekar, Crossref. URL: https://www.eifl.net/resources/webinar-crossref-services-librarians-and-journal-editors.
- Tutorial "How to create Google Scholar Citation Author profile", University of Melbourne. URL: https://unimelb.libguides.com/c.php?g=403178&p=2742547
- Various ORCID videos. URL: https://vimeo.com/orcidvideos
- Webinar recording and slides: "How to train students and researchers on the topic, Researcher identity and ORCID", Gabriela Mejias and Nabil Ksibi, ORCID; Milica Ševkušić, Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, and EIFL.URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-researcher-identifiers-and-orcid
- Webinar recording and slides "How ORCID benefits researchers and librarians", EIFL and CARLIGH. URL: https://eifl.net/resources/webinar-how-orcid-benefits-researchers-and-librarians
- "About ROR, the Research Organization Registry", Maria Gould, ROR. URL: https://www.eifl.net/resources/about-ror-research-organization-registry

Library guides:
- "Researcher Profiles, Identifiers and Social Networks: Maximize your Impact", University of Melbourne. URL: http://unimelb.libguides.com/researcher_profiles/home
- "Author identity", University College Dublin. URL: https://libguides.ucd.ie/publishing/authors
- "Researcher Profiles and ORCID iDs", RMIT University. URL: https://rmit.libguides.com/researcher-profile
- "ORCID (Open Researcher and Contributor ID): info about ORCID and their use at KAUST", King Abdullah University of Science and Technology Library. URL: https://libguides.kaust.edu.sa/orcid
- "ORCID", North-West University Library and Information Services. URL: http://library.nwu.ac.za/orcid
- "ORCID and other researcher identifiers", Stellenbosch University Library and Information Service. URL: https://libguides.sun.ac.za/c.php?g=742998&p=5316692

Examples of presentations, guides and tip sheets:
- Guide for Researchers: "How can identifiers improve the dissemination of your research outputs? Connect all your research products with your personal identifier", OpenAIRE. URL: https://openaire.eu/how-can-identifiers-improve-the-dissemination-of-your-research-outputs
- Presentation "Researcher Identity & ORCID",Countway Library Research Data Services, OSF. URL: https://osf.io/462w7
- Building your ORCID record & connecting your iD.URL: https://support.orcid.org/hc/en-us/categories/360000663114-Building-your-ORCID-record-connecting-your-iD
- How do I find ORCID record holders at my institution? URL: https://info.orcid.org/faq/how-do-i-find-orcid-record-holders-at-my-institution/
- ORCID statistics. URL: https://orcid.org/statistics
- Structure of the ORCID Identifier. URL: https://support.orcid.org/hc/en-us/articles/360006897674-Structure-of-the-ORCID-Identifier
- "ORCID Help Center": Find help articles, troubleshooting guides, and tutorials. URL: https://support.orcid.org/hc/en-us
- "ORCID" in theOpen Science Quest by Jonathan England. URL: https://openscience.quest/episode1-orcid

Social media for research

Social media are becoming increasingly important as tools for publicizing research, for discovering new publications and ideas, and to engage in discussions with other researchers. This training introduces a selection of popular and useful social networks for academics and researchers.

By the end of this training, learners should:
- Understand the benefits of using social media for research.
- Be aware of the caveats.
- Know some of the more popular social networks and services for researchers.
- Know how to present themselves online.

Training Outline:
- Use of Social Media Tools and Networks to promote research.

Resources for facilitators and learners

Webinars:
- Webinar recording and slides: "How to train students and researchers on the topic, Social media for research", Ana Đorđević, Faculty of Chemistry Library, University of Belgrade, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-social-media-research
- "Social Media for Scientists and Science Programs", IRIS Earthquake Science. URL: https://www.youtube.com/watch?v=gCMxbWnNqro
- "Social Media for Scientists" (2020), NIH Office of Intramural Training & Education (OITE). URL:https://www.youtube.com/watch?v=5EZ1JYGFmPQ

- "Using social media – An introduction for scientists", Biodiversa+. URL: https://www.youtube.com/watch?v=LabFizGJXWM

Library guide:
- "Social Media to Promote Research", University College Dublin. URL: https://libguides.ucd.ie/socialmedia

Examples of guides, templates and tip sheets:
- Guide "Social media guide for EU funded R&I projects", H2020 Programme European Commission. URL: https://ec.europa.eu/research/participants/data/ref/h2020/other/grants_manual/amga/soc-med-guide_en.pdf
- "10 tips for tweeting research", Nature Index. URL: https://www.natureindex.com/news-blog/ten-tips-tweeting-research-academic

Research Lifecycle – Measure Impact

Currently, there is no one tool or system that completely measures the impact of research. Each tool uses its own measurement systems and it is difficult to use these tools across disciplines that have different research and publication practices. This section will help researchers and students to become familiar with the most common ways of measuring research impact, highlighting limitations of traditional means of publishing and citation and introducing new approaches to research assessment and evaluation.

We identified two topics that researchers and students should know well:
- What are research metrics?
- How to measure research impact.

Introduction to research metrics

This training provides an overview of research metrics, how to use metrics appropriately, and their limitations. It is aimed at those with no or little prior knowledge of the area and explains the most commonly used quantitative (for example, citation-based) metrics, and the tools that can be used to calculate them, and qualitative expert judgement and peer review.

By the end of this training, learners should:
- Know how to use metrics appropriately.
- Be able to use multiple indicators to help to provide more robust information underpinned by data that is reliable, statistically valid, multi-faceted and its limitations understood.
- Learn how to use subject/field normalized indicators.
- Consider the appropriateness of any indicators used for non-English language research.

Training Outline:
- What areresponsible research metrics
- Use and Misuse of citation-based metrics.
- Author & Article Level Metrics & Tools: Scopus, Google Scholar, Altmetric.com, Web of Science.
- Choosing Appropriate Metrics.

Resources for workshop facilitators and learners

Online courses:
- "Bibliometric Basics". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-1-bibliometric-basics
- "Traditional metrics". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-3-traditional-metrics
- "Responsible Use of Metrics". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-5-responsible-use-of-metrics

Videos and webinars:
- Webinar recording, slides and training exercises: "How to train students and researchers on the topic, Bibliometrics", Niamh Brennan, Trinity College Dublin, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-bibliometrics
- Presentation recording: "Bibliometrics, the Matthew effect and diversity in academia", Dr. Elisabeth Gadd, Loughborough University, ON-MERRIT. URL: https://on-merrit.eu/news/2021-06-10-bibliometrics-MEs-diversity
- Bibliometrics and Altmetrics: An Introduction With Quiz, Florida Atlantic University Libraries. URL:https://www.youtube.com/watch?v=BrTTSut_yRs
- "What are responsible metrics?", University of Exeter. URL: https://youtu.be/kTYb623Slg4?si=ja6833kFH8Voi0Ib
- "Research in 3 Minutes: Responsible Metrics", Office of Scholarly Communication, Cambridge. URL: https://youtu.be/zbGb08jJzt0?si=jkmATmGDooGVqz1n
- "Research assessment - equity, diversity and inclusion", Stephen Curry, Buhle Mbambo-Thata. URL: https://www.eifl.net/resources/eifl-webinar-research-assessment-equity-diversity-and-inclusion

Library guides:
- "Bibliometrics & Research Impact: Responsible Metrics", Glucksman Library University of Limerick. URL: https://libguides.ul.ie/bibliometricsandresearchimpact/responsiblemetrics
- "Responsible Metrics", Durham University. URL: https://libguides.durham.ac.uk/research_support/evaluate_responsiblemetrics
- "Research Impact: Responsible Metrics", University of Michigan Library. URL: https://guides.lib.umich.edu/ResponsibleMetrics
- "Bibliometrics & Responsible Research Evaluation", University College Dublin. URL: https://libguides.ucd.ie/bibliometrics
- "Bibliometrics: A practical guide", University of York. URL: https://subjectguides.york.ac.uk/bibliometrics
- "Database Comparisons", Iowa State University. URL: https://instr.iastate.libguides.com/c.php?g=901522&p=6492159

Examples of presentations, training exercises and guides:
- Michelle Dalton "Bibliometrics for Beginners", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=32407754
- "Metrics toolkit: you can quickly understand what a metric means, how it is calculated, and if it's a good match for your impact question". URL: https://metrics-toolkit.org
- "Article Level Metrics: A SPARC Primer". URL:https://sparcopen.org/wp-content/uploads/2016/01/SPARC-ALM-Primer.pdf
- Report "Assessing Europe's University Based Research". European Commission: Expert Group on Assessment of University-Based Research, Assessing Europe's University Based Research, European Commission Directorate General for Research. URL: https://arrow.tudublin.ie/cserrep/17

- Marianne Gauffriau. "Navigating Responsible Research Assessment Guidelines". URL: https://www.leidenmadtrics.nl/articles/navigating-responsible-research-assessment-guidelines
- "Responsible Research Assessment and Evaluation". URL: https://www.coalition-s.org/responsible-research-assessment-and-evaluation
- "Responsible metrics", University of Birmingham. URL: https://intranet.birmingham.ac.uk/as/libraryservices/library/research/influential-researcher/responsible-metrics.aspx
- "Responsible metrics for researchers", University of Kent. URL: https://www.kent.ac.uk/guides/responsible-metrics-for-researchers
- "Principles to promote responsible use of research metrics", University of Oxford. URL: https://researchsupport.admin.ox.ac.uk/information/principles#collapse2783336
- "Bibliometrics - Assessing Research", University of Southampton. URL: https://library.soton.ac.uk/bibliometrics/home
- "Responsible metrics", the University of Manchester Library. URL: https://www.openresearch.manchester.ac.uk/about-us/responsible-metrics
- "THE BIBLIOMAGICIAN": Comment & practical guidance from the LIS-Bibliometrics community: https://thebibliomagician.wordpress.com/resources-2

Make your work count

This training clarifies common sources of confusion about metrics, describes types of impact, introduces core metrics concepts and explores sources of metrics.

By the end of this training, learners should:
- Be able to choose appropriate types of research impact metrics for their scholarship.

Training Outline:
- Recognize the types of research impact metrics that can be applied to various forms of scholarship.
- Describe common tools for gathering research impact metrics and qualitative evidence for public scholarship.
- Be aware of the appropriate uses and limitations of citation metrics and altmetrics.
- Develop a strategy for gathering evidence of impact and value for your own public scholarship.
- Provide examples of how the library can support researchers and students in gathering evidence of impact.

Resources for workshop facilitators and learners

Online courses:
- "Emerging metrics". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-4-emerging-metrics
- "Responsible use of metrics". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-5-responsible-use-of-metrics

- "Benchmarking". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-8-benchmarking
- "Ranking". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-9-rankings
- "Societal Impact". IATUL Research Impact Things - a self-paced training program for libraries. URL: https://iatulimpactthings.info/thing-11-societal-impact

Webinars, online tutorials:
- Webinar recording, slides, research impact report planning and case study templates: "How to train students and researchers on the topic, Measuring research impact", Niamh Brennan, Trinity College Dublin, and EIFL. URL: https://eifl.net/resources/eifl-webinar-how-train-students-and-researchers-topic-measuring-research-impact
- Webinar and blog: "Case study - Supporting bibliometric and research impact analysis at the University of Waterloo", Rebecca Bryant, OCLC; Alison Hitchens, Associate University Librarian for Collections, Technology, and Scholarly Communication, University of Waterloo, and Laura Bredahl, Bibliometrics and Research Impact Librarian, University of Waterloo. URLs: https://hangingtogether.org/?p=8830,
- Webinar recording and slides "Library services to support measuring research impact", Michelle Dalton, University College Dublin. URL:https://www.eifl.net/resources/eifl-webinar-library-services-support-measuring-research-impact
- Improve your research profile [8 videos], Harzing - Academic Resources, Middlesex teaching & research support. URL: https://www.youtube.com/watch?v=ZG-QIWFWwl0&list=PLwMeLhVwah2SZ2Ru0bBRxFpfkIiPGRGpE

Library guides:
- "How to measure research impact", NC State University Libraries. URL: https://www.lib.ncsu.edu/measuring-research-impact/your-impact
- "Measuring Research impact", Thomson Rivers University Library. URL: https://libguides.tru.ca/publishingresearch/researchimpact

Examples of presentations, guides, templates and tip sheets:
- Heather Coates. "Metrics for Research Assessment", IUPUI University Library Center for Digital Scholarship, OSF. URL: https://osf.io/jry9d
- Jere Odell, Heather Coates. "Own Your Digital Profile", IUPUI University Library Center for Digital Scholarship, OSF. URL: https://osf.io/zqwms
- Jere Odell, Heather Coates. "Share Your Work Freely", IUPUI University Library Center for Digital Scholarship, OSF. URL: https://osf.io/f3hxd
- Jere Odell, Heather Coates. "Gather Evidence", IUPUI University Library Center for Digital Scholarship, OSF. URL: https://osf.io/4vg5z
  Heather Coates, Jere Odell. "Make Your Case", IUPUI University Library Center for Digital Scholarship, OSF. URL: https://osf.io/69yf7
- Michelle Dalton. "Highlighting your track record: Using Metrics in your CV", University College Dublin. URL: https://libguides.ucd.ie/ld.php?content_id=31599554
- Google Scholar metrics. URL: https://scholar.google.ca/intl/en/scholar/metrics.html
- Publish or Perish. URL: https://harzing.com/resources/publish-or-perish
- "Metrics toolkit: you can quickly understand what a metric means, how it is calculated, and if it's good match for your impact question". URL: https://metrics-toolkit.org/

- Report "Assessing Europe's University Based Research". European Commission: Expert Group on Assessment of University-Based Research, European Commission Directorate General for Research. URL: https://arrow.tudublin.ie/cserrep/17
- Gordon, Shannon, and Alison Hitchens. Library Impact Practice Brief: Supporting Bibliometric Data Needs at Academic Institutions. Washington, DC: Association of Research Libraries. URL: https://doi.org/10.29242/brief.waterloo2020
- Stacy Konkiel. "The 30-Day Impact Challenge: the ultimate guide to raising the profile of your research". URL: http://blog.impactstory.org/wp-content/uploads/2015/01/impact_challenge_ebook_links.pdf
- "Choosing where to share your research", University of Kent. URL: https://www.kent.ac.uk/guides/choosing-where-to-share-your-research, including Tracking the dissemination of your research: https://www.kent.ac.uk/guides/choosing-where-to-share-your-research/tracking-the-dissemination-of-your-research

Article:
- "Google Scholar, Web of Science, and Scopus: a systematic comparison of citations in 252 subject categories" by Alberto Martin-Martin, Enrique Orduna-Malea, Mike Thelwall, Emilio Delgado Lopez-Cozar. URL: https://arxiv.org/ftp/arxiv/papers/1808/1808.05053.pdf