

Badges to Reward Open & Responsible Research Practices



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Badges to Reward Open & Responsible Research Practices

Introduction

Open Science improves verifiability, reusability, and accountability of the scholarly output. However, practicing Open Science is not always easy: it can take a lot of time to organize data for public sharing, document analysis procedures, preregister ideas, involve non-academic stakeholders in the research process, and so on.

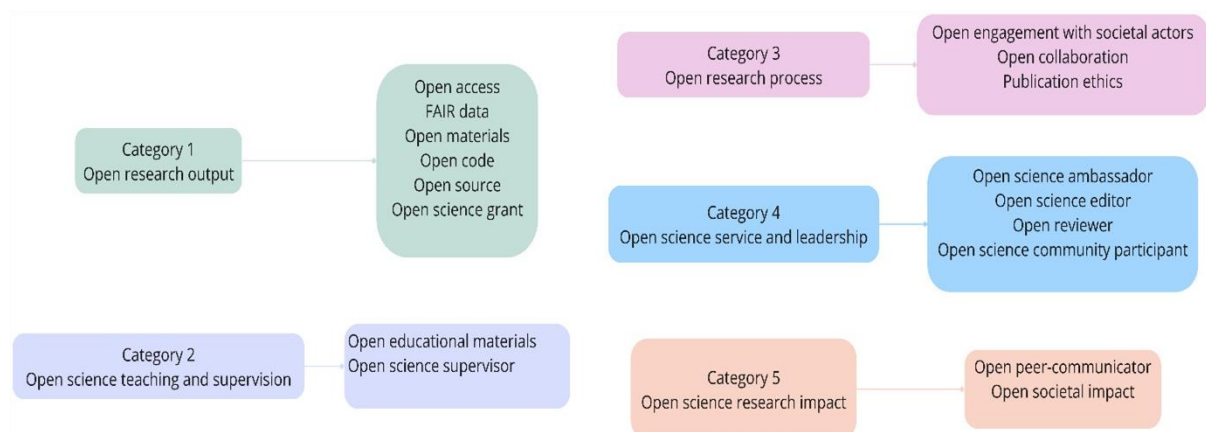
At ERIM, we are not only fostering awareness and offering training on Open Science practices to our academic staff, but we also want to recognize and reward those who follow these practices. ERIM's first step to highlight commitment to open and responsible scholarship is to create **17 badges** that signal the efforts of those who are already acting and encourage those who would like to do so.

The badges are created using the [edubadges platform](#) initially developed for educational purposes, but quickly expanding to other domains (e.g., research).

Edubadges (developed by SURF) are an electronic certificate that provides detailed information on the content of the outcome/practice achieved. Edubadges enable ERIM to award academics when they apply Open Scholarship practices in their research workflow.

The criteria for the badges were inspired by the [Open Science: Altmetrics and Rewards](#) Mutual Learning Exercise from the European Commission, and the [Evaluation of Research Careers fully acknowledging Open Science Practices](#).

Within this framework we developed 17 badges, each of them with 4 levels of expertise, from 0 stars (beginning) to 3 stars (exemplary). These 17 badges are incorporated into the following 5 categories:



Whenever a researcher deserves the same badge several times (e.g., publishing 3 FAIR datasets from different publications) we added a counter next to the badge, the objective of these counters is not to mindlessly count the number of open scholarly outputs but to properly recognize the work of people who regularly do open science.

Category 1: Open Research Output

Badge: Open Access





Open access (OA) refers to unrestricted online access to scholarly research. This means, firstly, that any scientific publication, such as peer-reviewed journal articles and books, research reports, and conference papers, are accessible to anyone anywhere. Secondly, every publication that is made publicly available should be accompanied by a permissive license, which means that the text, images, tables, and materials can be re-used by anyone under specific conditions.

Researcher can obtain this **Open Access Badge** by publishing in open access journals and/or self-archiving in open access repositories. The minimum requirement is that the publication is accessible via either the green, gold, or diamond open access route in a [trusted repository](#).

1. **Green OA** – The accepted version of a publication, but without typesetting from the journal. The PDF can be added to your EUR Pure profile.
2. **Gold OA** – The final version of a publication, published openly by the journal after authors pay Article Processing Charges (APCs). In many cases, EUR may already have a deal with the journal (check the [EUR Journal Browser](#) or contact openaccess.library@eur.nl).
3. **Diamond OA** – The final version of a publication, published by the journal for free. The authors pay no APCs.

More information on [questions about open access for EUR researchers](#)

ERIM Journal List and the OA options (only available to ERIM members): [EJL_OA_v2.xlsx](#)

Badge	Level
	Beginning At least 1 Green/Gold/Diamond OA publication in a trusted repository
	Developing 30% of publications are Green/Gold/Diamond OA in a trusted repository
	Accomplished 60% of publications are Green/Gold/Diamond OA in a trusted repository
	Exemplary 100% of publications are Green/Gold/Diamond OA in a trusted repository

Badge: FAIR Data

Research data refers to all information needed to support or validate the development, results, observations, or findings of a research project, including contextual information and secondary data. It also includes videos, interviews, observations, questionnaires, databases, spreadsheets, transcripts, models, notes, etc.

FAIR Data means research data (or its associated metadata) that is freely and publicly available, allowing any user to download, copy, analyse, re-process, or re-use it without financial, legal, or technical barriers. It is human- and machine-readable, supported by regular curation and maintenance.

FAIR data does not necessarily mean open data! While the FAIR principles strive for openness, when dealing with sensitive data, FAIR focuses on making the metadata open and not the data itself.

Researchers can obtain this **FAIR Data Badge** by adopting quality standards in data management and open datasets. These principles apply to dataset as well as metadata.





Findable – the data has a persistent identifier, usually a Digital Object Identifier (DOI).

Accessible – the data has no restrictions, such as embargo, security, no gate keeper, so that it can be downloaded. In the case of sensitive data, the metadata describes how the data can be accessed.

Interoperable – humans and machines can read the data, using metadata standards and controlled vocabularies in the data.

Re-usable – metadata and data are well-described so that they can be replicated and/or combined in different settings. This also means having a clear, accessible, and permissive license.

To know if a dataset follows the FAIR principles, use [the FAIR Aware tool](#) made for EUR researchers. More information on metadata can be found [here](#). For support creating FAIR data, please contact your [Faculty Research Data Steward](#).

Badge	Level
	Beginning Metadata of at least one dataset published in a trusted repository
	Developing At least one dataset and associated metadata in a trusted repository
	Accomplished At least one FAIR dataset and associated metadata in a trusted repository
	Exemplary At least one FAIR dataset and associated FAIR metadata in a trusted repository.

Badge: Open Materials

Open materials are instruments, interventions, and manipulations designed to aid researchers in generating primary or harvesting specific selections of secondary data, as well as representational artefacts and interpretative devices designed to support those researchers in their analysis and interpretation of those data. Examples of materials are psychometric scales, interview protocols, and coding schemes.





Open materials mean materials that are human- and machine-readable in accordance with the FAIR principles, supported by regular curation and maintenance.

Researchers can obtain this **Open Materials Badge** by applying the FAIR data principles to their research materials.

1. **Findable** – the materials have a persistent identifier, usually a Digital Object Identifier (DOI).
2. **Accessible** – the materials have no restrictions, such as embargo, security, no gate keeper, so that when they are found, they can also be downloaded.
3. **Interoperable** – humans and machines can read the materials, using metadata standards and controlled vocabularies in the materials.
4. **Re-usable** – metadata and material are well-described so that they can be replicated and or combined in different settings. This also means having a clear, accessible, and permissive license.

To know if research materials follow the FAIR principles, use [the FAIR Aware tool](#) made for EUR researchers. More information on metadata can be found [here](#).

For support creating Open Materials, please contact your [Faculty Research Data Steward](#).

Badge	Level
	Beginning Metadata of at least one set of materials published in a trusted repository (e.g., preregistration, codebook, questionnaire)
	Developing Publicly available open materials for at least one research project in a trusted repository (e.g., preregistration, codebook, questionnaire)
	Accomplished At least one publicly available set of open materials and associated metadata in a trusted repository
	Exemplary At least one set of FAIR materials (including its open and FAIR metadata) in a trusted repository

Badge: Open Code

Open Code refers to software that is used to generate, process, analyse, and/or visualize research results and that is freely and publicly available, permitting any user to download, copy, edit, or use it without financial, legal, or technical barriers.

Open code means data that are human- and machine-readable in accordance with principles of good data governance, the [FAIR principles](#), supported by regular curation and maintenance.

Researchers can obtain this **Open Code Badge** by applying the FAIR data principles to their code or software.

Findable – the code has a persistent identifier, usually a Digital Object Identifier (DOI).





Accessible – the code has no restrictions, such as embargo, security, no gate keeper, so that when it is found, it can also be downloaded.

Interoperable – humans and machines can read the code, using metadata standards and controlled vocabularies in the data.

Re-usable – metadata and code are well-described so that they can be replicated and or combined in different settings. This also means having a clear, accessible, and permissive license.

More information on FAIR Software can be found [here](#).

For support creating Open Code, please contact the [Research Software Engineers](#).

Badge	Level
	<p>Beginning</p> <p>At least one script/code (also created using proprietary software) published in a trusted repository</p>
	<p>Developing</p> <p>At least one script/code (only created using open source software), published in a trusted repository</p>
	<p>Accomplished</p> <p>At least one script/code created using open source software with all the appropriated documentation, published in a trusted repository</p>
	<p>Exemplary</p> <p>At least one script/code created using open source software with all the appropriated documentation and fully reproducible on any environment (e.g., Docker containerization), published in a trusted repository</p>





Badge: Open Source

Open Source software is **designed to be publicly accessible**: anyone can see, modify, and distribute the underlying source code in accordance with permissive licenses.

Open source software is software with source code that anyone can inspect, modify, and enhance. Source code is the code that computer programmers can manipulate to change how a piece of software (a program or application) works. Programmers who have access to a program's source code can improve that program by adding features to it or fixing parts that do not always work correctly.

Researchers can obtain this **Open Source Badge** by using open source software and developing new software and tools that are fully open source. This open source software should include a permissive license.

More information on open source licenses can be found [here](#).
For support with Open Source software, please contact the [Research Software Engineers](#).

Badge	Level
	<p>Beginning</p> <p>Using open source software for at least one aspect of the research project (e.g., data collection or analysis)</p>
	<p>Developing</p> <p>Developing open source software and publishing it in a trusted repository with a permissive license</p>
	<p>Accomplished</p> <p>Developing open source software and publishing it in a trusted repository with a permissive license. The software is also peer-reviewed (e.g., published in a specialized software journal)</p>
	<p>Exemplary</p> <p>Developing open source software and publishing it in a trusted repository with a permissive license. The software is also peer-reviewed (e.g., published in a specialized software journal) and it is distributed by official software repositories (e.g., CRAN when developing software using the R programming language)</p>





Badge: Open Science Grant

Open Science Grant means applying for funding in order to conduct research and/or educational activities. This may include (but is not limited to) research on open science practices (e.g., meta-scientific research).

Researchers can obtain this **Open Science Grant Badge** by applying for funding to conduct open science activities. The funding application may be published in a trusted repository, for example the [Research Ideas and Outcomes \(RIO\) Journal](#).

Example of Open Science Funding: [NWO Open Science Fund](#).

If you are planning to apply for funding, please contact your [faculty Funding Officer](#).

Badge	Level
	Beginning Pre-proposal published (e.g., with protective licenses, embargoed)
	Developing Funding application published (e.g., on RIO)
	Accomplished Proposal application published and funded for personal funding
	Exemplary Proposal application published and funded for large-scale team, e.g., consortia