

Report – Austrian Science Fund (FWF) Open Research Data (ORD) Pilot

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Introduction

Open access to research data is a precondition for the reproducibility, verification, refutation and further use of data in research and practice. In line with international initiatives (e.g., [Horizon 2020 Open Research Data Pilot](#)) and trends (e.g. [Funder policies on data sharing](#)), the Austrian Science Fund (FWF) has initiated the Open Research Data Pilot Programme (ORD Pilot) with the support of the Austrian National Foundation for Research, Technology and Development in order to promote the development of new models for open research data in the digital age.

The FWF began promoting open access to publications and research data in the early 2000s. In response to international activities such as the [Berlin Declaration on Open Access](#) in 2003, the FWF – as one of the first signatories to that declaration – introduced its Open Access Policy in 2004. Since 2008, the FWF has required its grant recipients to make their research output as openly accessible as possible (the [FWF's Open Access Compliance Monitoring](#)) and has assisted them in doing so.

Whereas open access to publications has been a requirement for years, the FWF still treats open access to research data as a recommendation rather than a mandate. Accordingly, the FWF's [Open Access Policy](#) states, “Whenever legally and ethically possible, all research data and similar materials which are collected and/or analysed using FWF funds have to be made openly accessible. Data underlying the published research results should either be openly accessible immediately or – if not used in publications – two years after the project is finished.”

Although the FWF does not yet require grant recipients to make their research data openly accessible, they are explicitly asked to budget funds over each project's duration to ensure the preparation, archiving, open access and re-use of research data (see [Application Guidelines](#) for Stand-Alone projects). Furthermore, in the [Stand-Alone Publications](#)

programme, applicants can request up to €50,000 in funding for innovative publication formats (e.g., apps, wikis, software, databases, audio, video and animation).

Objectives and phases of the programme

The pilot programme aimed to create role models and to gain experiences with Open Access to research data so that in line with the concept of [Open Science](#) open research data becomes the norm for all FWF projects in the future. The ORD Pilot comprised two phases. In January 2016, the FWF issued an [invitation for expressions of interest](#), and by March a total of 48 letters of interest had been submitted. In May of the same year, the FWF Board decided to invite 47 of those candidates to submit full proposals; by July, the FWF had received 41 such proposals.

Requirements for project proposals

The following requirements applied:

- As a precondition only outline proposals based on research data that predominantly resulted from FWF projects which were granted during the past five years (completed or running projects which were approved after January 1, 2010) were eligible for the pilot programme. Furthermore, applicants could only submit one project application each.
- Proposals from all disciplines focusing on the analysis, maintenance and update of research data were eligible. In the ORD context, research data is defined as data which is “produced by scientific projects, for example by means of digitization, the study of sources, experiments, measurements, surveys or questionnaires”¹ including software.
- The maximum eligible project duration was 24 months with a maximum budget of € 250,000 per project.
- Research data had to be (1) published on the basis of the latest technical standards, (2) openly accessible, (3) reproducible, (4) machine-readable, (5) citable; and (6) had to have attached an open licence for unrestricted further (re-) use and (7) must be published in a registered repository.
- A research data management plan (DMP) was not required for the ORD proposals. Nevertheless, applicants were required to highlight and discuss the relevant research data and their degree of openness, and to apply the [FAIR Guiding Principles for scientific data management and stewardship](#).

In their proposals, applicants had to address the following questions and requirements explicitly (see [ORD Application Guidelines](#)):

Scientific/Scholarly and Methodological Structure of the Research Data

- What kinds of data are available?
- From which FWF funded project(-s) do the research data originate? And why are they not yet openly accessible?
- How were/will the research data be generated and which methods were/will be in use?
- How will you structure the data and handle the versioning of it?
- Are there any show cases of preparatory work(-s)? If so, please include links.

¹ The [Priority Initiative](#) of the German Alliance of Science Organisations.

Relevance and Dissemination of the Research Data

- Why should these research data be made public and what are the expected (re-)uses (relevance to the scientific and other communities)?
- What kinds of dissemination channels will be used to promote the research data?

Technical Aspects

- What kind of (a) data formats, (b) persistent identifier, (c) registered repositories and (d) re-use licence (e.g. Creative Commons, Open Source licences) will be used? And why are they most qualified to make research data openly accessible?
- What kind of software will be used? Which vocabulary or definitions are important to define? And which coding etc. is used?
- How will you ensure the sustainable long-term archiving of the research data?
- If a specific Data Management Plan (DMP) already exists, please add a template or a link.
- The persistent identifier, the repository and the re-use licence must already be defined by the application deadline.
- The repository must be registered in one of the following databases: (a) re3data – Registry for Research Data Repositories, (b) OpenDOAR – Directory of Open Access Repositories and/or (c) ROAR – Registry of Open Access Repositories. If a design of a specific repository is planned, please justify why it is essential for the research data in question.
- In case of doubt, the FWF will privilege projects which apply the most open re-use licence available (see for example: CC BY 4.0 international, CC 0 1.0 universal or similar).

Legal and Ethical Issues

- Who owns the research data? And do you have the rights to (re-)use the research data?
- Are there any ethical or legal barriers to make all parts of the research data fully accessible?

Key facts about the submitted Proposals

One of the proposals was rejected without an external peer review because of ethical and technical concerns. For the remaining 40 proposals, an international peer review was carried out according to the high [FWF's standards](#). The review return rate came to around 38%, which is higher than the overall return rate at the FWF (2016: 31.1%).

Research institutions: The majority of the 40 project proposals came from Austrian universities. Several proposals were submitted by members of the Austrian Academy of Sciences, one came from an applicant at a university of applied sciences, and the rest were submitted by researchers at private research institutions.

Disciplines: Remarkably, 19 proposals came from the humanities and social sciences, while eleven proposals each came from the natural sciences and life sciences.

Gender: Ten of the 41 project leaders were women (24.3%), which is below the FWF average of 31.9% (see [Monitoring Equal Opportunities](#)).

Total proposed costs: The amount of funding requested came to **€8,441,544.06**.

Rating of proposals

The reviewers were asked to rate the proposals using a discrete five-point scale ranging from “Excellent” to “Poor” (see Table 1).

Table 1: Rating scale

Excellent (1) = funding with highest priority	The proposed research project is among the best 5% in the field worldwide. It is potentially ground-breaking and/or makes a major contribution to knowledge. The applicant and the researchers involved possess – relative to their academic age – exceptional qualifications by international standards.
Very Good (2) = funding with high priority	The proposed research project is among the best 15% in the field worldwide. It is at the forefront internationally, but minor improvements could be made. The applicant and the researchers involved possess – relative to their academic age – high qualifications by international standards.
Good (3) = some weaknesses	The proposed research project is internationally competitive but has some weaknesses, and/or the applicant and the researchers involved possess – relative to their academic age – good qualifications by international standards.
Average (4)= major weaknesses	The proposed research project will provide some new insights but has significant weaknesses and/or the applicant and the researchers involved possess – relative to their academic age – fair qualifications by international standards.
Poor (5) = rejection	The proposed research project is weak and/or the applicant and the researchers involved lack sufficient qualifications by international standards.

In the evaluation process, the FWF obtained a total of 79 reviews. The reviewers were asked to rate the proposals in four categories (scientific quality, relevance of the research data, technical aspects, and qualifications of the researchers involved), to assign an overall rating with regard to key strengths and weaknesses, and to provide a final funding recommendation. In all four categories, the majority of the ratings were “excellent” or “very good”. In the overall evaluation, 25 of the 79 ratings assigned were “excellent” and 36 were “very good” (see Table 2).

Table 2: ORD Pilot proposal ratings by category (N=79)

Rating	quality	Data relevance	Technical aspects	Researchers’ qualifications	Overall rating
Excellent (1)	26	26	33	44	25
Very Good (2)	30	37	25	23	36
Good (3)	16	9	13	7	9
Average (4)	5	5	4	1	6
Poor (5)	2	2	3	4	3
Mean Rating	2.0	1.9	1.9	1.8	2.0

Projects funded

Twelve projects were funded with a total of €2,217,690.33. This corresponds to an approval rate of 30.0% (based on the number of applications) or 26.3% (based on funding volume). Of the twelve projects funded, six are from the humanities, five are from the natural sciences and one is from the life sciences. A quarter of the project leaders are female, and the median age of project leaders is 48.5 years. A full list of the projects funded is shown in Table 3.

Outlook

On the basis of the ORD Pilot experience, the FWF will adapt its Open Access Policy to increase openness to FWF-funded research data. Furthermore, based on its experience in the [Science Europe Working Group on Research Data](#), the FWF plans to require a data management plan in all projects funded. As part of the [FWF's strategy for the 2017–2020 period](#), the new initiative *Synthesis Networks* aims to enable international projects to merge, process and analyse large datasets in order to answer highly relevant questions in Science and society.

Useful links

- ORD information on the FWF website: <http://www.fwf.ac.at/en/research-funding/fwf-programmes/open-research-data/>
- Application guidelines: http://www.fwf.ac.at/fileadmin/files/Dokumente/Antragstellung/Open-Research-Data/ord_application-guidelines.pdf
- The FAIR Guiding Principles for scientific data management and stewardship: <http://www.nature.com/articles/sdata201618>
- NISO: <http://www.niso.org/publications/press/researchdata/>
- Digital Curation Centre: <http://www.dcc.ac.uk/resources/how-guides>
- Registry of Research Data Repositories: <http://www.re3data.org/>

Table 3: Projects funded

ORD	Title	Principal investigator	Research institution	Field
ORD 49	Static and dynamic spin-properties in oxides - how to make data public?	Andreas Ney	University Linz	Physics
ORD 53	Implementation of Weighted Straight Skeletons	Martin Held	University of Salzburg	Computer science
ORD 61	A Test Suite for Photorealistic Rendering and Filtering	Michael Wimmer	University of Vienna	Computer science
ORD 63	FAIRness for Life Science Data in Austria	Gerhard Ecker	University of Vienna	Pharmacy
ORD 66	A Database "Adjective-Adverb Interfaces in Romance"	Marin Hummel	University of Graz	Linguistics
ORD 68	Radiate ORD	Johannes Böhm	Technical University of Vienna	Environmental engineering
ORD 69	Wares, Types and Fabrics. The Upper Egypt Contribution to LCP	Sabine Ladstätter	Austrian Academy of Sciences	Archaeology
ORD 74	Open Research Data for Prehistoric Mining Archaeology	Gerhard Hiebel	University of Innsbruck	Archaeology
ORD 77	Digital catalogue of Anton Bruckner's works	Robert Klugseder	Austrian Academy of Sciences	Musicology
ORD 84	Retain Domain Specific Functionalities in a Generic Repository with Humanities Data	Georg Vogeler	University of Graz	Digital humanities
ORD 85	An Open Data Pilot for the validation of Discrete Element Models	Bettina Suhr	Virtual Vehicle	Environmental engineering
ORD 89	EDD Online applied, corrected and supplemented	Manfred Markus	University of Innsbruck	Linguistics

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