Austria Country Profile

Q1/2022

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This report was drafted within the initiative of the EOSC Support Office Austria. It is a deliverable of the Working Group (WG) "Austria Country Profile". Task of this WG is the regular monitoring of EOSC building processes in Austria, i.e., open science and FAIR related policies, projects, activities as well as research data (management) infrastructures.

Members of the Working Group "Austria Country Profile" (in alphabetical order):
Paolo Budroni (TU Wien), Beate Guba (TU Wien), Stefan Hanslik (Federal Ministry of Education, Science and Research), Ilire Hasani-Mavriqi (TU Graz), Lisa Hönegger (University of Vienna), Christian Panigl (ACONET, University of Vienna), Katharina Rieck (FWF – Austrian Science Fund), Barbara Sánchez Solís (TU Wien), Chris Schubert (CCCA), Katrin Vohland (Natural History Museum Vienna)

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Please note: The WG does not claim that the projects, activities, and infrastructures listed below are complete. This report represents a status quo. It is, however, updated on a regular basis and thus strives for the most accurate monitoring possible.

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Current policy on open and FAIR science

1. Is there a current policy on **open and FAIR science** in place?		
Yes	No	In planning
X		

Open Science Policy Austria

In February 2022, the Open Science Policy Austria was adopted during a joint presentation to the Council of Ministers by the BMBWF, BMDW and BMK. With this presentation to the Council of Ministers and this Open Science Policy Austria, Austria is committed to the Open Science movement and the European Open Science Cloud (EOSC). The vision of Open Science is to make scientific processes more open and effective and to use both scientific excellence and open innovative and applied research to address current challenges, which are very comprehensively presented in the Policies of the EU Commission and in the framework of the Global Sustainability Goals (UN SDGs).

- More information and link to the document (currently only available in German): https://www.bmbwf.gv.at/Themen/HS-Uni/Hochschulgovernance/Leitthemen/Digitalisierung/Open-Science/Open-Science-Policy-Austria.html

Prior to the Policy, a working group of the Open Science Network Austria (OANA) developed
- "Recommendations for a national open science strategy" (October 2020). Zenodo. http://doi.org/10.5281/zenodo.4109242

Public Sector Information (PSI) initiative

The European Open Data and PSI Directive provides the legal basis for the re-use of public sector data and sets a minimum set of rules. Focus is on non-personal data that are made freely available in the public interest. The Austrian Open Data Portal is one of the services supporting this initiative: Open Data Österreich – data.gv.at

Open Science policies by funding organizations
- The largest national funding agency for basic research, the Austrian Science Fund (FWF), is committed to support open and FAIR science through its open access policy to publications and to research data (https://www.fwf.ac.at/en/research-funding/open-access-policy/). 89% of all publications resulting from FWF projects are openly accessible. See also: FWF Compliance Monitoring 2019 report.
- Since 2019, the FWF requires a data management plan (DMP) supplemental to all approved grant proposals. The FWF has defined a minimum set of questions that comprise the DMP and that are to be addressed in the DMP template. The FWF DMP is in line with Science Europe's "Core Requirements for Data Management Plans".
- The WWTF, the Vienna Science and Technology Fund, is currently drafting an Open Science Policy (to be published soon)

Research data management policies in Austrian universities

Eight universities in Austria have policies for research data management in place, encouraging in these policies open science practices and the adoption of the FAIR principles:
- Medical University Graz
- Medical University Vienna
- Graz University of Technology
- TU Wien
- University of Graz
- University of Music and Performing Arts Vienna
- University of Vienna

- WU (Vienna University of Economies and Business)

Active projects funded by the BMBWF

In 2019, a national call "Digital and social transformation" was launched by the BMBWF with selected digitization projects at public universities for the period 2020 to 2024, including activities connected to FAIR and EOSC. (NB: This is an excerpt out of 34 projects in total - selection according to open science reference)**:**

- FAIR Data Austria: https://forschungsdaten.at/en/fair-data-austria/. The FAIR Data Austria project contributes to the strengthening of knowledge transfer between universities, industry and society and supports the sustainable implementation of the European Open Science Cloud (EOSC). In this context, the implementation of the FAIR principles ("Findable", "Accessible", "Interoperable" and "Reusable") plays a significant role. Their compliance is ensured through 1) integrated research data management (RDM) tailored to generic and discipline-specific needs of researchers, (2) development of Next Generation repositories for research data, code, and databases, and (3) development of training and support services for efficient RDM.
- Austrian Data Lab and Services (ADSL): https://forschungsdaten.at/en/austrian-datalab-and-services/. The ADLS project was set up to promote and facilitate collaborative work between universities, especially in the fields of data science and high performance computing (HPC). It aims to provide easy access to a nationwide network of applications in a federal opt-in model. In particular, the focus lies on increasing user-friendliness and saving time for researchers, teachers and students in the course of using computing resources.
- RIS Synergy: https://forschungsdaten.at/en/ris/. In order to digitise administrative processes, the IT systems of funding organisations and research institutions need to be connected, which would make it possible to improve data quality and conserve resources on all sides. New developments in the digital systems of the FWF (elane, PROFI, final project reports) offer an excellent opportunity.
- Open Education Austria Advanced: https://www.openeducation.at/. Open Education Austria Advanced is a project of Austrian universities for the joint development of a national infrastructure for Open Educational Resources (OER) (project duration 01.03.2020-28.02.2024). It is an attempt to link services of e-learning centers, central IT services and libraries of the partner universities in order to support teachers in the creation of OER materials for self-study and teaching. The project aims at a gradual increase in the quality of teaching and learning, as well as the visibility of good-practice materials within the respective discipline.
- Austrian Transition to Open Access II (AT2OA2): https://at2oa.at/en/home.html. The measures from AT2OA will be continued with the aim of concluding further Open Access agreements with publishers and setting up a data hub to process publication data from various sources. This can be used for Austria-wide OA monitoring and to support negotiations with scientific publishers and support the reporting system of the universities by making the data reusable for statistical verification systems, annual reports and the like. The use of alternative metrics will help answer the question of whether OA increases the visibility of scientific publications.
- Digitize! Computational Social Sciences in the digital and social Transformation": https://digitize-transformation.at/en/. Digitize! is a cooperative digitalisation project in which various social sciences collaborate with data scientists, legal scholars and experts in research ethics.
- DiTAH - Digitale Transformation der Österreichischen Geisteswissenschaften: https://www.ditah.at/. The aim of this project is to establish and prepare the methods and approaches developed in the Digital Humanities in such a way that they can be transferred into the everyday use of research and education in the humanities.

- Image+: https://www.angewandtekunstgeschichte.net/forschung/image-platform-for-open-art-education. Image+ Platform for Open Art Education" is an Austrian image and image research platform to improve the quality of teaching
- LEFO - Lehr- und Forschungsinfrastruktur für Digitale Künste an Hochschulen (Infrastructures for Digital Arts Teaching and Research in Higher Education: https://www.donau-uni.ac.at/de/forschung/projekt/U7_PROJEKT_4294970090. This project focuses on new interactive interfaces and displays, which enable multimodal access to databases and multisensory analysis of the archived works. Within the concept of a living archive, students, researchers and teaching staff will be able to actively work on the database.
- TransIT: https://www.tunnellinghub.at/#project. In the TranslT project (Platform for Digital Transformation in Civil Engineering and Tunneling), research groups are working in a multidisciplinary manner with complementary expertise on the implementation of digitization topics in civil engineering and tunneling. For this purpose, a virtual research platform, the Digital Tunneling Hub, is being created at the University of Leoben.
- Austrian Neuro Cloud: https://uni-salzburg.elsevierpure.com/de/projects/austrian-neuro-cloud. Austria has an internationally competitive large-scale equipment infrastructure in the field of cognitive neuroscience, the potential of which is to be fully exploited through Austria-wide networking. The Austrian NeuroCloud will create a cross-location, open environment for the storage, management, and evaluation of neuro-cognitive data. The Austrian NeuroCloud thus creates a use case in the area of an extremely data-intensive research field that fulfils the vision of the European Open Science Cloud.
- Digitale Landwirtschaft - Interuniversitäres PhD-Kolleg und digitale Versuchsfarmen (more info to follow).
- codeAbility: https://codeability.uibk.ac.at/index-en.html. CodeAbility Austria creates teaching and learning environments in order to enable students of all subjects ot receive high-quality and individual programming training.
- GEOCLIM: https://wegcenter.uni-graz.at/en/research/arsclisys-research-group/projects/geoclim/. Goal: Existing Earth Observation Data Centre (www.eodc.eu) and Climate Change Centre Austria-Data Centre (CCCA-DZ at ZAMG Hohe Warte; www.ccca.at) will be furthered by federated integration of high-performance computers of the Vienna Scientific Cluster (VSC; www.vsc.ac.at and ZAMG CIRRUS). This creates internationally competitive computing and storage capacity for monitoring and modelling (e.g. of climate, atmosphere, land surface, water balance, ecosystems) and promotes the intensification of cooperation in scientific research and applications regarding FAIR and TRUST principles, as well as GEO (Group on Earth Observation) Data Sharing and Data Management Principles. Timeframe: 2017 - 2022.

Finished projects funded by the BMBWF (formerly HRSM projects)
- e-Infrastructures Austria: https://e-infrastructures.univie.ac.at/
- e-Infrastructures Austria Plus: https://www.e-infrastructures.at/en
- Austrian Transition to Open Access: https://at2oa.at/en/home.html
- Integriertes Datenmanagement: https://biotechmedgraz.at/en/programs/shared-infrastructure/infrastructure-call-2016/.
- IDE@S: Innovative Data Environments: https://www.tugraz.at/projekte/ideas/home/
- CCCA Data Centre, CCCA: https://data.ccca.ac.at, https://ccca.ac.at.

Active EU projects fostering Open Science, FAIR and the EOSC
- EOSC Pillar: https://www.eosc-pillar.eu/. EOSC-Pillar is a Horizon 2020 project coordinating national initiatives in Italy, France, Germany, Austria and Belgium to support the development of an Open Science and FAIR data-based European Open Science Cloud (EOSC). The project aims to help create new, sustainable business models for the

corresponding services and infrastructures and to increase the FAIRness of data across national and disciplinary boundaries. To this end, information on existing national and thematic initiatives and research data infrastructures were collected and mapped. Communities and stakeholders such as implementers or end users are actively involved in the processes.

- DISSCo: https://www.dissco.eu/. A distributed system for natural science collections.
- SSHOC: https://sshopencloud.eu/. The aim of the EU project Social Sciences & Humanities Open Cloud (SSHOC) is to develop the social sciences and humanities area within the European Open Science Cloud (EOSC). To this end, existing and new infrastructures of the European research infrastructures in the social sciences and humanities will be used and interconnected. The SSH Open Marketplace will create a secure platform where high quality tools (services and software), datasets, training materials and activities (workflows and scenarios) will be shared with the SSH community. The project aims to foster synergies and open science initiatives between disciplines, accelerate interdisciplinary research and collaboration, and maximize the reuse of services and data by applying open science principles. It also aims to increase the potential for societal impact.
- EuroCC: https://www.eurocc-access.eu/. Goal: to develop in European countries National Competence Centers (NCC) in High Performance Computing (HPC), Big Data and Artificial Intelligence. This NCC will be the contact point for academia, industry and public organisations for collaborations in HPC, Big Data and AI projects, and the NCC will document, map and coordinate activities in these areas. Within the project, the tasks are (i) training and skills development, (ii) technology transfer/business development, (iii) academia-industry collaborations, (iv) mapping of HPC/Big Data/AI competences and (v) facilitation of access to expertise and resources.
- ON_MERRIT: https://on-merrit.eu/. A project to investigate how and if open and responsible research practices could worsen existing inequalities. The multidisciplinary team uses qualitative and computational methods in order to examine advantages and disadvantages in Open Science and Responsible Research & Innovation (RRI).

Finished EU projects
- EOSC Secretariat: https://www.eoscsecretariat.eu/
- RDA Europe Adoption Grant: CCCA Subset & Dynamic Data Citation - A Design Concept for OpenEO interface for climate projection data. Cooperation CCCA & TU Wien, Laufzeit 2019-2020

Networks fostering Open Science, Citizen Science, FAIR, EOSC, and PSI activities
- EOSC Support Office Austria
- ABOL – Austrian Barcode of Life - ein Netzwerk für Biodiversität: https://www.abol.ac.at/
- FAIR Office Austria: https://www.fair-office.at
- GO FAIR Austria office - National Support and Coordination Office: https://www.go-fair.org/go-fair-initiative/go-fair-offices/go-fair-austria-office/
- OANA – Open Science Network Austria: https://www.oana.at (2012-2021; comment: restructured under the umbrella of uniko and under the title of "Open Science Austria")
- Open Science Austria (OSA)
- Open Science - Lebenswissenschaften im Dialog: https://www.openscience.or.at/de/
- dha – digital humanities Austria: https://digital-humanities.at/de
- Kulturpool: http://www.kulturpool.at/display/kupo/Home
- Plattform Registerforschung: https://www.registerforschung.at/
- RDA Austria: https://www.rd-alliance.org/groups/rda-austria
- The Carpentries Austria: https://www.forschungsdaten.info/fdm-im-deutschsprachigen-raum/oesterreich/services/the-carpentries-austria/

- Citizen Science Network Austria: https://www.citizen-science.at/netzwerk Österreich forscht: Citizen Science Projekte - Österreich forscht (citizen-science.at)
- European Citizen Science Association (ECSA): https://ecsa.citizen-science.net/
- DOI-Service Austria: https://www.tuwien.at/bibliothek/doi-service-austria-orcid-austria
- ORCID Austria: https://www.tuwien.at/kooperationen/orcid/en/home/
- GEO (Group on Earth Observation) – GEO Data Working Group: Review on Data Sharing and Data Management Principles and crosswalk towards FAIR and Trust Principles. https://www.earthobservations.org/data_wg.php

Related publications
National survey of researchers and their data: In 2015, 36.000 researchers at Austrian universities were asked about their practices and requirements for research data management. Results:
- Researchers and Their Data. Results of an Austrian Survey (PDF Full Report/en): https://phaidra.univie.ac.at/detail_object/o:409318
- Executive Summary: Researchers and Their Data. Results of an Austria-wide survey (en): http://phaidra.univie.ac.at/detail_object/o:408001

The Project EOSC-Pillar conducted a complementary survey for research infrastructures and their FAIRness level. It addressed Austrian RI organisations, universities, and policy makers (2019/2020). The report was published and is available at: https://doi.org/10.5281/zenodo.3937318
- The data of the study is available at: https://data.aussda.at/dataset.xhtml?persistentId=doi:10.11587/VOSVGK

1.1. Is there a current policy regarding **publications** in place?		
Yes	No	In planning
X		

According to the Open Science Policy Austria, open scholarly publishing must become the standard approach as soon as possible. To drive this momentum, research publications resulting from calls for projects that are publicly funded must be disseminated via open access platforms, be it in journals, books or via an open public repository. Austrian universities are encouraged to ensure that publications by researchers working there are also under open licenses. To maintain these practices over time, the evaluation system for researchers and research institutions needs to be updated to reflect the principles and practices of open science. Changes in the way researchers are evaluated aim to give more weight to quality over quantity, as outlined in the proposals of the San Francisco Declaration on Research Assessment (DORA) and the principles of the Leiden Manifesto. The scientific community must regain control over the publishing process in general, in accordance with the principles that govern open science and bibliodiversity are required. It must focus its efforts on those stakeholders who are working to develop a less concentrated publishing environment that is consistent with the principles of open and ethical access. *[Excerpt translated from the Open Science Policy Austria (page 10)]*

Open access policies in Austrian research institutions
- At this point, there are several institutional OA policies in place (see https://www.oana.at/ueber-open-science/open-access-ressourcen/#c236283).
- Several Austrian institutions support alternative publication formats and platforms such as Open library of humanities, SciPost, DOAJ, OAPEN, Open Knowledge Maps: https://oana.at/nationale-aktivitaeten/support-von-infrastrukturen/; https://oapen.org/funders/7589935-fwf-austrian-science-fund
- Implementation of institutional publication servers: An overview (from 2018) is available in the following publication: Bauer, B., & Ferus, A. (2018). Österreichische Repositorien in OpenDOAR und re3data.org: Entwicklung und Status von Infrastrukturen für Green Open

Access und Forschungsdaten. Mitteilungen der Vereinigung Österreichischer Bibliothekarinnen und Bibliothekare, 71(1), 70–86. https://doi.org/10.31263/voebm.v71i1.2037

Strategy towards Plan S
- The FWF, which is a founding member of this initiative as well as the Federal Ministry for Education, Science and Research support Plan S (see e.g. Anfragebeantwortung durch den Bundesminister für Bildung, Wissenschaft und Forschung Dr. Heinz Faßmann zu der schriftlichen Anfrage (933/J) der Abgeordneten Dr. Helmut Brandstätter, Kolleginnen und Kollegen an den Bundesminister für Bildung, Wissenschaft und Forschung betreffend Plan S: https://www.parlament.gv.at/PAKT/VHG/XXVII/AB/AB_00935/imfname_791658.pdf).
- Furthermore, a working group in the framework of the Forum of Austrian University Libraries (ubifo) is currently developing guidelines for an institutional implementation of Plan S at the Austrian universities.

Other successful initiatives and projects promoting open access to publications in Austria
- The national funding agency FWF was one of the first funding agencies worldwide to establish an open access policy to publications in 2004: Open Access Publication Models: https://www.fwf.ac.at/en/research-funding/open-access-policy/open-access-to-peer-reviewed-publications/open-access-publication-models/. Today, almost all publications resulting from FWF grants (89%, see Austrian Science Fund (FWF) Open Access Compliance Monitoring 2019) are open access.
- The Austrian Academic library consortium (KEMÖ) together with the FWF was the first consortium worldwide to negotiate a transformative open access agreement in 2014 and since then several open access agreements have been concluded so that Austrian researchers can publish their research results open access and free of costs. https://www.konsortien.at/
- In 2016, a working group of the Open Science Network Austria (OANA) published the "Recommendations for the Transition to Open Access in Austria" which helped to further Open Access to publications in Austria.
- Ministry-funded project Austrian Transition to Open Access II (AT2OA2): The measures from AT2OA will be continued with the aim of concluding further Open Access agreements with publishers and setting up a data hub to process publication data from various sources. This can be used for Austria-wide OA monitoring and to support negotiations with scientific publishers and support the reporting system of the universities by making the data reusable for statistical verification systems, annual reports and the like.

1.1.1. If yes, does it include **open access to publications**?		
Yes	No	In planning
X		
See above, 1.1. Is there a current policy regarding **publications** in place?		

1.2. Is there a current policy regarding **data / services** in place?		
Yes	No	In planning
X		
1.2.1. If yes, does it include **open access to data**?		
Yes	No	In planning
X		

According to the Open Science Policy Austria, the aim is to ensure that data generated by publicly funded research in Austria have to comply with the FAIR principles (findable, accessible, interoperable and reusable), that they have to be preserved and, whenever possible, made openly accessible to the public.

The goal is also to implement a mandatory open-access dissemination mandate for all data that has already been made available as part of publicly funded projects. Certain exceptions to this obligation will be allowed in accordance with the law, e.g., if the data in question are professional secrets, statistical secrets, labor and trade secrets, personal data, or content subject to copyright, as well as if the data are considered sensitive due to national security, defense, or public safety and health.

Considering the European Data Strategy, several European legal provisions regulate the reuse of research data, in particular the European Commission Recommendation on Access to and Preservation of Scientific Information (revised 2018), the revised Directive on Open Data and the Reuse of Public Sector Information (Open Data and PSI RL 1024/2019), and the EU Copyright Directive, which applies to publicly funded research data and to which Austria subscribes. The aim is that research data can be re-used for commercial and non-commercial purposes, as long as it has been publicly funded and if it has been made publicly available by researchers, research institutions or research funding bodies via an institutional or thematic archive.

Furthermore, the European Data Strategy published in 2020 is intended to drive forward the creation of a single market for data. The aim is to increase the exchange and use of data within the EU and across sectors for the benefit of researchers, companies, and public administrations. This approach also forms the basis of the new European Research Area (ERA) to build a common science and technology space for the EU. Open Science and Open Data are essential tools for improving collaboration between researchers and innovators to enhance Austria's attractiveness as a location for the world's best talents. *[Excerpt translated from the Open Science Policy Austria (page 8)]*

Open Data as funders' requirement

The Austrian Science Fund (FWF) expects open access to research data collected and/or analyzed using FWF funds for projects approved from 1 January 2019 onward:
https://www.fwf.ac.at/en/research-funding/open-access-policy/open-access-to-research-data/

Open access is mandatory for research data on which the research publications of the project are based. Further, since 2019, the FWF has a mandatory policy on research data management in place: https://www.fwf.ac.at/en/research-funding/open-access-policy/research-data-management/

1.3. Is there a current policy regarding **research evaluation** in place?		
Yes	No	In planning
X		

According to the Open Science Policy Austria, new ways of evaluating research will be explored, especially to accommodate open science practices. Publish-or-perish environments will be broken up and avoided. Open peer review practices are to be implemented in order to make the evaluation of scientific output more transparent. Despite years of intense criticism of so-called journal-based metrics, the impact factor of prominent journals still plays a significant role in the scientific community, especially when it comes to career planning. Increased transparency of evaluation processes of researchers and their applications should be ensured. Austria respects the goals of the San Francisco Declaration on Research Assessment (DORA), an international initiative that aims to establish metrics for evaluating scientific work. On the European level, the Leiden

Manifesto should be mentioned in this context, which formulates similar intentions in the European context. *[Excerpt translated from the Open Science Policy Austria (page 4)]*

DORA
The Austrian Academy of Sciences and the Austrian Science Fund (FWF) have signed the San Francisco Declaration on Research Assessment (DORA).

FTEVAL
Note: The Austrian Platform for Research and Technology Policy Evaluation (FTEVAL) is concerned with issues of research evaluation in Austria:
- https://www.fteval.at/content/home/plattform/about/index.jsp?langId=2
- https://repository.fteval.at
- Code of conduct: https://repository.fteval.at/387/ and principles: https://www.fteval.at/content/home/standards/fteval_prinzipien/index.jsp?langId=2

FTEVAL is an association whose members are institutions from the fields of research, technology and innovation (RTI). It includes government ministries, agencies, research funding organisations, research institutes and consulting firms. Membership is open to all those involved in commissioning or carrying out evaluations in the field of RTI. The aim of the association is to further develop the culture and practice of evaluation in Austria in the field of RTI. The fteval platform regards evaluation as central to ongoing improvement and strategic focus in RTI policy. A "good" culture of evaluation is both a prerequisite for and a result of "good" – i.e., efficient, transparent, and fair – policies. As declared in the mission statement: *"The mission of the Austrian Platform for Research and Technology Policy Evaluation is to promote the quality, transparency and adequate coverage of evaluations, to improve strategic planning of research, technology and innovation (RTI) policy in Austria. The existing evaluation culture is evolving continuously, in consultation with decision makers in Austrian RTI policy."*

Related Publication
- [available in German only] Janger, J. and T. König (2020). Forschungspolitik in Österreich. Zentrale Ansatzpunkte für eine Leistungssteigerung in der Grundlagenforschung

1.4. Is there a current policy regarding **open learning** in place?		
Yes	No	In planning
X		

According to the Open Science Policy Austria, the aspect of how knowledge is taught is also inseparably linked to an open society and an open science. The dissemination of knowledge is closely linked to the concept of open data.

Measurements:
- Austria would like to make its contribution to making the learning materials created in Austria publicly accessible in open formats in whatever form, for example on the basis of established open data standards. In a first step, the relevant repositories will be linked and thus made publicly accessible. In this way, Austria would like to make learning content available to the scientific community on the one hand, and on the other hand make learning more flexible and adapt it to individual needs.
- Universities and other extramural research institutions are therefore called upon both to create infrastructures to be able to deposit OER and to share them with others. Staff working at universities and universities of applied sciences should be encouraged to post and share their content in open formats where possible and appropriate.

The Forum New Media Austria (FNMA) has already prepared "Recommendations for the Integration of Open Educational Resources at Universities in Austria". The currently running project "Open Education Austria Advanced", in which several universities are involved, deals with the implementation of a corresponding infrastructure. Website: https://fnma.at/
[Excerpt translated from the Open Science Policy Austria (page 11)]

Active projects funded by the BMBWF
In 2019, a national call "Digital and social transformation" was launched by the BMBWF with selected digitization projects at public universities for the period 2020 to 2024, including activities connected to digitalizaton in teaching and learning. (NB: This is an excerpt - selection according to learning reference)**:**

- iMooX: https://imoox.at/mooc/?lang=en. iMooX is currently operated by the TU Graz and is to be expanded both technically and organisationally. At present, cooperation is taking place by offering individual MOOCs. In the future, all participating universities are to offer any number of MOOCs to the Austrian educational landscape. Through a central Austria-wide platform, all universities can universities can participate equally and the costs for maintenance and and operation can be minimised. "iMooX as a Service" is the declared goal.
- Open Education Austria Advanced: https://www.openeducation.at/. Goals: Solutions for Open Education Resources (OER) in the Austrian higher education sector: OERHub as a central meta-search engine for OER from the the higher education area; creation of local infrastructures at the partner universities; freely accessible qualification offers for OER certification for universities & teachers; knowledge transfer & dissemination between participating and interested universities.
- Learning Analytics: https://learning-analytics.at/home/. The project provides the first holistic and comprehensive view of the topic of Learning Analytics at Austrian universities and makes an important contribution to the development of functioning Learning Analytics methods in the university context. The development of appropriate tools in an interdisciplinary team ensures the innovation potential of the project results. The uniqueness of the project results primarily from the fact that the students themselves are at the center and benefit directly from the results.
- PASSt - Predictive Analytics Services für Studienerfolgsmanagement: The project aims to make academic success measurable and predictable. The modelling implemented by means of supervised machine learning procedures modelling allows the prediction of academic success on an individual and and aggregated level. In a further step, an agent-based simulation system to experiment with measures in simulation scenarios. The results help universities to better understand the mechanisms of success in higher education and to predict success at a future point in time.

2. Are there references to EOSC in the current policies?		
Yes	No	In planning
X		
2.1. Is funding or criteria for funding mentioned (with regards to EOSC)?		
Yes	No	In planning
	X	
2.2. Is there a national contact point for open science?		
Yes	No	In planning
X		

Contact at administrative level (Open Science Policy, EOSC at ministry level):
- Stefan Hanslik, Austrian Federal Ministry of Education, Science and Research, Head of Unit, Department V/3a; contact: stefan.hanslik@bmbwf.gv.at

Contact for Open Science Austria:
- Lola Karner, Officer for Open Science Austria (OSA) at the Austrian University Conference (Uniko), contact: lola.karner@uniko.ac.at

2.3. Is there a national contact point for EOSC?		
Yes	No	In planning
X		

Contact: secretariat@eosc-austria.at

3. Current e-infrastructure that has the potential to be federated / accessible to the EOSC
Austria has several organizations that offer national generic and discipline-specific e-infrastructure services.

3.1. Data and computing infrastructures	General status of Austrian digital infrastructures for data and publications: ● A great number of Austrian RPOs offers institutional publication servers for providing open access to research publications. See **Annex C**. ● In addition, there is an increasing number of RPOs that provide institutional data repositories. These repositories follow the requirements foreseen by the EOSC and the PSI directive (i.e., datasets should be made available for free, in machine-readable formats, via APIs and where relevant as bulk downloads). See **Annex B**. ● Infrastructure providers and developers are committed to consider the FAIR principles. ● In Austria there is not a single point of entry for research output. The landscape is rather based on federated systems. ● Access to content in digital archives in academia is generally open and free of charge. Access to use the systems, is subject to the system's prevailing policies and terms of use Infrastructures that provide domain specific services as well as data services: ● **AUSSDA** (The Austrian Social Science Data Archive) is a data infrastructure for the social science community in Austria and offers a variety of research support services, primarily data archiving and help with data re-use. Ref.: https://aussda.at/en/. AUSSDA is participating in CESSDA ERIC. ● **BBMRI ERIC** - https://www.bbmri-eric.eu/. BBMRI-ERIC is a distributed research infrastructure of biobanks and biomolecular resources. For its Member States, it provides expertise and services on a non-economic basis and facilitates access to collections of partner biobanks and biomolecular resources. BBMRI-ERIC is established for an unlimited period of time. The Central Executive Management Office is located in Graz, Austria. ● **CCCA-DC.** A research data infrastructure, computing, archive, repository and service platform operated by the Climate Change

	Center Austria - coordinating body for the promotion of climate research in Austria (https://data.ccca.ac.at). • **CLARIN.** The Austrian Academy of Science is participating in CLARIN (ACDH-OEAW): Digital Humanities Austria **(**dha) is an open network of institutional partners in Austria joining efforts to realize a new understanding of humanities research in a digital environment. These efforts are an integral part of the Austrian commitment to the research infrastructure consortia CLARIN-ERIC and DARIAH-EU, pan-European communities of practice organized as networks of centres sharing resources, tools and knowledge. Ref. http://digital-humanities.at/en • **CyVerse Austria**. Provides life scientists with powerful computational infrastructure to handle huge datasets and complex analyses, thus enabling data-driven discovery. The extensible platforms provide data storage, bioinformatics tools, image analyses, APIs, and more. CyVerse Austria uses open source code from CyVerse US (University of Arizona). https://www.tugraz.at/sites/cat/home/ • **EODC.** Operates a virtualised, distributed earth observation (EO) data centre, providing collaborative IT infrastructure for archiving, processing, and distributing EO data. Together with its multi-national partners from science, the public and private sectors EODC fosters the use of satellite-derived geoinformation. Its focus ranges from scientific research to operational services in the areas of water resources and land monitoring, agricultural applications, and humanitarian aid and civil security. Ref.: (www.eodc.eu). Infrastructures characteristics: Multi-Petabyte-scale storage (discs and tape) connected to the EODC cloud and to EODC.
3.2. HPC infrastructures	• **MACH-2** – The massively parallel shared memory supercomputer "MACH-2" is operated in the frame of a project by the Johannes Kepler University (JKU) Linz on behalf of a consortium of several Austrian universities and research institutions. • **VSC** – The Vienna Scientific Cluster is a collaboration of several Austrian universities that provides supercomputer resources and corresponding services to their users, it is operated by TU Wien.

3.3. Repositories and main components of the e-Infrastructure in Austria	• Data and computing infrastructures, data repositories, and publication servers, please refer to **Annexes A**, **B** and **C**.
	• PID-Services
	    ◦ **DOI-Service Austri**a: https://www.tuwien.at/bibliothek/doi-service-austria-orcid-austria
	    ◦ **ORCID Austria**: https://www.tuwien.at/kooperationen/orcid/en/home/

Annex A

Additional information concerning the current e-infrastructure landscape in Austria and the main components of the e-Infrastructure in Austria (networking, computing, data and other services/tools)

Network infrastructure(s)	- ACOnet – the Austrian NREN (www.ACO.net) - high performance network infrastructure - Identity Federation - December 2021: ACOnet (NREN) has finished a call for tender for a new fibre optic backbone contract (from mid 2022) - EGI - With beginning of 2022, ACONET Association joined the EGI Foundation - The EGI is a European federation of e-Infrastructures, providing services, data, processing capabilities and knowledge from its partners to the scientific community. Its decentralised federated cloud architecture has been created as an 'Infrastructure as a Service' (IaaS), was built around open standards and is driven by the requirements of a scientific community. Scopes are to facilitate the (joint) access to general/specialised ICT resources for interested users at pan-European scale, to offer related training and thus to promote collaborative science and to increase the effectiveness of existing resources. While the first steps of this upcoming collaboration between EGI and Austrian entities will have to be discussed in 2022, several Austrian partners already participate together with EGI in the H2020 project EGI-ACE (coordinated by the EODC Earth Observation Data Centre, Vienna), developing an EOSC Compute platform and contributing to the implementation of the EOSC Data Commons. In this context, PaaS' will be provided to the EOSC, including data spaces with analytics tools and federated access services. - Austrian Quantum Fiber Network (AQUnet) - FFG R&D infrastructure funding project coordinated by the ACONET Association - intended to complement and enable the (new) ACOnet backbone infrastructure for CLONETS and EuroQCI-related research - The Austrian e-infrastructures became part of the EuroHPC JU via assembly of an AT HPC Competence Centre and membership to the CINECA Consortium implementing LEONARDO
Computing infrastructure(s)	- VSC – The Vienna Scientific Cluster (vsc.ac.at) - HPC Resources & Services - MACH-2 (https://www.risc.jku.at/projects/mach2/) - HPC Resources & Services

	• EODC (www.eodc.eu) & CCCA-DC (https://data.ccca.ac.at) ○ federated Cloud Computing, HPC Resources & Services

Data infrastructure(s)	• EODC (www.eodc.eu)
	  ○ Multi-Petabyte-scale storage (discs and tape) connected to the EODC cloud and to EODC
	• CCCA-DC (www.data.ccca.ac.at)
	  ○ storage connected to the EODC cloud and VSC
	• GEOCLIM Long Term Archive
	  ○ EODC & CCCA-DC implemented a tape-based long-term archive on two locations at TU Wien and VSC
	• National research infrastructure database (BMBWF)
	  ○ The public research infrastructure database of the Federal Ministry of Education, Science and Research (BMBWF) provides an overview of national research infrastructures. The database serves as an information platform and may be used to find and offer research infrastructures for new cooperation projects: https://forschungsinfrastruktur.bmbwf.gv.at/en

Annex B

Data repositories/data centers

At the moment, 48 "Austrian" repositories are registered by OpenDOAR
(https://v2.sherpa.ac.uk/view/repository_by_country/Austria.html) and 41 data repositories by
re3data (https://www.re3data.org/search?query=&countries[]=AUT).

Below there is an excerpt of available data repositories and/or data centres in Austria (NB: not all
listed on the re3data platform).

Name of repository	Type (repository/ data centre)	Link	Comment
Cross-disciplinary/Institutional			
Data Repository of the International Institute of Applied Systems Analysis (IIASA-DARE)	Repository	http://dare.iiasa.ac.at/	
Digital Repository KUG-PHAIDRA (University of Music and Performing Arts Graz – KUG)	Repository	https://phaidra.kug.ac.at/	
Institutional Repository of the University of Art and Design Linz	Repository	https://phaidra.ufg.at/	
Institutional Repository of the University of Applied Arts	Repository	https://phaidra.bibliothek.uni-ak.ac.at/	
IST Austria Research Explorer	Repository	https://research-explorer.app.ist.ac.at	
PHAIDRA @ FH St Pölten	Repository	https://phaidra.fhstp.ac.at/	
mdw Repository	Repository	https://repo.mdw.ac.at	
Phaidra - Repository of the University of Veterinary Medicine, Vienna	Repository	https://phaidra.vetmeduni.ac.at	
TU Graz Repository	Repository	https://repository.tugraz.at/	
University of Vienna PHAIDRA	Repository	https://phaidra.univie.ac.at	
Discipline specific			
ARCHE - A Resource Centre for the HumanitiEs	Repository	https://arche.acdh.oeaw.ac.at	Core Trust Seal (CTS)
AUSSDA Dataverse	Repository	https://data.aussda.at/	Core Trust Seal (CTS)
CCCA - Climate Change Center Austria	Data centre	https://data.ccca.ac.at	
EODC - Earth Observation Data Centre	Data centre	https://www.eodc.eu/	
Geisteswissenschaftliches Asset Management System (GAMS)	Repository	https://gams.uni-graz.at	Core Trust Seal (CTS)

	Repository	https://www.tethys.at/	
Tethys - Geologische Bundesanstalt (GBA), Data Publisher for Geoscience Austria			
Topic specific			
Thanados - The Anthropological and Archaeological Database of Sepultures	Repository	https://thanados.net/	
PSI related			
ZAMG Data Hub	Repository	https://data.hub.zamg.ac.at/	Metadata exchanged with the portal Open Data Austria (data.gv.at)
Other			
Austrian State Archives	Data centre	http://www.oesta.gv.at/	
BRZ - Austrian Federal Computing Center	Data centre	https://en.brz.gv.at/	
Statistik Austria	Data centre	https://www.statistik.at/	
Vorarlberger Landesbibliothek - Volare	Repository	https://pid.volare.vorarlberg.at/	

Annex C

Publication/document servers

At the moment, [48](#) "Austrian" repositories are registered by OpenDOAR (https://v2.sherpa.ac.uk/view/repository_by_country/Austria.html) and 41 data repositories by re3data ([https://www.re3data.org/search?query=&countries[]=AUT](https://www.re3data.org/search?query=&countries[]=AUT)).

NB: Not all existing repositories are registered in a directory.

Name of repository	Link	Comment
Institutional publication/document servers		
]a[repository	https://repository.akbild.ac.at	
BOKU:epub	http://epub.boku.ac.at/	
DOOR	https://door.donau-uni.ac.at/	
Austrian Institute for Health Technology Assessment Repository for Publications	https://eprints.aihta.at/	Former known as LBI HTA
Elektronisches Publikationsportal der Österreichischen Akademie der Wissenschaften	http://epub.oeaw.ac.at/	
ePLUS (Open Access Publikationsserver der Universität Salzburg)	http://eplus.uni-salzburg.at	
ePubWU Institutional Repository (ePubWU)	http://epub.wu.ac.at/	
FHpub	https://fhpub.fh-vie.ac.at	
FWF-E-Book-Library	https://e-book.fwf.ac.at/	
IIASA PURE	http://pure.iiasa.ac.at/	
INIS Repository	http://inis.iaea.org/search	
IRIHS - Institutional Repository at IHS	https://irihs.ihs.ac.at	
IST Austria Research Explorer	https://research-explorer.app.ist.ac.at	
Institutional Repository of the Mozarteum University	http://repository.moz.ac.at	
JKU ePub	http://epub.jku.at/	
Kirchlicher DokumentenServer der AKThB und des VkwB (KiDokS)	https://kidoks.bsz-bw.de/home	
MedUni Wien ePub	https://repositorium.meduniwien.ac.at/	
Online Publikationsserver der FH Vorarlberg	https://opus.fhv.at	
People @ FH Burgenland	https://people.fh-burgenland.at/	
Publication Database of the Vienna University of Technology	https://publik.tuwien.ac.at/start.php?lang=2	
Publikationsserver der Universität Klagenfurt (netlibrary)	https://netlibrary.aau.at/	

pub.mdw - Open Access Publication Server	https://pub.mdw.ac.at	
reposiTUm (TU Wien Open Access Platform)	https://repositum.tuwien.at	
TUGraz OPEN Library	http://openlib.tugraz.at/	
University of Innsbruck Digital Library	http://diglib.uibk.ac.at/	
u:scholar	http://uscholar.univie.ac.at/	
uni≡pub (unipub)	http://unipub.uni-graz.at/	
Phaidra (@University of Vienna)	https://phaidra.univie.ac.at/	
State and county library servers		
Digitale Landesbibliothek Oberösterreich	http://digi.landesbibliothek.at/	
Discipline specific publication/document servers		
Architektur-Informatik	http://architektur-informatik.scix.net/cgi-bin/works/Home	
CumInCAD Digital Archive	http://cumincad.architexturez.net/	
Elektronisch archivierte Theorie - Sammelpunkt	http://sammelpunkt.philo.at:8080/	
Fluorophores.org	http://www.fluorophores.tugraz.at/	
PiezoMat.org	http://www.PiezoMat.org/	
RISC Publications	https://risc.jku.at/publications/	
Other		
Austrian Platform for Research and Technology Policy Evaluation (fteval)	https://repository.fteval.at	
European Research Papers Archive (ERPA)	http://eiop.or.at/erpa/	

Annex D

Austrian EOSC Support Office/Austrian EOSC Mandated Organisation

In January 2021, TU Wien created a new organizational unit, the Service Unit "EOSC and International Liaison Office", based at the TU Wien Bibliothek. In February 2021, the association ACONET applied for membership in the EOSC Association as the Austrian mandate holder. In the meantime, four Austrian research institutions applied for membership in the EOSC Association AISBL: The Natural History Museum Vienna (NHM), TU Graz, TU Wien and the University of Vienna. The Climate Change Centre Austria (CCCA) and the Johannes Kepler University Linz (JKU) applied for "Observer" status. The Academy of Fine Arts Vienna and UBIFO consider following shortly. The EOSC Support Office Austria and its governance structure was formally founded in October 2021 as an operational unit for the Austrian EOSC Mandated Organization, legally represented by the ACONET Association and secured by a contractual default liability by the TU Wien.

Between 26 March and July 2021, all partners worked together on the memorandum of understanding, which was adopted on 12 July 2021 during a validation workshop. The first General Assembly of the Austrian EOSC Initiative took place on 13 October 2021. The first monitoring session of the Austrian EOSC Initiative took place on 3 December 2021.

List of Partners
The official bodies involved in the Austrian EOSC initiative (as of October 2021) are:
- ACONET Association [legal entity of the Austrian Mandated Organisation]
- Academy of Fine Arts Vienna [official Candidate Observer at EOSC Association AISBL]
- Climate Change Centre Austria [Observer of EOSC Association AISBL]
- Johannes Kepler University Linz [official candidate Observer at EOSC Association AISBL]
- Natural History Museum Vienna [Member of EOSC Association AISBL]
- Graz University of Technology [Member of EOSC Association AISBL]
- Vienna University of Technology [Member of EOSC Association AISBL]
- University of Vienna [Member of EOSC Association AISBL]

Extraordinary Partners of the EOSC Austrian Initiative:
- Federal Ministry of Education, Science and Research (BMBWF)
- ACOnet (NREN)
- FAIR Office Austria

First General Assembly, October 2021 – Elected Members

First Chair of the General Assembly	Paolo Budroni, TU Wien
Second Chair of the General Assembly	Maria Seissl, University of Vienna
Members of the Steering Committee	Josef Eberhardsteiner, TU Wien; Claudia von der Linden, TU Graz; Christopher Lindinger, JKU; Ronald Maier, University of Vienna; Chris Schubert (representing ad interim CCCA); Katrin Vohland, NHM
Coordinator of the Steering Committee	Katrin Vohland, NHM
Deputy Coordinator of Steering Committee	Claudia von der Linden, TU Graz
Members of the Management Board	Ilire Hasani-Mavriqi, TU Graz; Heimo Rainer, NHM; Tereza Kalová, University of Vienna; Gerhard Wotawa, CCCA

First Chair of the Management Board (Coordinator)	TU Graz, represented by Ilire Hasani-Mavriqi
Second Chair of the Management Board	NHM, represented by Heimo Rainer
Third Chair of the Management Board	University of Vienna, represented by Tereza Kalová
Fourth Chair of the Management Board	CCCA, represented by ZAMG, Gerhard Wotawa
Coordinator of the EOSC Café	Stefan Hanslik, BMBWF
Spokespersons of the Synergy Team	Barbara Sánchez Solís, TU Wien; Susanne Blumesberger, University of Vienna; Claire Jean-Quartier, TU Graz

The Working Groups

Each institution contributes with specific infrastructures or skills. In addition to research, teaching and the associated infrastructures, the universities will make an important contribution to the training of a new generation of researchers, service providers, data scientists, data curators, and data stewards.

List of the established Working Groups and name of the coordinators

- Austria Country Profile: Barbara Sánchez Solís, TU Wien
- Key Performance Indicators: Katrin Vohland, NHM; Beate Guba, TU Wien
- Researcher Engagement in Austria: Katharina Flicker, TU Wien
- Data Stewardship: Ilire Hasani-Mavriqi, TU Graz
- Collections: Heimo Rainer, NHM
- Stakeholder Engagement: Raman Ganguly, University of Vienna
- Technical Infrastructure: Claire Jean-Quartier, TU Graz
- Training: Susanne Blumesberger, University of Vienna

Related publication activities and dissemination work:
Press releases:
- APA OTS: Austrian EOSC Mandated Organisation offiziell gegründet – ein Meilenstein für Open Science (October 2021)
- NHM: Austrian EOSC Mandated Organisation offiziell gegründet – ein Meilenstein für Open Science (October 2021)

Contributions and articles:
- e-IRG White Paper 2021: https://doi.org/10.5281/zenodo.5741971 (November 2021)
- VOEB News: Die österreichische EOSC Mandated Organisation / Das EOSC Support Office Austria (December 2021)
- Zenodo Community EOSC Austria: Collected, published material from the EOSC Mandated Organisation and the EOSC Support Office Austria (created in October 2021)
- EOSC Secretariat: EOSC National Structures: an overview of the national EOSC coordination and engagement mechanisms in Europe (published in October 2021)
- FAIR Office Austria: Austrian EOSC Mandated Organisation officially founded (December 2021)