Göttingen eResearch Alliance

Report for External Advisory Board

2020/2021

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Summary

The Göttingen eResearch Alliance (eRA) is a service unit of the University of Göttingen for the Göttingen Campus with a focus on research data management and related topics. The eRA started in 2014 offering consulting, training, networking and IT services. The report at hand summarizes the results and events between June 2020 and July 2021 for the External Advisory Board of the Göttingen eResearch Alliance.

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Overview

The purpose of this document is to summarize the results of the work of the Göttingen eResearch Alliance (eRA) between June 2020 and July 2021. Furthermore, this document provides an outline of the plans of the eRA for the coming months.

Structure of the Report

Following the overview, we provide general feedback on the recommendations provided by the External Advisory Board for the period of 2019/2020. After that, we report on the results of the four main pillars of the eRA portfolio: (i) consulting, (ii) training, (iii) networking, and (iv) [digital] services. Each section contains selected results for each of the pillars. Next, we describe a number of outreach activities and the results of 3rd party funded projects acquired by the eRA. After a brief description of the eRA team retreat the report is completed by an outlook on the plans for the next reporting period.

eRA Team and Governance

The core staff of the Göttingen eResearch Alliance consisted during the reporting period of:

- Coordination & Management
 - Jan Brase 10% (funded through SUB)
 - Scientific Coordination
 - Liaison to RDD from SUB Göttingen
 - Management of eRA networking and liaisons
 - Consulting for Humanities & Mathematics
 - Timo Gnadt 100% (funded through eRA)
 - General management and coordination
 - Support for GRO.instruments
 - General consulting
 - Training
 - Philipp Wieder 10% (funded through GWDG)
 - Scientific Coordination
 - Liaison to eScience group from GWDG
 - Management of eRA service development
 - Consulting for Natural Sciences and Life Sciences
- Team and Associated Members

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- Raisa Barthauer 75% (funded through SUB)
 - Support for GRO.identifiers
 - DOI help desk
- Sven Bingert 10% (funded fully through GWDG)
 - Planning and execution of the Data Science Summer School
 - Consulting for Physics and Natural Sciences
 - Technical consulting for research data management projects
- Marcel Hellkamp 50% (funded through eRA)
 - Service architect and service developer (backend)
 - Technical consulting on repository, archival and data management solutions
- Péter Király 100% (funded through eRA)
 - Service development and support for GRO.data
 - Technical consulting and integration of project data into GRO.data
 - Consulting for the Humanities & Libraries

- Consulting on data visualization
- Training on RDM and GRO.data
- Harald Kusch 10 % (funded through the Medical Informatics Department of the UMG)
 - Liaison to UMG
 - Project manager of menoci.io (Research Data Management platform)
 - Consulting for Medicine and Life Sciences
- Jens Nieschulze (funded through University of Göttingen)
 - Liaison to the University of Göttingen
 - General consulting
- José Calvo Tello 10% (funded fully through SUB)
 - Contact point for DARIAH services
 - Consulting of projects from the Humanities
- Adrian Sturm 100% (funded through 3^{rd} party funding) from 05/2021 on
 - Service development for project DIGIS/GEOROC
- o Lena Steilen 77% (funded through GWDG) until 12/2020
 - General administration and organisation
- Ubbo Veentjer 50% (funded through eRA)
 - Service development and support for GRO.data and GRO.plan
- Research Assistants (funded through GWDG)
 - Antonia Colan-Bräunig 25%
 - Esteban Lazo Huanqui 25%
 - Stina Riegelmann 25%

Depending on the actual request, other people from Göttingen Campus partners are involved.

Changes during the reporting period:

- Lena Steilen left the eResearch Alliance end of December 2020.
- Adrian Sturm joined the eRA team in May 2021.
- Three research assistants joined at July 1st, 2021.

Steering Group

The Steering Group is meeting monthly. The meetings are used to update the Steering Group members on the progress of the era. In addition, members communicate developments at the Göttingen Campus and beyond that are related to the work of the eRA. This includes reports from other working groups and organisations, substantial outcomes of workshops and conferences, as well as results from projects. Furthermore, the evolution of the service portfolio is discussed and organised.

The steering group did not change in any aspect compared to the last report. All steering group members can be found in "

Appendix A – Members of the eRA Steering Group".

Effects of Covid-19

The lockdown resulting from the Corona virus pandemic had a huge effect on the daily work of the eRA. All internal and external meetings were moved to a digital format. To compensate for the lack of face-to-face opportunities for exchange on a daily basis in the office, a daily virtual short meeting (30 minutes) was established in addition to the weekly virtual team meetings.

Addressing the Feedback from the eRA External Advisory Board

We would like to acknowledge the effort and the time invested by the External Advisory Board to analyse and assess the directions and deliverables of the Göttingen eResearch Alliance. In this section, we address a number of suggestions we got from the eRA External Advisory Board with respect to strategic and long-term oriented developments. Overall, this includes the following aspects:

- Coordination with disciplinary activities
- Integration into international frameworks
- Continuous review of scalability/strategic goals
- Improvement of service documentation
- Improvement of onboarding and communication processes

The eRA continued to interact with a growing number of disciplinary activities during this reporting period. These include:

- NFDI4Health¹ & HiGHmed² for the area of Medical Sciences
- Various projects, in particular with medical and/or clinical background, related to secure and protected storage, management, and processing of data
- GFBio³, de.NBI, Faculty of Forest Sciences and Forest Ecology & NFDI4BioDiversity⁴ for the area of Biodiversity
- DARIAH-EU, CLARIAH-DE⁵, NFDI4Culture, SSHOC, Text+⁶ & MINE for the area of Humanities
- Cluster Multiscale Bioimaging (MBExC)⁷ for the area of Life Sciences
- eLabour⁸ for the area of Social Sciences
- NFDI Neuroscience for the area of Neuroscience
- NFDI4Phys for the area of Physics.

These efforts will be intensified to also reach further activities and market the support and service options provided by the eRA.

With respect to the integration with European frameworks, the eRA has been very successful during this reporting period (see also the section on third-party funded projects). All project proposals that have been introduced in the previous report have been funded. eRA partners are now active in the projects DICE, EOSC Future, and Archiver, bringing services and expertise into the projects and, at the same time, connecting the eRA to the European Open Science Cloud. This allows the eRA to react more quickly and plan its developments strategically in sync with the respective projects. On the global level, eRA is still active in the Research Data Alliance and CODATA. Most developments for working groups and active exchanges have currently been postponed due to the measures taken against Covid-19.

Regarding the continuous review of the scalability of the eRA and its strategic goals, the respective governance framework and the high-level strategic planning and steering of execution are already in place. During the previous 12 months, it was admittingly difficult to

¹ https://www.nfdi4health.de/

² https://www.highmed.org/

³ https://www.gfbio.org/

⁴ https://www.nfdi4biodiversity.org/

⁵ https://www.clariah.de/indexEN.html

⁶ https://www.text-plus.org/en/index.html

⁷ https://mbexc.de/

⁸ http://elabour.de/

schedule regular meetings not only due to Covid-19, but also because the new university president has taken office. Nevertheless, a strategy regarding the consolidation of the service portfolio has been decided. Furthermore, additional personnel have been recruited by GWDG to streamline the administrative, daily tasks and take load off the eRA experts.

The service documentation and the respective training material for the GRO services has been significantly improved. The eRA website now contains a dedicated section for the services and regular trainings are offered on service usage and integration. The GRO brand is becoming increasingly known on the Göttingen Campus and beyond, and the eRA provides feedback and code to the developers of the respective software products to improve them and to fulfil particular eRA needs. Last, but not least, the eRA took the opportunity of the latest recruitments to define clear onboarding processes and finalise its communication concept.

Key Performance Indicators

In early 2019, the eRA defined an initial set of key performance indicators, which were then presented to and commented on by the External Board members. In 2020, these KPIs were extended and refined based on the recommendations of the External Board. The values for the KPIs for this and the previous reporting period are given in tables in the respective sections throughout this report.

The current set of KPIs will remain subject to change: the eRA will continue to check the feasibility and applicability of its KPIs, adjust them or add further KPIs. A full list of definitions of the 55 KPIs as of July 2021 can be found in the detailed table in "Appendix B – List of extended KPIs".

Report of eRA Activities

In the following sections, we describe the activities and progress for each of the four pillars of the eResearch Alliance portfolio: Consulting, Training, Networking, and [Digital] Services.



As an introduction, we show some numbers and proportions of the eRA activities.

Figure 1: Numbers of eRA activities per funder in reporting year 2020/2021



Figure 2: eRA activities per reporting year



Figure 3: Proportions of eRA activities per discipline in reporting year 2020/2021

Consulting

The eRA offers consulting related to a large spectrum of research data management and complementing topics. The eRA consults individual researchers, groups, and projects, but also institutes and whole organisations. The consulting is not strictly limited to a pre-defined range of topics, i.e., the eRA does in general not refuse any consulting request. Requests that cannot be fulfilled by the eRA itself are brokered to other stakeholders of the Göttingen Campus or other partners from the extended network of the eRA.

With respect to resource consumption, consulting is a particular demanding task for the eRA. This is due to the amount as well as the diversity of requests. In the reporting period, there was again a clear focus on the consultation of large-scale DFG projects, projects related to the German National Research Data Initiative (NFDI⁹), and requests from individuals.

Consulting of Large-Scale DFG Projects

As in the past years, the eRA was dealing with a constant stream of proposals for DFG projects (see also **Fehler! Verweisquelle konnte nicht gefunden werden.**). The workflow that integrates the eRA into the university-wide quality assurance process for DFG projects, which is steered by the Research Department, is being continuously improved based on the daily work, but also on regular meetings between both parties.

The consultation requests and issues resulting from the abovementioned workflow with the Research Department span a variety of topics and also differ significantly regarding the eRA involvement and resources invested through the phases of project proposal, project implementation, and project evaluation. There are requests where the eRA is mainly reviewing the proposal text and provides feedback with respect to integrating central services and offers, while in other cases, partners from the eRA provide a PI, e.g., for an integrated service project in a Collaborative Research Centre (CRC). The respective involvement is fully due to the requirements and planning of the project management.

You can find an overview of consulted projects and the consultation topics in "Appendix C – Consulting of Large-Scale DFG Projects".

NFDI consultation and participation

As of today, 19 NFDI projects are already funded, 10 of which will start their work in October, 2021. In 2021, the third and last phase of the NFDI projects will be submitted. The respective funding decisions will be communicated mid 2022.

As of today, the eRA is directly participating (in different roles and with varying resources) in the following projects:

- Text+¹⁰ (Humanities)
- NDFI4Culture¹¹ (Humanities)
- NFDI4Biodiversity¹² (Biodiversity)
- NFDI4Ing¹³ (Engineering)
- NFDI4Earth¹⁴ (Earth System Sciences)

⁹ https://www.dfg.de/en/research_funding/programmes/nfdi/index.html

¹⁰ https://www.text-plus.org/

¹¹ https://nfdi4culture.de/

¹² https://www.nfdi4biodiversity.org/

¹³ https://nfdi4ing.de/

¹⁴ https://www.nfdi4earth.de/

Five more projects have participants from the Göttingen Campus, adding up to 10 out of 19 NFDI projects with participation from Göttingen. For the third phase, the eRA is consulting again a number of projects, in particular NFDI Neuroscience, NFDI4Phys, and NFDIxCS (Computer Science).

As an additional instrument to ensure thorough communication and information flow among those either involved or interested in the NFDI activities on the Göttingen Campus, the eRA established an NFDI Interest Group and organizes regular meetings. These meetings are used to inform the projects about the contributions of partners from Göttingen, provide information and advice on the NDFI processes, and inform and connect the individual partners to the overall strategy and NFDI developments.

On-Demand Service Development

One specific offer within the portfolio of the eRA is related to consulting on service development. As projects and faculties not only struggle with the sustainability of their services, but also with the integration of their proprietary solutions with specific campus solutions, or the fact that recruitment of IT staff is getting more and more difficult, the eRA offers consulting on the following topics:

- Connection to campus services
- Customizing existing services to meet the requirements of specific projects
- Software development of complete services

In case it is requested, the eRA also helps with recruiting or even develops services for customers. As this normally requires resources beyond those available for such tasks, this kind of work has to be paid for by the customer.

Consultation for the Humanities

The consultation for research groups in the Humanities has proven to be more challenging than the regular consultations, for the following reasons:

- The Humanities are still very hesitant towards digital methods and have a bigger problem to identify what research data means for them.
- Most humanities researchers prefer to be in contact with the same eRA contact throughout the whole consultation process. Consultation with changing contacts was regarded by the disciplines as unpleasant. Additionally, these disciplines prefer to be in contact with an eRA colleague with a humanities background.
- Göttingen and especially the SUB has a long tradition of providing research infrastructures for the Humanities as a founding member of the European infrastructure DARIAH (Digital Research Infrastructure for the Arts and Humanities).

As a result, the eRA has increased its cooperation with the DARIAH colleagues in Göttingen. The subject librarian for romance studies and art history, José Calvo Tello, now acts a link between the SUB's services for the Humanities, the DARIAH services, and the eRA. He is the first contact point of the eRA for all researchers and projects from the Humanities. This setting helps to face the aforementioned challenges and develop a long-term disciplinary support structure.

Evaluation

Based on the KPIs related to Consulting (see section Key Performance Indicators, p.9) the eRA has been evaluating all consultation activities for the reporting year. As of today, a total number of 223 consulting activities have been collected from records, tickets, and mail communication.

ID	Name	Metric	2019/2020		2020/2021
C-01	Consultations	Number of consultations per year		42	79
C-02	Consultations per Discipline	Amount of consultations per discipline per year (given cumulatively until 01.06.2020; for consultations with multiple disciplines, each discipline is counted separately)	Humanities: Social & Beh. Sciences: Biology: Medicine: Agric., Forestry & Vet.med.: Chemistry: Physics: Mathematics: Geosciences: Engineering Sciences: Cross-disciplinary: other/unknown:	44 38 43 35 20 9 12 4 6 5 3 5	7 16 16 4 4 7 7 2 3 1 2 3 1 2 10
C-03	Consultations per Funder	Amount of consultations per funder per year	DFG: BMBF: ERC: MWK: other:	19 1 3 0 19	33 4 3 4 24
C-04	Time consumed per Consultation	Amount of time required per consultation		n/a	n/a
C-05	Successful proposal consultations	Percentage of consultations resulting in funding approval		n/a	n/a
C-06	Successful other consultations	Number of positive feedbacks from researchers		n/a	n/a

Table 1: KPIs related to eRA Consulting activities

Training

The eRA has a large portfolio of research data management trainings and also offers courses tailored to the needs of its customers. This offer is well-received at the Göttingen Campus and beyond, which also show the increasing number of training events in 2021. Unfortunately, one of the internationally acclaimed events, the Göttingen Summer School on Data Science, did not take place for two subsequent years due to Covid-19.

Fourth International Göttingen Summer School on Data Science

The eResearch Alliance planned to organize the fourth International Göttingen Summer School on Data Science in 2020, and again in 2021. However, due to the worldwide and continued measures against Covid-19, both schools had to be cancelled. Switching to an online format was heavily discussed in both cases, but due to the strong involvement of US American and Japanese students this was dismissed. We strongly hope that the situation will allow us to finally implement the school again in 2022.

Talk series on "Rechtliche Aspekte im Forschungs-Daten-Management"

Topics like copyright, data protection, data security or licensing are becoming more and more important for the consulting activities of the eRA. To address these topics for a broader audience, provide more information and also to present the supporting offers at the Göttingen Campus, the eRA organized an online talk series on "Legal aspects in Research data management" in March 2021.

The talk series took place from 15-19 March 2021 with each event of the series lasting about one hour over lunch time. The number of participants per session ranged between around 70 and 130. The series started with copyright issues, then looked at the implications of data protection in general and for medical research in particular, requirements of good scientific practice and research funding, and aspects of information security regulations. The talks gave introductions, hints and examples on each of these topics. At the end of each talk the audience had the opportunity to ask some questions, and the slides of the talks were made available afterwards on the eRA webpage¹⁵.

The eRA was happy to win the data protection officers of Göttingen University and its Medical Centre, the Information Security Officer of the University and representatives from the Ombudsman Service, the Research Department and the Subject Specialist for Law of the SUB as speakers. Since the format and the content received great feedback from the participants, it is planned to offer a similar talk series in 2022 as well.

Other Training Events

The eRA offers a large variety of training topics to individual researchers as well as research groups and projects. Here, we report on the events that a) target larger groups and b) consume a lot of time to plan and implement. During the reporting period, this includes:

• In June 2020, the eRA started a new online open training format entitled "Love your data – data management basics for study and research". The event has since taken place 3 times, alternating in English and German language. It does not require registration and is open for anybody to join, also from outside of Göttingen, and targeting bachelor and master students as well as researchers with little to no background knowledge in research data management. This format was developed and organized in cooperation

¹⁵ see https://www.eresearch.uni-goettingen.de/news/program-details-rechtliche-aspekte-im-forschungs-daten-management/

with the "Bausteine+" project at the SUB Göttingen, which ended in December 2020. With a number of participants between 20 and 120, the events were quite successful and received lots positive feedback. While it was planned to offer the event roughly every 3 months, the advertisement proved to be quite time intensive, so that the last event took place in January 2021. There will however be at least one more open training event in 2021.

- Carpentries Training events: eRA members participated in 3 Carpentries training events which were organized by the SUB Göttingen, two Data Carpentries and 1 Library Carpentry event. Topics covered in these workshops were "Working with spreadsheets", "Data cleaning with OpenRefine" and "R" in the Data Carpentries workshops, "Regular expressions", "Git", "OpenRefine" and "Unix shell" in the library Carpentries workshop. There are now 3 members of the eRA who are certified Carpentries instructors, and who are regularly participating and involved in organizing and teaching these events.
- For the RTG 2455 BENCh, we offered a workshop series of 4 sessions in spring 2021, 90-120 minutes each, covering the following topics: "Introduction to Research Data Management", "Selected Tools and Services for PhD students", "Working with GRO.data" and a final Q&A session, where also a homework from the GRO.data session was discussed. Upon request from the RTG, the eRA will repeat this format with similar content at least once per year. We have also started to offer this set of sessions to other research groups.
- For the CRC 1456 "Mathematics of Experiment", in June 2021 we offered a workshop consisting of two afternoon sessions, covering the following topics: "Research Data Management: Principles & Benefits, Documentation, Sharing, Publication", "GRO.data Introduction, Hands-on and ingest workflow", "Data policy for the CRC", "Research software management: git, Jupyter"
- Info Events at UMG: The regular info events at UMG were continued in their halfyearly schedule. The continued situation of restrictions only allowed for online events, which however turned out to have a positive effect on the number of participants, which now constantly range between 10 and 30.
- The eResearch Alliance has participated in several OpenScience Meetups¹⁶, a regular workshop format established by the SUB Göttingen, where varying topics around Open Science are presented and discussed.
- In early 2021, the SUB Göttingen has launched a revised format of their support for students in scientific working and writing, and extended its scope to postgraduates as well as regarding the topics. Amongst others, the topics research data management and related topics such as GIS and ELNs are now included and covered by members of the eResearch Alliance. Interested members of the campus can book one of the available, regular consultation slots with an expert directly through the university's lecture CMS, stud.IP¹⁷. The eResearch Alliance also participated with short presentations of their consultation offers in the official kick-off on May 5, 2021.

eResearch Lab

The eRA continues to provide a series of trainings on research data-related topics under the label "eResearch Lab". While the lab was initially planned as an open physical space for information exchange on eResearch topics, the format currently serves as an open online format to address different aspects of dealing with research data, while also introducing interested students and researchers to our GRO services.

¹⁶ https://pad.gwdg.de/s/OpenScienceGOE#

¹⁷ https://www.uni-goettingen.de/en/124889.html

Date	Торіс
16.06.2020	Introduction to GRO.data
14.07.2020	Introduction to R
08.09.2020	Introduction to GRO.data
06.10.2020	Introduction to GRO.data
02.12.2020	Introduction to GRO.plan
08.12.2020	Introduction to TEI
15.12.2020	Introduction to GRO.data
12.01.2021	Introduction to GRO.data
09.02.2021	Introduction to GRO.data
09.03.2021	Introduction to GRO.data
13.04.2021	Introduction to GRO.data
27.04.2021	Introduction to GRO.plan
11.05.2021	Introduction to GRO.data
08.06.2021	Introduction to GRO.data
30.06.2021	Introduction to GRO.plan
13.07.2021	Introduction to GRO.data

Table 2: eResearch Lab online events

The number of participants usually varies between 1 and over 30. It is still planned to integrate the eResearch Lab as much as possible into the Digital Creative Space still being in preparation at the SUB main building, in order to host research data related workshops and meetings and also serve as a central spot for consultation and support.

Evaluation

Based on the KPIs related to Training (see Section "Key Performance Indicators") the eRA is constantly evaluating all training activities. In the reporting year, a total number of 22 training activities have been implemented or supported, all of them as online events.

ID	Name	Metric	2019/2020	2020/2021
T-01	Trainings	Number of trainings per year	12	22
T-02	Open training events	Number of open training events per year	0	3
T-03	Discipline- specific	Percentage of all disciplines covered by specific training material available on website	n/a	n/a
T-04	Info events	Number of Info events per year	2	2
T-05	Webinars	Number of online training courses and webinars offered per year	3	22
T-06	Training reception	Overall and specific scores of training evaluation questions	n/a	n/a

Table 3: KPIs related to eRA Training activities

Networking

In the last 12 months the networking activities of the eRA have been heavily affected by the Covid-19 pandemic and the lockdowns in Germany and world-wide. Although video conferencing and tools for mobile work have been in place almost immediately, in particular those networking activities, which are based heavily on personal contact and mutual visits, suffered from the general abundance of travel of any kind.

RDA Germany

From February 22nd to February 26th, 2021, the eResearch Alliance supported the annual meeting of RDA Germany¹⁸. Göttingen University provided the Zoom infrastructure for the online event and Jan Brase was part of the meeting organisers and programme committee.

The meeting was very successful, attracting over 360 unique views and over 260 attendees in individual sessions.

Go UNI Networking Event

On February 11th, 2021, the eRA attended the Go UNI meeting from the German GoFAIR initiative¹⁹. The meeting was a major networking event for providers of RDM trainings in Germany and provided the opportunity to exchange experience in providing RDM training programs.

Other eRA Networking Events

- Regular participation in RDMO community events and development meetings to provide input to and get first-hand knowledge about the software that is the basis for the eRA's data management planning service GRO.plan.
- DARIAH Research Data Management Working Group: Regular participation in the working group efforts with a focus on RDM for Humanities.
- German Network of Excellence Cluster: Two strategy workshops on research data management (RDM) with data experts from various clusters of excellence co-organised by eRA (09.11.2020 and 03.05.2021).
- Collaboration with the organizers of the Symtech-RDM-Workshop (14.-15.04.2021).
- NFDI Interest Group at Göttingen Campus (18.05.2021, 22.06.2021, 19.07.2021).
- MPG City Week: Presentation of research data management and data science services provided by eRA and GWDG (7.-11.06.2021).
- RDM Competence Pool: Exchange and Training on data quality (06.07.2021)
- MPG NFDI Networking Meeting (14.07.2021).
- Göttingen Cultural Analytics Alliance: Proposed networking initiative linking cultural data assets, research data management expertise, and data science (kick-off 16.07.2021).

¹⁸ https://indico.desy.de/event/28294/overview

¹⁹ https://www.go-fair.org/events/go-uni-strategy-meeting/

Evaluation

ID	Name	Metric	2019/2020	2020/2021
N-01	Stakeholder Coverage	Percentage of stakeholders covered (Göttingen Campus partners, faculties of the University of Göttingen, selected individuals)	n/a	n/a
N-02	Conference/Work shop participation	Number of participations per year	6	9

Table 4: KPIs related to eRA Networking activities

Services

One central task of the Göttingen eResearch Alliance is the support for and the development of services for research data management. As support is mostly covered by consulting and training (except the actual technical support of the service operation), the Services pillar mainly reflects the portfolio of services developed by the eRA.

The overall goals of the provision of this service portfolio are to establish a core set of essential services that is required by researchers, and to integrate existing and upcoming services in the best possible manner. This portfolio is marketed under the label "Göttingen Research Online", or in short GRO.

As of today, the following services are (partially) developed, maintained, and supported through the eRA:

- An institutional, general-purpose data repository (productive, service name: GRO.data)
- A publication data management service (productive, service name: GRO.publications)
- A service to manage large-scale instruments (test phase, service name: GRO.instruments)
- A service to develop data management plans (productive, service name: GRO.plan)
- Several running services for the provision of persistent identifiers (each of them productive, service name: GRO.identifiers)

The respective services are described in detail in the following sections.

GRO.data

Status:	Production
Service manager:	Péter Király
Software:	Dataverse ²⁰
URL:	https://data.goettingen-research-online.de

The institutional research data repository GRO.data enables depositing, storing, sharing and publication of any kind of research data. Data can be ingested via interfaces, e.g. through the Electronic Lab Notebook, or exported for long term archival. The data can be amended with metadata directly upon deposit or selection. GRO.data supports researchers in publishing data according to the FAIR principles. In addition, researchers can receive persistent identifiers such as DOIs or ePIC PIDs for their data. The differentiated management of roles and rights facilitates access to data collections ("Dataverses") or data sets for single users as well as for user groups.

GÖTTINGENRESEARCHOI	JNE GRO.publications Add Data - Search - User Guide Support Log II DATA
It Metrics 42,584 Dov	Contact C Share
Publish your research dat Göttingen Research Online is an institutio group of SUB and GWDG. If you are inter Search this dataverse	! Search, find, and cite data from the Göttingen Campus and beyond. I repository for the publication of research data at the Göttingen Campus. It is managed by the Göttingen eResearch Alliance, a joint ed in publishing your data here, please see our author instructions and get in touch with us. Open ~ Quick Start Guide Q Advanced Search
✓ S Dataverses (109)	1 to 10 of 1,515 Results 41 Sort -
Datasets (1,406) Dataverse Category Research Project (60) Researcher (21) Journal (10) Research Group (8) Organization or Institution (4) More	Higher order Discontinuous Galerkin methods for the Laplace-Beltrami problem on unfitted smooth surfaces Sep 6, 2021 - CPDE Heimann, Fabian, 2021, "Higher order Discontinuous Galerkin methods for the Laplace-Beltrami problem on unfitted smooth surfaces", https://doi.org/10.25625/OIBRT4, Göttingen Research Online / Data, V1 Bachelor's thesis document "Higher order Discontinuous Galerkin methods for the Laplace-Beltrami problem on unfitted smooth surfaces" of Fabian Heimann (examiner and co-examiner: Christoph Lehrenfeld & Gert Lube) (September 2018) On Discontinuous- and Continuous-In-Time Unfitted Space-Time Methods for PDEs on Moving Domains Sep 6, 2021 - CPDE
More Publication Year 2021 (1,372) 2020 (88) 2019 (41) 2018 (13) 2017 (1) Author Name Christian Stiegler (173) S. Frasmi (95) Kibrom Sibhatu (55)	Heimann, Fabian, 2021, "On Discontinuous- and Continuous-In-Time Unfitted Space-Time Methods for PDEs on Moving Domains", https://doi.org/10.25625/CDCMYT, Göttingen Research Online / Data, V1 Master's thesis document "On Discontinuous- and Continuous-In-Time Unfitted Space-Time Methods for PDEs on Moving Domains" of Fabian Heimann (examiner and co-examiner: Christoph Lehrenfeld & Gert Lube) (October 2020) "Higher order unfitted isoparametric space-time FEM on moving domains" (master's thesis)
	Sep 6, 2021 - CPDE Preuß, Janosch, 2021, ""Higher order unfitted isoparametric space-time FEM on moving domains" (master's thesis)", https://doi.org/10.25625/UACWXS, Göttingen Research Online / Data, V1 Master's thesis document "Higher order unfitted isoparametric space-time FEM on moving domains" of Janosch Preuß (examiner and co- examiner: Christoph Lehrenfeld & Gert Lube)
Nina Tiralla (51) Thomas Fischer (38) More Subject Other (1 258)	Z02_HOr3_Plot_MeteoData 2020 (2) Sep 6, 2021 - EFForTS - Z02 Climatology Christian Stiegler, 2021, "Z02_HOr3_Plot_MeteoData 2020 (2)", https://doi.org/10.25625/37FAP0, Göttingen Research Online / Data, V1
Medicine, Health and Life Sciences (79) Computer and Information Science (49) Earth and Environmental Sciences (45) Physics (39) More	Quality Trag internal temperature Z02_HRr4_Plot_MeteoData 2020 (2) Sep 6, 2021 - EFForTS - Z02 Climatology Christian Stiegler, 2021, "Z02_HRr4_Plot_MeteoData 2020 (2)", https://doi.org/10.25625/XP4OAV, Göttingen Research Online / Data, V1
Keyword Term Climate (180) Meteorological data (156)	quality flag internal temperature Z02_HR1_Plot_MeteoData 2020 (2)

Figure 4: Screenshot from GRO.data



Figure 5: Various usage Metrics for GRO.data

Recent developments for GRO.data in the reporting period were:

- Usage of Academic Cloud based authentication instead of GWDG authentication to unify and broaden access to the service
- Extension of user community: members of all academic institutions of Lower Saxony can now use GRO.data via the Academic Cloud SSO
- Continuation of monthly regular GRO.data trainings as part of the eResearch Lab
- Presentation of Dataverse/GRO.data demo within DARIAH Research Data Working Group
- Provision of training for Digital Humanities researchers in the DARIAH community together with SSHOC partners²¹
- Recent paper publication on GRO.data: (Strauch-Davey 2021) Annette Strauch-Davey: (Open) Research Data Publications. Dataverse und GRO.data für Forschungsdatenpublikationen. In b.i.t.online 4/2021, pp. 412-414.²²
- First reference to GRO.data in a paper published in the Science journal: T. Danz, T. Domröse, C. Ropers: *Ultrafast nanoimaging of the order parameter in a structural phase transition* (2021), In: Science (371): 6527, pp. 371-374. ²³
 with data cited in the article stored in GRO.data:

T. Danz, T. Domröse, C. Ropers: *Data for: Ultrafast nanoimaging of the order parameter in a structural phase transition.* GRO.data (2021), doi:10.25625/6GFN9K

- Continued participation in SSHOC Task 7.2 aiming to improve Dataverse software, focusing on the needs of digital humanities and social science researchers.
- Continued contribution to Dataverse development and improvement, with more than 30 pull requests authored by Péter Király in 2020 and 2021.
- Linear increase for all usage metrics (number of data collections, datasets, files, downloads) over the past two years²⁴.

ID	Name	Metric	Cumulative value (01.06.2020)	Reporting year
S-Dat-01	Dataverses stored	Number of Dataverses added per year	30	156
S-Dat-02	Datasets stored	Number of datasets added per year	97	1638
S-Dat-03	Datasets published	Number of datasets published per year	54	1352

Evaluation

²¹ https://sshopencloud.eu/events/sshoc-webinar-dariah-community-requirements-dataverse-repository

²² https://www.b-i-t-online.de/heft/2021-04-forschungsdaten.pdf

²³ https://www.science.org/lookup/doi/10.1126/science.abd2774

²⁴ https://data.goettingen-research-online.de/metrics/

S-Dat-04	Files stored	Number of files added per year	828	11359
S-Dat-05	Files downloaded	Number of files downloaded per year	1570	~8200
S-Dat-06	Users registered	Number of new users registered per year	149	235
S-Dat-07	Datasets per user	Median of the number of datasets stored per user	n/a	n/a
S-Dat-08	Dataverses categories	Distribution of Dataverses over categories	Research projects:40%Researchers:30%Research groups:10%	47% 23% 8% Journals: 10%
S-Dat-09	Datasets subjects	Distribution of datasets over most common subjects	Medicine/Life Sc.: 32% Comp./Inform. Sc.: 23% Agricultural Sc.: 17% Arts&Humanities: 10% Earth/Envir. Sc.: 8%	26% 16% 8% 7% 13% Physics: 13% Social Sciences: 7%
S-Dat-10	GRO.data use support	Amount of time spent per user on supporting researchers	n/a	n/a
S-Dat-11	GRO.data technical admin	Amount of time spent on maintaining GRO.data service	n/a	n/a

Table 5: KPIs related to GRO.data service

GRO.identifiers

Status:	Production
Launch date:	(services have been launched separately in the past)
Service manager:	R. Barthauer (DOI Service); S. Bingert (ePIC PID Service)
Software:	DOI Service (Datacite ²⁵ & Crossref ²⁶) and ePIC PID Service ²⁷

The eRA offers two different services for persistent identifiers: the DOI Service and the ePIC PID Service. While the former mainly aims at persistent and long-term identification of published elements (whether these are papers or data objects), the latter is mainly used to integrate its API into added value services (like repositories or archives) to persistently identify large numbers of data objects.

Both services are based on the handle.net system²⁸. Parts of the core global infrastructure of the ePIC PID Service are operating in Göttingen.

DOI Service

The DOI service was generally expanded and strengthened. We now have 60 clients ("repositories" in the Datacite terminology) and over 114,000 findable DOIs registered as of July 2021, with additional numbers of around 650 in draft and 430 in registered state.

At the beginning of the year, Datacite switched to a new membership model, which was successfully transferred to SUB.

In addition, a sponsor membership at the registration agency Crossref was established. The new membership allows a differentiation of the service at Göttingen Campus. Since Datacite DOIs have so far been more suitable for the registration of research data and Crossref more for the registration of publications, DOIs can now be assigned in a more specific way and closer to the needs of the users. The first new repositories at Crossref have already been implemented at Göttingen Campus.

For the further consolidation of the service, workflows have been developed, a general policy has been created and agreements have been drafted that will be concluded with the registering data centres in the future as a legal basis.

Consultation on DOIs at the national level was continued and consultation activities as well as cooperation with other departments at the Göttingen Campus were expanded. The service for example assisted the FID AAC²⁹ in applying for its own sub-section in the DOI Service (assigning Crossref DOIs for publications in the field of AAC at a national level) and will also remain in close exchange with the FID in the development and ongoing operation of the service. Here, workflows still have to be defined and differentiated between the FID and the service in cooperation with each other.

Within the context of information events ("Sprechstunde XXL"), the service was presented on campus.

For a further development of the service the possibilities of including other PIDs such as ROR and ORCID in the service are being evaluated, thus expanding and improving the consultation part of the service.

²⁵ https://datacite.org

²⁶ https://www.crossref.org/

²⁷ https://www.pidconsortium.eu

²⁸ http://handle.net

²⁹ https://www.sub.uni-goettingen.de/en/projects-research/project-details/projekt/fid-anglo-american-culture/

ePIC PID Service

The ePIC PID Service is increasingly used by the community. As a result of the change in membership structure within Datacite there is an ongoing discussion, whether ePIC should consider applying for a DOI license through the International DOI foundation (IDF). At the moment this would be considered as a direct conflict with Datacite, but a discussion has started to revaluate the relationship from Datacite and EPIC and discuss cooperation possibilities that allow both organisations to offer DOI registration and keep up the model of free identifier registration within the academia in Europa. A follow-up meeting in Göttingen between Datacite, ePIC, and the IDF was planned for summer, but postponed due to the measures against Covid-19.

Evaluation

ID	Name	Metric	Cumulative value (01.06.2020)	Reporting year
S-Idf-01	DOIs	Increase in DOIs registered through the DOI Service per year	38.041	ca 76.000
S-Idf-02	DOI prefixes	Increase in DOI prefixes registered through the DOI Service per year	52	8
S-Idf-03	ePIC prefixes	Increase in prefixes registered through the ePIC PID Service per year	90	n/a ³⁰
S-Idf-04	ePIC PIDs	Increase in PIDs registered through the ePIC PID Service per year	ca. 57.000.000	n/a ³¹

Table 6: KPIs related to GRO.identifiers service

³⁰ Due to the holiday season the numbers could not be reported in time for the report, but will be presented at the meeting ³¹ Same as above

GRO.instruments

Status:Test phase (partially productively used)Launch date:To be decidedService manager:Timo GnadtSoftware:openIRIS



Figure 6: Screenshot from GRO.instruments

The adaptation of the Large Instruments Portal for the Göttingen Campus, and its transition into productive status, has been a strong focus in the past year. In close cooperation between the developers from openIRIS³² and the users at Göttingen Campus, namely MPI-EM, MPI-BPC, the Research Department, and the UMG, all required feature requests have been discussed and implemented by openIRIS.

In November 2020, a task force was formed to define and implement the required steps on the way to a productive use of the service. GRO instruments was presented to the university's commission for large instruments in March 2021, and its functionalities and availability was

³² https://iris.science-it.ch/

largely approved. While the official announcement of its launch is still to be determined by the Presidential Board, the system is already being used productively by a number of researchers. However, the administration as well as the provision and management of content are still largely under the responsibility of the colleagues at the Research Department and the UMG. In order to change this in the future, the task force will meet again to further refine workflows and responsibilities.

ID	Name	Metric	Cumulative value (01.06.2020)	Cumulative value (01.08.2020)
S-Ins-01	Registered Facilities	Number of facilities registered per year	n/a	19
S-Ins-02	Registered Resources	Number of resources registered per year	n/a	83
S-Ins-03	Researchers registered	Number of new Göttingen Campus researchers registered with the service per year	n/a	63
S-Ins-04	Bookable resources	Percentage of registered resources being available for booking per year	n/a	n/a
S-Ins-05	GRO.instruments accesses	Number of logins to GRO.instruments per year	n/a	n/a
S-Ins-06	GRO.instruments user support	Amount of time spent per user on supporting researchers	n/a	n/a
S-Ins-07	GRO.instruments technical admin	Amount of time spent on maintaining GRO.instruments service per year	n/a	n/a

Evaluation

Table 7: KPIs related to GRO.instruments service

GRO.plan

Status: Launch date: Service manager: Software: URL: Production October 2020 Ubbo Veentjer RDMO https://plan.goettingen-research-online.de

Language - Login

GÖTTINGENRESEARCHONLINE PLAN



Welcome to GRO.plan.

Describe, schedule and maintain your Research Data Management at the Göttingen Campus. You can choose from different question sets tailored to funders' recommendations that guide you in creating a Data Management Plan (DMP) for your research project or group and adapt the specifications over time. Use import and export functionalities to maintain several plans, re-use elements and track changes.

This service is based on the free software provided by the RDMO project. For more information visit rdmorganiser.github.io.



EXCEPT WHERE OTHERWISE NOTED, CONTENT ON THIS SITE IS LICENSED UNDER A CREATIVE COMMONS ATTRIBUTION 4.0 INTERNATIONAL LICENSE.

Figure 7: Screenshot from GRO.plan

The GRO.plan service is a service for creating data management plans and is in production state since October 1st, 2020. GRO.plan is a custom themed version of the RDMO³³ software, integrated with the Academic Cloud authentication provided by the GWDG. The code of the respective instance is openly available at <u>https://gitlab.gwdg.de/era-public/plan</u>.

³³ https://rdmorganiser.github.io



Figure 8: Number of users registered with GRO.plan



Figure 9: Number of (DMP) projects on GRO.plan

	current	percentage
 Engineering Sciences / Computer Science 	4	13%
 Engineering Sciences / Systems Engineering 	3	10%
 Humanities and Social Sciences / Ancient Cultures 	1	3%
 Humanities and Social Sciences / Education Sciences 	3	10%
 Humanities and Social Sciences / Literary Studies 	1	3%
- Humanities and Social Sciences / Non-European Languages and Cultures, Social and Cultural Anthropology, Jewish St	2	6%
 Humanities and Social Sciences / Psychology 	3	10%
 Humanities and Social Sciences / Social Sciences 	1	3%
 Humanities and Social Sciences / Theology 	1	3%
 Life Sciences / Agriculture, Forestry, Horticulture and Veterinary Medicine 	2	6%
 Life Sciences / Basic Biological and Medical Research 	1	3%
Life Sciences / Medicine	2	6%
 Life Sciences / Neurosciences 	3	10%
 Life Sciences / Zoology 	1	3%
 Natural Sciences / Mathematics 	1	3%
 Natural Sciences / Physical and Theoretical Chemistry 	2	6%

Figure 10: Disciplines/Research fields used in GRO.plan projects



CI	urrent	percentage
 DCC Checklist 4.0 	8	19%
- DFG	4	9%
 DFG 105 Edition 	2	5%
 DFG 111 Social Sciences 	1	2%
 DFG Biodiversity research 	1	2%
RDMO	27	63%

Figure 11: GRO.plan catalogues used

In the reporting period three revisions of GRO.plan have been released, each including new features and fixes from the RDMO software. Apart from the first release this included:

- improved invitation system to add internal or external collaborators to own projects
- resolved login problems for external users signing in via DFN-AAI
- usability improvements in the user interface
- possibility to add subprojects to projects

RDMO allows the usage of different discipline- and funder-specific catalogues for creating a data management plan. The RDMO community continuously develops and shares some catalogues^{34,35}, which can be used with own RDMO installations. The eRA provided some of these catalogues for GRO.plan initially, and continues to evaluate which catalogues fit the needs at the Göttingen Campus. Within the reporting period the following catalogues have been provided for the usage at Göttingen Campus:

- DFG
- DFG 105 Edition
- DFG 109 Educational Research
- DFG 111 Social Sciences
- DFG Biodiversity research
- RDMO (standard comprehensive catalogue)
- DCC checklist

The eRA also engaged in RDMO community meetings and participated in monthly calls of the RDMO content group and the RDMO software development group. The content group takes care of developing and discussing catalogues and their integration into the RDMO schema and user interface, while the software group discusses general software features and development. The RDMO community in general has grown significantly, so that despite of the funded project ending in September 2020, the future development and sustainability of the software and catalogues are broadly supported.

³⁴

 $https://www.forschungsdaten.org/index.php/RDMO \# Verf.C3.BCgbares_und_in_Vorbereitung_befindliches_Zubeh.C3.B6r_in_der_RDMO-Community$

³⁵ https://github.com/rdmorganiser/rdmo-catalog

Evaluation

ID	Name	Metric	Cumulative value (01.06.2020)	Cumulative value (01.08.2021)
S-Pla-01	Data Management Plans	Number of data management plans created per year	n/a	43
S-Pla-02	GRO.plan users	Number of new users registered per year	n/a	74
S-Pla-03	Plans per Funder	Number of plans created per funder per year	n/a	n/a
S-Pla-04	Plans per discipline	Number of plans created per discipline per year	n/a	Human. & Soc.Sci.:12Life Sciences:9Engin. Sciences:7Natural Sciences:3
S-Pla-05	GRO.plan user support	Amount of time spent per plan on supporting/consulting researchers	n/a	n/a
S-Pla-06	GRO.plan content administration	Amount of time spent on amending GRO.plan service content per year	n/a	n/a
S-Pla-07	GRO.plan technical admin	Amount of time spent on maintaining GRO.plan service per year	n/a	n/a

Table 8: KPIs related to GRO.plan service

GRO.publications

Status:	Production
Service manager:	Daniel Beucke
Software:	DSpace CRIS
URL:	https://publications.goettingen-research-online.de



Figure 12: Screenshot from GRO.publications

The publication data management GRO.publications allows researchers at the Göttingen Campus to account for and curate their publications at a central location. The service regularly imports publication data from large scientific resource systems which are verified by Göttingen researchers as belonging to them. With assistance from the service, researchers can then create individualized publication lists in discipline-specific citation styles and embed them into external websites in such a way that they are dynamically updated. Additionally, researchers can synchronize their ORCID profile with GRO.publications. GRO.publications is based on the repository software DSpace-CRIS³⁶, which is an extended module of DSpace. The technical release took place in August 2019.

The developments of the service within the reporting period include:

- Frequent Trainings: 14 trainings in the reporting period with a total of 53 participants
- Extended usable entities: now publication lists can be generated for organisations, projects, events and series.
- Integration of GoeScholar: will be finished by October 2021. Upload of full texts is already possible.
- Creation of help wiki including tutorials³⁷
- Some larger imports (e.g. OA-Monitor with ca. 9000 publications, PubMed with ca. 7000 publications). Since April/May 2021 monthly imports from Science and PubMed.
- Improvement of ORCID functionalities.

³⁶ https://wiki.lyrasis.org/display/DSPACECRIS/DSpace-CRIS+Home

³⁷ https://gropublications.wiki.gwdg.de/doku.php?id=startseite

Evaluation

ID	Name	Metric	Cumulative value (01.06.2020)	Reporting year
S-Pub-01	Publications	Number of	62218	21650
	stored	year		
S-Pub-02	Publications	Number of	n/a	n/a
	curated	publications curated		
		per year		
S-Pub-03	Researchers	Number of new	4538	252
	registered	Göttingen Campus		
		researchers registered		
		with the service per		
		year		
S-Pub-04	Researchers	Number of researchers	n/a	n/a
	curated	with >3 curated		
		publications per year		

Table 9: KPIs related to GRO.publications service

Outreach

Intensified Coordination with Göttingen Campus

The Göttingen eResearch Alliance serves the whole Göttingen Campus with all of its partners:

- University of Göttingen
- University Medical Center Göttingen
- Göttingen Academy of Sciences and Humanities
- German Aerospace Center
- German Primate Center
- MPI for Biophysical Chemistry
- MPI for Dynamics and Self-Organization
- MPI of Experimental Medicine
- MPI for Solar System Research
- MPI for the Study of Religious and Ethnic Diversity

Our communication with the team from Göttingen Campus and Public Relations of the University of Göttingen has increased, although the situation of the lockdown was not beneficial. The introduction of the new eRA flyer (see below) has been a huge success. It was presented to our campus partners at an eRA council meeting in spring 2021. Several departments from the university have shown interest to display the flyer at their facilities and include it in information packages for researchers.

Communication concept

The eRA has finished their communication concept including a SWOT analysis of the initial situation, the setting of goals, definition of target groups and key messages and implementation steps. The main goals identified in the concept are:

- Establishing a clearer and proactive communication structure to the in- and outside
- Establish and strengthen confidence in eRA expertise, and relate areas of competency to the research cycle and the research data life cycle
- Present eRA as reliable partner for research and teaching, also in disciplinary contexts or initiatives

We identified the following target groups of the eRA:

- Customers: Researchers, Students, Technical staff, Externals (researchers and students from cooperating institutions and project partners)
- Decision makers: University Presidential board, Management of GWDG and SUB (and UMG), Directors of the Max-Planck-Institutes located in Göttingen
- Administrative level: University Research Department, University Research Data Consultant, Research Deans of the faculties

The unique selling points have more or less been developed at the beginning of the eRA and are considered as still true:

- Demand-driven development, adaptation and expansion of digital services for the campus
- Support for scientists throughout the research cycle
- Structured inter-institutional exchange with multipliers in all disciplines

• Close cooperation between large, central institutions in the field of digital infrastructure at the site

The derived key messages to be transported are the following:

- eRA provides demand-driven development, adaptation and expansion of digital services for the campus
- eRA bridges gaps between infrastructure and research on campus
- eRA builds synergies across disciplinary borders
- eRA helps to close infrastructural gaps
- eRA offers targeted consulting, training and services in the field of eResearch
- eRA supports researchers in all phases of the research process
- eResearch is an integrated component of future-oriented research
- eResearch is a basic element of Data Science

These messages are to be communicated in defined ways through our established communication channels, i.e. our website, e-mail distribution lists, Twitter and RocketChat.

The concept has already been adopted by other partners on campus, and is currently being implemented also with the support of the eRA student helpers.

Website

The current design of the eRA website is online since July 2019, and was created by an external web designer. The website is since is being managed by the eRA team, which includes technical administration such as backups and updates, as well as content items like updating information pages, selecting images and posting news items. While we have received great positive feedback in the past 2 years for the improvement in website usability and scope, we are constantly collecting internal and external suggestions for improvement.

In spring 2021, we signed a support contract with the original web designer that allows for smaller adaptations or features to be implemented rather quickly. The first set of such features has already been commissioned and implemented, and is currently being tested and evaluated. This includes features like automatic ToC generation and placement for our pages, adaptable header image sizes, and other visual improvements. Below you can find some screenshots from the current website.



14/09/2021: eResearch Lab on GRO.data Hereby the Göttingen eResearch Alliance announces the eResearch Lab event: Working with GRO.data -

22/09/2021: Webinar "Making the world a PIDder place"

DataCite, Crossref, ORCID & ROR invite you to the Figure 13: Screenshot of the eRA website start page



15/09/2021: Training the trainers: Data Management and FAIR data principles in university curricula



GWDG mailing lists

The GWDG mailing lists are a web-based service that offers the possibility to communicate with a group of selected internal and external recipients and to manage the member list itself.

What this service offers to you

• The list server ensures that your e-mails are sent to all members registered in Figure 14: Screenshot of the eRA website Spotlight page



Göttingen Research Online is a portal for researchers to central eResearch Services. The first available services are GRO, plan, a tool to support data management plan writing, GRO data, a place to store, edit and publish research data and GRO, publications, a system to manage ones research related publications and create publication lists.



Data management planning tool

Research Data Repository

to simply store ...

GRO.plan is the data management planning tool for the Göttingen Campus. Across all disciplines, research data becomes more and more valuable to ensure valid and reproducible research results. Adressing proper data ...

GRO.data is the general purpose research data repository for the Göttingen Campus. Researchers belonging to Göttingen Campus institutions can use it for free. GRO.data serves various purposes such as:



Access GRO.data

Access GRO.plan



Access GRO.publications

Publication management GRO.publications is a Göttingen Campus service that facilitates modern publication

Figure 15: Screenshot of the eRA website page on Göttingen Research Online

Flyer

In March 2021, the eRA team designed a new flyer to be distributed on campus. We included also testimonials from researchers that recently benefitted from our consultations and services, and then reused these testimonials on our website.

You can find the flyer³⁸, including a visualisation in the folded and unfolded states, and the testimonials³⁹ on our webpages.



Figure 16: Inside view of new eRA flyer in the unfolded state

Social Media (Twitter)

In 2020 May the eRA launched its Twitter channel⁴⁰, which has since been used in addition to the website news and email distribution lists to announce eRA events and other interesting developments regarding eResearch topics. With currently 353 followers, the channel already reaches a wide local, national and international audience.

³⁸ https://www.eresearch.uni-goettingen.de/about/publications/#leaflets

³⁹ https://www.eresearch.uni-goettingen.de/about/user_experience/

⁴⁰ https://twitter.com/GottingeneRA

Evaluation

ID	Name	Metric	2019/2020	2020/2021
O-01	Events	Number of events per year	n/a	n/a
O-02	Publications	Number of Publications per year	6	5
O-03	Website visits	Number of distinguishable website visits per year	n/a	n/a
O-04	Files downloaded	Number of file downloads per year	n/a	n/a
O-05	Website retention	Average duration of stay on website	n/a	n/a
O-06	Tweets published	Number of tweets published in reporting year (cumulative until Jul 31 st , 2021)	n/a	403
O-07	Twitter followers	Number of new Twitter followers in reporting year (cumulative until Jul 31 st , 2021)	n/a	353

Table 10: KPIs related to eRA Outreach activities

3rd Party Funded Projects

In this section, we describe the results of those projects, which are funded 3rd parties like the German ministry for education and research (BMBF), the DFG, or the European Commission.

DIGIS

The DIGIS project aims to build and maintain a German-based Digital Geochemical Data Infrastructure to provide access to up-to-date data archives for the earth science community. Based on the existing GEOROC database (launched in 1999 by the Max-Planck Institute for Chemistry in Mainz), the new DIGIS concept "GEOROC 2.0" will refactor and extend the existing functionalities with end-to-end data mining, DOI integration and an integration with other well-established databases in the field.

The main work packages of the DIGIS project are (in short):

- 1. Provide the GEOROC 2.0 database, as well as a web application for access to the research community, including a workflow for entering and curating new data
- 2. Automatic data mining and/or extraction from papers with natural language processing methods
- 3. Setup of a digital sample archiving system

The first step and current state of the project is the migration of the existing GEOROC data to a state-of-the-art DBMS with a new data-schema optimized for measurement data. The new schema will strongly adhere to the ODM2-standard introduced by Horsburgh et al. (2016), with some deviations arising from domain-specific requirements.

OCR-D

In September 2018, the eRA members SUB and GWDG initiated a DFG-project called "OLA-HD – An OCR-D Long-term archive for historical prints". The goal of OLA-HD was the development of an integrated concept for the long-term archive and persistent identifier (PID) of OCR-Objects as well as a prototype implementation. The project ended in February 2020. Based on the success of this project, the eRA successfully applied for three more grants in the follow-up phase of OCR-D: "OLA-HD Service", "OPERANDI", and "OCR-D Coordination".

SSHOC

In this reporting period the eRA activities in the SSHOC project were again mainly in project's Task 5.2 (improving Dataverse). Additionally, the eRA is also involved in Task 3.4 and helped writing a deliverable that examined the citation practices for data from humanities data archives from different initiatives in Europe.

MINE

The eRA members SUB and GWDG initiated the Project MINE in October 2019. The goal of the project is to make (all) text resources from the Göttingen Campus accessible and available for further research. The MINE product is a complex system architecture that allows to read and convert metadata from the sources and provide a sophisticated search interface. The MINE prototype is available at <u>https://mine-graph.de/</u>.

EOSC

The eRA is active in two EOSC-related projects funded through Horizon 2020: DICE and EOSC Future. In the first project, eRA partner GWDG is responsible for a task related to GRO.identifiers/ePIC PIDs. In EOSC Future, eRA partners SUB and GWDG are responsible for a number of RDM-related tasks.

NFDI

The eRA is involved in five NFDI projects (see also NFDI consultation and participation, p.12): Text+, NDFI4Culture, NFDI4Biodiversity, NFDI4Ing, and NFDI4Earth.

Evaluation

ID	Name	Metric	2019/2020	2020/2021
M-	3rd party	Amount of 3rd party funding raised per	n/a	n/a
01	Funding	year		

Table 11: KPIs related to other eRA activities

Plans for the Next Reporting Period

For the next reporting period from 2021 - 2022 we plan to focus on the following aspects.

Consulting

As the KPIs indicate, the need for consultation has dramatically increased in the last 12 months. These consultations were most exclusively online consultations using either the universities Zoom or BigBlueButton infrastructure. The good experience with these online tools has convinced us that we will explicitly include online consultations as an option in our portfolio as it seems that these types of "first contact" are more attractive for many researchers and prove to be a lower boundary for initial meetings in the future.

Training

As mentioned before, many of our training courses have taken place as online events due to the measures taken against Covid-19. It appears that the online format made it easier and more attractive for researchers to join our courses, as the attendee numbers have significantly increased. Therefore, future training programs will include more online events and we will explore the possibilities of presenting hybrid options even after the pandemic.

Services

The overall aim regarding the development and promotion of eRA services is the implementation and promotion of Göttingen Research Online as a single access point for a number of services related to research data management and eResearch. As of today, all services in the eRA service portfolio are operational with the exception of GRO.instruments, which is not yet broadly advertised, but integrated into the processes of various stakeholder groups.

Strategically, it has been agreed between the Vice-President for Digital Transformation and Infrastructure, Nobert Lossau, and the eRA that it will thoroughly evaluated whether new services will be added to the portfolio as the improvement of the existing services and their increased integration into processes and projects of the Göttingen Campus is currently the top priority.

Therefore, the eRA aims at advertising and promoting the service portfolio within the next 12 months broadly and, in parallel, further improving the existing services portfolio.

Networking/Strategy

Our cooperation with UCSD to implement the eRA concept on their campus have been stopped due to the COVID restrictions. We are positive to pick up with our exchange within the next months.

On the national level we again have been very much involved in the second phase of the NFDI process, in consulting proposals and interest groups that have connections to Göttingen campus. This will continue for the third phase. Additionally, a new excellence initiative will be opened for German universities in 2023. The first preparation meetings for excellence clusters in Göttingen will start to take place in Winter 2021/2022.

Outreach/Communication

As mentioned in the last report, in addition to improved recording and monitoring of the consultation processes, we have started to collect more examples of success stories to better market the consultation services on campus. We are therefore happy to be able to display some of these success stories in our new flyer (see section Outreach). Such success stories will be continuously collected and will be displayed for future outreach activities.

Outreach activities on the Göttingen Campus will be focussed on disciplines and faculties, which are currently underrepresented with respect to consulting, training, and service usage. Moreover, the eRA will increase its activities related to the NFDI, from participation in projects over supporting local project members to contributing to NFDI working groups and task forces.

Appendix A – Members of the eRA Steering Group

- Jan Brase Head Research and Development, SUB
- Mustafa Dogan Deputy Head Digital Library, SUB
- Wolfram Horstmann Director, SUB Göttingen
- Frank Klaproth Head of Digital Library, SUB
- Harald Kusch Member of Medical Informatics Department, UMG
- Jens Nieschulze Research data officer at University of Göttingen
- Birgit Schmidt Head of "Wissen als Gemeingut", SUB
- Arnulf Timm Co-Head of "Informations- und Literaturversorgung Zentrale Erwerbung und Erschließung", SUB
- Philipp Wieder Head of eScience Group, GWDG, and Deputy Head, GWDG
- Ramin Yahyapour Managing Director, GWDG

Appendix B – List of extended KPIs

ID	Name	Area	Service	Metric	Target value	Source of data	Means of acquisition	Туре	Objective
C-01	Consultations	Consulting		Number of consultations per year	> 40 consultations per year (defined based on the mean value for the previous years)	gitlab tickets; List of consultation s	Manual	Target	Ensure sufficient consultation support and available team resources
<i>C-02</i>	Consultations per Discipline	Consulting		Amount of consultations per discipline per year	Distribution should be in line with the expertise of the eRA team members	gitlab tickets; List of consultation s	Manual	Monitoring	Understand required and available expertise w.r.t requirements of different scientific disciplines
<i>C-03</i>	Consultations per Funder	Consulting		Amount of consultations per funder per year	Distribution should be in line with the expertise of the eRA team members	gitlab tickets; List of consultation s	Manual	Monitoring	Understand required and available expertise w.r.t. requirements of particular funders
<i>C-04</i>	Time Consumed per Consultation	Consulting		Amount of time required per consultation	tbd	gitlab tickets; List of consultation s	Manual	Monitoring -> Target	Understand factors and resources required for consultation aspects, and plan adaptations
C-05	Successful proposal consultations	Consulting		Percentage of consultations resulting in funding approval	>50%	gitlab tickets; List of consultation s funders feedback to researchers / Abt.F	Manual	Target	Ensure sufficient team expertise with respect to requirements of particular funders

<i>C-06</i>	Successful other consultations	Consulting	Number of positive feedbacks from researchers	none	Consultatio n feedback	Manual	Monitoring	Understand if eRA meets researchers' expectations and requirements
<i>T-01</i>	Trainings	Training	Number of trainings per year	tbd; All training requests should be fulfilled	gitlab tickets; List of trainings	Manual	Target	Understand training demand and ensure sufficient team resources
<i>T-02</i>	Open training events	Training	Number of open training events per year	>3	gitlab tickets; List of trainings	Manual	Target	Increase visibility on Campus
<i>T-03</i>	Discipline- specific training materials	Training	Percentage of all disciplines covered by specific training material available on website	100%	gitlab tickets; List of trainings	Manual	Target	Understand discipline- specific needs for training material
<i>T-04</i>	Info events	Training	Number of Info events per year	>5	gitlab tickets; List of trainings	Manual	Target	Increase visibility on Campus
<i>T-05</i>	Webinars	Training	Number of online training courses and webinars offered per year	tbd	gitlab tickets; List of trainings	Manual	Monitoring -> Target	Increase visibility on Campus and accessibility of training offers
T-06	Training reception	Training	Overall and specific scores of training evaluation questions	tbd	Training evaluation sheets	Manual/semi- automated evaluation of training sheets	Monitoring -> Target	Understand training needs and quality of current training offers
<i>O-01</i>	Events	Outreach	Number of events per year	> 12 per year (at least one per month on average)	Calendars, emails, planning documents	Manual	Target	Increase visibility outside of Campus
<i>O</i> -02	Publications	Outreach	Number of Publications per year	> 3 (articles, guides, checklist)	Internal list of publications	Manual through team record	Target	Increase visibility outside of Campus

<i>O-03</i>	Website visits	Outreach	Number of distinguishable website visits per year	tbd	Website traffic metrics	Automatic	Monitoring -> Target	Understand visibility of Website
<i>O-04</i>	Files downloaded	Outreach	Number of file downloads per year	tbd	Website traffic metrics	Automatic	Monitoring -> Target	Understand usefulness of website content
<i>O-05</i>	Website retention	Outreach	Average duration of stay on website	tbd	Website traffic metrics	Automatic	Monitoring -> Target	Understand quality of user guidance and website structure
<i>O-06</i>	Tweets published	Outreach	Number of tweets in reporting year	>200	Twitter account	Manual	Monitoring -> Target	Establishing/Maintaining high level of visibility on social networks
<i>O-07</i>	Twitter followers	Outreach	Number of new followers on Twitter in reporting year	>10	Twitter account	Manual	Monitoring -> Target	Establishing/Maintaining high level of visibility on social networks
N-01	Stakeholder Coverage	Networking	Percentage of stakeholders covered (Göttingen Campus partners, faculties of the University of Göttingen, selected individuals)	100%	gitlab tickets; List of consultation s, trainings, and service developmen ts	Manual	Monitoring, later split by discipline or stakeholder type	Understand whether relevant stakeholders have been contacted
N-02	Conference/ Workshop participation	Networking	Number of participations per year	none	List of participation s	Manual through team record	Monitoring	Understand networking efforts
M-01	3rd party Funding	Misc.	Amount of 3rd party funding raised per year	Amount large enough to fulfil existing contracts	Grant agreements	Manual through the administrations of participating partners	Monitoring -> Target	Ensure funding coverage of staff and support mid- term planning of resources

S-Dat- 01	Dataverses stored	Services	GRO.data	Number of dataverses added per year	tbd	Dataverse metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Dat- 02	Datasets stored	Services	GRO.data	Number of datasets added per year	tbd	Dataverse metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Dat- 03	Datasets published	Services	GRO.data	Number of datasets published per year	tbd	Dataverse metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Dat- 04	Files stored	Services	GRO.data	Number of files added per year	tbd	Dataverse metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Dat- 05	Files downloaded	Services	GRO.data	Number of files downloaded per year	tbd	Dataverse metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Dat- 06	Users registered	Services	GRO.data	Number of new users registered per year	tbd	Service logs	Automatic	Monitoring -> Target	Understand the visibility and acceptance of the service and plan actions to improve it
S-Dat- 07	Datasets per user	Services	GRO.data	Median of the number of datasets stored per user	none	Dataverse metrics	Automatic	Monitoring -> Target	Understand the visibility and acceptance of the service and plan actions to improve it
S-Dat- 08	Dataverses categories	Services	GRO.data	Distribution of dataverses over categories	none	Dataverse metrics	Automatic	Monitoring	Understand the suitability of existing categories for searching
S-Dat- 09	Datasets subjects	Services	GRO.data	Distribution of datasets over most common subjects	none	Dataverse metrics	Automatic	Monitoring	Understand the coverage and precision of predefined subjects

S-Dat- 10	GRO.data user support	Services	GRO.data	Amount of time spent per user on supporting researchers	none	gitlab support tickets	Manual	Monitoring	Understand the amount of required resources for user support
S-Dat- 11	GRO.data technical admin	Services	GRO.data	Amount of time spent on maintaining GRO.data service	none	staff estimation	Manual	Monitoring	Understand the amount of required resources for technical administration
S-Idf-01	DOIs	Services	GRO.ident ifiers	Increase in DOIs registered through the DOI Service per year	tbd	Fabrica metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Idf-02	DOI prefixes	Services	GRO.ident ifiers	Increase in DOI prefixes registered through the DOI Service per year	tbd	Fabrica metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Idf-03	ePIC prefixes	Services	GRO.ident ifiers	Increase in prefixes registered through the ePIC PID Service per year	tbd	Service logs	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Idf-04	ePIC PIDs	Services	GRO.ident ifiers	Increase in PIDs registered through the ePIC PID Service per year	tbd	Service logs	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Ins- 01	Registered Facilities	Services	GRO.instr uments	Number of facilities registered per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Ins- 02	Registered Resources	Services	GRO.instr uments	Number of resources registered per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Ins- 03	Researchers registered	Services	GRO.instr uments	Number of new Göttingen Campus researchers	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the visibility and acceptance of the service and plan actions to improve it

				registered with the service per year					
S-Ins- 04	Bookable resources	Services	GRO.instr uments	Percentage of registered resources being available for booking per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the acceptance of and trust in the service and plan actions to improve it
S-Ins- 05	GRO.instrum ents accesses	Services	GRO.instr uments	Number of logins to GRO.instruments per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Ins- 06	GRO.instrum ents user support	Services	GRO.instr uments	Amount of time spent per user on supporting researchers	none	gitlab support tickets	Manual	Monitoring	Understand the amount of required resources for user support
S-Ins- 07	GRO.instrum ents technical admin	Services	GRO.instr uments	Amount of time spent on maintaining GRO.instruments service per year	none	staff estimation	Manual	Monitoring	Understand the amount of required resources for technical administration
S-Pla- 01	Data Management Plans	Services	GRO.plan	Number of data management plans created per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the growth of data management plans and (re-)design the service offer accordingly
S-Pla- 02	GRO.plan users	Services	GRO.plan	Number of new users registered per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Pla- 03	Plans per Funder	Services	GRO.plan	Number of plans created per funder per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand and adapt suitability of service content with respect to requirements of funders
S-Pla- 04	Plans per discipline	Services	GRO.plan	Number of plans created per discipline per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand and adapt suitability of service content according to

									requirements of scientific disciplines
S-Pla- 05	GRO.plan user support	Services	GRO.plan	Amount of time spent per plan on supporting/consulti ng researchers	none	gitlab support tickets	Manual	Monitoring	Understand the amount of required resources for user support
S-Pla- 06	GRO.plan content administratio n	Services	GRO.plan	Amount of time spent on amending GRO.plan service content per year	none	staff estimation / gitlab tickets	Manual	Monitoring	Understand the amount of required resources for content administration
S-Pla- 07	GRO.plan technical admin	Services	GRO.plan	Amount of time spent on maintaining GRO.plan service per year	none	staff estimation	Manual	Monitoring	Understand the amount of required resources for technical administration
S-Pub- 01	Publications stored	Services	GRO.publi cations	Number of publications added per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Pub- 02	Publications curated	Services	GRO.publi cations	Number of publications curated per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Pub- 03	Researchers registered	Services	GRO.publi cations	Number of new Göttingen Campus researchers registered with the service per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and adapt the service offer and promotion
S-Pub- 04	Researchers curated	Services	GRO.publi cations	Number of researchers with >3 curated publications per year	tbd	Service logs/metrics	Automatic	Monitoring -> Target	Understand the usage of the service and ensure sufficient resources for curation

Project Type	Name/number	Discipline(s)	Consultation topics
EXC	2067 (Cramer, Moser, Steinem)	Medicine, Neurosciences	Data platform, Antibody registration
CRC	889 (Moser)	Neurobiology	Data and software management
CRC	990 (Scheu)	Biology, Ecology, Social Sciences	INF: Operation and support, Data repository, Data management
CRC	1002 (Hasenfuß)	Medicine	INF: Data platform, Electronic lab notebook, Antibody registration
CRC	1073 (Јоов)	Material physics	Data management
CRC	1190 (Rehling)	Medicine	INF: Data platform, Electronic lab notebook, Antibody registration
CRC	1286 (Rizzoli)	Neurosciences	INF: Requirements engineering, Establishment of data exchange platform
CRC	1456 (Hohage)	Mathematics	Data management, Data policy
CRC	1528 (Gail)	Neurosciences, Psychology	INF: Data pool, Data management
CRC	proposal (Vollmer)	Social Sciences	Data management
CRC	proposal (Bürkert?, Sustainable Rurbanity)	Social Sciences	Data management
CRC	proposal (Ammer)	Forest Ecology	Data management
CRC	proposal (Kneib)	Statistics, Data Science	Data management
CRC	proposal (Abels/Vöhringer)	Humanities	Data management
CRC	proposal (Ackermann)	Chemistry	Data management
TRR	274 (Simons/Flügel)	Neurobiology	Provision of data platform including support
iRTG	2172 (Feussner)	Plant Sciences	Data management
RTG	2636 (Zeiljstra)	Linguistics	Data management
RTG	2300 (Ammer)	Forestry	Data management
RTG	2455 (Mata)	Chemistry	Data management, Consultation for data publication platform, Data policy

Appendix C – Consulting of Large-Scale DFG Projects

RTG	initiative (Blomer)	Mathematics	Data management
RU	2064 (Zgoll)	Philology, History	Data management, Data platform, High Performance Computing
RU	2432 (Cramon- Taubadel)	Social sciences, Ecology	Data management, data exchange platform
RU	2705 (Fiala)	Zoology	Data management
RU	2800 (Bastians)	Medicine, Oncology	Data management
RU	2848 (Jakobs)	Medicine, Neurology	Data management
RU	initiative (Gierl)	Humanities	Data management, Workshops and Training
RU	initiative (Vollmer)	Economics	Data management, data policy
RU	5022 (Wiesemann)	Medical ethics, Philosophy	Data management
CRU	5002 (Ellenrieder)	Medicine, Biology	Data management
CRU	initiative (Staiger)	Medicine, Biology	Data management

Appendix D – Publications

Articles

- Dierkes, Jens: "Planung, Beschreibung und Dokumentation von Forschungsdaten". In: Praxishandbuch Forschungsdatenmanagement. Berlin, Boston: De Gruyter Saur, 2021, S. 303-325. doi:10.1515/9783110657807-018
- Engelhardt, Claudia; Kusch, Harald: "Kollaboratives Arbeiten mit Daten ". In: Praxishandbuch Forschungsdatenmanagement. Berlin, Boston: De Gruyter Saur, 2021, S. 451-476. doi:10.1515/9783110657807-025
- Király, Péter; Brase, Jan: "Qualitätsmanagement". In: Praxishandbuch Forschungsdatenmanagement. Berlin, Boston: De Gruyter Saur, 2021, S. 357–380. doi:10.1515/9783110657807-020
- Strauch-Davey, A.: (Open) Research Data Publications. Dataverse und GRO.data f
 ür Forschungsdatenpublikationen. In b.i.t.online 4/2021. https://www.b-i-t-online.de/heft/2021-04-forschungsdaten.pdf

Reports

 Steilen, Lena: Göttingen Research Online - A Portal for Central Data Related Services, in: GWDG Nachrichten (07-08/2020), S. 4-6. (<u>https://www.gwdg.de/documents/20182/27257/GN_7-8-2020_www.pdf</u>)

Appendix E – Acronyms and Abbreviations

AAC	Anglo-American Culture
AAI	Authorization and Authentication Infrastructure
AG	Arbeitsgruppe (Working group)
API	Application Programming Interface
BMBF	Bundesministerium für Bildung und Forschung (Federal Ministry of Education and Research)
CDSTAR	Common Data Storage Architecture
CESSDA	Consortium of European Social Science Data Archives
CIDAS	Campus Institute Data Science
CLARIAH-DE	Joint Services of CLARIN-D and DARIAH-DE
CLARIN	Common Language Resources and Technology Infrastructure
CODATA	Committee on Data of the International Council for Science
CRC	DFG Collaborative Research Center
CRIS	Current Research Information System
CRU	DFG Clinical Research Unit, equivalent to KFOR - Klinische Forschungsgruppe
DARIAH	Digital Research Infrastructure for the Arts and Humanities
DBMS	Database Management System
DCC	Digital Curation Centre
DFG	Deutsche Forschungsgemeinschaft (German Science Foundation)
DFN	Deutsches Forschungsnetz (German National Research and Education Network)
DIGIS	Digital Geochemistry Infrastructure
DOI	Digital Object Identifier
ELN	Electronic Laboratory Notebook
EOSC	European Open Science Cloud

ePIC	Persistent Identifiers for eResearch
eRA	Göttingen eResearch Alliance
ERC	European Research Council
EUDAT	European Data Infrastructure
FAIR	Findable, Accessible, Interoperable, Reusable
FID	Forschungsinformationsdienst
FOR	Forschungsgruppe, equivalent to RU - research unit
GEOROC	Geochemistry of Rocks of the Oceans and Continents
GeTS	Göttingen eResearch Toolbox Series
GFBio	German Federation for Biological Data
GIS	Geoinformation system
GRAcE	Göttingen Research Data Exploratory
GRO	Göttingen Research Online
GWDG	Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen
HeKKSaGOn	Foundation of a German-Japanese University Consortium
IDF	International DOI foundation
INF	Subproject in CRCs for Information Infrastructure
ISO	International Organization for Standardization (https://www.iso.org/home.html)
KPI	Key Performance Indicator
MoU	Memorandum of Understanding
MPI	Max-Planck-Institute
MWK	Niedersächsisches Ministerium für Wissenschaft und Kultur (Lower Saxony Ministry for Science and Culture)
NFDI	Nationale Forschungsdateninfrastruktur (National research data infrastructure)
NOAD	National Open Access Desk (OpenAIRE)

OCR	Optical Character Recognition
ODM2	Observations Data Model 2
ORCID	Open Researcher and Contributor ID
PI	Principle Investigator
PID	Persistent Identifier
RDA	Research Data Alliance
RDD	Research and Development Department at SUB
RDM	Research data management
RDMO	Research Data Management Organizer
ROR	Research Organization Registry
RTG	DFG Research training group
RU	DFG Research unit, equivalent to FOR - Forschungsgruppe
SSHOC	Social Sciences and Humanities Open Cloud
SSO	Single sign-on
SUB	Niedersächsische Staats- und Universitätsbibliothek (Göttingen State and University Library)
TDM	Tool data management
ТоС	Table of Content
TRR	Transregio (Transregional CRC)
UMG	University Medical Center Göttingen
UCSD	University of California San Diego
UI	User interface