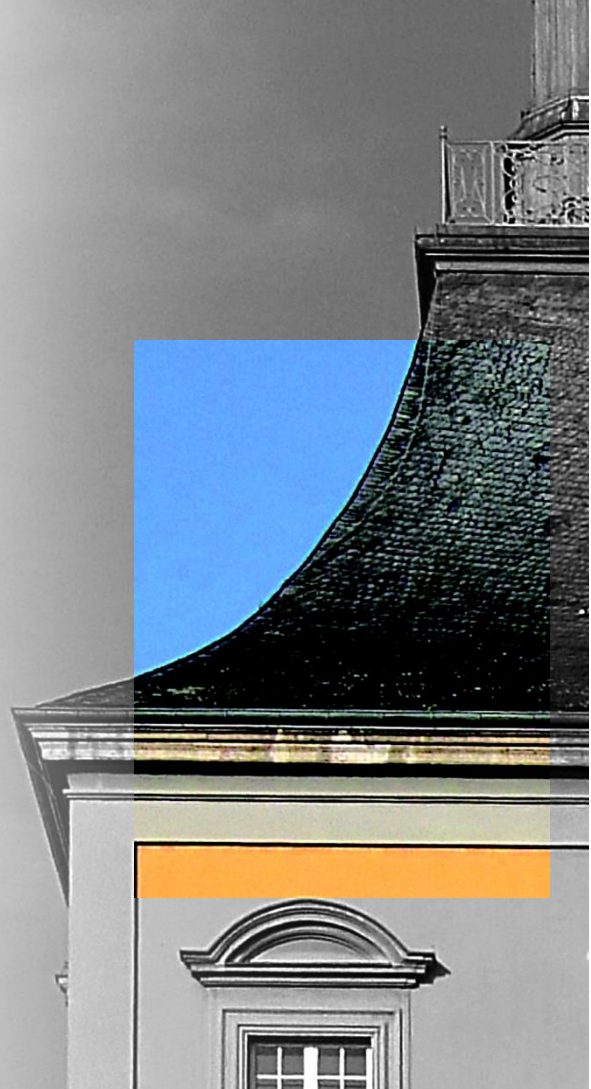
UNIVERSITÄT BONN

SERVICESTELLE FORSCHUNGSDATEN

RESEARCH DATA MANAGEMENT AT BONN UNIVERSITY

WORKSHOP: STRATEGIES FOR DATA SCIENCE AND DATA MANAGEMENT



17.01.2023

HOCHSCHUL RECHENZENTRUM

UNIVERSITÄTS- UND LANDESBIBLIOTHEK BONN

Brickset @ flickr (CC BY-2.0)
Jozefm84 @ pixabay
BRICK 101 @ flickr (CC BY NC 2.0)

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Pascal @ wikimedia (CC BY 2.0)

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Morgan Edwards
@mangoedwards

I can't send you the original data because I don't remember what my excel file names mean anymore #overlyhonestmethods

https://twitter.com/mangoedwards/status/288694359451389953

M.K. Lioness
@mkat816

There would've been data from a 3rd trial if SOMEBODY hadn't erased the flashdrive so they could bring Serenity to work #overlyhonestmethods

https://twitter.com/mkat816/status/289078957893107712

Dr. Adriana Heguy
@AdrianaHeguy

The data have been deposited in a public database. Nobody can sort it out anyway. #overlyhonestmethods

https://twitter.com/AdrianaHeguy/status/288703898158518273

Philipp Bayer
@PhilippBayer

Data was analysed using in-house Perl-scripts. They are terrible and possibly wrong so please don't ask for them. #overlyhonestmethods

https://twitter.com/PhilippBayer/status/288538682032545792

www_slon_pics @ pixabay

Joe Mario @ Flickr (CC BY NC 2.0)

ethan john @ flickr, CC BY NC ND 2.0

Katie Walker @ flickr, CC BY SA 2.0

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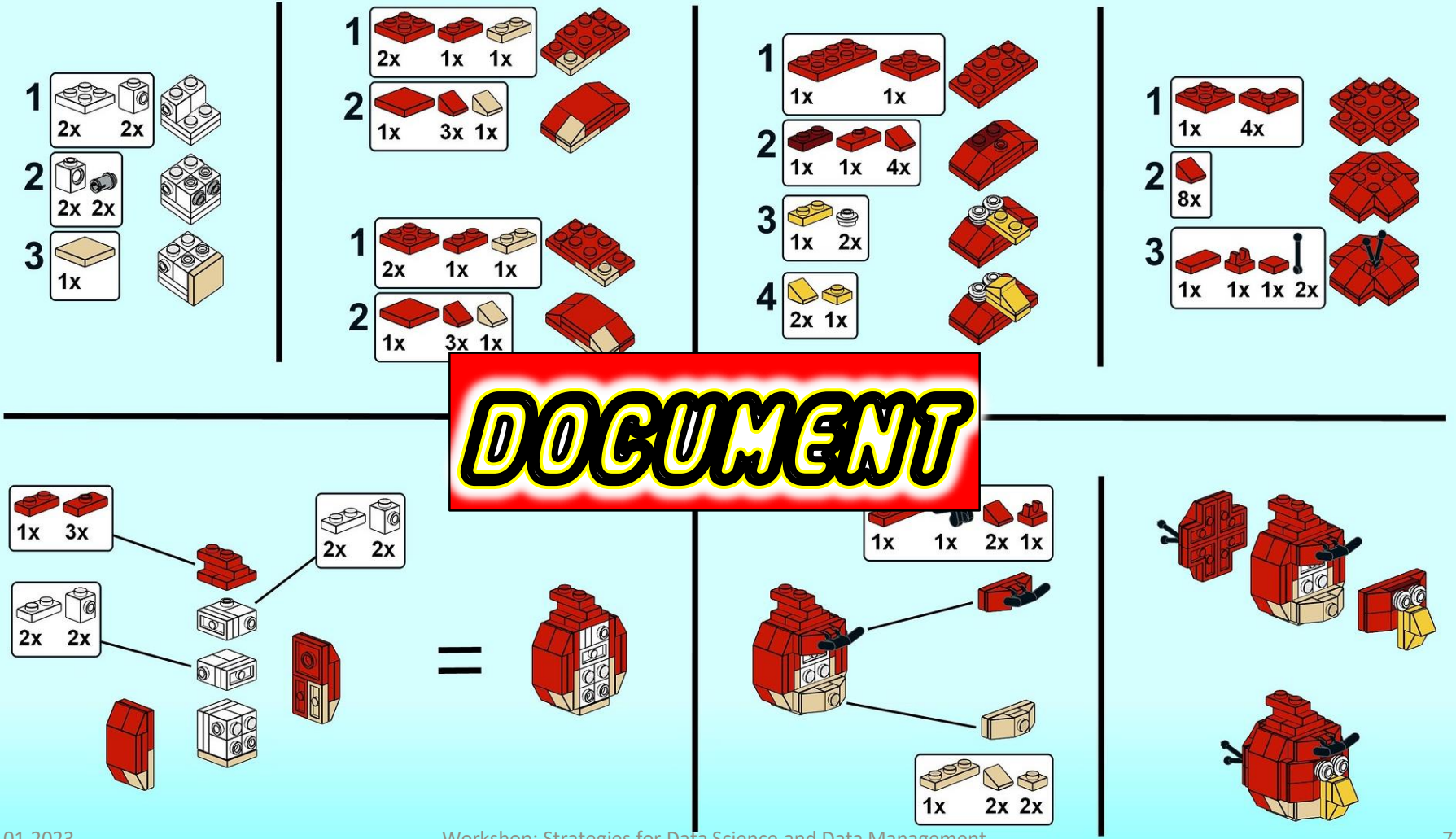
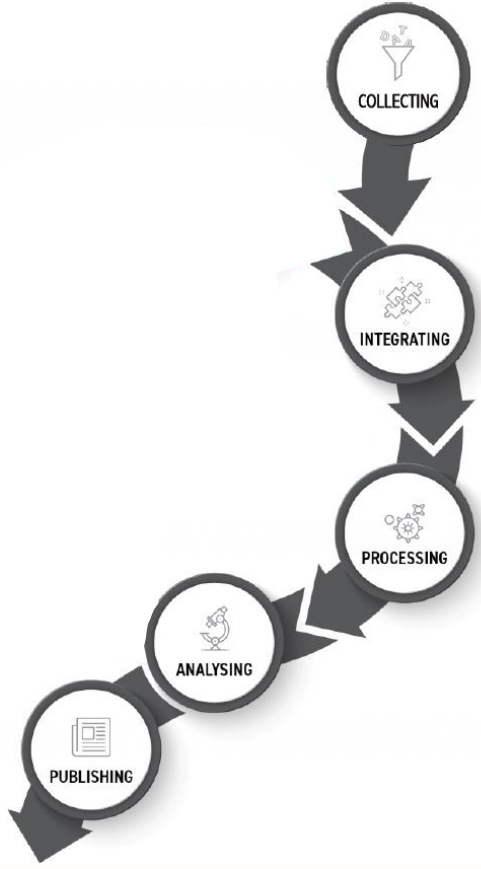


Ochre Jekky @ flickr (CC BY NC SA 2.0)

Ambo100 @ flickr (CC BY 2.0)

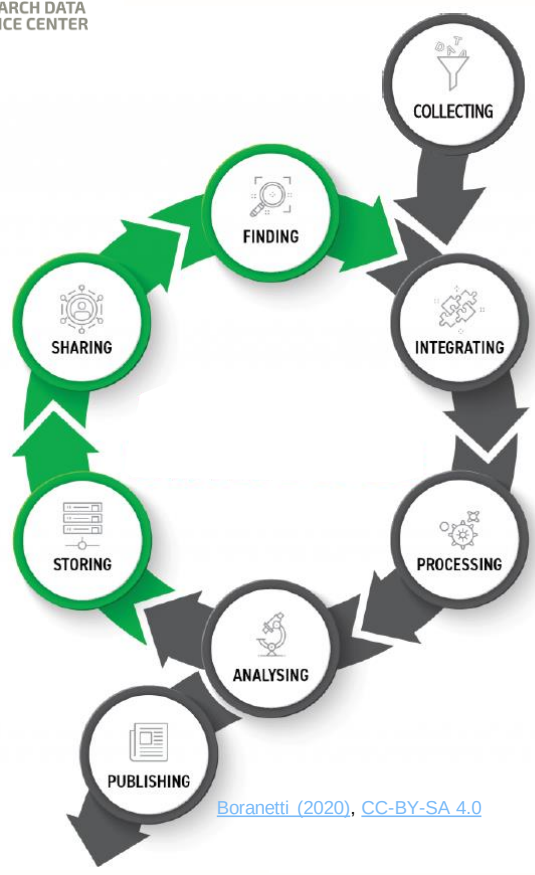
RESEARCH DATA MANAGEMENT



Research Data Management is the care and maintenance of the data that is used or produced during the course of a research project.

RESEARCH DATA MANAGEMENT

data reuse

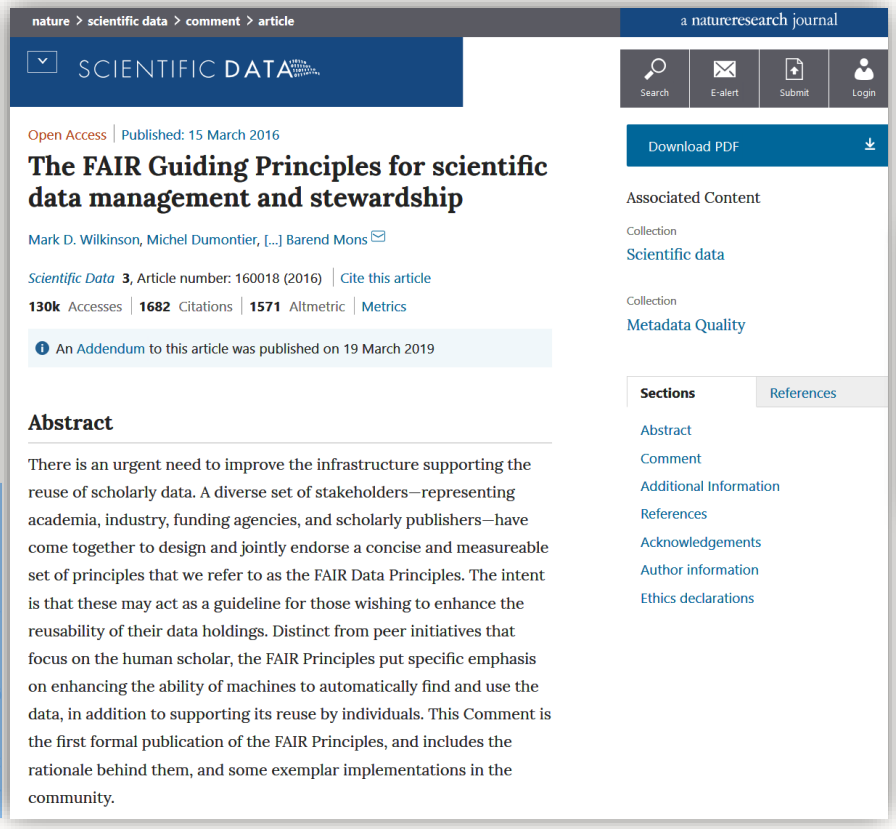


Boranetti (2020), CC-BY-SA 4.0

Research Data Management is the care and maintenance of the data that is used or produced during the course of a research project and beyond.

Hippopx (CC0)

FAIR DATA PRINCIPLES



nature > scientific data > comment > article

a natureresearch journal

SCIENTIFIC DATA

Search | E-alert | Submit | Login

Open Access | Published: 15 March 2016

The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier, [...] Barend Mons

Scientific Data **3**, Article number: 160018 (2016) | Cite this article

130k Accesses | **1682** Citations | **1571** Altmetric | Metrics

An Addendum to this article was published on 19 March 2019

Abstract

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data. A diverse set of stakeholders—representing academia, industry, funding agencies, and scholarly publishers—have come together to design and jointly endorse a concise and measureable set of principles that we refer to as the FAIR Data Principles. The intent is that these may act as a guideline for those wishing to enhance the reusability of their data holdings. Distinct from peer initiatives that focus on the human scholar, the FAIR Principles put specific emphasis on enhancing the ability of machines to automatically find and use the data, in addition to supporting its reuse by individuals. This Comment is the first formal publication of the FAIR Principles, and includes the rationale behind them, and some exemplar implementations in the community.

Download PDF

Associated Content

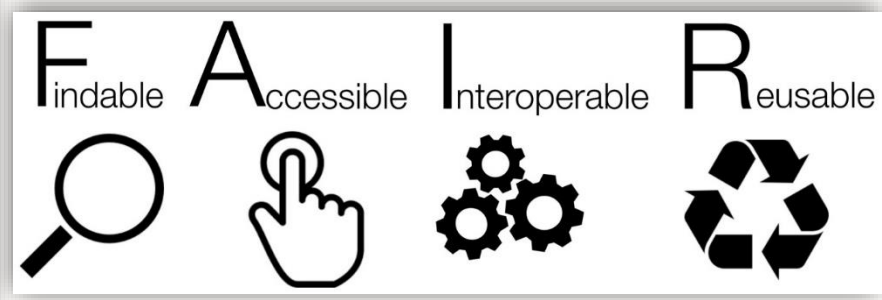
Collection
Scientific data

Collection
Metadata Quality

Sections | References

- Abstract
- Comment
- Additional Information
- References
- Acknowledgements
- Author information
- Ethics declarations

https://doi.org/10.1038/sdata.2016.18



Pundir, Sangya. https://commons.wikimedia.org/wiki/File:FAIR_data_principles.jpg, CC-BY-SA-4.0

FAIR DATA PRINCIPLES

- **Findable**
  Metadata; indexed in search engines, stable adresses (Persistent IDentifier (PID))
- **Accessible**
  as permanent and browser-based as possible; clearly defined restrictions
- **Interoperable**
  whenever possible open formats and standards for data and metadata
- **Reusable**
  open and clear licenses and documentation

Further reading: https://www.go-fair.org/fair-principles/

Scriberia (CC-BY) https://doi.org/10.5281/zenodo.3332807

https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en

European Commission

OPEN SCIENCE

Open Science is a system change allowing for better science through open and collaborative ways of producing and sharing knowledge and data, as early as possible in the research process, and for communicating and sharing results. This new approach affects research institutions and science practices by bringing about new ways of funding, evaluating and rewarding researchers. Open Science increases the quality and impact of science by fostering reproducibility and interdisciplinarity. It makes science more efficient through better sharing of resources, more reliable through better verification and more responsive to society's needs.

The eight ambitions of Open Science

Open science policy has developed progressively in the EU. It concerns all aspects of the research cycle, from scientific discovery and scientific review to research assessment, publishing and outreach; its cornerstone being open access to publications and research data. Since 2016, the Commission organises its open science policy according to eight 'ambitions':

- Open Data: FAIR (Findable, Accessible, Interoperable and Re-usable data) and open data sharing should become the default for the results of EU-funded scientific research.
- European Open Science Cloud (EOSC): a 'federated ecosystem of research data infrastructures' will allow the scientific community to share and process publicly funded research results and data across borders and scientific domains.
- New Generation Metrics: New indicators must be developed to complement the conventional indicators for research quality and impact, so as to do justice to open science practices.
- Future of scholarly communication: all peer-reviewed scientific publications should be freely accessible, and the early sharing of different kinds of research outputs should be encouraged.
- Rewards: research career evaluation systems should fully acknowledge open science activities.
- Research integrity: all publicly funded research in the EU should adhere to commonly agreed standards of research integrity.
- Education and skills: all scientists in Europe should have the necessary skills and support to apply open science research routines and practices.
- Citizen science: the general public should be able to make significant contributions and be recognised as valid European science knowledge producers.

https://research-and-innovation.ec.europa.eu/system/files/2019-12/ec_rtd_factsheet-open-science_2019.pdf

G6 statement on Open Science

Brussels, December 2021

EXCELLENT RESEARCH NEEDS OPEN SCIENCE

The growing momentum for Open Science is in line with our mission to foster research excellence and to accelerate the advancement of science. Open Science principles and approaches were developed from within the scientific community itself, out of genuine self-interest and to further develop key scientific principles - the transparency of research practises, reproducibility of results, and the sharing of knowledge. By opening up publications, data, processes, codes, methods and protocols, it also offers new ways for scientific practices. G6, as Research Performing Organizations (RPO), are committed to excellence in research and Open Science is definitely a good approach to foster excellent research.

G6 institutions actively support the transition to Open Science. This transition requires a concerted effort to reform cultural and technological practices. G6 institutions intend to contribute to this transition by jointly addressing the following priorities:

OPEN ACCESS PUBLICATIONS

Open Access to scientific publications is a cornerstone in the broader field of Open Science. We are committed to accelerating the transition to Open Access as the default mode of academic publishing. Open Access to publications improves the pace, efficiency and efficacy of research, and strengthens the authors' visibility, and thus the potential impact of their work.

Reaching 100% of Open Access is a main goal for all of our institutions but researchers cannot freely share and build on the results they publish if publishers hold copyrights of their articles and monographs. Therefore, we are committed to support our researchers to retain sufficient rights to publish their scholarly articles and monographs openly and we encourage them to publish their results (i.e. final version and/or manuscript) under an open license, preferably the Creative Commons Attribution License CC BY.

FAIR DATA

We share a common commitment to the principle of making research data "as open as possible and as closed as necessary". A balanced and flexible approach to data sharing is essential for an efficient science, research and innovation ecosystem, fostering collaboration, knowledge transfer and preserving scientific freedom.

Our institutions are committed to the sharing of data as guided by the FAIR principles (Findable, Accessible, Interoperable, Reusable). Applying FAIR criteria will guarantee discovery, access and reuse of research outputs by humans and machines. Because the cost of not having FAIR data for research is high, strict adherence to FAIR principles to ensure sustainability of research data and software as well as data preservation are major challenges.

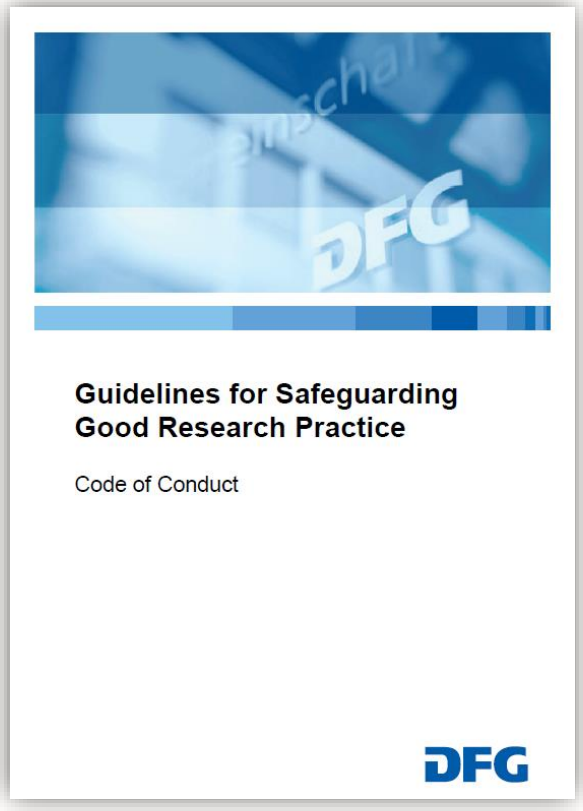
https://os.helmholtz.de/assets/open_science/Downloads/G6_statement_on_Open_Science.pdf

Open Science as Part of Research Culture

Positioning of the German Research Foundation

https://doi.org/10.5281/zenodo.7194537

GOOD RESEARCH PRACTICE (DFG)



Deutsche Forschungsgemeinschaft. (2019). Guidelines for Safeguarding Good Research Practice. Code of Conduct. http://doi.org/10.5281/zenodo.3923602

Koalitionsvertrag der Bundesregierung

Forschungsdatengesetz für Zugang zu Forschungsdaten Forschung

FUNDER REQUIREMENTS

German Research Foundation (DFG)

- Checklist: Handling of Research Data (PDF)
- Statements on RDM and FAIR compliance mandatory (see also: Handling of Research Data, Subject-specific Recommendations on the Handling of Research Data, Research Integrity)

Federal Ministry of Education and Research (BMBF)

- Action Plan for Research Data (2019, German only)
- Statements on RDM and FAIR compliance mandatory in future; datails in calls for proposals

European Commission (Horizon Europe)

- strong commitment to Open Science im programme (pp 37)
- Statements on RDM and FAIR compliance mandatory; Data management plan until six months after project start (see also Open Research Data and Data Management Plans)

Further ino: forschungsdaten.info: Funder Guidelines and RDM Requirements

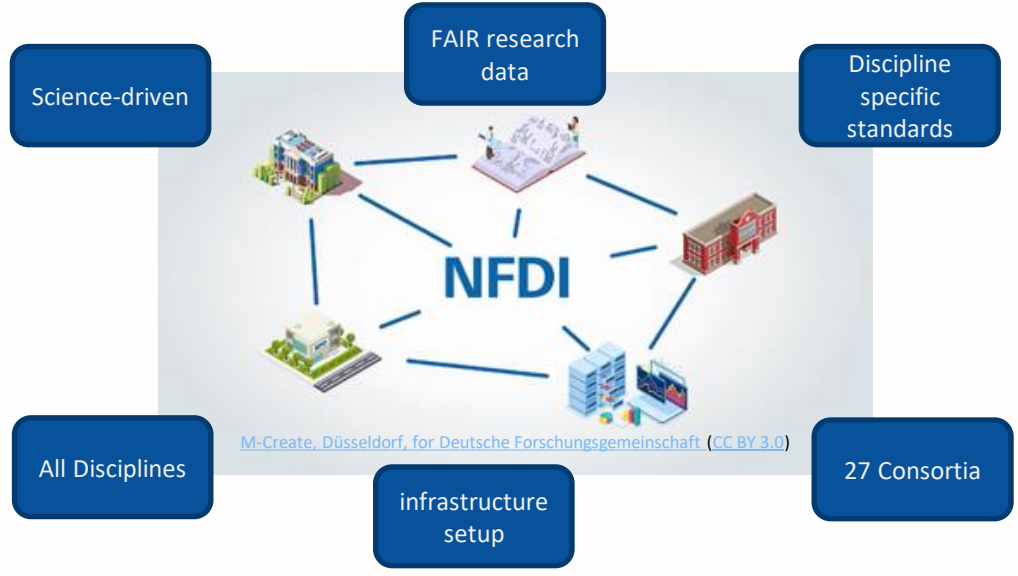
NATIONAL RESEARCH DATA INFRASTRUCTURE (NFDI)

Gemeinsame Wissenschaftskonferenz GWK

Rat für Informations Infrastrukturen

DFG Deutsche Forschungsgemeinschaft German Research Foundation

GEFÖRDERT VOM Bundesministerium für Bildung und Forschung



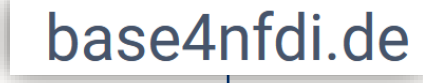
M-Create, Düsseldorf, for Deutsche Forschungsgemeinschaft (CC BY 3.0)

Edited from: Rißler-Pipka (2020)

NFDI- CONSORTIA

Social Sciences

Humanities



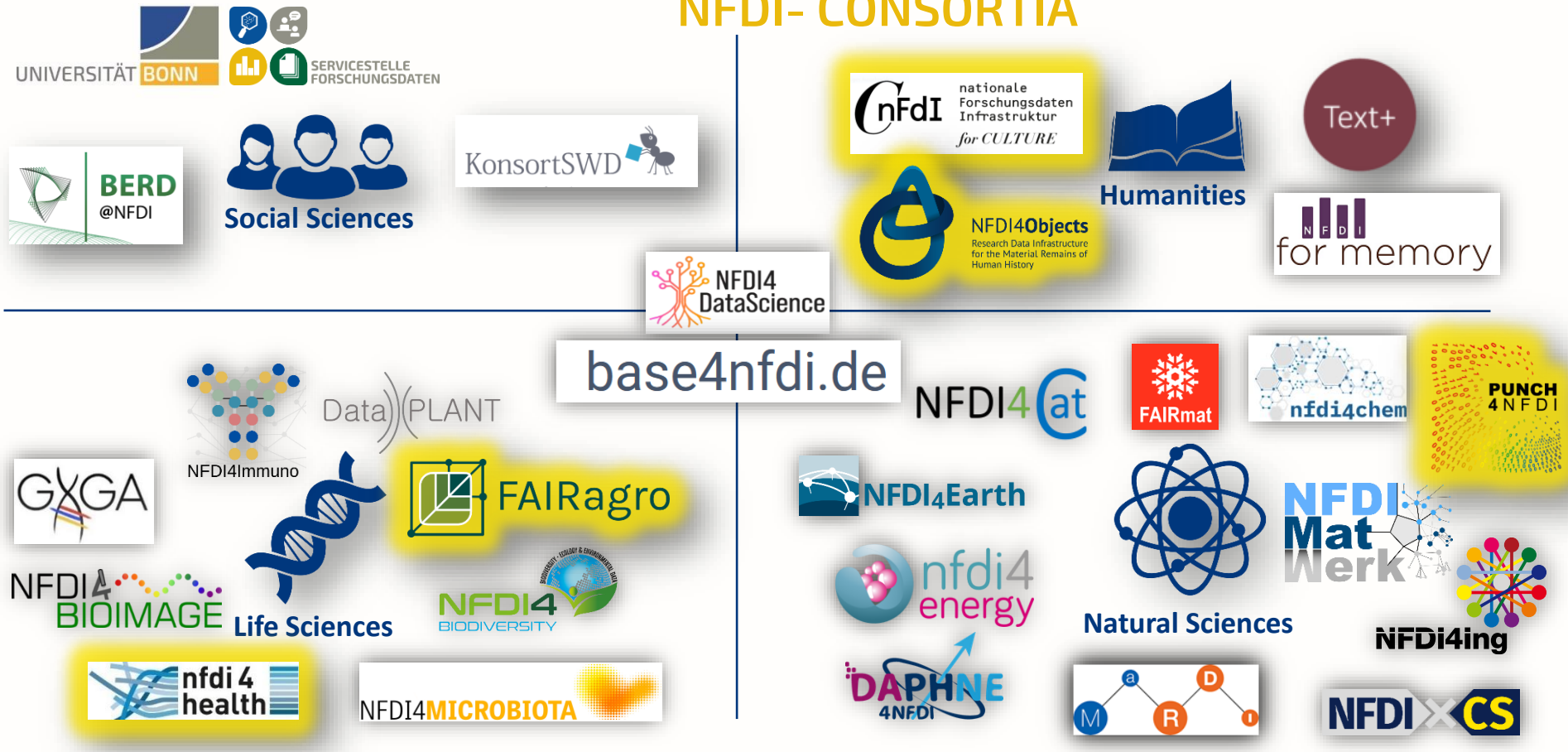
Life Sciences

Natural Sciences

NFDI4ing

Further Info: https://www.forschungsdaten.uni-bonn.de/en/fdm/nfdi/

NFDI- CONSORTIA

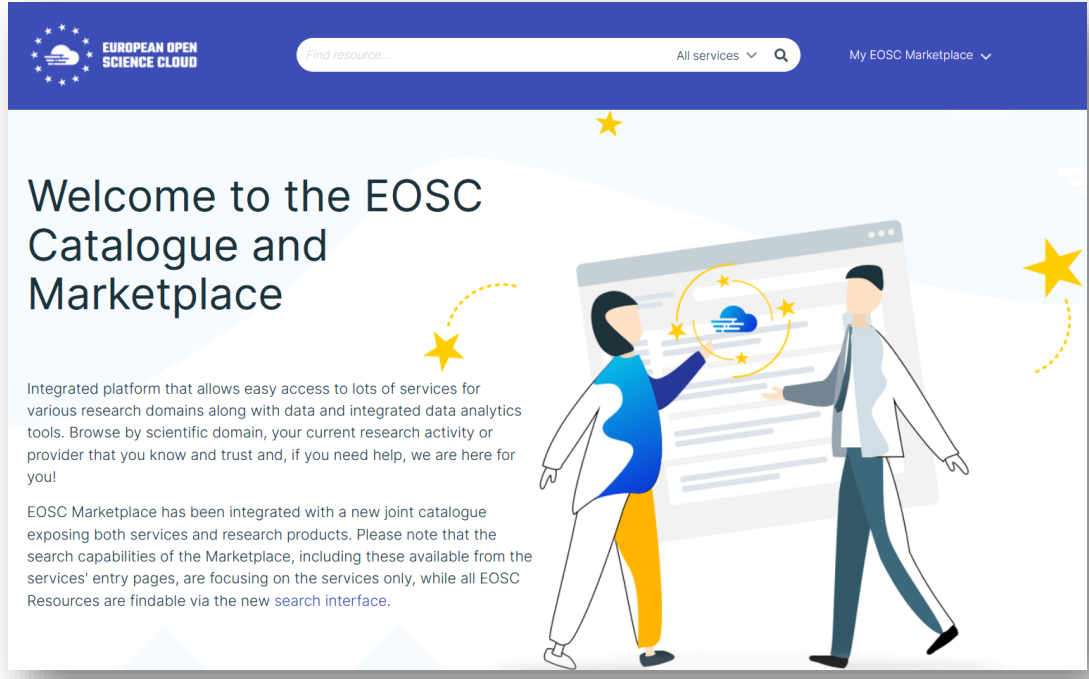


Further Info: https://www.forschungsdaten.uni-bonn.de/en/fdm/nfdi/

EUROPEAN OPEN SCIENCE CLOUD (EOSC)

EUROPEAN OPEN SCIENCE CLOUD

- Funded by the European Commission
- “an environment for hosting and processing research data to support EU science”
- “EOSC ultimately aims to develop a Web of FAIR Data and services”
- EU-wide Catalogue of Services and Resources



Further info: https://eosc-portal.eu/

RDM LANDSCAPE

communities & initiatives

regional networks

national infrastructures

resources & tutorials

RDM - A PRACTICAL CHALLENGE

structure

manage

plan

archive

publish

choose

document

prepare

https://www.maxpixels.net/Business-Multitasking-Office-Man-Businessman-1633667 Max Pixel, License: CC0
https://www.maxpixels.net/Regulation-Chaos-Traffic-Sign-Chaos-Theory-485493 Max Pixel, License: CCO

RESEARCH DATA SERVICE CENTER

- Founded: March 2019
- Located at the IT Center and Library
- Cooperation with Research Support and the Legal Department
- Mission: RDM-support for all researchers of the University of Bonn
  - Consultations
  - Workshops & Training Events
  - IT Basic Support Services

https://www.forschungsdaten.uni-bonn.de/en

RESEARCH DATA SERVICE CENTER TEAM

Dr. Christian Bittner

Dr. Ewa Elizabeth Bres

Berker Yüce

Dr. Tobias Kulschewski

Dr. Sergej Zerr

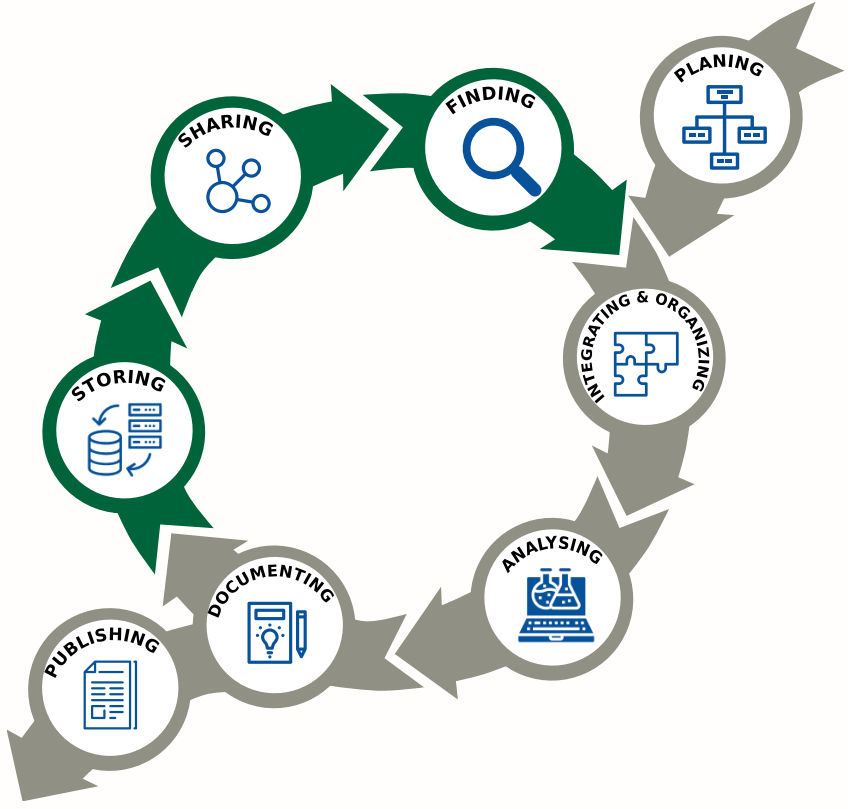
Henning Achterrath

Dr. Daniel Rudolf

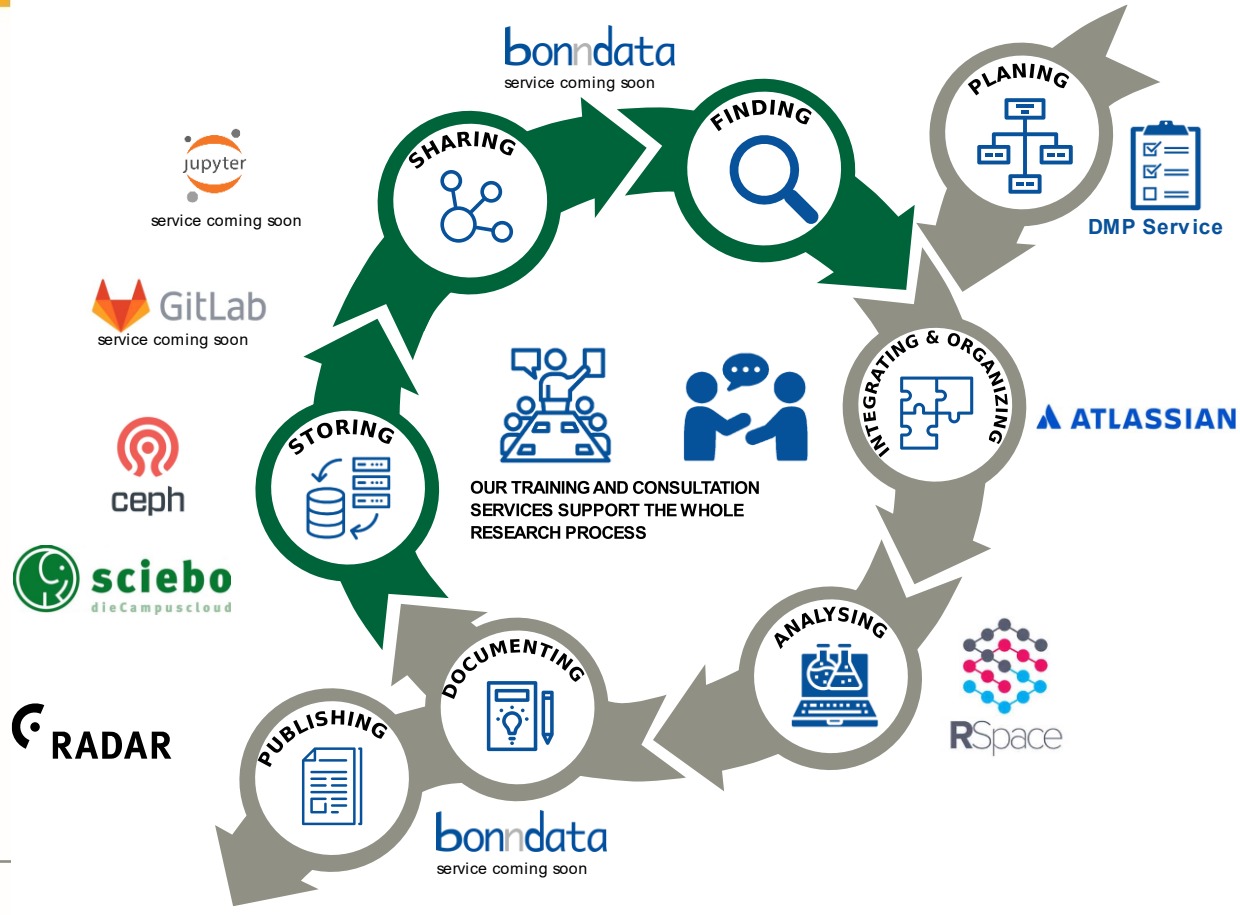
Stefanie Läpke

Dr. Ben Stöver

SUPPORT THROUGHOUT THE RESEARCH PROCESS



SERVICE-PORTFOLIO



RDM-CONSULTATION

open consultation concept:

- single point of contact (researchdata@uni-bonn.de)
- Service oriented
- university-wide target groups

Teewara soontorn from the Noun Project

https://www.forschungsdaten.uni-bonn.de/en/services/beratung

CONSULTING – EXAMPLES

Strategic cooperation

I am Research Manager at the [redacted] Cluster of Excellence at the University of Bonn. The **topic of research data** has (fortunately) gained enormous importance in the last two years. [...]I would be happy if we could exchange views on this sometime.

Collaborative project

DMPs / funding proposals

For my ERC funded project, I have to create a **data management plan** in the next 6 months. I would be very thankful for your help.

Immunology

Data publication

I have just been informed of the possibility of making my result data stored in the Supplementary Material permanently accessible via RADAR.

Nutrition Science

Data organisation

...I am mainly interested in the systematic storage of my maps and pictures.

History

Storage solutions

For a cooperation project we need a platform on which our group can **store and share** the research data files for the duration of the project.

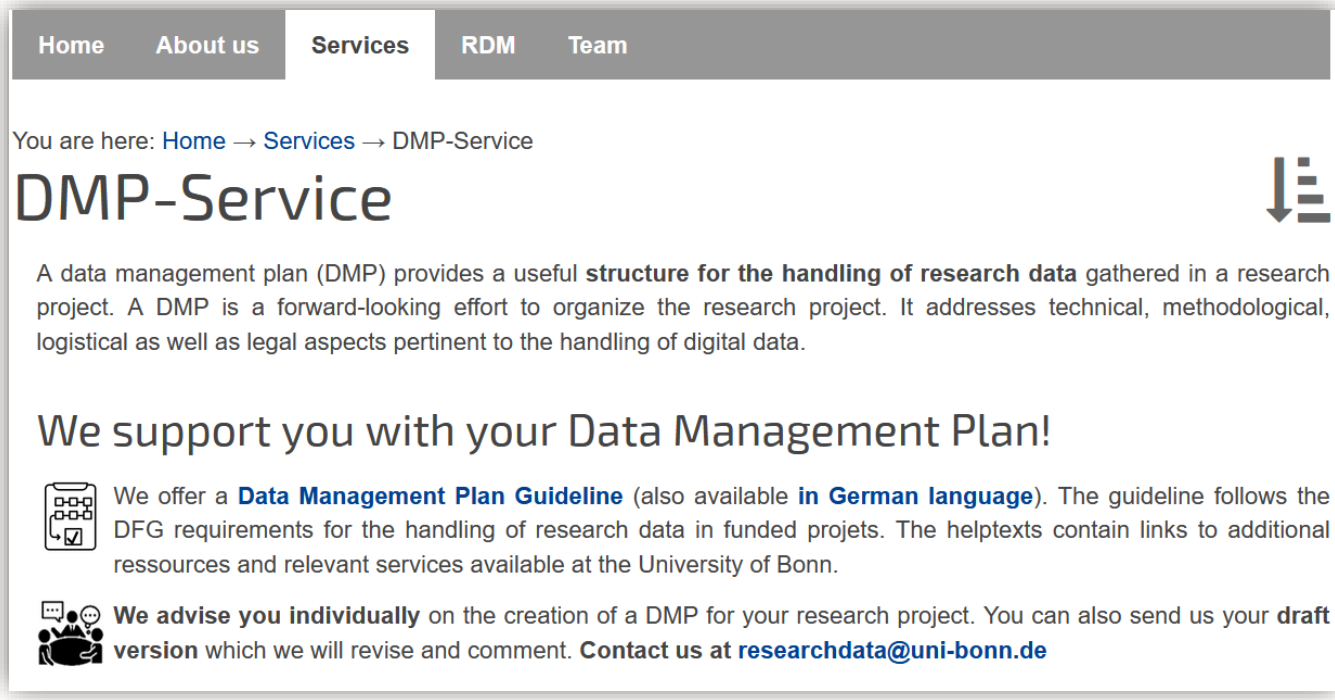
Chemistry

Legal issues

Specifically, I have questions in the area of data protection and data security, so that my research data management meets the requirements of the school board conforms.

Educational Research

APPLICATION SUPPORT



Home | About us | Services | RDM | Team

You are here: Home → Services → DMP-Service

DMP-Service

A data management plan (DMP) provides a useful **structure for the handling of research data** gathered in a research project. A DMP is a forward-looking effort to organize the research project. It addresses technical, methodological, logistical as well as legal aspects pertinent to the handling of digital data.

We support you with your Data Management Plan!

We offer a **Data Management Plan Guideline** (also available **in German language**). The guideline follows the DFG requirements for the handling of research data in funded projets. The helptexts contain links to additional ressources and relevant services available at the University of Bonn.

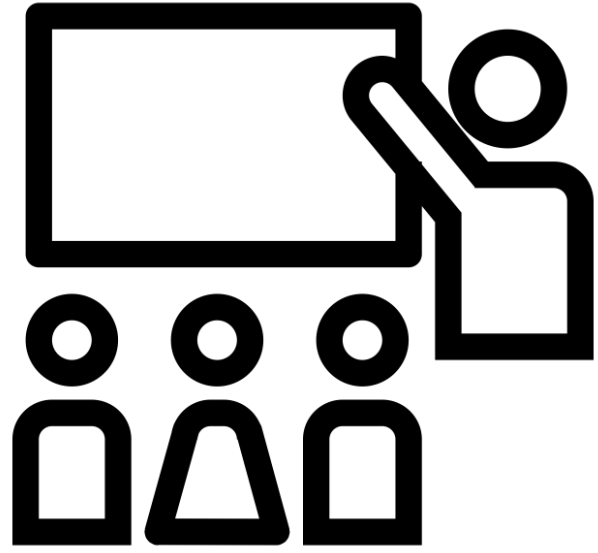
We advise you individually on the creation of a DMP for your research project. You can also send us your **draft version** which we will revise and comment. **Contact us at researchdata@uni-bonn.de**

https://www.forschungsdaten.uni-bonn.de/en/services/dmp

RDM-TRAININGS

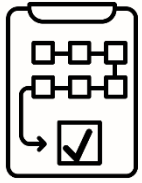
Training formats:

- RDM overview
- Topic specific
- Disciplne specific
- Target group specific



https://www.forschungsdaten.uni-bonn.de/en/services/schulungen

RDM – A CRASH COURSE AGENDA



09:00-09:40	**I RDM-Introduction**	
Break		
09:45-11:45	**II RDM in Project Planning**	- RDM Requirements - Data Management Plans - Finding Research Data - Legal Aspects
Lunch Break		
12:45-14:35	**III FDM in Project Execution**	- Organising Research Data - Storage & Safety - Documenting Research Data
Break		
14:45-15:55	**IV RDM in Project Completion**	- Publishing Research Data - Archiving Research Data
15:55-16:00	Check out & Conclusion	

https://www.forschungsdaten.uni-bonn.de/en/services/schulungen

OPEN ACCESS SERVICE CENTER
RESEARCH DATA SERVICE CENTER
26.10.2022 FAIR data for everybody! Guidelines for reusable data.
Speaker: Dr. C. Bittner, ULB
30.11.2022 Publishing at any cost?: Fraudulent (predatory) publishers – what you need to know.
Speaker: Dr. D. Rudolf, ULB
21.12.2022 „I know what your lab will publish next summer“ Privacy aspects in reseach.
Speaker: Dr. S. Zerr, HRZ
25.01.2023 Bad science DIY? – cherry picking, p-hacking & co.
Speaker: Dr. E.E. Bres, ULB
22.02.2023 Hosting your own server or service using UniVM.
Speaker: Dr. Ben Stöver, HRZ
29.03.2023 „Yes, you can re-use my stuff, but there are some conditions!“ – Open Licenses for Open Science.
Speaker: tba, ULB
OPEN SCIENCE COFFEE LECTURES
AT 12:30
10 MIN PRESENTATION
NO REGISTRATION REQUIRED
ONLINE VIA ZOOM
https://www.open-access.uni-bonn.de/de/events/open-science-coffee-lectures
HRZ HOCHSCHUL-RECHENZENTRUM
UNIVERSITÄTS- UND LANDESBIBLIOTHEK

UNIVERSITÄT BONN

SERVICESTELLE FORSCHUNGSDATEN

Thank you!

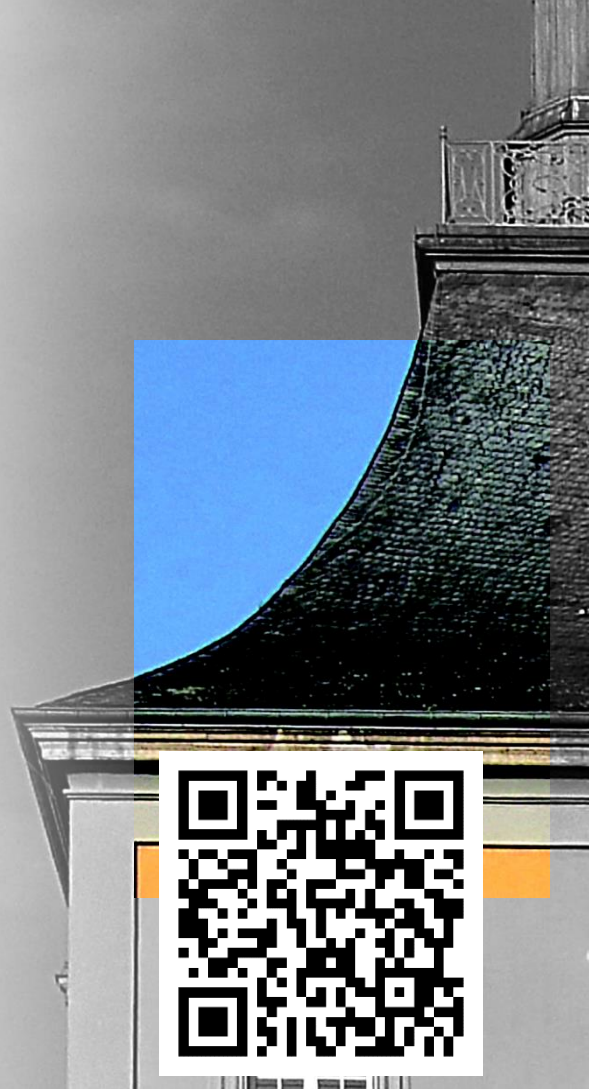
RESEARCH DATA MANAGEMENT AT BONN UNIVERSITY

17.01.2023

Website: https://www.forschungsdaten.uni-bonn.de/en

Contact reseachdata@uni-bonn.de

Christian Bittner

HOCHSCHUL RECHENZENTRUM

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