Vision & Mission
More and more research results are achieved by using already existing research data.

see FAIR principles: https://doi.org/10.1038/sdata.2016.18
However, **significant efforts** are still required for **finding** the right data set, **understand** it and **use** it for the purpose at hand.

see FAIR principles: [https://doi.org/10.1038/sdata.2016.18](https://doi.org/10.1038/sdata.2016.18)
“Stand on the shoulders of giants”

Research data sets
Empower research and offer new perspectives to society, nature and life in general.

Today
Decentral, project-financed and often only temporarily stored data collection.

Figure (Southern Germany, approx. 1410)
Mission statement

• The #NFDI is a living network of active partners …
• who jointly share goals, values and …
• an aspiration for high quality, that …
• in a dialog with and according to the needs of science …
• deliver research infrastructure services.
Vision

Research data sets are FAIR*.
For all**. Forever***.

* Findable, Accessible, Interoperable, Reusable
** Depending on data access categories.
*** Alice: „How long is forever?“
     White rabbit: „Sometimes, just one second.“
From F to R
Example for FAIRification

#NFDI_de
The „F“ in FAIR

„Findable
The first step in (re)using data is to find them. Metadata and data should be easy to find for both humans and computers. Machine-readable metadata are essential for automatic discovery of datasets and services, so this is an essential component of the FAIRification process.

F1. (Meta)data are assigned a globally unique and persistent identifier
F2. Data are described with rich metadata (defined by R1 below)
F3. Metadata clearly and explicitly include the identifier of the data they describe
F4. (Meta)data are registered or indexed in a searchable resource ...

Source: https://www.go-fair.org/fair-principles/
In 2010 GESIS founded da\(\text{ra}\) – Registry Agency for Social and Economic Data

- The European Values Study (EVS) received the first PID from da\(\text{ra}\)
- Cooperation with ZBW and DataCite

http://www.da-ra.de
The idea was simple:

- Assign DOIs and rich metadata ...
- to make the data set „citable“

Examples:

The idea was simple:
- Assign DOIs and rich metadata
- ... to make the data set „citable“
- ... and findable

Source: [https://www.da-ra.de/](https://www.da-ra.de/)
#NFDI_de

Registry Agency for Social and Economic Data

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Poghosyan, Gevorg - Institute of Philosophy, Sociology and Law, Armenian National Academy of Sciences, Yerevan, Armenia  
Kritzinger, Sylvia - Department of Government, University of Vienna, Vienna, Austria  
Rotman, David - The Center of Sociological and Political Research, Belarus State University, Minsk, Belarus |

Thanks to the great team!
... actually, da|ra addressed also the remaining letters of FAIR:

- **A1.** (Meta)data are retrievable by their identifier using a standardised communications protocol
- **A2.** Metadata are accessible, even when the data are no longer available
- **I1.** (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- **I2.** (Meta)data use vocabularies that follow FAIR principles
- **I3.** (Meta)data include qualified references to other (meta)data
- **R1.** (Meta)data are richly described with a plurality of accurate and relevant attributes

Source: [https://www.go-fair.org/fair-principles/](https://www.go-fair.org/fair-principles/)
#NFDI_de

Registry Agency for Social and Economic Data

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Rotman, David - The Center of Sociological and Political Research, Belarus State University, Minsk, Belarus |

• The effect has since been pervasive:
  • research data sets quickly became “findable” in search engines
  • … without additional efforts

Source: https://www.google.com/ (... in ~2012)
da|ra
Registry Agency for Social and Economic Data

- in operation since 2010
- supported by two DFG grants (THANKS!)
- evolved into da|ra Consortium in 2020
  - AUSSDA, AHRI, AfM, Banco de Portugal, bibb BZgA, WZB, ZOBIS, DIPF, DIW Berlin, DJI, DZA, Deutsche Bundesbank, DeZIM, FELU, bifie, gesis, fdz.DZHW, RatSWD, DIE, SWP, lifu, HSRC, HS Wirtschaft Berlin, IAB, INDEPTH, IQB, IREE, IWH, IOS, UB Mannheim, EKKE, destatis, RKI, RWI, FDZ BOD, SHARE, SOEP, SRDA, SASD, SocialData Network, ADP, SAMRC, ifbq, FFZG, WVS, ZBW, ZEW, ZPID, CSDA, ihi

- ... and part of the NFDI via KonsortSWD

Source: https://www.konsortswd.de
From F to R
Two recent examples
The COVID-19 Open Research Dataset (CORD-19) is a growing resource of scientific papers on COVID-19 and related historical coronavirus research. CORD-19 is designed to facilitate the development of text mining and information retrieval systems over its rich collection of metadata and structured full text papers. Since its release, CORD-19 has been downloaded over 200K times and has served as the basis of many COVID-19 text mining and discovery systems.

CORD-19 The Covid-19 Open Research Dataset


#NFDI_de
Machine Learning: explosion of papers

DBLP: search for „neural network“ (Wednesday, Feb 24th, 2021, 5:28h)

#NFDI_de
DBLP: search for „neural network“
(Wednesday, Feb 24th, 2021, 5:28h)

 Likely matches

- Neural Networks
- International Conference on Artificial Neural Networks and Machine Learning (ICANN)
  also: International Conference on Artificial Neural Networks
- International Symposium on Neural Networks (ISNN)
- IEEE Transactions on Neural Networks and Learning Systems
  also: IEEE Transactions on Neural Networks
- The European Symposium on Artificial Neural Networks (ESANN)

All 22 matches

- Artificial Neural Networks (ANN)
- Artificial Neural Networks and Expert Systems (ANNES)
- Artificial Neural Networks and Intelligent Information Processing (ANIIIP)
  also: Artificial Neural Networks (ANNs)
- Brazilian Symposium on Neural Networks (SBRN)
- Conference on Artificial Neural Networks in Medicine and Biology (ANNIMAB)
DBLP: search for „neural network“
(Wednesday, Feb 24th, 2021, 5:28h)

found 100,545 matches

- Alireza M. Javid:
  **Neural Network Architecture Design: Towards Low-complexity and Scalable Solutions.** Royal Institute of Technology, Stockholm, Sweden, 2021

- Jan Melchior:
  **On the importance of centering in artificial neural networks.** Ruhr University Bochum, Germany, 2021

- Thai-Son Nguyen:
  **High Performance Neural Networks for Online Speech Recognizer.** Karlsruhe Institute of Technology, Germany, 2021

- Michael Zgurovsky, Victor Sinegazov, Elena Chumachenko:

- Abdulaziz Aldeheishem, Mubbasha Anwar, Nadeem Javaid, Nabil Ali Alhejri, Muhammad Shafiq, Hasan Ahmed:
  **Towards Sustainable Energy Efficiency With Intelligent Electricity Distribution Networks.** 2021 IEEE Energy Conversion Congress and Exposition (ECCE), 2021

- Tingwen Huang (225)
- Patricia Melin (212)
- Jun Wang (211)
- Zhigang Zeng (205)
- Huaguang Zhang (149)
- Witold Pedrycz (146)
- Zhanshan Wang (139)
- Yoshua Bengio (136)
- Chuandong Li (126)

115,105 more options
DBLP: search for „neural network“
(Wednesday, Feb 24th, 2021, 5:28h)
Making Neural Networks FAIR

Source code, models, training data sets

Source: https://arxiv.org/abs/1907.11569
Making Neural Networks FAIR
Source code, models, training data sets

Source: https://arxiv.org/abs/1907.11569
Overview
NFDI is funded by the German federation and all federal states.

NFDI receives ~900 MEUR for a period of 10 years.

NFDI consists of a coordinated network of (up to) 30 consortia.
Review and selection of consortia

- **DFG - Deutsche Forschungsgemeinschaft** hosts the reviewing of consortia proposals
- ... large number of independant reviewers involved in reviews

- **Recommended**: two videos provided by DFG
  
  „*What is the NFDI*“:
  
  [https://www.youtube.com/watch?v=x3Cvn1vNQ98&feature=youtu.be](https://www.youtube.com/watch?v=x3Cvn1vNQ98&feature=youtu.be)

  „*The NFDI review process*“:
  
  [https://www.youtube.com/watch?v=XTzwPwMAqHM&feature=youtu.be](https://www.youtube.com/watch?v=XTzwPwMAqHM&feature=youtu.be)
Consortia
... from the first round

Consortia
- DataPlant
- GHGA
- KonsortSWD
- NFDI4BioDiversity
- NFDI4Cat
- NFDI4Chem
- NFDI4Culture
- NFDI4Health
- NFDI4Ing

Some numbers:
- Round 1 (out of 3 rounds)
- 9 consortia (out of 30 consortia)
- ~100 (co-)applicant organisations
- ~150 (co-)spokespersons
- ~270 further participants
It’s the network, stupid!

NFDI brings together people coming from:

• Research and Research Infrastructure

NFDI is covering organisations, as of today (i.e. round 1), coming from:

• (few|many|all) German States
• (few|many|all) Research Disciplines
• (few|many|all) Universities
• (few|many|all) Research Organisations (Fraunhofer, Helmholtz, Leibniz, Max-Planck)
• ... and many other related research organisations
Commercial Director: Eva Lübke
01.10.2020
Founding assembly of NFDI e. V.
12.10.2020 in Hannover, Germany
Information infrastructure

- Website (incl. overview of open jobs)
  - https://www.nfdi.de/
- Community pages:
  - https://twitter.com/NFDI_de
  - https://de.linkedin.com/company/nfdi-de
  - https://zenodo.org/communities/nfdi/
- Mailing lists, Rocket.Chat, ...
- Host frequent meetings: spokespersons, coordinators, ...
Nationale Forschungsdateninfrastruktur (NFDI)
Status & next steps

Q4-2020:
- Funding for consortia starts
- Foundation of association NFDI e.V.
- „Baton change“ from FIZ Karlsruhe/KIT
- Entry at association register
- First meetings of some organs
- Start of work in consortia
- First workshops with EOSC, GAIA-X, ...
- EOSC membership application (foreseen to be „mandated member“)
Status & next steps

Q1/2-2021: Transfer of holdings into association
Establish organs of the association
Grow team of directorate
Establish links to EOSC and GAIA-X

Q3/4-2021: Onboarding of Round 2

2022: Onboarding of Round 3

2025: Evaluation by Wissenschaftsrat
There is one last thing ...
Tell us your data story

• Did you successfully solve an interdisciplinary research question?
• Did you successfully (re-)use data sets?
• Did your work benefit from data sets of another community?
Tell us your data story

- Did you successfully solve an *interdisciplinary research question*?
- Did you successfully *(re-)*use data sets?
- Did your work benefit from *data sets of another community*?

If any of the answers is YES:

Please share your research data story!

#RDatastory

#NFDIrocks
Tell us your data story

• Did you successfully solve an interdisciplinary research question?
• Did you successfully (re-)use data sets from different research communities?

If any of the answers is YES:
Please share your data story!
#RDatastory
#NFDIrocks
WE ♡ DATA

NFDI Team:
(Source: nfdi.de)
Questions?

We are looking forward to the next steps of RDA and NFDI!