



Section
Education & Training

Certificate Infrastructure
Working Group Charter

April 2022

Working Group Charter

Certificate Infrastructures

Version 1.0

Date: 22.04.2022

Contact (persons)

RWTH Aachen University

Sonja Herres-Pawlis sonja.herres-pawlis@ac.rwth-aachen.de

Jochen Ortmeyer jochen.ortmeyer@ac.rwth-aachen.de

TU Darmstadt

Peter Pelz Peter.Pelz@fst.tu-darmstadt.de

Authors

Katarina Blask, ZPID

Kathrin Behrens, GESIS

Anja Perry, GESIS

Benjamin Slowig, Landesinitiative fdm.nrw

Birte Lindstädt, ZB MED

Mario Moser, WZL der RWTH Aachen

Konrad Förstner, ZB MED

Carsten Keßler, Hochschule Bochum

Sonja Herres-Pawlis, RWTH Aachen University

Daniel Tschink, GFBio e.V.

Peter Pelz, TU Darmstadt

Jochen Ortmeyer, RWTH Aachen University

1. Motivation

In recent years, the amount of freely available material for self-training in research data management and data literacy, as well as corresponding training programs, has increased enormously. At the same time, the need for qualifying persons creating these research objects is constantly growing. In order to ensure the education and training of these persons - including data managers, data stewards, or simply researchers sharing and using research data - according to standardized structures and comprehensible processes, it seems reasonable for nfdi to create a framework for the corresponding competence acquisition. Certification courses offer an ideal opportunity here for two reasons in particular: first, following the DFG guidelines for safeguarding good research practice (DFG, 2019), they create transparency for all stakeholders involved in the data curation lifecycle regarding discipline-specific as well as non-specific competencies. Secondly, the seal of the NFDI is a measure of quality assurance via the teaching of precisely those competencies.

2. Objectives

- Sustainable competence development in FAIR research and research data management
- Proof of competence in the changing work environment of scientific research, specifically working with research data
- Certification courses as standardization and creation of transparency about RDM-competencies, e.g. for data managers/stewards or researchers
- Strengthening the NFDI as a national/international RDM-competence provider
- Establishment of the NFDI as a “seal of quality”

3. Description of the needs addressed by this potential service on NFDI consortia

The increasing demand of data stewards and data scientists on the one hand and the limited resources at the universities and research institutions on the other hand, encourage the need for a national and standardized educational infrastructure for data stewards and data scientists. In order to efficiently and systematically educate and train data stewards and data scientists, certificate courses will be established and standardized by the NFDI e.V. The conception of the certificate courses considers three important aspects:

- (1) This certificate courses will take into account potential roles of data stewards based on several studies,¹ because one person probably can't cover all the tasks expected to be fulfilled: the more policy concentrated person who develops guidelines and policies. A person focused on research, advises academic staff, who are simultaneously identified as data producers and users, and ensures that data are handled in accordance with established policies. The Data Steward with a focus on infrastructure determines infrastructure and tools requirements and aligns those requirements with RDM solutions. This involves close collaboration with IT experts. A fourth role concentrates on soft and communication skills in the sense of an "agent of change".
- (2) The conception of the certificate courses will also consider the needs of the NFDI consortia for discipline specific aspects of RDM in the different disciplines. Although the focus has to be on the generic topics in the basic service, e.g. via best practice examples from the disciplines or optional modules for respective disciplines the concept can involve the more subject specific topics.
- (3) There are different target groups to pay attention to (a) in the sense of qualification level (bachelor, master degrees, PhD students, postdocs and researcher in academia and industry) and (b) the current occupational field people working in: infrastructure like libraries, IT- or media-centers or researchers educated in a special discipline.

4. State of the art for this potential service

Currently, only very few offers in terms of research data management (RDM) certificate courses are available in Germany. The certificate course RDM designed and conducted by the ZBWI of the TH Köln, fdm.nrw and ZB MED - Information Centre for Life Sciences² is a 10 month long course consisting of numerous modules with a broad spectrum of RDM related topics. Furthermore, some Universities established programs and formats for educating data stewards and data scientists and to teach young researchers the fundamentals of modern research data management and data literacy. These programs, such as the Data Train program at the University Bremen, the DataX program at the Leuphana University or the RDM educational program at the University Kiel, combine the fundamentals of RDM with knowledge in handling data in their particular fields. Internationally the organization "The Carpentries" provides a large set of materials as part of its three lesson programs (Software

¹ Lorna Wildgaard, Evgenios Vlachos, Lars Nondal, Asger Væring Larsen, und Michael Svendsen. „National Coordination of Data Steward Education in Denmark: Final Report to the National Forum for Research Data Management (DM Forum)“. Zenodo, 31. Januar 2020.
<https://doi.org/10.5281/zenodo.3609516>.

Salome Scholtens, Mijke Jetten, Jasmin Böhmer, Christine Staiger, Inge Slouwerhof, Marije van der Geest, und Celia W.G. van Gelder. „Final Report: Towards FAIR Data Steward as Profession for the Lifesciences. Report of a ZonMw Funded Collaborative Approach Built on Existing Expertise“. Zenodo, 3. Oktober 2019.
<https://doi.org/10.5281/zenodo.3474789>.

² https://www.th-koeln.de/weiterbildung/zertifikatskurs-forschungsdatenmanagement_82048.php

Carpentry, Data Carpentry and Library Carpentry) including an evidence-based teaching methodology plus an established train-the-trainer system. While these training common format of “The Carpentries” are usually 2-day-long workshops, a certificate course could build upon the content and methodology.

5. Overall strategy for the possible service with regard to the following stages

5.1 Service initialisation strategy

In dialogue with partner institutions of NFDI and federal initiatives which have already developed and established educational programs for data stewards and data scientists such as the certificate course RDM mentioned above, a detailed survey about the curricular content and training material will be carried out. The design of the certificate course framework will build upon that survey to compile information of the need from all communities / consortia in the NFDI. The aim is to construct a flexible framework for the implementation of certificate courses that provides quality control and offer community specific adaptations.

5.2 Service integration strategy

The access and range of existing programs is very restricted due to the limited resources at the institutions. In order to implement a nation-wide, standardized certificate, we need to identify similarities between existing programs related to discipline-independent topics in RDM and data literacy. On that basis, we will be able to design a scalable, modularized course program for different target groups (e.g. data stewards, data scientists) and different educational levels (e.g. Master, PhD). The modularity facilitates flexibility of the service as the focus and teaching content can be adapted to meet future needs and perspectives of the target audience such as lecturers and instructors, data producers, users, libraries, IT- and media-centers or researchers. Further, the scalability ensures that specific needs from single institutions up to the requirements of federal states or national regulations can be met.

5.3 Ramping strategy for service operation

The development of teaching materials and modules is based on the experiences from existing programs and the identification of current needs. In order to establish a state-of-the-art educational program, a survey has to be conducted for identifying current needs in the community. Further, a task force “NFDI certification” will be established that consists of stakeholder and experts from the consortia. The results of the survey and the task force expertise represent the basis for identifying and developing training materials and curricula. In the long term, the target is to form a certification concept building on the modules. The concept incorporates interdisciplinary modules, teaching the basics of RDM as well as discipline-specific modules that can be adapted and evolve to future needs.

6. Initial Membership List

(At least 6 members from different institutions and at least 6 consortia)

	Name	Institution	NFDI consortia
1	<i>Katarina Blask</i>	<i>ZPID</i>	<i>KonsortSWD</i>
2	<i>Kathrin Behrens</i>	<i>GESIS</i>	<i>KonsortSWD</i>
3	<i>Anja Perry</i>	<i>GESIS</i>	<i>KonsortSWD</i>
4	<i>Benjamin Slowig</i>	<i>Landesinitiative fdm.nrw</i>	<i>(Zertifikatskurs FDM in NRW)</i>
5	<i>Birte Lindstädt</i>	<i>ZB MED</i>	<i>NFDI4Health, NFDI4Microbiota, FAIRagro</i>
6	<i>Mario Moser</i>	<i>WZL der RWTH Aachen</i>	<i>NFDI4Ing</i>
7	<i>Konrad Förstner</i>	<i>ZB MED</i>	<i>NFDI4Microbiota</i>
8	<i>Carsten Keßler</i>	<i>Hochschule Bochum</i>	<i>NFDI4Earth</i>
9	<i>Sonja Herres-Pawlis</i>	<i>RWTH Aachen</i>	<i>NFDI4Chem</i>
10	<i>Daniel Tschink</i>	<i>GFBio e.V.</i>	<i>NFDI4Biodiversity</i>