

**Working title:**

Support structures to facilitate the dissemination and implementation of a national standard for research information – the German case of the Research Core Dataset

**Abstract:**

The German science and higher education system is characterized by federalism, multi-level governance and interwoven regulatory competences of different levels of government. Establishing binding standards and harmonized policies for German higher education institutions (HEIs) and non-university research institutions is a complex task that requires concerted action and co-operation between the federal and state governments. In this context, the German science council (short for German Council of Science and Humanities) – an advisory body for the German federal and state governments – develops and publishes recommendations on how to advance the German science system and to deal with current challenges and policy needs.

One aspect of system-wide political relevance concerns the regulation and use of research information (RI) for different purposes (e.g. for informed decision-making or evaluation). RI comprises information to describe research processes and output, such as data on research staff, projects, publications, patents etc. Until 2016 there were not any nationwide regulations or standards for RI. The gathering and processing of these data in the German science system are often ad-hoc (related to a special occasion), context-specific, non-reproducible and not comparable over different research institutions or types of research institutions (HEIs or non-university research institutions). Research institutions collect and process these data for different external and internal recipients, such as e.g. statistical offices, funding organizations, accreditation agencies or institutional boards and committees, and purposes, such as e.g. reporting (e.g. periodical reports, controlling, internal evaluations) or public relations and outreach (institutional websites, rankings etc.).

The German science council recognized the need for RI standards in order

- to reduce the efforts in research institutions related to the repeated gathering and processing of similar information for different purposes and recipients,
- to create an incentive for optimized institutional processing of research information (through appropriate organizational and technical solutions, e.g. through the introduction current research information systems) and
- to enhance the quality and informative value of research information.

For this reason, the science council issued recommendations in 2013 (German Council of Science and Humanities, 2013) that called for the specification of the so-called research core dataset (RCD) – a set of standard definitions and concepts as well as data formats for research information with a focus on (academic) staff, young researchers, third-party funded projects, patents and spin-offs, publications and research infrastructures. In addition, the document outlined the procedures and workflows as well as the guiding principles for the elaboration of the standard. The recommendations of the science council guided the subsequent standardization project, which was funded by the German Ministry of Education and Research and co-ordinated by the Institute for Research Information and Quality Assurance (Biesenbender & Hornbostel, 2016a). In 2016, the German Science Council published the results of the standardization project, i.e. the RCD specification and recommended its (voluntary) implementation (Biesenbender & Hornbostel, 2016b; German Council of Science and Humanities, 2016).

Full implementation of the RCD standard requires changes by not only by research institutions (as the owners of the data) but also by information requesting organizations (such as statistical offices, funding organizations or accreditation agencies etc.). Implementation of the RCD standard hinges on the one hand on research institutions modifying the collection and processing of institutional research

information according to the standard specification and on the other hand on information requesting organizations aligning their information requests with the RCD standard.

Being a voluntary standard and due to the lack of bindingness, the standard's success is ultimately dependent on its acceptance in the German science system. In other words, willingness to implement depends on the applicability and flexibility of the RCD to meet actual information and reporting needs. Thus, both –data providers and information requesting bodies – should be addressed and incorporated in systematic communication and coordination structures to successfully advance the dissemination and implementation of the RCD.

Success of the standard might be slowed down due to practical reasons associated with the implementation process, such as a lack of support structures. On the one hand, demand for external support might relate to the specification itself, its provisions, contents and definitions. On the other hand, the current situation suggests a need for more technical support to advice higher education institutions and other research institutions with the practical and organizational implementation of the RCD including the introduction of appropriate technical systems (e.g. current research information systems).

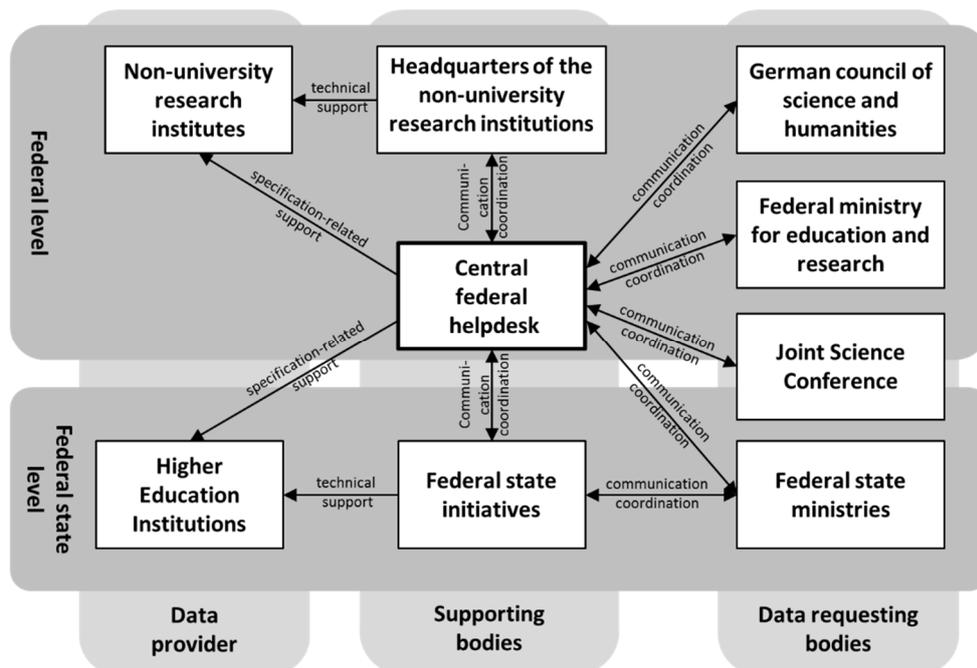


Figure 1: Support structures to facilitate the dissemination and implementation of the RCD in the German science system

The paper is intended as a descriptive case report with the aim to provide insights from a national standardization project and to share experiences made during this project. Particular emphasis is on the support structures in place to facilitate the dissemination and implementation of the research core dataset in the German science system (cf. Figure 1). The paper starts with an in-depth description of the RCD specification and its contents, particularities (specifying aggregate data instead of a binding data model) and select definitions. The authors then summarize the main challenges towards the system-wide dissemination and full implementation of the standard. In doing so, the authors describe the specifics of the German science system in general and the role of federalism in particular for the possibility to agree on a definitional standard for RI that generates sufficient acceptance with crucial stakeholders (both with research institutions and information requesting organizations). In this context, the paper also critically discusses the main features of the standard (e.g. discretion with regard to the degree of institutional implementation and use of the standard, its architecture with a focus on aggregate data instead of a harmonized data model, its claim to be universally applicable for different information needs and types of research institutions etc.). The paper not only provides a conceptual description and reflection of the RCD itself but also provides an account of existing support structures to facilitate the system-wide

implementation and use of the RCD (cf. Figure 1; Sticht, Herwig, Kramer, & Vinnemann, 2017). These currently include, (a) a helpdesk that provides individual assistance with regard to the RCD specification and its definitions to any (potential) user of the standard in the German science system, and (b) federal state initiatives (by focussing on the example of the federal state of North Rhine-Westphalia), that supports higher education institutions in finding and implementing organizational and technical solutions for a more efficient institutional collection and processing of research information and to implement the RCD (cf. Figure 2). The paper concludes with a summary and outlook by discussing the support structures' limits to address current challenges towards the implementation of the RCD in the light of the current implementation process and the experiences made so far.

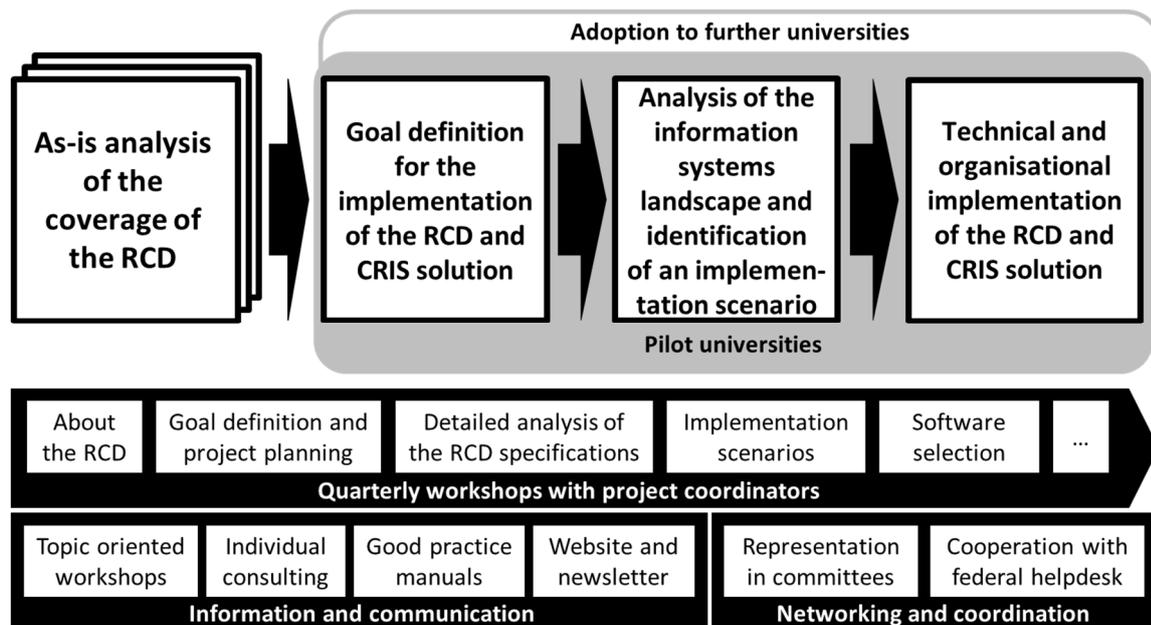


Figure 2: Support structure, procedure model and activities of the federal state initiative of North Rhine-Westphalia

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