

Developing a Classification for Interdisciplinary Research Fields for the German Science System

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Outline

1. Research information (RI) and RI standards
2. Reporting of research information in Germany
3. Role of classifications in research reporting
4. Project to develop a classification for interdisciplinary research fields
 - Approach
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Research information (RI) and RI standards

- Research information: numerical information on research activities and outputs (of individual researchers, departments, institutions etc.)
 - research information \neq research data
- Research information is used for institutional reporting (to ministries, funding organizations, official statistics etc.), planning and evaluation processes (e.g. internal controlling), outreach and communication
- Standards are needed
 - for research institutions to reduce efforts with the collection and processing of research information
 - to ensure data quality and comparability across research institutions and to enable evidence-based policy making

Reporting of research information in Germany I

- Collection and processing of research information particularly fragmented in the German science system
 - distributed legislative and regulatory authority for the governance of research institutions (Federal and State Governments)
- New public management (NPM) since the 1980s
 - growing autonomy of institutions
 - growth of third-party and performance-based funding
 - increasing relevance of rankings and need for transparency

Reporting of research information in Germany II

- Increasing need for reporting of research information (in Germany)
 - external: rankings, ratings, (output-oriented) reporting to ministries and funding organizations, Statistical Offices, Council of Science and Humanities, implementation of performance-based funding systems
 - internal: development of internal governance processes, evaluation, controlling, management, communication
- 2013: German Council of Science and Humanities recommends the development of the so-called “Research Core Dataset”
 - A set of concepts and definitions to harmonize the reporting on research (across different use-cases) and to standardize institutional research information systems → a voluntary standard
 - Classifications: Academic disciplines and fields of research

Role of classifications in research reporting

- Universities and higher education institutions: classification of academic disciplines to structure annual reporting for official statistics
 - Historically grown and reflected in organizational and teaching structures of universities
 - Evolving organizational structures (interdisciplinary centers) in cooperation of different academic disciplines
- Non-university research institutions: different structures and approaches
 - Interdisciplinary research that focuses on specific problems or topics
 - Different organization-specific classifications in use

Project to develop a classification for interdisciplinary research fields

- Project period: January – December 2020
- Project partners: Berlin School of Library and Information Science (IBI) at Humboldt University and German Center for Higher Education Research and Science Studies
- Funded by: Federal Ministry of Education and Research and 16 *Bundesländer*
- Goal: Development of a classification for interdisciplinary research fields
- Methodological approach: intellectual development of a classification (card sorting), validation through expert survey

Project to develop a classification for interdisciplinary research fields



Input for the first version of the classification

- Use of 21 of 27 existing lists of 16 institutions:
 - National: Max Planck society, Leibniz association, Fraunhofer society, Helmholtz association, Federal Statistical Office etc.
 - International: EU Horizon 2020, New Canadian Classification of Research and Development , OECD Fields of Research and Development etc.
- Indexing of current Collaborative Research Centres (275), Clusters of Excellence (57) and Graduate Schools (51), source: project abstracts on DFG database
- Total: 5,929 terms/key words

Developing the first version of the classification

- Card-sorting technique, using *Trello* to construct categories (clustering)
- Combining *Trello* boards, developing categories (main categories and sub-categories), assigning terms
- Independent development of main categories and sub-categories (two coders)
- Iterative consolidation of the two classifications by three project members
- Mapping of select input lists with the newly developed classification of research fields
- Assignment of Clusters of Excellence, Collaborative Research Centres and Graduate Schools (to up to three research fields each)
 - 13 main categories and 80 sub-categories, additional information through scope notes and synonyms

First version of the classification for interdisciplinary research fields

13 main categories with 4 to 10 sub-categories each (a total of 80)

Labour and economy

Earth and cosmos

Globalisation

Industry

Information technology

Infrastructures

Cognition and knowledge

Culture and science

Life and well-being

Matter and materials

Human beings and society

Nature and environment

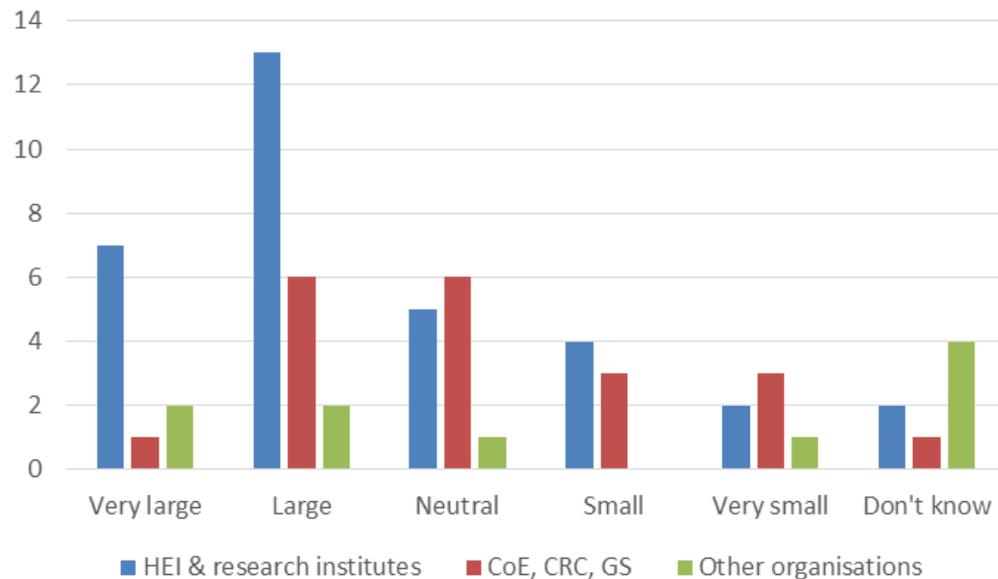
Technology

Interviews and online survey

- Target group: speakers of Clusters of Excellence, Collaborative Research Centres and Graduate Schools, representatives of non-university research institutions & universities , DFG, Federal Statistical Office, funding organisations and other stakeholders
- Return: 63 questionnaires
- Content:
 - Assessment of categories (302 comments)
 - Assessment of the classification and the need for a classification of research fields in general
 - Assessment of assignments of Clusters of Excellence, Collaborative Research Centres and Graduate Schools to research fields

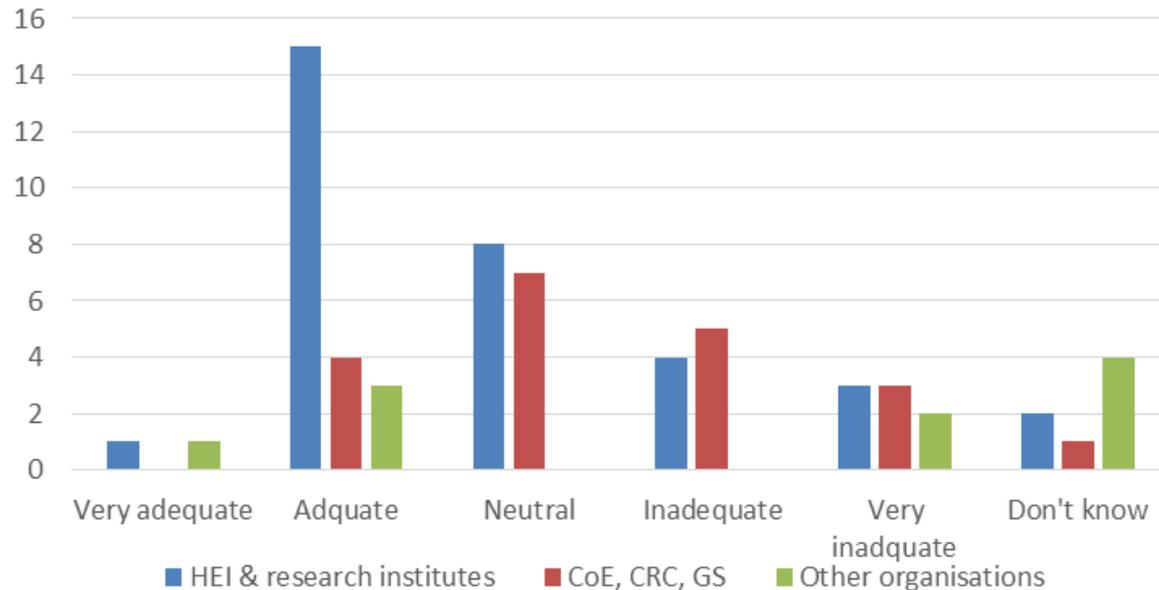
Online survey – select results I

- How do you evaluate the need for a classification of research fields to complement classifications of academic disciplines for an adequate assessment of research?



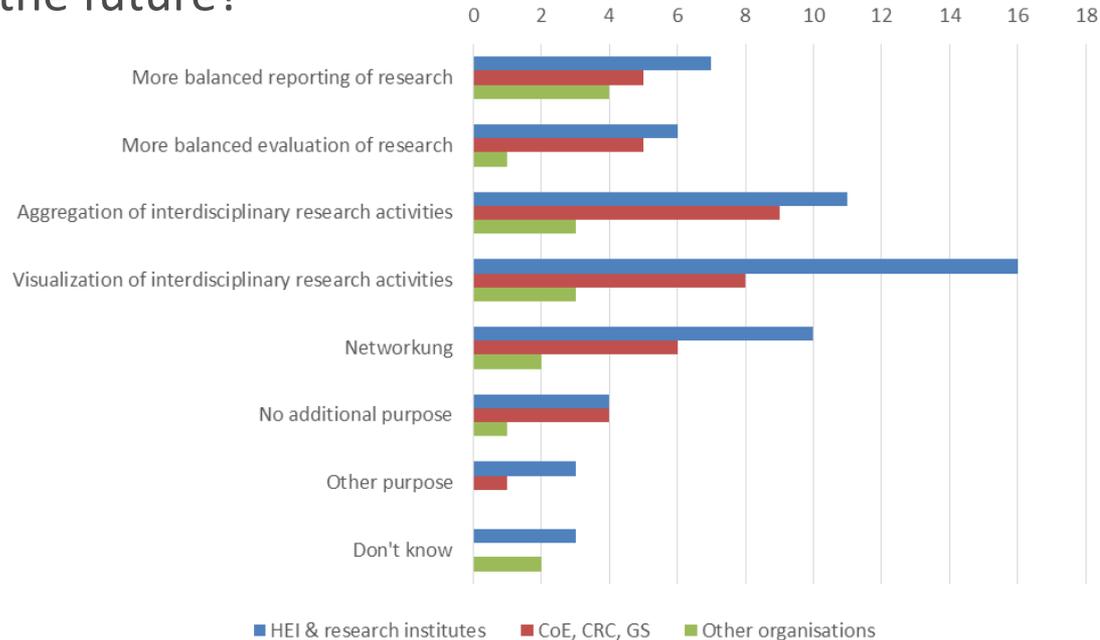
Online survey – select results II

- How adequate do you consider the classification of research fields for the categorization of research in general?



Online survey – select results III

- What purpose might such a classification of research fields serve in the future?



Final version of the classification for interdisciplinary research fields

14 main categories with 4 to 7 sub-categories each (a total of 72)

Labour and economy

Earth and cosmos

Globalisation **and sustainability**

Industry

Information technology

Infrastructure

Cognition and knowledge

Culture **and science**

Life and well-being

~~Matter and~~ Materials

Human beings and society

Nature and environment

Technology

Science

Outlook and discussion

- Detailed project documentation (in German):
<https://kerndatensatz-forschung.de/index.php?id=forschungsfelder>
 - SKOS publication: w3id.org/kdsf-ffk/
 - SKOS code (GitHub): <https://github.com/KDSF-FFK/kdsf-ffk>

- Thank you very much for your attention!