1. Introduction

In this fourth edition of the Funding Ranking[1], the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) provides information about the distribution of DFG funds to German higher education institutions (HEIs) and non-university research institutions. Select data have been introduced that can be set in contrast to the main indicator, DFG awards. The structure of the report has also changed, owing to the new shifts of emphasis.

One of the most important objectives of this report is to provide information about the research priorities of German HEIs in terms of publicly financed research, in a differentiated manner that allows comparisons to be made. In this way, the DFG contributes to the discussion regarding university profiling, which is being led predominantly by the German Rectors' Conference.[2] Comparisons can be carried out in several ways: representatives from individual HEIs can compare the profile and position of their institution with other HEIs based on these data. They can also determine whether, and to what extent, these indicators can be used to compare different research areas. The results of the general comparison of indicators are also of interest: in view of the different indicators, can a core group of "elite universities", covering all areas, be identified? Or does the comparison in fact lead more to a differentiated view of the complex research landscape? Does this allow a completely different conclusion to be drawn about institutional, as well as subject-related strengths (and weaknesses)?

To answer these questions, the report not only uses data sources that were used in previous reports, but also new key data and methods of preparing and presenting this information. Of particular importance is data provided for the first time by the Federal Ministry of Education and Research (BMBF), which gives information on the distribution of research funding that various federal ministries allocate for direct project funding. According to figures from the Federal Statistical Office, this federal funding represents one of the three main sources of third-party funding for university research, alongside funding from the DFG and commercial business. Another important addition to previous reports is data provided by the EU office of the BMBF about initial funding in the Sixth EU Framework Programme.

Chapter 2, which follows this introduction, describes these and other sources, supported by comprehensive statistical analyses. In addition to information on the methodology and a description of the steps involved in developing the individual indicators, the chapter provides data on the specific characteristics of the research activities that form the basis for these indicators. Comparisons again play an important role. For example, what differences can be seen in terms of subject focus? At which target groups (e.g.

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[1] Previous editions are available at www.dfg.de/ranking/archiv.

[2] At the conference „Profilbildung an Hochschulen — Grundlage für Qualität und Exzellenz", 30 June 2004, Berlin (see www.hrk.de/de/projekte_und_initiativen/121_2067.php).

professors at HEIs, institutes of large research organisations and/or industrial research institutes) are certain research programmes aimed? The answers to these questions allow conclusions to be drawn about the suitability or relevance of the underlying indicators for the particular subject and target group. They also offer important structural information about the German research system.

Chapter 3 outlines findings regarding the central indicator of this ranking, DFG awards. The chapter focuses on the 40 HEIs that received the largest amount of funding during the report period from 2002 to 2004, and any changes to these statistics compared to earlier reports. For the first time this report also contains "profile illustrations", which provide detailed information about the subject-oriented and funding-specific research profile of these HEIs. Divided into 14 research areas for the DFG, and 11 and 7 funding areas for the federal government and EU, respectively, the profiles show how the research activities financed by these sources impact the research institutions. The ranking uses a newly developed analytical procedure to do this. The resulting graphics can be used to show, for example, the relative importance of geoscientific research at one institution, or to what extent HEIs are involved in basic medical or biological research. Funding data provided by the German government and the EU give additional information about how institutions' specialisations are used by each research field — for example, biotechnology, information technology, or aeronautics and space.

Far from answering questions regarding the "best HEIs", these analyses primarily show how the institutions are positioned, in terms of subject and thematic specialisations, in the competition for funding and international renown.

The chapter concludes by considering the regional distribution of DFG awards. In addition to quantitative assessments, the issue of funding and research profiles (this time on a regional basis) is also important. The regional distribution of funds for selected programmes that are financed by direct federal project funding is also presented in map form. The overall view gives a very differentiated picture of each research region.

Compared to the previous ranking, the emphasis is on research area-related analyses. In this regard, **Chapter 4** analyses whether, and to what extent, DFG awards complement or contrast with other indicators for 14 research areas, which represent the entire subject spectrum at German HEIs. The focus is primarily on methodology: it is increasingly becoming standard practice for higher education institutions to establish research performance indicators in order to allocate performance-related funding (PRF). However, in doing so, they often overlook the fact that not every indicator applies equally to each research area. The data presented in this chapter allow an analysis of the suitability of certain recurring funding indicators from a subject-differentiated perspective.

Based on joint participation in selected DFG coordinated programmes, this chapter also analyses to what extent these programmes were used during the period of the report to form local and cross-regional cooperation networks between HEIs and non-university research institutions. The structures arising from these cooperation networks are illustrated according to individual research areas. Of particular note here is the formation of regional cooperation clusters.

Following the comparisons made according to research area, further analyses are presented based on HEIs with the highest amount of funding in specific federal and EU funding areas, such as biotechnology, information technology, etc. For the first time, this report also uses data obtained from the German Federation of Industrial Research Associations "Otto von Guericke" (AiF). Their data show which HEIs were particularly active in the Industrial Research Programme, which promotes knowledge transfer to medium-sized enterprises.

Chapter 5 presents comparative analyses of indicators used in the report. These analyses allow different conclusions to be drawn about the success of overall institutional participation in the research activities on which the indicators are based. As with the previous ranking group comparisons, an institution's indicator profile can be identified at a glance — first, in terms of its absolute ranking position, and secondly, in relative terms based on numbers of professors. The common theme

of specialised funding profiles is also discussed: is it possible to identify HEIs that have formed their own funding relationships — in other words, HEIs that are more inclined towards federal project funding, and those that tend to concentrate on the DFG as their main source of research funding?

A brief summary of the most important findings and a prognosis of future development plans that the DFG is pursuing with the Funding Ranking project form the conclusion of the report.

A comprehensive appendix contains tables that show the report's underlying data in a form differentiated according to HEI, research area and funding area. Data for non-university research institutions are also presented for selected DFG-based indicators.

By limiting itself to data that reflect the involvement of research institutions in publicly financed funding programmes and activities of large German and international research funding bodies, the 2006 Funding Ranking remains true to its specific aim. The increased database that has emerged as a result of successive rankings has enhanced the quality of this fourth edition. This report only touches on the analytical options provided by this data for analysing the subject- and content-defined research profiles of higher education institutions and non-university research institutions. Equally, the report only begins to explore the potential of a multiple funding body comparison for studying cooperation between HEIs and non-university research institutions, business and science, and finally, between academics in Germany, Europe and the rest of the world.

For analyses like this, the time and effort needed to compile statistics and ensure the quality of primary data sources are considerable. At the same time, it is far more efficient and leads to much more comprehensive empirical results than using survey data from HEIs and other research institutions. In the hope that the 2006 Funding Ranking meets, as did its predecessors, with a continued demand for the funding bodies involved, and especially for the HEIs described here, it is intended that the process be further developed.