

System diversity leads to research success



The Excellence Initiative and the Research Pact have created a momentum that is bringing change to the scientific system and those involved in it – a process that applies not just to universities, but also to research organizations, including the Helmholtz and Leibniz Associations, the Fraunhofer Gesellschaft and the Max Planck Society, as well as the German Research Foundation. With excellence as their target, these funding initiatives have led to a paradigm shift. In breaking with the dogma that all universities are equal and must remain so, they have revealed what has long existed beneath the rendered surface of Germany's university landscape: the peaks of performance in individual disciplines and the beacons of research that shine in individual locations. Competition has triggered a process of combining existing strengths with those of partners at other scientific institutions and in industry. Not only has this created new opportunities, but there is now also an openness to competing and cooperating with the best, which in turn inspires success.

The non-university research organizations are making their own contributions. Indeed, it is no accident that their primary role here is in conjunction with excellent, high-profile universities. The Max Planck Society generally plays a part. In the first round of the Excellence Initiative, we were involved in more than two out of three of the successful clusters, and one in two of the graduate schools to receive support. These quotas have since been more than confirmed in the current second phase of the program.

This interconnection between the universities and other participants in the same locations shows that system diversity breeds research success – in matters relating to Germany's future scientific system, this should be the goal. The continuing development of the research landscape is

of central importance, for this will have a decisive effect on our country's powers of innovation. There is a certain appeal in drafting a new scientific architecture that strips out the complexities that, over the decades, have become inherent in Germany's research landscape. But let us exercise caution: the rule that "form follows function" has proven to be true particularly in the scientific system.

If we are not to risk missing the point, we must first be clear as to what science can do for society. Its function is to safeguard our nation's prosperity and our qual-

Science must entail competing with the best of the best

ity of life, and not least also to help us overcome global challenges. To fulfill these functions, science must mean competing with the best of the best, as well as cooperating with world-leading partners – while having the freedom to develop and explore.

Let us first consider the universities, the beating heart of German research. Thanks to the Excellence Initiative, some universities are significantly improving their achievement levels, and thus also their international visibility. But it will still not be possible by 2017, when the Excellence Initiative expires for German universities, to rise to the very top of the international rankings. A fundamental obstacle lies in the structure of German universities: professors in Germany, in contrast to their colleagues at top universities such as Harvard or ETH Zurich, must perform a balancing act between leading-edge research and mass education.

But there is a simple way to raise the profile of the research potential that exists

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in Germany – and that is jointly funded by the federal government and all 16 regional states: were the Max Planck Society to have the status of a graduate university, like Rockefeller University in the US, for instance, it would be among the top five in the Shanghai ranking.

Irrespective of this, however, all those involved face the challenge of clearly defining and pursuing their own mission. The increase in networking must not lead to dilution. Developments in recent years have revealed that those with a clearly defined mission and an independent profile add greater scientific value to the system. Future models of cooperation must build on this premise. Working together facilitates the use of synergies and enables institutes and universities to continue their own development without compromising their respective missions. The goal is not to create new institutions, but to pursue science at its highest level.

Research spaces structured in this way are most likely to have the potential to heighten their international standing when multiple clusters of excellence supported by numerous partners are created in the same location. Prominent experts in the

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Regions with high-performance clusters will set the pace

history of science anticipate that, in the future, there will no longer be any predominant individual scientific powers. On the contrary, the future belongs to mid-sized, flexible, autonomous entities. Those regions with high-performance clusters will set the pace. In the long term, I expect to see perhaps five such research campuses throughout Germany.

What is important is that, in these centers, the dividing walls will have been torn down, releasing new potential opportunities for cooperation. The research itself will determine the degree of networking, while each partner's autonomy is preserved. The Max Planck institutes will be a source of excellence, international visibility and interdisciplinarity in these research spaces, to which they contribute fresh momentum.

The same applies to the anticipated 15 to 20 locations at which maybe only one outstanding cluster will establish itself in the long run. Here, too, Max Planck institutes can form the nucleus. Naturally, the other research institutions also contribute their own expertise. I am thinking here of the Fraunhofer institutes that work shoulder to shoulder with industry to translate fundamental new findings into practical applications, and of the Helmholtz Association, with its considerable infrastructures, and the regionally oriented Leibniz Association. These clusters should be linked throughout Germany, but also internationally.

In considering the research system of the future, we must be clear in our minds that science needs stable funding structures that are unambiguously oriented toward quality and mission. On the other hand, science is not suited to being used as a bargaining tool in the redistribution of income among the federal states, however great the temptation – and sometimes also the need. And it is accordingly counterproductive to erect alternative structures simply because the code for the redistribution of income between federal and regional governments or the ban on cooperation enshrined in Article 91b of the Basic Law stands in the way of a commensurate solution. It is currently unclear whether the move to change this Article will find broad support, enabling the federal government to begin permanently financing research facilities of excellence at universities.

Should the initiative not succeed, it will remain necessary for funding to be provided via defined programs. This would, in my opinion, be an option under the proviso that funds are limited to institutions that

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Stable financing will be required in the future

qualify on the basis of both mission and quality, irrespective of the logic behind the form of financing. Such a financing mechanism could be simplified with the aid of separate budgets held by the non-university institutions.

Of course I am familiar with the problems and concerns of the public sector – after all, I do not live in an ivory tower – whether it be rising costs or the brake on debt. Nevertheless, we are all profiting from the clear priority attached to innovation in past years. Finance ministers are currently harvesting the taxes yielded by this policy. Federal and regional budgets are measured in multi-billions. The Excellence Initiative II and the current Pact for Research and Innovation cost an average of 1.4 billion euros per year. Is that too much to pay for a potent scientific system that will safeguard our future prosperity?

According to Thomson Reuters, Germany today is one of the six most productive research nations, in second place behind the US – an outstanding result! Yet our current success is not a matter of course. It is essential, here and now, to do what it takes to power up German science to meet the challenges of the future.



Peter Gruss
President of the Max Planck Society