

Innovation by Co-operation –

Measures for Effective Utilisation of the Research Potential in the Academic and Private Sectors

Position Paper by

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Stifterverband
für die Deutsche Wissenschaft



Effective research co-operations between academic institutions and companies form a decisive basis for maintaining and increasing innovation performance and thereby for the competitiveness of the increasingly science-dependent German national economy.

The relevance of collaboration between private businesses and universities becomes immediately evident from quantitative indicators: The companies' expenses for R&D co-operation projects with universities and research institutions in Germany (external R&D expenditures) increased more than two-fold during the past twelve years, now amounting to approximately € 1.2 billion (2004). The share of third-party funds from business and industry is about 13% of the total research expenditures of the universities (2004); given this value, Germany ranks within the top group in international benchmarkings.

The German Federal Government and the States Governments are planning a considerable increase in the expenditures for research and development in the coming years. Both, public and private financing of research and development in Germany must, however, be further increased in order to ensure international competitiveness of science and the economy. Assuming an increase of the GDP of about 1.5%, public authorities would have to make available an additional amount of about € 29 billion from 2007-2010, the business side about € 38 billion in order to achieve the goal of the Lisbon agenda.

In order to reach this goal, structural improvements are needed as well, as it is shown by the latest reports of the German Council of Science and Humanities (Wissenschaftsrat) and the Donors Association for German Science (Stifterverband). The present Position Paper points out crucial activities jointly recommended and supported by the Alliance of the German Science Organisations as well as the Stifterverband, the Federation of German Industries (BDI) and the Federal Association of German Employers' Federations (BDA), together with their member associations.

The actors in the research system are led by the following principles:

- In the highly differentiated German science system knowledge transfer has to be exerted by way of a professional division of labour. This means that both, the conditions for transfer of scientific results into marketable products and processes must be improved and the necessary freedom for basic research without immediate applicability must be preserved and maintained.
- Knowledge transfer must be understood and implemented by universities and research institutions as a strategic goal.

- Sustainable co-operations between businesses and science must be specifically supported by all parties (science, private sector and politics).

1.) Strengthening Strategic Partnerships as a Sustainable Form of Collaboration.

Co-operations between academic institutions and companies no longer take place on a short-term level on the basis of individual projects only, but increasingly also on the basis of long-term strategic partnerships. In addition to the individual competence of scientists, the system-competence of the university/ research institution becomes increasingly important for the co-operation with companies. Strategic partnerships particularly meet the requirements of modern innovation processes that require continuous feedback among basic research, applied research and product development. They make important contributions to the mutual build-up of expertise and they prove to be a stable organisational frame in which research questions can be elaborated, investment risks be shared and the complementing strengths of both systems be optimally used.

It is vital for a strategic partnership to be built up to find and implement fair regulations for dealing with intellectual property that arises from joint projects.

The universities and the science organisations strive to pursue the establishment of strategic partnerships as an operative goal of their institutional strategies and to better prepare the exploitation of scientific results by companies wherever suitable.

The business side strives to increasingly put the collaboration with science on a long-term basis that comprises all forms of exchange – these concern in addition to research in particular also the areas of teaching and of personnel exchange.

2.) Establishing Systematic Support for the Co-operation of Science and the Business Sector.

Knowledge transfer as an institutional task of universities and research institutions requires appropriate resources. Public project funding has, as a result of the commitment to specifically selected topics on the interaction of science and businesses (e.g. start-up foundation, regional networks, co-operation in thematically restricted research fields etc.), achieved selective approaches and results in improving these exchange processes. The goal is systematic support of successful institutional co-operation strategies of universities and research institutions by means of expanding and

persistently upgrading the funding of public-private co-operations by the Federal and States Governments.

a) Funding of the validation phase

The future funding policy has to ensure the validation of scientific results if (in case of positive results of the validation) companies commit themselves to develop these results further. It is essential to bridge the validation gap in Germany, thereby improving exploitation of the innovation potential of research conducted in Germany. This could be achieved i.e. by a fund for support of projects in which the profitability and practicability of scientific research results in an industrial context are investigated.

Also companies can participate in financing the validation of scientific results.

b) Fiscal funding of R&D

Germany belongs to the few countries in Europe and in the world that do not fund R&D in the private sector by means of tax-related measures. It is essential to compensate for this systematic drawback. Tax-deductible R&D is an incentive for intensification of research and development in industry and also leads to intensification of the co-operation between businesses (particularly SME) and science by stimulation of the demand side.

3.) Harmonising International Patent Law.

In Germany, a substantial number of potential patents from universities and research institutions gets lost due to publication or other disclosure of relevant research results. From the viewpoint of the science organisations there are two conflicting expectations science has to deal with: On the one hand, science is expected to increase publicly available knowledge, on the other hand science is expected to increase the economic effectualness of this knowledge. This can create a conflict of goals due to the imperative nondisclosure of information relevant for patenting. But also in those industrial branches in which it is required to publicly test inventions before they are registered as patents, the existing regulation is an obstacle. In order to overcome this obstacle, the science organisations firmly advocate the introduction of a clearly defined grace-period in the German and the European patent laws.

BDI and BDA see in the legal uncertainties that could arise from retroactive patent filing after publication a strong handicap for the participants in the international competition. BDI and BDA therefore oppose the introduction of a grace-period because of the apprehension of the possibility of legal uncertainties. They are, however, willing to

consider a grace-period if this is a way of achieving the important goal of harmonisation of patent laws. A prerequisite is the maintenance of the first-to-file system utilised in Europe and the amendment of the first-to-invent principle valid in the US in order to avoid the uncertainties and legal disputes frequently caused by the US American patent system to find entrance into European right. The goal must be a worldwide harmonisation of the patent law. In accordance with the present situation also in the case of using a grace period, there should be clarity as to whether published matter is subject or part of a patent after 18 months at the latest.

Even after the introduction of a grace-period, both the science organisations and industry consider it important to retain the conventional procedure for patent filing as the general rule.

4.) Accounting for Overhead Expenses in Basic and Applied Research.

An essential step for strengthening the science system, the competition between the research institutions and the overall research infrastructure is the financing of indirect project costs which in Germany has been started with the Excellence Initiative of the Federal and States Governments and the introduction of lump-sums for indirect costs in programmes of the German Research Foundation (DFG). In order to enable equal competitiveness of basic and applied research it is advisable to consider granting of overhead expenses not only in funding of basic research, but also in funding of applied research by the Federal and States Governments.

The universities and science organisations will actively promote the implementation of a science-adequate commercial accounting system.

5.) Professionalising Patent Exploitation Agencies.

Technology transfer is carried out in different ways in the German science system. Particularly in the university sector, patent exploitation agencies (PVA) fulfil an important and ambitious function at the interface between science and the private sector: With their help scientific inventions are intended to be brought to the market in the form of new products or new processes in a much more efficient way than it used to be in the past. In order to be able to perform this task more effectively, the existing PVA-system should be restructured by applying the following competition-oriented criteria:

- Focusing the activities of individual PVA on a few technology fields
- Freedom of choice regarding the organisational form of the PVA (e.g. Ltd. Co.)

- Freedom for universities and research institutions for commissioning a PVA of their choice
- Degressive and performance-oriented support of the PVA by Federal and State funding, with the long-term aim to establish profitable institutions
- Incentives for the acquisition of highly qualified personnel
- Regular evaluations.

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