

Funding of Nanotechnology in Germany

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From basic science funding to the hightech strategy of the government

The topics and strategies of the German funding activities for nanotechnology have remarkably changed in the last 15 years. While first BMBF projects at the end of the 80ies were mainly basic science oriented, newer projects had a much higher application orientation and are performed today in joined industry-science cooperation, in socioeconomic driven leading edge innovations or in nationally important innovation alliances with main technological stakeholders.

Because Germany is strongly dependent on industrial success in future markets, the government created in 2006 the Hightech-Strategy, addressing goals in societal important areas like medicine, climate, energy, environment, mobility and communication. Germany should be enabled to compete on the future world markets via a coordinated innovation policy. This implies also a learning society and responsible acting. Nanotechnology is seen as an important field for strengthening of existing strengths. To comprehensively use these potentials for Germany and to set up continuous value-added chains the eight Federal Ministries for Labour and Social Affairs (BMAS), Environment, Nature Conservation and Nuclear Safety (BMU), Food, Agriculture and Consumer Protection (BMELV), Defense (BMVg), Health (BMG), Commerce and Technology (BMWt) and Transportation, Building and Urban Affairs (BMVBS) together with the BMBF have concentrated their activities in the frame of the “ Nano-Initiative - Action Plan 2010” on 5 activity areas:

1. Opening up future markets - introducing new sectors
2. Improving general conditions
3. Behaving in a responsible manner
4. Informing the public
5. Identifying the future demand for research

Without doubt, the economic importance of nanotechnology lies in its pacemaker function. As an enabling technology it is very early decisively important in the value chain to enhance new production possibilities and to create new materials for to lay the basis for intelligent components and powerful products. Germany is seen as a strong candidate related to basic nanotechnological science. But also the industrial preconditions for the transfer of results into products is quite good with the existing about 750 companies, dealing with the development, application and commercialisation of products based on nanotechnological findings.

Funding portfolio as driver for innovations

In the last 15 years nanotechnology funding was mainly done by the BMBF and by institutional funding organisations. Mid of the 90ies the BMBF changed its viewpoint from seeing nanotechnology not only as a bundle of single technologies, but to realise, that this discipline overlapping and crosscutting field has a broad innovation impetus on nearly all economically important branches and on many societal topics. Hence the funding amount has been increased since the early 90ies by more than a factor of 10 to about 165 Mio. Euro in 2008. In the last years more and more support from other resorts could be recognised. In addition there is funding from institutional bodies and an increasing part from the individual states . Overall the public support for nanotechnological R&D amounts to about 430 Mio Euro annually.

Besides the classical project funding performed since some decades, an increase of technology transfer activities by initiating branch-related dialogs is upcoming. These dialogs are targeted mainly on SMEs in traditional fields, which have not realized the new chances by using nanotechnological approaches. To secure and strengthen existing market positions, leading-edge innovations and innovation alliances are put in action. These is strategic long-term research cooperation in mar-

ket areas important for Germany, like automotive, optics, chemistry, energy supply and medical devices. To help especially young companies to transfer their ideas into products, the action “Nanochance” for start-ups and innovation friendly SMEs were started. And to build up technology transfer process from scratch with all necessary actors, competence centres are used, which rely on powerful networks with members from science and industry. Actually, the BMBF supported networks have created the association of nanotechnology competence centres in Germany (AGeNT-D: Arbeitsgemeinschaft der Nanotechnologie-Kompetenzzentren Deutschlands).

Chances-risk communication

The government has set up comprehensive accompanying measures to improve the knowledge of the interested public about the chances, but also about the possible risks of nanotechnology, and to initiate an intensive dialogue with all societal stakeholders. Especially the BMBF counted very early on an open and active risk communication. One important tool is the nanotruck-initiative, which reaches since years more than 100.000 visitors of this interactive mobile information centres. Furthermore, brochures, internet portals, CDs, videos, stakeholder dialogues, consumer conferences and educational supplements were used to explain the technological contents to the citizens, to give appropriate information to pupils and to highlight qualification possibilities.

In addition, the BMBF has heavily increased its funding engagement for the investigation of (eco-) toxicological influences with the project-cluster NanoCare in the last years. But a responsible and secure use of nanotechnology globally will only be reachable by an international harmonisation of product and security standards. Therefore the government supports at moment several activities targeting international coordination, like the nanotechnology action plan of the EU, the “international dialogue on responsible nanotechnology” or the activities of the OECD with the Working Parties on Nanotechnology (WPN) and Manufactured Nanomaterials (WPMN). In parallel the BMU has created the nano-commission to support national and international dialogue processes

Research marketing and international cooperation

Global processes show often tremendous changes with heavily economic and social consequences. But aside of the support of science and research in our home country this enables also an increase of the use of new chances opened up by globalisation and internationalisation . These chances are mainly based on exchange of existing knowledge, cooperation by using technological know-how and integration of innovation processes to get access to international research infrastructures and to new markets.

In the frame of the research marketing “Research in Germany - Land of Ideas”, R&D results are presented to the international audience to support SMEs on international markets, to support brain-gain effects by attracting good young people and to initiate international cooperation with the ability to strengthen existing bilateral complementary competences.

More information about “Nanotechnology in Germany” can be found under:

www.bmbf.de/en/nanotechnologie

www.bmu.de/nanotechnologie

www.nanonet.de

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