The new High-Tech Strategy – Innovations for Germany

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The new High-Tech Strategy – cutting across ministries and policy areas

On 3 September 2014, Germany's new High-Tech Strategy was adopted by the Federal Cabinet and presented to the public. The strategy process in the field of research and innovation policy (R&I policy), initiated in 2006, is thus entering its third phase.

Overarching policy coordination across ministries and policy areas was a distinctive element of the High-Tech Strategy from the outset and is to be continued in the coming years. In its 2008 and 2010 reports, the Commission of Experts already welcomed the fact that the Federal Government was pursuing the approach of intensifying policy coordination. Inter-ministerial cooperation in the drafting of the R&I policy has been considerably intensified in recent years.[36]

In the first phase of the High-Tech Strategy (2006 to 2009), the main focus was on key technologies and lead markets.[37] Yet even here, reference was made to the need to use new technologies to overcome major societal challenges. These became a priority in the High-Tech Strategy's second phase (2010 to 2013).[38] Science has coined the term "new mission orientation" to describe an R&I policy that is geared towards the great societal challenges and thus intends to specifically exert influence on the direction of technological change.[39]

According to the Federal Government, the new High-Tech Strategy aims to merge the "threads" of the first two phases.[40] The new High-Tech Strategy is to be further developed into a "comprehensive inter-ministerial innovation strategy".[41] The concept of innovation has been extended and now also includes social innovations.

The new High-Tech Strategy contains five core elements:

I. Priority challenges with regard to value creation and quality of life
II. Networking and transfer
III. The pace of innovation in industry
IV. Innovation-friendly framework
V. Transparency and participation.

Priority challenges set policy guidelines

In the new High-Tech Strategy, the policy guidelines associated with the new mission orientation can be found in the core element "priority challenges".

A total of six priority challenges have been defined:

1. The digital economy and society
2. Sustainable economy and energy
3. Innovative world of work
4. Healthy living
5. Intelligent mobility
6. Civil security.

The Federal Government regards the priority challenges as areas "that feature especially dynamic innovation and hold potential for economic growth and prosperity", and as areas "in which we can help address global challenges and thereby enhance the quality of life for everyone".[42] The priority challenges link up closely with the fields of action of the High-Tech Strategy's second phase. The priority challenge entitled "Innovative world of work", which introduces a new emphasis within the High-Tech Strategy, represents an exception here.

Each of the six priority challenges contain three to eight main points. Against the background of limited financial resources, the question is whether positive effects of relevant magnitude can be achieved in all the main points. The Commission of Experts urges the Federal Government to continue its path of

bundling topic-related support measures – an approach that was introduced at the start of the Strategy's second phase. The Commission of Experts further recommends defining a clear hierarchy of targets also within the priority challenges.

New funding approaches in the field of networking and transfer

The new High-Tech Strategy targets not only the supply side of knowledge production, but also a rapid demand-side dissemination and application of technologies. A swift transfer of research findings to applications was already an important objective in the first two phases of the High-Tech Strategy.[43] In the new High-Tech Strategy, the "Networking and transfer" core element addresses the non-university research institutions and tertiary education institutions as well as companies.[44] Two new support approaches are announced. The first aims to promote the internationalisation of leading-edge clusters, forward-looking projects and comparable networks. The funds earmarked for this purpose will not, however, be anything like as big as the budget of the Leading-Edge Cluster Competition, which expires in 2017. Another aim is to help tertiary education institutions to try out novel cooperation strategies in their regions and to develop innovative cooperation formats. The first funds are expected start flowing in 2017. As yet, no draft plans for the new measures have been made public.

Broad-based innovation incentives for industry

Unlike the priority challenges, the support approaches of the new High-Tech Strategy bundled in the "Pace of innovation dynamics in industry" core element does not aim to influence the direction of the innovation process. In the sense of an open funding concept, the Commission of Experts welcomes, for example, the fact that the use of the key technologies is no longer geared primarily towards the solution of specific problems within the great societal challenges, as was the case in the second phase of the High-Tech Strategy. Rather, it is a matter of creating broad-based innovation incentives for industry – especially in small and medium-sized enterprises (SMEs). The funding measures here include, for example, the Central Innovation Programme for SMEs (ZIM) and the promotion of innovative start-ups.[45]

Improving the framework conditions for innovation

Incentives for innovation are created not only by launching funding programmes, but also by reducing – often bureaucratic – obstacles that inhibit the development of existing innovation potential. The Commission of Experts is therefore in favour of including the element "Innovation-friendly framework" in the five core elements of the new High-Tech Strategy. In concrete terms, the Federal Government plans the creation of innovation-friendly framework conditions in the fields of public procurement, professionals, innovation funding, technical legal framework and standards, intellectual property rights, open innovation, open access and copyright.[46] The Commission of Experts regards these fields as highly relevant to social policy; however, it regrets that the Federal Government is not making provisions for improving the overall conditions for funding innovations by introducing R&D tax credits.

Growing importance of transparency and participation

When setting funding priorities, it is important to weigh up the social costs against the benefits of innovations. This involves the problem of coordinating and merging decentrally distributed knowledge of preferences, costs and prices. In principle, this can be achieved by encouraging greater participation by citizens and civil-society actor groups, who have hardly been involved in the formulation of funding priorities or the design of funding policy up to now. Exceptions include the BMBF's citizen dialogues,[47] BMG's and BMBF's cooperation with the German Alliance of Chronic Rare Diseases (ACHSE) in the development of the National Action Plan for People with Rare Diseases, which was presented to the public in August 2013,[48] and the development of the Green Economy research agenda, presented in November 2014, which was drawn up in a dialogue process with the main business associations, trade unions, consumer organisations and NGOs.[49]

The new High-Tech Strategy places more emphasis on participatory processes with the core element "Transparency and participation". The Commission of Experts welcomes the inclusion of further societal groups. In its 2013 Report it had also already come out in favour of resolutely continuing to pursue greater citizen participation in the development of R&I policies.[50] To date, it is still unclear which would be

the best procedure to reach this objective. As shown by US, European and German examples, the participation of citizens and civil-society actor groups in political processes is increasingly being facilitated by internet-based systems (see Box 1).

Neutral information and transparent processes are necessary to optimise the ability of citizens and affected actor groups to assess the effects of policies and technologies. The Federal Government has begun systematically examining the opportunities and risks of new societal developments and extending the analyses of innovation and technology. In addition, it is planning to further pursue scientific trend research and to develop a comprehensive communication strategy.[51] In the Commission of Experts' view, the aim of these initiatives should be to provide impartial and scientifically founded information on the possible impact of innovations, and on the measures of R&I policy, including its potential effects.

Late launch of the High-Tech Forum

The Science and Industry Research Union (Forschungsunion Wirtschaft-Wissenschaft), in which actors from science and industry were represented, served as an advisory body during the first two phases of the High-Tech Strategy. The Strategy's third phase will also be accompanied by an advisory body – the High-Tech Forum, which is supposed to be made up of civil-society representatives alongside stakeholders from academia and business. The Commission of Experts points out that the Forum's constituent meeting will not be held before spring 2015, leaving only about two years for the body's active work during this legislative term. The opportunity for this body to provide stimuli from an early stage has thus been missed.

Box 01

Examples of internet-based participation in political processes

USA: Crowdsourcing Ideas to Accelerate Economic Growth and Prosperity through a Strategy for American Innovation

During the process of updating the Strategy for American Innovation, the White House's Office of Science and Technology Policy invited citizens to suggest new initiatives or name areas where there was a need for investment.[52] Among other things, questions were published on an online platform relating to R&D priorities, developing a well-qualified labour-force potential, and intellectual property rights. Answers could be sent in by a cut-off date in September 2014.

EU: European Commission's consultation processes

The European Commission hosts internet-based consultation processes when it is planning to launch new political initiatives or revise existing pieces of legislation.[53] The consultation processes – there have been over 370 since 2001 – are initiated via the "Your Voice in Europe" website.[54] Citizens, businesses, organisations and government agencies can answer the questions asked within a deadline of at least eight weeks using an online form or by e-mail. The European Commission is supposed to actively seek the participation of the parties affected.[55] After the deadline has passed, the Commission evaluates the answers and publishes the results either in full or as summaries.[56]

Germany: E-participation as part of the Open Government Strategy

In May 2014, the cabinet of the federal state of North Rhine-Westphalia adopted the Open Government Strategy that had been drawn up by an inter-ministerial working group called "Open NRW".[57] A key element of this strategy is the increasing public participation, particularly using electronic participatory processes. A standard e-participation software tool has been procured for this purpose.

Recommendations

- Unlike the first phase of the High-Tech Strategy, there was a failure to define milestones when formulating the new High-Tech Strategy. To put the new High-Tech Strategy into practice, permanent milestones will have to be set swiftly and communicated to the public in a transparent way.
- The new High-Tech Strategy's innovation concept is extended by the addition of social innovations. The Commission of Experts welcomes this extension. A political clarification of the concept is urgently needed, however, to make it possible to draw up support measures in line with criteria.[58]
- A counter-productive overlap with measures from other policy fields must be avoided in the implementation of the new High-Tech Strategy. For example, the Federal Government's R&I policy should not pursue regional-policy objectives. On the other hand, it may well be desirable for regional policy to develop regional innovation potential.
- The Commission of Experts urges the Federal Government to continue its path of bundling topic-related support measures – an approach that was introduced at the start of the Strategy's second phase. The Commission further recommends defining a clear hierarchy of targets also within the priority challenges. Moreover, despite policy guidelines, the advantages of entrepreneurial competition should be used as a discovery procedure. Even if goals are laid down by the priority challenges, the methods for reaching those goals should be left as open as possible. For example, research-funding policy in the field of alternative drive technologies in the automotive industry should not discriminate between research on high-performance batteries on the one hand, and fuel cells on the other.[59]
- The new High-Tech Strategy provides for an instrument that helps tertiary education institutions to try out novel cooperation strategies within regions and to develop innovative cooperation formats. This instrument should be designed in such a way that it complements the instruments of the Excellence Initiative and its successor initiatives.
- In order to increase transparency and participation, processes should be developed that help citizens and societal groups to express their preferences in an informed manner. For this to be achieved, the relevant ministries should experiment, for example, with such internet-based instruments as online platforms for gathering ideas and forming opinions, since these represent an inexpensive and effective form of communication.
- To identify and rectify any undesirable developments, mechanisms for systematically monitoring the High-Tech Strategy should be developed. In this context, it is necessary to lay down success criteria, evaluation methods, and a concept for possible changes of policy. Among other things, unsuccessful programmes or instruments should be prevented from harming the careers of open-minded and adventurous decision-makers.
- Evaluation processes must also be considered on principle when designing future R&I-policy measures. It is crucial to already collect the data required for evaluation while the measure is being implemented. In addition, not only short-term, but also long-term effects of the funding should be studied.