BOX 05

Laser standards[12]

Favourable conditions for innovations, including standardisation, are crucially important for the successful development of new technologies and markets. The work on early and systematic standardisation for lasers by the Optics and Precision Mechanics Standards Committee (NAFuO) of DIN in the 1980s made it possible a decade later for German industry to assume a lead role in the European standardisation – in augmentation to the European Union's Medicinal Device Directive. Globally, Germany and the United States have together advanced standardisation in this field. Starting from a sound technological base, the framework conditions created by the standardisation create an advantage for German companies over international competition, so that exports have multiplied in the long-term and created more than 50 000 jobs. Effective measures in standardisation meant that uncertainties in the market for laser technology could be reduced at an early stage – to the benefit of German manufacturers.

isation. Many countries therefore provide support for businesses in such processes by promoting the formulation of standardisation proposals in national bodies and standards organisations. In Germany, this is not yet done to a sufficient extent in important future fields.

Germany cannot afford to be left out of the worldwide process of establishing standards for the products of tomorrow. One way to avoid this can be to organise exchange forums on technical novelties at an early stage within the existing standardisation organisations. Such forums or government-initiated working groups should include representatives of all interest groups from science and industry, including from foreign countries, and the setting of appropriate standards should be discussed. Exchange forums can contribute to ensuring that Germany remains in close touch with international developments and can make German companies more competitive.
Cooperation between companies in setting standards raises questions concerning fair competition. However, assessments should pay due attention to the effect which this cooperation has on promoting innovation.

Further improvements to legislation on foundations and endowments

Modern legislation on foundations and endowments can provide impulses for research. In countries such as the USA or Great Britain it is common for large private foundations to fund major research activities. Particularly in the field of medical care, considerable sums are made available for research projects. The British Association of Medical Research Charities (AMRC) is a good example. Apart from cultural differences, current German legislation on foundations is the main reason why relatively little funding is provided for research from private sources. A modernisation of German legislation on foundations and endowments could lead to more foundations in Germany providing funding for research and innovation. An additional extension of the scope for tax deductible donations to charitable organisations and an increase in the maximum deductible amount for donations to foundations which promote research could stimulate the establishment of foundations and increase the support given to them by the general public. According to the Association of German Foundations, the most recent significant amendment to the legislation on foundations in 2007 led to a 26 percent increase in the number of foundations.[13] Currently, the main obstacle to a further modernisation is the requirement that a foundation should spend all revenues within a limited period. It is not permitted to accumulate foundation funds as capital stock to be used subsequently for other purposes, even if these will also be charitable in nature. This constraint should be eliminated.

SUPPORT MEASURES FOR SMALL AND MEDIUM-SIZED ENTERPRISES (SME) A 5

Supporting innovative SMEs – through and beyond the crisis

Small and medium-sized enterprises are important producers of technology, suppliers, and exporters. German SMEs play an outstanding role in the R&D process in an international comparison. According to the Institut für Mittelstandsforschung (IfM) in Bonn, more than 65 percent of the workforce were employed in SMEs.[14] R&D incentives for SMEs have

considerable influence on the innovative potential of Germany, because SMEs are particularly important for innovations in cutting-edge technologies.[15]

It is therefore to be welcomed that there are meanwhile a range of programmes targeted specifically towards small and medium-sized enterprises. One example is "SME Innovative" which supports projects in cutting-edge research. With the "Central Innovation Programme for medium-sized enterprises" (ZIM) initiated in 2008, the Federal Government has created an instrument to provide financial support for innovation activities of SMEs. Additional public funding has been made available in order to mitigate the impact of the financial and economic crisis on SMEs. As part of the Recovery Package II, the ZIM programme was increased by EUR 400 million (2009) and EUR 500 million (2010) in order to provide R&D incentives for medium-sized enterprises. The "KfW Special Programme" with a budget of up to EUR 40 billion in 2009 and 2010 was intended to ensure the availability of loans to medium-sized enterprises during the crisis and to cushion the shortage of credit instruments in the wake of the financial crisis. These measures have helped SMEs to cope with credit crunches in the short-term, but R&I policies must continue beyond 2010 to focus on providing support for SMEs.

High time to introduce R&D tax incentives

The Expert Commission has frequently drawn attention to the desirability of R&D tax incentives. In 2008, 21 out of 27 OECD countries had introduced such R&D tax incentives, compared with 12 countries in 1995. In order to ensure that Germany remains an attractive research location, the Expert Commission once again recommends introducing tax incentives for research and development, if possible already in 2010. A reference to this is included in the coalition agreement between CDU / CSU and FDP, but no specific plans have yet been presented for the implementation. Should budget restrictions mean that it is only possible to introduce limited tax support for research for the time being then these should be targeted primarily at SMEs, or should be introduced with a limit on the level of support provided. This should increase the economic effect, because SMEs are more affected by financing constraints in R&I than large companies.

Compared with subsidies for individual research projects, R&D tax incentives have the advantage of being more efficient. The companies choose the research projects they feel offer most promise, without any need to go through extensive and time-consuming application and selection procedures. It is important that the companies do not have to go through bureaucratic procedures so that the incentives can be fully effective. Suitable provisions should also

Tax incentives for R&D in France BOX 06

In 2008, the French government reformed its support for R&D activities by introducing the "Crédit Impôt Recherche" programme. Companies are given proportional tax credits for their expenditure on research and development, or young innovative companies can receive a direct aid payment. Companies applying for research support for the first time in five years are given a tax credit rate of 50 percent of expenditure instead of the regular 30 percent (before 2008: 10 percent). This provides an important incentive for company research.
The programme covers expenditures for personnel costs, raw materials and patent protection. If companies award research contracts to university or non-university public research institutions the twice the order volume is used as the basis for calculating the tax credit. This component is well suited to stimulate cooperation between scientific institutions and companies.
Since the reform came into force on 1 January 2008, R&D investments have risen in all sectors with the exception of the automotive industry and aeronautics and astronautics. Already in 2008, the number of companies claiming tax credits rose by 24 percent[16]. A further effect of the programme is that it strengthens the position of France as a research location. Companies are setting up their R&D activities preferentially in France or are repatriating activities that had been located abroad. A survey carried out by the French Ministry for Higher Education and Research shows that more than a third of companies have been stimulated to cooperate with scientific institutions. This is particularly the case for large enterprises. But start-up companies also benefit from the programme. In their responses to the survey, 88 percent of young innovative companies said they had received support through the "Crédit Impôt Recherche" programme.[17]

be included so that companies without corresponding tax liabilities can receive an incentive as direct aid. In particular innovative start-up enterprises face considerable research expenditure in the early stages before they can begin to generate any profits. R&D tax incentives should not be restricted to personnel costs, but should cover all R&D expenditure.

Supporting innovation through the tax system

The current fiscal and financial framework conditions for SMEs are not only unsatisfactory but they also act as a constraint on innovation. But as the Expert Commission has already argued in previous reports, it would be possible to create important innovation incentives. These include the removal of limitations on the use of losses carried forward under Section 8c Corporation Income Tax Act (KStG) and support for the provision of risk capital. The difficulties in discounting losses incurred when holdings are sold make investments in young innovative companies in Germany less attractive than in many other countries, where regulations are less restrictive. This constitutes a competitive disadvantage for Germany. The agreed amendments to the Act to Accelerate Economic Growth concerning limitations on losses carried forward also fail to promote innovation for new enterprises. The amendments to the legal provisions are mainly beneficial for distressed companies, for company restructuring, and for losses carried forward to the level of hidden reserves.

The inadequate availability of risk capital is a serious problem for the German innovation system, because such capital is crucial to provide a sound capital basis for young, innovative enterprises. Risk capital providers in Germany require framework conditions which will allow them to compete with those in other European countries. In Germany, only 0.04 percent of GDP is used for venture capital investments, in France 0.06 percent, in Spain, Denmark, and Finland 0.07 percent, in Great Britain 0.09 percent, and in Sweden 0.15 percent.[18] Furthermore, tax incentives should also be provided for Business Angels – experienced entrepreneurs who provide young enterprises with capital and expertise. Support for business angels could create incentives to bring together innovative entrepreneurial ideas and many years of experience in business and marketing.

Replacing research premiums by R&D tax incentives

There is often a considerable gap between supply and demand for exchanges between young innovative enterprises, established medium-sized companies and scientific institutions. Many companies, in particular SMEs, complain about the lack of offers from most scientific institutions relevant to their applications, and also feel themselves inadequately informed in this respect. But cooperation between science and business is essential if innovations are to be developed and marketed. The provision of research premiums in Germany has proved impracticable because of their complexity. As an alternative, support could be provided for cooperation projects between science and industry through R&D tax incentives. This instrument is being used successfully in France (Box 06). The costs for research and development for companies can be considerably reduced in this way.

Demand-oriented support for young innovative enterprises

Young innovative enterprises often have initial difficulties establishing a stable customer basis. In order to support them in this phase, a certain proportion of public acquisitions should be reserved for the products of such companies. This can help them to become established and stimulate follow-up orders from other companies. In the USA this approach has been used successfully for more than 25 years as part of the Small Business Innovation Research programme (SBIR).[19] A similar approach has been proposed in France. In order to broaden the impact of public start-up support, it might be possible to initiate a support programme together with the French government. In the best case, such a project to provide support for young, innovative enterprises could be extended to cover all Europe. This would contribute to overcoming the fragmentation of the European market, in particular for start-up enterprises.