

these programs encourage spin-offs from universities and research centres. The program "Innovations Kompetenz" aims to promote innovative capabilities of small and medium sized enterprises. BMWi allocated last year a total of 437 million Euros for innovation support of SMEs.

4. Future S&T Directions in Germany

The most eminent senior advisory body German Science Council (WR) set up by agreement by the federal and provincial governments in 1959 has mandate to advise and provide independent assessments on virtually all aspects of science. Important reviews undertaken by the Council in recent years include; the reform of the universities, the evaluation of government funded German research establishments, and the establishment of new research organizations, such as the new Centre for Advanced European Studies and Research in Bonn (CAESAR- an interdisciplinary, flexible research organization for emerging technologies).

BMBF also commissions studies to assess future technology trends. Germany in the past adopted the Japanese Delphi Study approach and has gone through two cycles of questioning the German research community on long-term trends in S&T over the next 20 to 25 years. The recently published 1998 Delphi studies pointed to the following longer-term socio-economic trends which will define new R&D priorities for Germany. The top 10 S&T based trends for the years 2000-2024 are projected as follows:

- 2001-2007: cost and time pressure lead to a further increase in R&D cooperation in industry and more participation of contract R&D and clients; industry develops new organizational structures
- 2002-2007: multi media becomes an universal tool in our daily life
- 2003-2009: next generation Internet becomes a universal service; everybody has access to broadband networks
- 2005-2012: tele work and electronically networked companies have fully emerged
- 2006-2013: product recycling and sustainable agriculture are widely practised
- 2007-2014: communication technology has a significant impact
- on volume of transportation; economic growth without further growth of traffic
- 2006-2014: further education and distance education are widely available
- 2013-2023: new energy resources have increased to 10% of consumption; energy efficiency has reached a major impact in industrial processes and households
- 2014-2024: global ecological management, i.e. for drinking water supply, agricultural biotechnology.

The government is currently looking at ways for integrating and making relevant programs, such as Delphi, more relevant to program development, so that such forecasting could eventually be tied to "innovation chances and market visions" and the evaluation of technologies in terms of their social and environmental impacts. A major event in this regard was BMBF's "Forward Thinking" Conference which was held together with the EU as part of Germany's EU Presidency in June 1999. At that Conference, BMBF announced the launch of a new forecasting program - FUTUR - a new foresight process in Germany to initiate a dialogue between politicians, scientists, the business community, trade unions, and other social groups, in order to develop viable ideas for developments "that are technically feasible, ecologically and economically sound and based on actual needs...to provide a completely new basis for a policy of precautionary sustainability".