
SCIENCE AND TECHNOLOGY PROGRAM - FRANCE

Weaknesses of S&T and the system of innovation in France

Generally, the French research system is characterized by sectoral specialization following traditional lines, the importance of government and public corporations, and internationalization focussing on Europe.

France has always had a strong, coherent view of its cultural and scientific achievements, and its place in the world. Through its 'key technology projects' France has become a leader in areas such as aeronautics, defence, space, nuclear technology and land transportation, all of which still receive major support. Mastering these strategic technologies for reasons of security, independence and prestige are still a major priority for France. Those programs account for half of France's public research spending, but benefit only a very small number of major companies. The programs have had a negative impact, restricting the scope of activity of major French companies, and steering them away from technologies with greater commercial value. Thus, although France has a major market share in the aeronautics and space industry with Airbus and Ariane, and an sizeable share in the telecommunication industry with Alcatel, it plays a more modest role in the electronics and information technologies markets. Another negative effect of this system is that because technology was the private preserve of large companies funded by major programs, there was very little room for SMEs. Technology was considered first and foremost the prerogative of large companies, and it was not until 1997 that a Technology Directorate was created within the Ministry of Research. To make things worse, France was still promoting conventional technologies when the United States and Japan were investing in emerging technologies, such as computer technology and biotechnology.

Social and environmental concerns have started influencing the directions of the government's scientific policy, and issues relating to urbanism, medical sciences, and clean, high-performance transportation technologies are attracting increasing attention from political leaders. France's priorities are gradually shifting from traditional industrial technologies to information and quality-of-life technologies that generate direct, more tangible benefits for the public. Under the direction of the current Minister of Research, Claude Allègre, fundamental transformations are taking place.

In 1997, aware of the profound problems with France's system of innovation, the government commissioned a detailed study on the status of innovation in France. The Rapport Guillaume sur la technologie et l'innovation [Guillaume Report on Technology and Innovation] listed the weaknesses of the French system. In 1999, reports from the National Assembly, the Commissariat au Plan [planning office] and the Cour des Comptes [Courts of Audit] confirmed those findings

- French research is high in quality but produces less than research in countries who invest less in research;
- France's research system has not aged well: it is complex and hard to read;
- universities, research agencies and industry should be decompartmentalized;
- the technology transfer mechanism is too complex;
- risk-capital investments are insufficient;
- public funding is excessively concentrated in a limited number of technical sectors and industrial groups;
- scientists are not sufficiently entrepreneurial;