

SCIENCE AND TECHNOLOGY PROGRAM - USA

universities. The increases in competitive grants, however, would be partially offset by proposed cuts in formula research funds distributed to the nation's land-grant universities.

Federally funded research labs are going through a period of change. Those funded by DOE are under pressure to safeguard their research secrets after the issue of leaking classified information to China. Those managed by private companies are under pressure to provide a *raison d'être*. However, the NIH and DOD labs run directly by those departments are growing in strength by working with industry and receiving increases in funding.

Established in 1979, the NSF's Experimental Program to Stimulate Competitive Research (EPSCoR) is a federal-state partnership aimed at cultivating the research capabilities of those states which in the past have received relatively little federal R&D funding. EPSCoR provides funds through a merit-reviewed process to those states which can demonstrate a commitment to develop their research bases and improve science and engineering research and education programs at their universities and colleges. The program is currently operating in 18 states: Alabama, Arkansas, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, North Dakota, Oklahoma, South Carolina, South Dakota, Vermont, West Virginia, and Wyoming, as well as the Commonwealth of Puerto Rico. In 1993, DOD, DOE, NASA, NIH, USDA, and the Environmental Protection Agency, joined NSF in sponsoring their own EPSCoR or EPSCoR-like programs.

2. Recent S&T Developments

Over the last decade, there have been a number of trends causing a change in US S&T policy such as US "Think Tanks" reporting the need for the US to become more globally competitive (particularly in manufacturing); federal departments and agencies reporting a rapid increase in the cost of research; and major corporations downsizing their corporate research departments. These trends have spawned a move to collaborative research, along with the appearance of new organizations that assist the management of large joint research projects, requiring complex funding scenarios and difficult intellectual property arrangements. Despite project formation costs and the complexities of getting these projects off the ground (partnering, IP issues), numerous successful collaborative projects involving universities, industry and government labs have resulted. These projects often require initial phase government funding to offset the high risks involved. The federal funding departments and agencies (DOD, NSF, DOE) have played an important role in developing funding programs that encourage collaborative research projects in areas of industry such as: next generation vehicles; environmentally friendly manufacturing; efficient manufacturing processes to reduce energy costs and to reduce emissions; use of lightweight materials; and many others.

Due in large part to the speed of innovation, the recent trend in applied research projects has been toward industry-university short-term projects. There is still a need for the more highly complex longer term collaborative projects and these continue to be managed by not-for-profits and associations. Of the \$240B funding in research, \$60B is federal dollars while \$180B is non-federal. S&T links are demonstrated by the percentage of research performed in different areas: academic @ 52%, Industrial @ 22% and all other @ 26%.