Commerce Sees the Future; Says Industry Practices Must Change

The Department of Commerce has identified a group of emerging technologies in the areas of advanced materials, electronics, biotechnology, automation, and computing that American industry must master by the turn of the century. But department officials say cultural, regulatory, and trade problems may prevent the country from effectively harnessing many of these technologies.

"It is no secret that at least part of the problem has been our inability to take full commercial advantage of scientific and technological developments made in the United States," says Clarence Brown, deputy secretary of Commerce.

Despite the massive inroads that the Japanese have made into the American economy in the past decade, Commerce concludes that much of American industry continues to operate as though the United States were a closed market. Because of the size of the American economy, many smaller companies never attempt to market overseas, says Commerce in "The Status of Emerging Technologies: An Economic/Technical Assessment To The Year 2000."* Our ability to hold onto domestic markets as well as compete overseas, the study suggests, also is undermined by the absence of an "entrepreneurial risk-taking" climate in management.

Rapid changes are needed, Commerce officials say, if the United States is going to successfully compete with foreign manufacturers in exploiting emerging technologies such as superconductors. Among those technologies ranked as having the highest economic value are polymer composites, products developed through genetic engineering, optical electronics and advanced microelectronics, advanced computing equipment, and automated manufacturing systems.

The Commerce study, headed by Ernest Ambler, director of the National Bureau of Standards, also found that the research, design, and manufacturing functions in American industry often are not well integrated.

Two of the most important factors preventing many U.S. companies from exploiting new technologies are inadequate tax incentives and the high interest rates on capital borrowing. In addition, patent protection laws need to be strengthened; restrictive trade practices of some countries must be addressed; and export controls on advanced technologies to Communist countries in Eastern Europe are often excessive.

While government has a role to play, Brown says, the private sector "must take the lead" in addressing these issues. The country's ability to exploit the fruits of American scientific research in 2000, he contends, "will play a big role in determining the country's economic successes or failures well into the next century." ■

MARK CRAWFORD

*Copies of "The Status of Emerging Technologies: An Economic/Technical Assessment To The Year 2000" may be obtained by writing: Charles Perella, Administration Building, Room E106, National Bureau of Standards, Gaithersburg, MD 20899.

CERN Urged to Cut 400 Posts

Significant staff cuts have been proposed at the European Laboratory for Particle Physics, still known as CERN in Geneva to enable the agency, which operates Europe's largest particle accelerators, to reduce costs while maintaining both its current scientific programs and the construction of its next accelerator, the 110-GeV Large Electron-Positron (LEP) Collider.

Between 400 and 600 jobs out of CERN's current total of 3500 could be eliminated without an excessive impact on these programs, according to the interim report of an independent review group, chaired by French physicist Anatole Abragam.

Further economies could be achieved, says the review group, by implementing various steps to streamline the management of the laboratory, including a greater rationalization of facilities, the elimination of duplicated effort, and the increased use of outside contractors.

The interim report was presented last month to CERN's Committee of Council, a body made up of representatives from each of its 13 member states. It gave a broad endorsement of CERN's current scientific program, emphasizing that both the scope and diversity of the program should be maintained, and arguing that, in order to meet the laboratory's objectives—including the upgrading of LEP to its full 200-GeV power by 1994—there should be no reduction in the overall budget, currently $520 million a year.

However, the review group, whose full report will be presented at the end of the year, said it felt that significant economies could be achieved by a combination of better management and eventual staff cuts.

The proposed economies are put forward as one way in which CERN can successfully complete the construction of LEP on time and within the very tight budget restrictions which have been set by the member governments. (Already, for example, it has had to ask some of its member states to bring forward the payment of their annual subscriptions, and the Swiss government has promised to make an advance payment on future subscriptions.)

However, the interim report does not provide clear guidance on one factor that could significantly affect CERN's future prospects—the threat from Britain's Science and Engineering Research Council that it will unilaterally withdraw from CERN unless satisfactory economies are made. This follows an earlier proposal from a British review committee headed by molecular biologist Sir John Kendrew for a phased reduction in Britain's subscription leading up to 25% by the year 1991—and complete withdrawal from the organization after this date if major economies are not achieved.

Although the British threat was not referred to explicitly in the review group's terms of reference, the president of the CERN council had promised that the group would look at the implications for the next 5 to 7 years of "alternative levels of funding" by member states, ranging from keeping the budget constant to an overall reduction of 25%.

Britain's minister responsible for scientific research, George Walden, said that the range of options would be studied by the review group, and "their consequences fully assessed." He promised that, if "significant savings" could be achieved, those accruing to the United Kingdom would be redeployed within the science budget for other "good and important science."

According to officials at CERN, however, the Abragam committee has merely said that it does not feel any reduction in the budget is justified. In doing so, it has thrown the ball firmly back into Britain's court. The British government will now have to decide whether to accept the recommendations of a committee which it itself was largely responsible for setting up and whose recommended economies are unlikely to reach 25%—or whether to accept the advice of the Advisory Board for the Research Councils, which has already suggested that Britain's contribution should be no more than $48 million a year, compared to its current level of $80 million. ■ DAVID DICKSON