Technology Policy: Congress Takes the Reins

A hesitant Administration has left technology policy in the hands of Congress, which has not been idle

EVER SINCE IT TOOK OFFICE, THE BUSH Administration has been promising to develop a technology policy—a strategy to guide federal support for the development of technologies likely to be critical for industrial competitiveness. Congress has apparently grown tired of waiting. It has seized the initiative by including huge increases for a variety of technology programs in the budget it approved last month. The upshot is a piecemeal strategy that increases the Department of Defense's role in funding industrial research. It also puts the White House Office of Science and Technology Policy (OSTP) in a more powerful position in establishing and orchestrating technology policy.

Congress has long tried to force the federal government to pay more attention to industrial technology, but both the Reagan and Bush administrations have balked at funding ventures they believe should be the responsibility of private industry. In 1987, for example, Congress created new programs in the National Bureau of Standards (which it renamed the National Institute on Standards and Technology, or NIST) to provide a vehicle for federal investment in industrial research consortia, but neither the Reagan nor the Bush Administration proposed much money for this new effort. And the pattern has been repeated in other agencies: Congress has consistently voted more money for specific technology ventures than the Administration has wanted to spend. This year, however, the congressional activity appears to be unprecedented.

One of legislators' principal aims is to bring a sense of order to the sprawling federal industrial research effort. For now, their chosen vehicle is OSTP. A provision sponsored by Senator Jeff Bingaman (D–NM), a long-time supporter of technology development, will more than double OSTP's $3-million budget by creating a new Critical Technologies Institute under its auspices. The institute will be charged with "rationalizing" federal research into critical technologies, according to a Bingaman aide. Its principal task will be to develop a list of technologies deemed especially important for international competitiveness and national security, and to update it every 2 years. The institute will also help the director of OSTP to develop a strategy for federal investment in these critical technologies. OSTP is required under existing legislation to produce such a list this year, but it has been delayed until early next year. The new institute should give OSTP the staff and resources to do the job.

Within the agencies themselves, Congress focused on pumping up budgets for "generic" or "pre-competitive" technologies—the buzzwords for research intended to enhance U.S. industrial posture without favoring one industry over another. Most of this money is still provided by the Department of Defense—even funding for the Critical Technologies Institute will come from DOD's budget.

But there is broad disagreement as to the best way to fund this work. Bingaman and others advocated providing a lump sum for defense agencies such as the Defense Advanced Research Projects Agency (DARPA) to spend as they saw fit. Eventually, this yielded a $50-million "pre-competitive technologies" fund within DARPA that the agency can use to invest in industrial research consortia. The sum is only half the $100 million Bingaman had sought, however. Legislators, instead, seemed more interested in boosting spending on specific projects. DARPA's budget for x-ray lithography—a key processing technology for manufacturing the next generation of densely packed computer chips—doubled; the Administration had requested no money at all for this effort. Advanced display technology, a key component of high-definition television, received a 114% increase in the DARPA budget. Only Sematech, a 14-member industrial consortium of semiconductor manufacturers, got no increase.

In the process of increasing spending, Congress also reorganized several programs. Lawmakers merged a variety of research programs within DARPA to spearhead a government-wide effort in high-performance computing—a joint program to develop the hardware and software for high-speed computer networks linking federal laboratories and academic researchers that will involve DARPA, the National Science Foundation, the Department of Energy, and the National Aeronautics and Space Administration. And DOD's Manufacturing Technology Program, an effort to upgrade the manufacturing capabilities of defense suppliers—many of whom produce "dual-use" products with both military and civilian applications—has been centralized under the Secretary of Defense and its budget has almost doubled.

Strictly civilian-oriented technology research, although still puny in comparison with DOD-sponsored work, also prospered under this Congress. Money for NIST's Advanced Technology Program more than tripled, for example. And funds for NIST's "regional manufacturing centers," which are hubs of scientific and technical expertise intended to accelerate the transfer of federal technology to small and medium-sized industries, rose by nearly 60%. That should be enough to add two more centers early next year to the three existing ones.

There are limits to what Congress's piecemeal approach can accomplish, which is why lawmakers are looking to OSTP to provide some leadership. On that score, OSTP last month produced a document entitled *US Technology Policy* that outlines no new policies but does acknowledge that the federal government has the responsibility to participate with industry in funding "research on generic, enabling technologies." It's a start. ■ DAVID P. HAMILTON

CONGRESS'S FAVORITE TECHNOLOGIES

	1990 Budget ($M)	1991 Budget ($M)	% Change
OFFICE OF SCIENCE & TECHNOLOGY POLICY	2.83	8.56	+200%
CRITICAL TECHNOLOGIES INSTITUTE	—	5.0	new
DARPA	1,200.0	1,400.0	+16.7%
HIGH DEFINITION DISPLAYS	35.0	75.0	+114.3%
X-RAY LITHOGRAPHY	30.0	60.0	+100.0%
PRE-COMPETITIVE TECHNOLOGIES	—	50.0	new
SEMATECH	100.0	100.0	—
DoD MANUFACTURING TECHNOLOGY	170.0	314.0	+84.7%
NIST	160.0	215.0	+33.3%
ADVANCED TECHNOLOGY PROGRAM	10.0	35.9	+260%
REGIONAL MANUFACTURING CENTERS	7.5	11.9	+58.7%
HIGH PERFORMANCE COMPUTING INITIATIVE	448.0	490.0*	+10.0%
DARPA		+20.0	
NASA		+15.0	
DEPARTMENT OF ENERGY		†	
NATIONAL SCIENCE FOUNDATION		†	

*Based on congressional estimates. † Not available at press time.