Supercomputer Restrictions Pose Problems for NSF, Universities

A remote possibility that Soviet or Eastern European citizens could gain access to U.S. supercomputers to run military programs has prompted a high-level review by an interagency committee. Although such concerns are dismissed as groundless by some observers, they have caused problems in the contractual arrangements between the National Science Foundation (NSF) and the four supercomputer centers the foundation is establishing on university campuses. Some federal officials want access to the computers to be strictly limited, but the universities are anxious about the threat this would pose to their academic freedom, and NSF has found itself caught in the middle.

The concern stems from the fact that the Soviet Union does not possess supercomputer technology and thus cannot perform some highly complex calculations that require huge amounts of machine time. Such applications include many in the national security area. For example, supercomputers are widely used by U.S. intelligence agencies for such tasks as signals processing and by weapons designers to perform a variety of calculations and simulations.

Recently, Defense and State Department officials have been arguing that Soviet bloc scientists visiting the United States might clandestinely run such programs on U.S. machines, and the matter has been taken up by an interagency committee chaired by William Schneider, under secretary of state for security assistance.

Schneider's office is concerned in particular about access to computers in the academic supercomputing centers being established by NSF at the University of Illinois, Cornell University, Princeton University, and the University of California at San Diego. NSF was asked to put a clause in the contracts for the centers that would deny access to the machines by citizens from countries that are subject to international export control regulations—essentially the Soviet bloc countries and China. The clause would not have stopped them from participating in research projects but would have prevented them from actually logging on to the supercomputers to run programs.

The universities objected, however, because such a clause would infringe directly on their academic freedom. After negotiations that one participant describes as being "a mutual problem-solving effort between NSF, the security agencies, and the scientific community," the clause was dropped and replaced by language stating that the centers will adhere to whatever policy is finally adopted by Schneider's committee.

So far, the contracts have been signed by the John Von Neumann Center at Princeton and the San Diego center. Cornell and Illinois are still deciding what to do. They are reluctant to sign a contract that could tie them to a policy that has not even been developed yet. "We have a difference of opinion on how to preserve our academic freedom," says one university official. "It is against the policy of this university to discriminate on the basis of citizenship," he said. People on both sides say they are hopeful that an accommodation will be reached, however.

In the meantime, Schneider's committee is trying to develop a policy governing access to all supercomputers owned by the federal government or under government control. According to one participant, the problem has been greatly exaggerated. Those who have been raising concerns, he said, "don't understand that people can't just come in and bring a weapons code in their briefcase" and run it on a machine.

The kinds of uses that would pose a threat would be very sophisticated and chew up large amounts of machine time. Such uses could be guarded against by a variety of measures including program sampling, watching for very long runs, and so on, this official believes.

At present, the committee is at an early stage of its deliberations and will be collecting information over the summer. A final policy is not expected until the fall. —**COLIN NORMAN**

tives prodded NIH to expand its role, without advocating that it go very far outside of the medical field, other speakers at the advisory committee meeting defended the value of the status quo. Theodore Cooper of Upjohn, a former director of the heart institute, was summoned as a heavy-hitter for the institutes. Said Cooper, "U.S. leadership in science was created by science itself," and not by government policy or any directed effort. Arguing that research development is best left to industry, Cooper said that the way to maintain a competitive edge in basic science is to "let the NIH be the NIH." He did, however, raise one troublesome issue that several other speakers noted also—namely U.S training of foreign scientists, particularly the Japanese who become competitors. It is noteworthy that the United States has no major program for sending American scientists either to Europe or Japan for biotechnology training, speakers observed.

Two other participants who urged NIH to maintain its focused mission were former NIH director Donald S. Fredrickson, now president of the Howard Hughes Medical Institute, and Stanford University president Donald Kennedy. "NIH cannot and should not radically change," said Fredrickson, who added that NIH "can't supply all of industry's needs." Kennedy took the position that NIH should continue to focus on biomedical research, in part because he believes that much of what the biotechnology industry requires competitively includes things that NIH could not supply even if it wanted to. Issues regarding industrial collaboration with universities, he said, are for universities to settle. Availability of venture capital and other investment funds are not within NIH's purview. Nor, he said, are regulatory issues related to industry's belief that U.S. laws place it at a competitive disadvantage. "Stay with what you're good at," he said.

If the advisory meeting was meant to resolve the issue of NIH's biotechnology role, it probably failed. Wyngaarden summarized Keyworth's view when he said, "Keyworth is asking us to expand our sense of boundary." But in large measure, Keyworth's position remained unpersuasive to those who think NIH should stay exclusively in the health business. Likewise, rebuttals to Keyworth's position lacked sufficient force to settle the matter. Cooper suggested that the heart of the debate is more a matter of communication and perception than of substance, which may well be the case.—**BARBARA J. CULLITON**