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## **TECHNOLOGY FROM THE NATIONAL LABS: EFFORTS TO BOOST INDUSTRY INTERACTION BRING SUCCESS -- IN UNEXPECTED WAYS, SURVEY FINDS**

Efforts to improve the economic benefit from U. S. national laboratories have been successful at increasing interaction between the labs and private industry -- but the results of that interaction may not be exactly what program supporters had expected.

A newly-completed survey of 55 research-intensive U.S. companies has found that access to the unique technical knowledge and resources in the national labs provides the strongest attraction for research directors considering such interactions, said Dr. J. David Roessner, professor of public policy at the Georgia Institute of Technology. The findings may lead supporters of lab transfer efforts to seek new criteria for evaluating their success.

"Despite the underlying reason for the legislation enabling the interaction -- to promote the licensing of technology and technology transfer -- our results suggest that is not the primary reason why companies interact with the labs nor is it seen as promising the greatest payoff in the future," Roessner explained. "This is the same pattern we see in research involving

universities and companies in which the initial incentive may be licensed technology, but access to students, knowledge and networks turns out to be the greatest payoff to companies."

In evaluating success of these efforts, Congressional policy-makers should therefore consider the full range of relationships developed between industry and the labs, he argues. The survey suggests these working relationships may turn out to have the most long-term value.

"The difficulty I see is that the emphasis may be on counting licenses and cooperative research & development agreements, things that are not necessarily going to be the factors which keep companies and federal labs working together," Roessner said. "It's not the immediate prospect of profit that seems to be the dominant force, but rather access to unique technical resources, knowledge and expertise."

The survey also found that directors of industrial research facilities would like to work with the national laboratories on contract and cooperative research opportunities.

"Contract research received the most first place votes as having the greatest overall payoff for the companies, followed by cooperative research," he added. "Not a single one of the respondents considered technology licensing to have the greatest overall value to them. Even in those forms of interaction in which you would expect payoffs in commercial products to be the dominant incentives, it was the other forms of payoff which were the major incentives."

### **FOR MORE INFORMATION:**

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The results suggest that federal legislation aimed at encouraging cooperative research has succeeded in expanding interest in such collaborative work. The percentage of respondents interested in cooperative research grew from approximately 35 percent in a 1988 survey of these issues to more than 70 percent in the 1992 poll.

Results of the survey were presented to the annual meeting of the American Association

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***- Dr. J. David Roessner***

for the Advancement of Science (AAAS) February 12 in Boston.

The survey was sent to 260 members of the Industrial Research Institute, a private organization whose corporate members conduct approximately 85 percent of the industrial research in the United States. Surveys were returned by 101 laboratory and division directors, who represented 55 different companies.

The study also found that:

\* Approximately 60 percent of the industrial research directors reported at least a moderate level of interaction with the federal laboratories.

\* The key to successful interaction was the quality of the personal relationships involved. "Person-to-person contact was absolutely crucial to successful interaction," Roessner found. Another key factor was support from lab management, while the geographic location of the laboratory turned out to be the least important factor.

\* Informal communication between the

laboratories and companies has increased since 1988, and the private sector is now obtaining information about the laboratories largely through conferences, seminars, and other personal and professional interactions.

\* About a third of the industrial research directors said their scientists and engineers served on advisory boards for the federal labs. Nearly ten percent said federal lab employees were involved in providing advice on industrial research agendas.

\* National laboratories still rank low on the list of places companies look to obtain information important to their business, well behind competing firms, universities and information databases. The labs have relatively low visibility because of the limited amount of time they have been open to industrial contacts, and because they must now compete with aggressive technology transfer efforts from universities, Roessner explains.

\* Legal requirements and other "red tape" still constitute the greatest roadblock to successful interaction between companies and the national laboratories. Companies complain that the labs can be slow to respond, but Roessner finds that some of the labs have been able to cut through the paperwork.

Declining federal support for their research has prompted the national laboratories -- many of which had primarily defense missions -- to search for other tasks in support of the U.S. economy. But while the survey suggests those efforts show promise, Roessner cautions against making major investments until the expected results can be better defined.

"There is definitely technology with commercial potential in the federal laboratories," he concluded. "The issue is how much trouble and expense it is worth to make that connection with private industry. Nobody really knows that answer, but it seems the potential has not yet been fully tapped."

The survey was conducted in cooperation with the Center for Innovation Management Studies at Lehigh University, the Industrial Research Institute, and the U.S. Department of Energy.

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