

to train 500 [legal] specialists in patents in the past few years, while India has just half a dozen," he notes.

One reason for the scarcity of patent examiners is the lack of interest among academics in the needs of industry, says Nagaraj Vittal, chief of administration for the government's Department of Electronics. Vittal, who dismisses most Indian research as "me-tooism," feels that little will change until Indian scientists begin carrying out "innovative rather than imitative research."

That philosophy has already taken hold among the faculty of India's premier research and teaching institution, the Indian Institute of Science (IISc) in Bangalore. Govindarajan Padmanabhan, IISc's soft-spoken chief, points to several cases where industrial partnerships have led to significant

economic gains. "Research at the institute helped the nation become self-sufficient in silicon manufacture through cooperation with Metur Chemicals in southern India," he says. And Padmanabhan notes that the institute has also made important—but harder to measure—contributions to the country's space and defense programs.

The new emphasis on industrial ties, he says, has also been a catalyst for such changes as a new course on patenting and a promotion system that relies more heavily on the impact of publications than sheer numbers. But he says there is still room for improvement. Private sponsors provide half of the institute's funding, he notes, but only 10% of that total comes from industry. Padmanabhan would like to triple the size of that industrial slice. "While the institute can

never give up on its primary mandate of basic research," he says, "we have no intention of resisting change."

Even with the backing of such important institutions, however, it's not yet certain that the government's effort to make Indian science more financially independent will permanently alter the country's research enterprises. Rao says the answer lies in increasing export of technology-related products, adding, "but that can happen only with an increasing outlay for targeted and product-identified R&D." Before that can occur, though, university scientists and their industrial counterparts need to learn how to work together.

—Pallava Bagla

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NATIONAL LABORATORIES

Galvin, DOE Spar Over Reform Plan

The chairs of most blue-ribbon panels dutifully release their reports and then return quietly to their regular jobs. But not Robert Galvin, the chairman of Motorola and head of a Department of Energy (DOE) task force that in February suggested radical changes in how DOE's national laboratories are managed. At a Senate hearing last week, Galvin went a step further, describing in detail how Congress could create a private company that would receive federal funding to operate the labs but function largely free of government oversight.

The idea to "corporatize" the labs is not popular with DOE or lab officials, as Energy Secretary Hazel O'Leary made clear to the committee during the same hearing. But Galvin hopes to strike a chord with those in Congress who are eager to reduce the size of government. He offered the senators a seven-page paper, prepared after his panel was disbanded, outlining how a quasi-government corporation could be established and the precedents for doing so. Under Galvin's plan, DOE would either lease or transfer its property to the organization. The bottom line, Galvin forecast, would be a 20% to 30% reduction in operating costs.

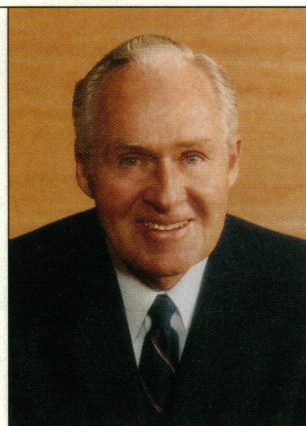
Galvin's presentation won some plaudits from Senator Pete Domenici (R-NM), who chairs the appropriations panel that controls DOE's budget and whose state includes two weapons laboratories. Domenici said he favored "a bold initiative," and warned O'Leary that "we don't intend to let the Galvin report gather dust. ... We want

results." However, he and other Republicans stopped short of endorsing Galvin's proposal.

Galvin's plan held little appeal for the panel's senior Democrat and former chair. "I'm really highly skeptical," Senator Bennett Johnston (D-LA) told Galvin. "This is a formula for abolishing the labs." O'Leary, who sat next to Galvin at the witness table, believes the proposal goes too far. The labs "are an investment on behalf of U.S. taxpayers of over \$100 billion," she said. "I am very loath to submit them to some experiment."

O'Leary has already embarked on a major shake-up of the department to streamline operations and save \$10.6 billion over 5 years. (This effort helped her shoot down a White House trial balloon lofted shortly after the election, to abolish DOE, although a group of freshmen Republicans has since revived the idea.) Last week she announced plans to create a Laboratory Operating Board of Directors within 1 month. This, she says, is in keeping with a less radical proposal contained in Appendix B of the Galvin report that calls for DOE to streamline

the current system. The board, a panel of DOE managers and outside experts chaired by Energy Undersecretary Charles Curtis, would help the labs set strategic goals and monitor DOE efforts to cut costs. One lab director said he and his colleagues endorsed



Working overtime. Robert Galvin's "visionary" plan would corporatize DOE's labs.

the moves at a meeting last month.

But Galvin told the senators that such an approach amounts to "rearranging the deck chairs [on the *Titanic*]." The corporation approach, he said, "is a non-risk test" and "a sure bet" to save money and make the labs more efficient. He praised the labs and damned DOE and congressional micromanagement of the system.

The plan Galvin presented to the senators

calls for Congress to set up a not-for-profit organization through the Government Corporations Control Act, which has created entities like the Resolution Trust Corp., the Federal Land Banks, and the Federal Deposit Insurance Corp. A presidentially selected board of trustees would oversee the lab system and select its officers. "DOE, as the government sponsor and customer, should not serve as auditor or manager of the laboratories," Galvin's paper states. DOE would ask Congress for a budget, however, and the Comptroller General of the General Accounting Office could audit the new corporation.

Although O'Leary has not publicly rejected Galvin's plan, she does not believe it is politically realistic. "Bob Galvin is a visionary; I am focused on what I can do—and what I can do is Appendix B," the secretary told *Science*. For his part, Galvin insists he is not sparring with the secretary and that his goal is to "clarify" the task force report. He doesn't deny, however, that his efforts have created tension between him and O'Leary. "I don't think she is thrilled," he says.

—Andrew Lawler

"We don't intend to let the Galvin report gather dust. We want results."

—Sen. Pete Domenici (R-NM)