

Why We Can't Seem to Get a Buck: The Federal Disinvestment in R&D

Since the mid-1960s, the government's funding of research and development (R&D) as a fraction of the Gross National Product (GNP) has halved. As a fraction of the federal budget, funding for civilian R&D has declined by two-thirds. Retiring professors speak fondly of the glory days of the 1960s. Newly hired faculty are so stressed by the money rat race that they no longer eat or sleep, much less teach.

Unfortunately, the situation is unlikely to improve. Although there is talk of a \$900+ billion surplus over the next 10 years, that surplus materializes only if the government cuts all domestic programs, including R&D, by 23%. A more realistic scenario, involving inflationary growth of existing programs, would yield only a \$46 billion surplus over 10 years. In the meantime, Social Security needs a small gold mine to survive, and Congress desires to siphon off the \$46 billion—and an extra \$746 billion in "change"—for an eye-popping \$792 billion tax cut. Many more special interest groups have chimed in to claim a part of the nonexistent surplus. Some of them will be placated. It remains to be seen whether the scientific community is one of them.

The scientific community operates under curious and crippling handicaps with respect to working with Congress. Each of the constituencies which ought to be supporting science simply isn't for reasons peculiar but endearing to that community. The result is sporadic and underwhelming support for science in Congress. The portfolio of players, and their constraints, is discussed below.

■ *Individual scientists.* Scientists often feel the political realm is dirty or hopeless or both. They doubt that one letter can make a difference, although in practice it often does, especially on an obscure issue where there are no other voices. Scientists who regularly make the circuit to Washington DC to talk with funding agencies do not make a practice of dropping by their own senators' or representatives' office and asking to speak to the science and technology legislative assistant (LA) on the need for more science funding. Paradoxically, the dollars one could procure from the latter visit are roughly 10–100 times the former, and the LA is virtually required to visit with any constituent who asks. Finally, while other good-for-the-country causes, such as environmentalism, have generated large, powerful grassroots networking organizations, there is not a comparable one for science.

■ *Industry.* Since the decline of the corporate R&D laboratory, industry has become increasingly less connected with R&D issues. As a whole, industry does recog-

nize that federal investment in R&D is greatly needed and makes statements to that effect, particularly through letters by trade organizations and through statements at hearings. However, the pull-no-punches lobbyists from single industries in key districts are almost universally preoccupied with trade, tariff, tax, and regulations issues. The only industrial lobbyist still arguing full-time for across-the-board R&D investment is from IBM.

■ *National Laboratories.* As quasi-governmental organizations themselves, the national laboratories are not allowed to directly lobby Congress on anything. This community of scientists has no voice.

■ *Scientific Organizations.* Many of the scientific organizations have taken a step in addressing the lack of R&D funding by sending their lobbyists to Washington to scope out the situation and report back. However, the lack of follow-through is deafening by its silence. Few organization presidents make the rounds on the Hill. Only two or three have any kind of grassroots network to generate letters and phone calls when they are needed. The lobbyists themselves are often told not to actually "lobby" for fear the nonprofit parent organization will lose its nonprofit status, or for fear some member might hear of the activity and complain.

■ *Universities.* Capitol Hill views the university as the most powerful of all constituencies. Senators and representatives are acutely aware of the large employment base that universities in their district represent, and of the fact that university graduates represent their best hope for skilled workers (i.e., jobs) in their district. Curiously, the universities do not choose to exercise their power very often. (This learned helplessness has caused many a Congressional and White House staffer to moan repeatedly, "They just don't get it.... They just don't get it!") In one of the few instances where universities have come forward for science, they have used their lobbying arm to argue for increased National Institute of Health (NIH) funding. The choice to concentrate on NIH, and not on the physical sciences, reflects the reality that 60% of all university research is already funded by NIH, and a 15% increase there would dwarf any increment another agency (such as the Department of Energy, the National Science Foundation, and the National Aeronautics and Space Administration) could offer. For physical scientists, the concentration by universities on NIH deprives them of their most powerful bargaining agent. It is instructive to note that last year's 15% increase to NIH represented 77% of all new

money given to civilian R&D. This year's presidential request of a 2% increase in the NIH budget represents 30% of the president's new funds for civilian R&D.

■ *Military.* In the Cold War era, the military was the staunchest supporter of R&D. Academic materials science, in particular, still derives about 40% of its funding from the Department of Defense (DoD). However, DoD is cutting back on R&D to pay for a number of more pressing needs such as pay raises to military personnel, spare parts for aircraft, and increased expenses due to more frequent military engagements. DoD requested an extra \$12 billion in this year's budget, but simultaneously asked for a 6.6% (approximately \$3 billion) cut in R&D. DoD's plans for the next 5–6 years include \$112 billion for new expenses, but no new money for R&D. With the demise of the country's only peer competitor, the Soviet Union, and the United States' current hardware performing well against the competitors it now encounters, the military sees no compelling rationale for investing in future technologies.

Overall, the weak support of science has led to many years of "one step forward, two steps back." This year is a good example. Senate bill S. 296, which seeks to double federal funding for civilian R&D over the next 11 years, passed the Senate unanimously and had 41 cosponsors, including Senate leaders Trent Lott (R-Miss.) and Thomas Daschle (D-S.D.). However, there is no companion bill in the House, and therefore no law can result. On the military side, 14 pages of this year's defense authorization bill concentrate on the problem of forcing the military to adopt a long-term, aggressive technology strategy consistent with a greater R&D investment. Nonetheless, a congressional request for the military to actually increase its R&D spending by 2%/yr was roundly ignored by DoD, despite generous increases elsewhere in the DoD budget.

The R&D tax credit, which is an on-again, off-again tax credit given to industries, was extended for five years instead of the usual one year. Its supporters, however, had argued for permanence. The lesson is if you don't have a constituency, you don't get the bucks.

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