October 6, 2003

Michael J. Holland
Office of Science & Technology Policy
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Washington, DC 20502
(via email: mholland@ostp.eop.gov)

Dear Mr. Holland:

We are writing, as senior research officers for our institutions, to comment on broad aspects of the business relationship between research universities and the federal agencies, in response to the request for information by the National Science and Technology Council Subcommittee on Research Business Models in the Federal Register of August 6, 2003. Our individual universities will provide specific information separately. For well over fifty years, the relationship between research universities and the federal agencies has been the envy of the international community. By all measures, the returns on federal investments in promising research in all areas of science and engineering have been extraordinary. American and American-trained researchers consistently receive a large share of the international awards for pioneering science. Americans are healthier and live longer thanks to medicines and treatments that draw not just on the biomedical sciences, but on basic research in areas as diverse as computer science, materials science and electrical engineering.

These points are emphasized in a June 5, 2003 memorandum to the heads of executive departments and agencies, from John Marburger, Director of OSTP, and Mitchell Daniels, Director of OMB, who stated "Science and technology contribute significantly to the highest priorities of this Administration…. The President's FY 2004 Budget sets forth a research and development (R&D) agenda for the forthcoming fiscal year that reflects these priorities and seizes important opportunities for discovery and development while sustaining the basic R&D machinery needed for continued U.S. leadership in science and technology." We applaud the administration's recognition of the strength of the U.S. science leadership. We are pleased that OSTP/NSTC have recognized that scientific leadership is sustained best on a path that recognizes the singular role of higher education and academic research.

Essential for a productive review of the business models underlying the research relationship between the government and the university community is a commitment by both parties to recognize and optimize the immediate and long-term public benefits of research. The government and the universities also share a bond of responsibility for educating future generations of scientists and engineers, creating knowledge through fundamental research, and assuring national leadership in investigator-initiated research.

The Federal government is not the only source of research support, but it remains the largest, and for research whose benefits are long-term and the ultimate financial rewards unknowable, it is hard to imagine another. However, the fraction of funding

provided by the Federal government has steadily declined since reaching a peak of more than 73% in 1966. In 2000, the federal government accounted for an estimated 58% of the funding for research and development performed in academic institutions, its lowest share since the late 1950s (NSF Science and Engineering Indicators 2002). The long-standing business relationships between the government and the university community are based on the cost principles embodied in OMB Circular A-21. Modifications over the last 15 years have eroded these principles.

The request for advice on how to facilitate the team approach and streamline its management engages issues important to all. An increasing number of complex problems require a wide variety of tools and the collaboration of a team of investigators whose expertise spans two or more traditional disciplines. For such research, the single investigator model is not the best approach. We offer three examples of effective approaches. For several decades, our universities have conducted materials science research in centers that require teams of physicists, chemists, electrical and mechanical engineers, and others. These centers support central facilities for synthesis and analysis; quickly identify and fund the most promising "seed" projects; and direct the most successful of these towards new sources of sustained funding. Second, teams of biological, social and physical sciences are addressing problems in neuroscience and cognitive science, in computational biology and biotechnology, and in nanotechnology, that call for collaborations across a wider range of disciplines and, with the benefit of information technology, across geographically distant locations. Third, each regional or national synchrotron X-ray source permits dozens of experiments to be conducted simultaneously, experiments that span a wide range of disciplines from the physical sciences through biology to agriculture and the environmental sciences. They attract academic, industry and government scientists, often as part of the same team, and offer a relatively bureaucracy-free environment in which administration is largely centralized. These examples, selected from many possible, demonstrate that team science, conducted on a scale larger than that of an individual laboratory, can be both scientifically and administratively effective.

It is illuminating to examine the paradigm of team research in the context of federal policies. The promotion and management of collaborative research among investigators and across disciplines and institutions is more complex than the management of a single investigator laboratory. Indirectly, these complexities have contributed to some of the additional requirements with which universities must now comply. The more cumbersome and intrusive this oversight, the less incentive investigators have to collaborate. Even if the additional oversight is handled as deftly and efficiently as possible, and even if agency policies are revised to make them as simple and uniform as possible, an increase in the level of expenditures for infrastructure and administration in the capped administrative category and the *de facto* capped library category is inevitable.

Given this background, it is disappointing to read a list of questions in the Federal Register that makes little mention, if any, of the underlying problems as we see them. These are:

1. a shifting of direct costs from the government to the university in various types of cost sharing;
2. an inadequate recognition of the burdens of unfunded regulatory mandates; and
3. an increased level of facilities and administrative costs associated with team research.

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These problems must be addressed within a context in which the recovery of administrative costs has been capped. As a consequence, the universities are obliged to use their own funds to cover the increasing costs of compliance with, for example, human subjects research, HIPAA, and growing expectations of elaborately defined stewardship responsibilities. (Reference the recent DHHS OIG expectations for NIH grant management). In contrast, cost principles for R&D support for other non-profit grantees and the commercial sectors permit them to fully recover administrative costs. Only the cost principles for the academic community are burdened with an administrative cap.

Another refinement of A-21 Cost Principles has shifted virtually all the costs of clerical and administrative support from direct costs to indirect costs. Modest administrative support directly related to research can and should be supported as a direct cost. For many investigators, the impact of this accounting change coupled with the capping of administrative costs and the imposition of Cost Accounting Standards, eliminated all support. Investigators not only do the business of research, they are clerks, travel agents, purchasing agents, and low-level compliance officers. A good business model does not call upon faculty members to divert time from research to make photocopies of data records, or to fill out appointment forms for technicians. But universities cannot adequately fund the research administrative staff if their administrative costs are capped.

At a more basic level, OMB and rate negotiators appear to have replaced standard business-like processes that would base the reimbursement of facilities and administrative costs on actual costs by an arbitrary "principle" of "budget neutrality." In the face of instructions to negotiators to permit no increased payments by the government, the insistence on submission of increasingly detailed documentation to substantiate costs that will not be reimbursed is difficult to fathom. Also difficult to understand is the increased attention being placed on sub-recipient monitoring. Not merely must we assure that our university manages our own awards in compliance with all federal regulations, we must also redundantly monitor each others' business practices on collaborative projects. Such requirements create an additional disincentive to the new and efficient kinds of multi-disciplinary, multi-institutional collaborations noted above.

Institutions are therefore being forced to commit increasing percentages of their own resources to R&D. University resources come from tuition, endowment income,

state and federal appropriations, gifts, and sponsored research. To support R&D, the first should not be tapped, the second and third are limited by restrictions, and the fourth unrealistic in the case of alumni and friends, limited to short-term and directed research in the case of industry, and decreasing in the case of foundations. It is inconceivable to us that any prudent "new" business model could be fashioned that did not begin with a fair and reasonable funding relationship between the parties.

Our institutions are eager to work with the Subcommittee to define such models, giving special attention to the opportunities for sharing facilities, streamlining multi-institutional funding mechanisms, instituting reasonable cost principles and establishing closer research relationships between universities, government laboratories, and the private sector. We welcome the opportunity to comment and offer to meet with OSTP, NSTC and the Subcommittee to discuss these concerns further.

Sincerely yours,

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