

FY 2009 R&D Priorities Issued by OMB and OSTP

Each year, the Executive Office of the President – through the Office of Management and Budget (OMB) and the Office of Science and Technology Policy (OSTP) – issues a memorandum addressed to the heads of the relevant Federal research and development (R&D) agencies outlining the Administration’s R&D priorities for next year’s Federal budget. On August 14th, the Bush Administration issued its latest update on R&D priorities to influence the development of the agencies’ FY 2009 budgets – budgets that won’t be made public until February 2008.

The memorandum can be an important indicator as to whether the Federal government will continue to emphasize certain areas as it has in past years and/or which new areas are likely to be moving to the top of the Federal R&D priority list. The document contains no hard and fast budget proposals but it does clearly give the agencies guidance on program and policy areas to be emphasized as they continue to develop their proposals for FY 2009. Below is a brief summary and analysis highlighting the major priorities of the Administration’s memorandum. A copy of the Administration’s memorandum can be found [here](#) or at the OSTP web site: www.ostp.gov.

Not surprisingly and consistent with the last two Bush Administration budgets, the memorandum indicates that the American Competitiveness Initiative – or ACI – will remain a Presidential priority in FY 2009. The ACI proposes to double the federal investment over 10 years in certain agencies supporting the physical sciences and engineering. The agencies included in the ACI are the National Science Foundation, the Office of Science within the Department of Energy, and the National Institute of Standards and Technology within the Department of Commerce. This has been the case for the previous two years of the ACI as well. In addition to doubling these areas within the agencies and in contrast to the FY 2008 budget request currently being debated by Congress, the Administration also says “real increases (above inflation) in the high-leverage basic research at the Department of Defense should be a significant priority.”

The Administration’s memorandum also lays out some general guiding principles with respect to Federal R&D investments. These include preference for investments that:

- Advance fundamental scientific discovery to improve quality of life;
- Support high-leverage basic research to spur technological innovation;
- Strengthen math and science education based on the recommendations of the Administration’s interagency Academic Competitiveness Council and the National Math Panel;
- Sustain specifically authorized agency missions;
- Improve the nation’s ability to understand and respond to climate change;
- Expand the competitive, merit-based peer review process for research and education support; and
- Encourage interdisciplinary research efforts.

Elsewhere in the OMB-OSTP memorandum a number of specific interagency R&D priorities are highlighted. These include the following areas:

Homeland Security and National Defense – The memorandum emphasizes continued support for R&D efforts which counter the threat from improvised explosive devices; develop decision support tools to respond to natural disasters, terrorist attacks, or disease outbreaks; and design integrated predictive modeling capabilities for potential hazards and the basic science and data collection needed to support these predictive capabilities. Special emphasis is also placed on agency research efforts related to defense against the threat of a domestic nuclear event and biometrics.

Energy and Climate Change Technology – Relevant agencies are directed to continue to advance the development of advanced energy technologies that cost-effectively reduce greenhouse gas emissions, especially basic research targeting scientific and technical breakthroughs in such areas as zero carbon emissions, coal and carbon sequestration, nuclear energy, energy storage, solar energy, and hydrogen and fuel cell technologies.

Advanced Networking and Information Technology – The memorandum directs future federal investments in advanced networking R&D into the foundations, design, management, security, and usability of future computing and communications networks to help sustain the Nation's military, scientific, economic, and technological preeminence. Agencies are also to continue advancing and coordinating investments in high-end computing – particularly in areas that support transformational solutions to complex problems in energy, climate and weather, human health, new materials and national security. The President's Council of Advisors in Science and Technology (PCAST) will be completing a comprehensive review of the interagency Networking and Information Technology R&D program later in 2007.

National Nanotechnology Initiative (NNI) – Relevant agencies are directed to strengthen their interagency coordination of and support for research on potential risks to human health and the environment. More broadly, the NNI should continue to support basic and applied research in nanoscience, develop instrumentation and methods for nanoscale characterization, and disseminate new capabilities to help industry advance nanofabrication and nanomanufacturing.

Understanding Complex Biological Systems – Relevant agencies should target research on a deeper understanding of complex biological systems through multi-disciplinary collaborations aimed at developing new and improved measurement and management tools to provide data that can be compared across laboratories and platforms. The memorandum goes on to emphasize research on gene expression, the development of new applications targeted toward specific diseases, including ultimately those that are personalized based on the needs and genetic make-up of individuals.

Environment – Given the growing importance of climate change, agencies are directed to continue to make investments to improve our ability to observe, model, assess, and adapt to impacts of climate change, particularly on a regional scale, and to assure the availability of critical long-term climate data. With respect to ocean science and technology, high priority is given to maintaining support in the following areas: forecasting the response of coastal ecosystems to persistent forcing and extreme events; comparative analysis of marine ecosystem organization; sensors for marine ecosystems; and assessing ocean circulation which has implications for rapid climate change. Agencies are also directed to place a greater emphasis on coordinating their Earth observation activities.

Other areas receive attention in this guidance document including next generation air transportation systems, federal scientific collections, and the science of science policy. The Administration's guidance also reminds the agencies to evaluate existing programs and "wherever possible, consider them for modification, redirection or termination in keeping with national needs and priorities." New programs have to be well justified and in moving new initiatives forward, agencies are directed to identify potential offsets by elimination or reductions in less-effective programs.

This priority setting memorandum comes on the heels of the America COMPETES Act becoming law – a major comprehensive bill authorizing a significant number of key innovation, research and education initiatives – many consistent with the Bush Administration's own ACI initiative. It is important to remember that while the President signed this bill into law, his signing statement objected to Congressional attempts to expand the research activities and education programs beyond those proposed previously by the President. This latest R&D priorities memorandum continues to keep close tabs on those areas the White House considers important for innovation and competitiveness and those areas the White House considers less effective towards reaching its policy objectives.

The result will likely be an FY 2009 research and development budget from the Bush Administration that will continue to provide strong support for the physical sciences and engineering, as well as a few key areas such as energy, information technology, homeland security and defense, and climate change technology. At the same time, it will also likely be a budget that will place less emphasis on other areas of research such as biomedical research, social sciences and certain aspects of environmental science – as well as more "applied" agency research efforts closely related to industry needs. Such a budget will certainly continue the thread of intense discussions between the Congress and the Administration, when the Congress begins work next winter on the FY 2009 budget process.

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