

We offer the following recommendations to stimulate and inform discussions about action that can begin today to move the research enterprise toward the ideal state. Together with the research agenda, these recommendations comprise a balanced strategy for building future knowledge while acting on today's promising ideas.

Document and evaluate different models and philosophies of grants-making

Like all other federal agencies, granting agencies are expected to measure program achievements and process outcomes. An important debate is occurring about what constitutes useful measures of performance for long-term research investments. However, a somewhat easier and very valuable evaluation task could be undertaken today to help us document and better understand the variety of program models in use by different agencies. Comparative assessments of such elements as cost to all participants, openness, time factors, and predictability across the various models now in use would be very informative for all granting agencies. While each agency is well-versed in its own processes and traditions, few are more than generally aware of the strengths and weaknesses of other approaches that they might try. For example, different federal agencies use different strategies for proposal solicitation, review, and selection. A formal evaluation of these strategies and their strengths and weaknesses might foster their appropriate application in new venues, or might improve them through critical review by peers. The challenges of establishing practical comparative metrics and data sources are not trivial, but the learning potential of this kind of evaluation is great.

Support and improve communication across research and administrative professions within the enterprise

One mechanism for carrying out this recommendation would be an annual conference to support knowledge sharing and idea development between and among practitioners and researchers. Such an event would provide a regular forum for knowledge sharing among all the stakeholders in the enterprise. Papers could be invited from program managers and administrators that describe planned projects, new initiatives, and opportunities for and impediments to progress. The research community could be invited to report on findings applicable to grants-making organizations from areas such as information technology, sociology, information science, and management studies. The conference format would be designed to maximize cross-professional knowledge sharing, to identify overlapping interests, and to foster collaborative research and problem-solving initiatives.

Identify and share best practices in communicating within the enterprise and with the public about science

Communicating effectively about the results and benefits of research is critical to ensuring that the White House, Congress, other governmental organizations, the private sector, and citizens understand the value of grant-supported research. The challenge, as with any communication effort, is to explicitly address the interests of separate and sometimes overlapping audiences. The media and content that are suitable for communicating among scientists are not effective for other audiences such as elected officials and staff, the press, or the public. Members of the research enterprise, especially the grants-making agencies, should identify, evaluate, and disseminate information about communication methods, programs, and messages that successfully engage the interest of these different audiences.

Continue to invest in the development, deployment, and adoption of standards for common data, tools, and activities

The early work of the Federal Demonstration Partnership focused on standard rules for grants management. This standards-based strategy still holds great promise for improving the enterprise. By collaboratively selecting and deploying standards, the many stakeholders in the enterprise stand to benefit both individually and collectively. Standard vocabulary, work-process models, data definitions and formats, records requirements, and basic technical tools are just a few of the areas where there is both great need for standards and great potential benefits from adopting them.

Experiment with business models that reflect different assumptions about institutional relationships

A large percentage of the funding from some of the larger granting organizations goes to a very small number of organizations. For example, 80 percent of the research dollars distributed by NSF goes to 150 organizations. Business-to-business relationships between granting organizations and the universities and other research facilities they support therefore offer great opportunities to improve the efficiency and accountability of proposals submissions and grants management. Private sector supply chain and e-commerce models, and government-to-government (G to G) and government-to-business (G to B) electronic government models all present possible improvements in these crucial business relationships. Instead of treating each grant as if it were a new business relationship, these models would treat each grant as a defined transaction within an already established business relationship. This business relationship could capitalize on the capabilities of each participating organization and offer substantial economies of scale. Granting organizations, research institutions, investigators, and taxpayers would all benefit from experiments along these lines.

Continue to experiment with virtual collaboration work models and technologies

The research enterprise is highly dependent on collaboration. Initiative development and institutionalization requires collaboration among a wide range of stakeholders, including scientists, program directors, grants-making organizations, university research administrators, and Congress. Developing and distributing program descriptions, cultivating research proposals, and all of the other steps in solicitation, selection, and grants management require collaboration. For many, significant participation in the enterprise will increasingly be possible only through virtual collaboration. While more research and better tools are clearly needed, conference calls, teleconferences, and virtual workspaces already provide some opportunity to extend participation. Thoughtful, evaluative use of these basic collaboration technologies will not only inform their further development, it can also deliver value to the enterprise today.

Coordinate announcements of focus areas across the enterprise

Very often multiple granting agencies seek proposals in overlapping or tightly related areas. For example, many agencies are funding work in bioterrorism, collaborative technologies, and digital libraries. Currently, the burden for identifying agencies seeking to fund research in a particular area falls to the individual researcher or institution. Providing mechanisms for agencies to post announcements and grant descriptions collectively by topic or issue would streamline the researcher's effort to identify and compare the opportunities most relevant to his or her work. Reducing the burden of this process for researchers enables them to devote more effort to the development of sound and successful proposals and to conducting the research itself. Implementation of tools and strategies to support this kind of coordination is underway in programs like the Federal Commons, but additional efforts to cultivate an enterprisewide approach to program announcements is still needed.

Identify and apply the knowledge gained through funded research to the needs of the research enterprise itself

New knowledge created by federally funded research is, in many cases, highly relevant to the achievement of the ideal research enterprise. Research findings in organizational behavior, decision making, risk assessment, information technology, digital libraries, information preservation, economics, interpersonal and interorganizational relations, and other topics may all pertain. To take advantage of this rich array of knowledge, the enterprise must actively seek it out and invest in efforts to select and apply it to its own further development. In the spirit of the old story, the shoemaker's children deserve shoes.