Minutes of the Merit Review Process Advisory Committee meeting
July 28, 2011 (12 to 4 pm)
National Science Foundation
4201 Wilson Boulevard, Arlington, VA.
Room II-515

AGENDA

11:30	WebEx and teleconference line open	
12	Welcome & Introduction	AC co-chairs & WG co-chairs
12:15	Why are we here?	Candace Major
12:30	AC members' experiences with review processes	AC members
1:10	Presentation + discussion: NSF's end-to-end process & the variety of standard review mechanisms	Steve Meacham
1:35	P & D: Exploratory Data Analysis	Hank Warchall
2:15	Break	
2:20	P & D: Social Science Research on Merit Review	Susan Winter
2:45	P & D: Experiments in the Merit Review Process	Chuck Liarakos
3:10	P & D: Stakeholder Engagement	Sven Koenig
3:40	Next steps	AC co-chairs & WG co-chairs
4:00	Adjourn	

IN ATTENDANCE

AC members: Kaye Husbands-Fealing (co-chair), Tom Knight (co-chair), Gerald Barkdoll, Evelynn Hammonds, John King, James Kurose, Richard Ladner, Jerzy Leszcynski, Stephanie Pfirman, Walt Robinson

WG members: Cheryl Albus, David Croson, Jean Feldman, Sven Koenig, Charles Liarakos, Candace Major (co-chair), Steve Meacham (co-chair & DFO), Jose Munoz, Jeffrey Rich, Carmen Sidbury, Henry Warchall, Susan Winter

Others: Cliff Gabriel (NSF), 2 members of the public.

MINUTES

The meeting opened with a short introduction by Steve Meacham, co-chair of the Merit Review Process Working Group (MRWG). He outlined the technical support available for the virtual meeting and some general instructions for use of the WebEx and audio systems. He then introduced the Advisory Committee (AC) co-chairs, Kaye Husbands-Fealing and Tom Knight. Introductions of the other AC members and the MRWG members followed.

Candace Major then reviewed the AC's and MRWG's charges. The primary purpose of this initial meeting was to provide the AC members with background information about current merit review practices at NSF and the activities planned over the coming months to look at pilot experiments of various approaches for enhancing the merit review process. A few of the major trends driving the merit review process

effort were shown (e.g., increasing numbers of proposals and decreasing numbers of reviews per proposal, increased number of times a Principal Investigator (PI) must submit a proposal to obtain an award). The timeline of these activities, including future meetings of the AC, was summarized.

The AC members shared some of their experiences with and perspectives on the merit review process, both at NSF and elsewhere. Experiences included being a PI and reviewer (ad hoc and panel) with NSF, reviewing for various other organizations both US and international, service on other Advisory Committees, being a Program Officer at NSF, work with small business innovation programs, serving as a virtual panelist, and advising interdisciplinary, small grants and advisory programs, and technology solutions for people with disabilities.

There was a consensus that the existing merit review process at NSF while labor-intensive, remains an effective tool for identifying the best research ideas.

Members of the Committee inquired whether practices at other agencies and international organizations would be considered by the Working Group. Members also pointed out that it will be important to assess the impact of the MRWG outcomes, and noted previous NSF efforts in the same general area.

The AC members elaborated upon comments about differences between the NSF review process and that in other agencies and countries. One AC member described her experience as a panelist for a mission-driven program that was concerned with funding a balanced portfolio of research. Panel reviewers in that program had the latitude to recommend partial funding of some projects and to evaluate the entire group of highly ranked projects for gaps in priority areas. Another AC member described a process that focused on relative rankings of a number of proposals in given categories. This process had reviewers assign points in different categories such a PI qualification, research plan, etc. Another member described a tiered system of evaluation for complex multi-national proposals, where a first round narrowed a large number of initial proposals down to a small number of the most promising projects, which were then subjected to intense panel discussions and ranked by a review panel.

Steve Meacham presented an overview of NSF's end-to-end review process and the variety of standard review mechanisms used by the foundation. He stressed that the MRWG's activities are focused on the process and not the criteria of merit review, noting that the National Science Board had created a Task Force to examine the two criteria—intellectual merit and broader impacts—that are currently used to evaluate proposals to NSF. He made the distinction between merit review, which is the entirety of the process of NSF, and peer review, which is the element that sits in the center of NSF merit review process. NSF program officers are required by NSF policy to consider a number of factors beyond intellectual merit and broader impacts when making decisions about distribution of funds.

Standard NSF merit review processes were described to provide a baseline. The AC is charged with providing feedback on possible enhancements to NSF's merit review processes that might expand the range of tools available. The diversity of programs at NSF requires a diversity of review approaches, and new technologies are available that may have the potential to reduce the burden on reviewers. Programs have had the opportunity to experiment with different approaches for identifying transformative research, and some of these experiments will be described later. Research on the social aspects of review and group effectiveness will also be considered when developing new approaches. This may be particularly important for virtual panels, which may function very differently from face-to-face panels. Currently about 1% of NSF panels are virtual panels.

Discussion followed, during which AC members inquired about various aspects of NSF's current merit review practices. In response to a question about reviewer recruitment, a WG member described various tools available for identifying new reviewers, for broadening the review pool, and for training new reviewers. Another AC member asked if there was any information about changes in the quality of reviews that might be related to reviewer fatigue. The WG responded that information about this is mainly anecdotal, but that it is looking into ways of objectively evaluating the substance of reviewer feedback and its change over time. An AC member suggested that asynchronous panels might allow participation by panelists who would otherwise be unable to manage the related travel or panel scheduling. There followed more discussion of recruitment of qualified reviewers. On average, over five individual external reviews are used in programs' evaluation of proposals. Program Officer judgment is particularly important in cases with divergent external review scores. One AC member raised the possibility of limits on submissions per institution in some circumstances.

Hank Warchall presented some preliminary analysis of proposal submission and review data. The goal of the exercise was to identify high volume activities in the review process and recent trends. Data included numbers of funding opportunities, submission numbers in Directorates and Divisions, success rates, and reviewer loads. It was shown that, overall, increased numbers of funding opportunities are not a significant driver of increased proposal submissions. Overall, the conclusion of these analyses was that there is unlikely to be a one-size-fits-all solution to improved efficiencies in merit review. AC members noted that different Directorate/Office budgets and research infrastructure requirements complicate comparisons among programs. The WG members pointed to the recent NSB Merit Review report for a summary of success rates vs. ranking of proposals.

One AC member asked if the increase in the number of proposals submitted before receiving an award was disproportionately affecting certain groups, such as women scientists and young investigators. The WG noted that the data in the annual Merit Review report did not indicate this.

Following a short break, Susan Winter gave a presentation on social science research in the area of merit review and group functioning. Much of this presentation focused on how to measure outcomes and the impact of proximity on group function. The merit review process overall is quite complex and involves balancing multiple goals and constraints. Not all of the studies are directly relevant to the NSF process, though much of the literature (especially that on team performance) can be used to inform the NSF process. In particular, teams that do not meet in person (i.e., virtual teams) may have to overcome more barriers to function effectively.

One of the AC members commented that perhaps some procedures could be put in place to allow virtual teams to function more effectively. Teams that meet periodically and those that have strong coordination are more likely to be effective. Another AC member asked about the use of annual and final reports to assess research quality. NSF is looking into ways of assessing long terms impacts of funded research. The National Academies of Science and Engineering periodically examine long-term research impacts. Finally, an AC member suggested providing Principal Investigators an opportunity to respond to reviewers' comments before a final funding decision is made.

Chuck Liarakos discussed some experiments with the review process that have been recently undertaken at NSF. These included IdeasLabs, charettes, the Big Pitch (which included double-blind review), wiki-based proposal development, and prizes. IdeasLabs and charettes have mainly been used to facilitate development of high-risk, out-of-the-box proposals that have transformative potential. Others are new award vehicles to reach beyond the typical NSF communities. All experiments presented were in early stages and their impacts and outcomes are currently being assessed. None were intended to replace the NSF standard practices, but rather to offer alternative review mechanisms for specific needs while preserving the high standard of NSF's merit review process.

One AC member commented that a 2-page limit (for the Big Pitch) was probably too short, and that in her experience on other review panels 5 pages, as is often used for preliminary proposals, seemed to be enough to get the PIs' points across. Another AC member noted that several of the experiments were aimed at new and broader ideas and proposals and larger collaborative efforts. The WG reiterated that these pilots were to facilitate review in new areas and to investigate how different factors affected the review process. The AC agreed that it is important to facilitate new research directions and risk-taking.

Sven Koenig wrapped up the presentations with an overview of the WG plans for stakeholder engagement, both inside the Foundation and with the external community. It was noted that a wide variety of external groups are stakeholders in the merit review process, and different groups have different interests and concerns. Engagement of the external community, particularly outside the research community, is more challenging than engaging the internal NSF community. Some of

the specific plans for “in-reach” include an internal IdeaShare campaign, informal communications, and town hall meetings. Plans for outreach beyond the NSF staff include briefings of review panels, Advisory Committees, surveys, and discussions at NSF Days and Regional Grant Conferences.

A wrap-up conversation focused on what specific input the AC might provide over the course of the next several months. Several areas were identified, including feedback on the information presented in this meeting, and advice on the best way to reach out to research and academic institutions to get their perspectives on the merit review process. The discussion returned to the idea of evaluating the quality of reviews, with specific focus on the feedback on both intellectual merit and broader impacts. One AC member suggested that NSF might ask for reviewer feedback on the merit review process immediately following submission of a review; this point was echoed by two other AC members (“experience sampling”), and another suggested debriefing panelists following panel service. Another AC member advocated changes that would allow panels to be more inclusive of people who might not normally be able to participate.

At the conclusion of the meeting, Cliff Gabriel and the Working Group co-chairs thanked the Advisory Committee for its input, and encouraged the members to submit ideas about any other studies, data, or models that should be considered in pursuing the next stage of the WG charge: the prioritization and development of new pilot activities, as well as the eventual assessment of whether these pilots should become part of the NSF merit review toolbox. It was agreed that the next two meetings would be scheduled in October and December.

Meeting was adjourned at 4 pm.