

Grant and Contract Proposal Reviews—Can They Be Improved?*

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There is no single way to ensure objectivity in the review of proposals seeking funding of research and development in the fields of chemistry and chemical engineering. This was the conclusion of a panel that included representatives of Federal funding agencies, peer reviewers, consultants, and research organizations which featured the Open Forum sponsored by the Division of Chemical Literature at the 163rd National Meeting.

The panel pointed out that the review of a request for funding of research is an integral step in the allocation of financial resources available to a government agency. The panel examined in turn questions dealing with: validity of generally-accepted review criteria, attainment of objectivity when reviewers are in competitive enterprises, review problems created by multiple-source support requests, effectiveness of panels in resolving conflicting evaluations and recommendations, and impact of the inclusion of scientific communications tasks on the evaluation of proposals for research and development.

REVIEW CRITERIA

Agreeing that sometimes-used standards such as "reasonableness" and "appropriateness" are unmeasurable, the panelists brought out that these are being replaced by more specific guidelines in many of the agencies. However, the treatment and review of solicited proposals does vary considerably from that afforded unsolicited proposals. In the case of solicited proposals, the funding agency desiring the work usually prepares a set of specifications for the work that is being requested, and evaluates proposals against these points. In the case of unsolicited proposals, the primary consideration revolves around the question: Is it good science? A second question in all situations is: Does this proposal fit into the area of interest and responsibility of the agency being asked to fund the work?

A number of specific suggestions were offered by the panelists, as well as by members of the audience. It was pointed out that applicants for grants and contracts would be greatly helped if funding agencies would openly announce the criteria they use in judging the proposals. It was suggested that a proposer needs some idea of the situation he faces before he is asked to go to the trouble and expense of preparing a proposal. Stating that the cost of proposal preparation is quite high, and there is no compensation for this cost, Dr. George R. Harris of Arthur D. Little, Inc., suggested some method should be adopted for providing recovery of expense by those who respond to solicited requests for proposals.

PET PEEVES

The discussions were opened by Barbara Murray, of the National Cancer Institute, who stressed that Federal agencies by and large have vastly improved their criteria for judging the merits of proposals, and the criteria are becoming more generally standardized in like situations. She pointed to the new HEW guidelines—a thick sheaf of papers. Inaugurating the question of "pet peeves," she listed several:

1. Companies sending in the same proposal on two different contracts. This suggests at best carelessness or at worst the need to consult a reliable ophthalmologist.
2. People who attend briefing sessions and don't ask any questions. The average briefing session eats up 15 man hours of top professional time and an additional 30 hours of preparation. The handouts we prepare with such loving care don't spring full blown from the head of Jupiter.
3. Companies who *always* list every piece of work ever done (no matter how irrelevant) and include every resume of each employee on the staff (no matter how inept).
4. The company who is replying to a request for systems analysis by a pitch for the company-owned package without any indication of *how* it's going to solve the problem in hand or who is going to make the judgment that this is cost/effective.

Murray added that although she always makes the point in briefing sessions "we are a user of the central computer facility and not the controller of what the Division of Computer Research and Technology (DCRT) at NIH will or will not support, we never seem to be able to convince anyone."

A common "peeve" mentioned by several in the audience was that the time allowed for responding to requests for proposals usually is too short; the proposal writer often has only a week or two for this important work. One panelist suggested that this may, in fact, be part of the selection process. People who can't get proposals in on time are likely to be even later with final reports.

The audience generally agreed that lack of feedback from agency project and granting officers was the cause of much frustration and uncertainty. Several strongly urged that agencies should provide information concerning their own proposal in relation to the agencies' criteria for evaluation. This would help to improve future proposal preparation, but could involve the agency in almost litigious correspondence with a rejected proposer.

BALANCING VIEWPOINTS

Although no pattern of review methodology can be discerned, Harrison Shull of Indiana University, as a representative of review panelists, suggested that the use of panels assures a balancing of subjective opinions and pro-

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motes equitable evaluations. It is important that those seeking support should consider carefully which agency should be approached, since oftentimes proposals are clearly outside the agency's orbit; yet they must be reviewed. The importance of careful budget calculation and preparation also was stressed. Bad budgeting can influence a review panel into low-rating a proposal that otherwise might have considerable merit. Bad budgets, incidentally, can be too low as well as too high.

Kent Wilson, Head of the Chemistry Section of the National Science Foundation, which supports basic chemical research in universities, stated that a plurality of reviews assures optimum chances for funding a proposal. The program officer in a funding agency and the proposal writer share a common objective—to fund a worthwhile activity. On that basis, Wilson endorsed the careful budgeting suggestion, but added that a "pet peeve" from the funding agencies' side is that of proposals that reflect "bad science." Often, these same proposals reflect that "where's the check?" attitude which proposal reviewer's decry.

OVERLAPPING REQUESTS

Harold Wooster, of the National Library of Medicine's Lister Hill Center for Research in Biomedical Communications, addressed the question of overlapping support requests. He was supported by the other panelists in suggesting that multiple-funding of a worthwhile project is a highly desirable procedure in the allocation of resources for support of research, but suggested complete

disclosure of all sources of support. He declared that grants and contracts were in essence synonymous, at least as administered by the Air Force.

INFORMATION SUPPORT IN BASIC RESEARCH

The final question dealt with the effect on the prospects for obtaining funding for basic research in chemistry if a significant amount of the budget deals with the support of information services, especially those derived from computer-based systems. Panelists pointed out that such support is provided in virtually all proposals. Further discussion disclosed that favorable consideration might be a problem if the amount for information services exceeded 2 or 3% of the total budget. The reasonableness of the higher costs of computer-based services, as contrasted to purchase of books or journal subscriptions, however, was not established, and the panelists concurred that the nature of the work would be a determinant.

The plight of the Federal agency project or program officer was summarized as a "catch 22" situation. If the project officer makes his own decisions without widespread review, he could be accused of highhandedness. If he accepted the consensus of the reviews and in effect became merely a vote teller, he should be accused of cronyism. The audience, although sympathizing with this plight, indicated by its questions that the proposal preparer was very much the underdog in all situations, and therefore deserved more sympathy than he normally is afforded.

A Natural Document Retrieval System for Macromolecular Chemistry

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An indexing system for chemistry and technology of macromolecular substances is sketched out, whose characteristics are convenience of use and low cost. The selection mechanism consists of a set of optical coincidence cards. The system is a result of 15 years experience in the German Plastics Institute.

It is a concomitant symptom of the increasing need for documentation facilities in the chemical industry that notation systems for chemical compounds are described more and more frequently in the scientific literature.¹⁻⁸ Some of those systems require in practice an expensive employment of personnel and specialized equipment; therefore, they can be supported only by big companies. However, numerous "simple" and inexpensive systems, which would have a quick and convenient manipulating procedure, have been described in the literature. Nearly all of these "simple" systems operate with a sophisticated code which has an attractive universality and an absence of discrepancies, and so they are suitable for documentation by computers. But unfortunately their symbolism becomes a barrier between the creatively working chemist and the information store. There are different reasons

why the laboratory chemist does not learn the "simple" code willingly or does not use the assistance of a documentation expert for his literature searches.

On the other hand, when the chemist himself has personal contact with the information file and does not hesitate to tap it "with his own hand," then psychological and objective benefits are the result. "The chemist must have the sources in his field at his fingertips including . . . the indexing and organizational characteristics . . ." said Dr. Erwin Klingsberg of the American Cyanamide Co.⁹ However, the technique of enquiry must be easy for the chemist. He should have to learn as few documentation skills as possible. Therefore, symbolism too must be avoided as far as possible. What matters, is not to provide a big information center with the most sophisticated indexing system, but to place the information store at easy