

U.S. DEPARTMENT OF COMMERCE
Office of Inspector General



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***NATIONAL INSTITUTE OF
STANDARDS AND TECHNOLOGY***

*External Reviewers Help With ATP Focused
Program Selection Process, But Key Steps In
The Selection Process Were Not Documented*

Audit Report No. STD-11113-0-0001/March 2000

Office of Audits, Science and Technology Audits Division

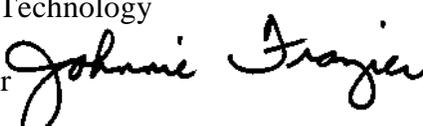




UNITED STATES DEPARTMENT OF COMMERCE
The Inspector General
Washington, D.C. 20230

March 30, 2000

MEMORANDUM FOR: Raymond G. Kammer
Director, National Institute of
Standards and Technology

FROM: Johnnie E. Frazier 

SUBJECT: *External Reviewers Help with ATP Focused
Program Selection Process, but Key Steps in the
Selection Process were not Documented*
Audit Report No. STD-11113-0-0001

We have completed our audit of the Advanced Technology Program's (ATP) focused program selection process. The audit determined that ATP uses external reviewers to help evaluate proposed focused programs. Also, ATP has established criteria for evaluating and selecting technology areas for focused competitions from those ideas submitted by industry, but key steps in the ATP focused program selection process were not documented. As a result, we were unable to determine whether the focused programs were selected based on ATP criteria. We believe that if ATP returns to focused program competitions, its focused program selection process should be better documented.

In response to our draft report, NIST generally disagreed with two of our recommendations for improving the ATP focused program selection process. NIST did not respond to our third recommendation that the ATP Director should document her justification for selecting a focused program. In addition, although NIST provided revised funding amounts for inclusion in the "General vs. Focused Competitions" chart on page 3, NIST did not provide documentation to support the revised amount. Therefore, we incorporated NIST's comments, but did not modify the chart. NIST's complete comments to our draft report are included as Appendix II and are summarized within the report. We reaffirm the need to implement each of our recommendations.

Please provide your audit action plan addressing the recommendations within 60 days, in accordance with Department Administrative Order 213-5. The plan should be in the format specified in Exhibit 7 of the DAO. Should you have any questions regarding the preparation of the audit action plan, please call me at (202) 482-4661 or contact Mary Casey, Acting Assistant Inspector General for Auditing at (202) 482-1934 or Ronald Lieberman, Director, Science and Technology Audits Division, at (301) 713-2070. We appreciate the cooperation and courtesies extended to us by ATP personnel during the audit.

INTRODUCTION

ATP was created by the Omnibus Trade and Competitiveness Act of 1988 to improve the nation's competitiveness and economy by investing, with industry, in high risk technologies that are broadly enabling, have high payoff potential, and which might be ignored or developed too slowly to effectively compete in the rapidly changing world markets. ATP's cost-sharing

investments are intended to help U.S. companies accelerate the creation and commercialization of highly innovative technologies with strong potential for generating broad-based economic benefits for the nation. ATP received an appropriation of \$192.5 million in FY 1998.

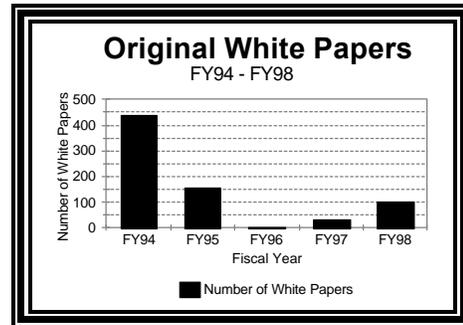
ATP relies on U.S. companies to conceive and propose technology development projects. Companies submit proposals in response to announced competitions, of which there are two types: (1) general competitions, open to proposals in all areas of technology, and (2) focused program competitions, which support specific, predefined technology and business goals. During FYs 1990 through 1993, ATP utilized only general competitions open to proposals in all areas of technology as its sole investment mechanism. But during FYs 1994 through 1998, most ATP funding was awarded through focused program competitions, although one general competition was also held each year.

ATP introduced focused program competitions as a way of achieving more efficient use of funds for specific technology areas. Specifically, by managing groups of projects that complement each other, ATP hoped to make a stronger impact on technology and the economy. ATP solicits white papers (proposed ideas) from companies and industry groups on technology areas for consideration as the basis for focused programs. During FYs 1993 through 1998, 1,200 white papers were received urging focused program competitions in various technologies. While it can be costly and time-consuming for a company or industry group to sponsor a good white paper, the potential benefits are extensive. Some focused programs, such as the Health Care Information Infrastructure Program, have received over \$140 million in matching funds from ATP.

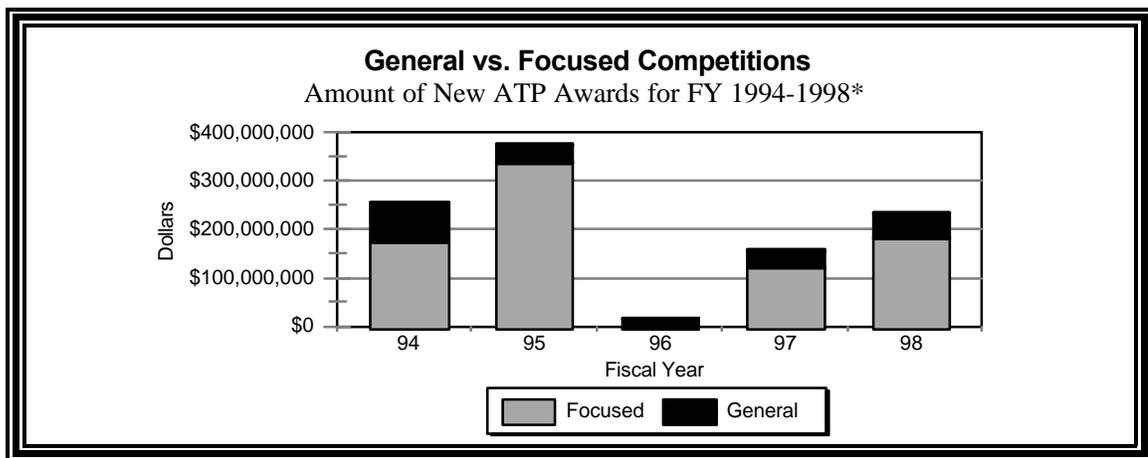
The focused program development process begins when ATP sees increasing interest from industry in technical areas, as reflected by the white papers submitted (see Appendix I). This is supplemented by phone calls, e-mails, presentations made at industry sponsored conferences, and quality proposals submitted for consideration in general competitions. An ATP manager is assigned to develop the proposed ideas into a plan for a focused program that addresses four key criteria: (1) potential for U.S. economic benefit, (2) good technical ideas, (3) strong industry commitment, and (4) the opportunity for ATP funds to make a difference. The ATP manager continues to work with industry while developing the potential focused program, and gives presentations to ATP colleagues at various junctures to obtain feedback. When the program manager decides that a program is sufficiently well-developed, it is presented for consideration to a group of external reviewers who assist ATP senior management in deciding which programs to fund. The final decision is made by the ATP director.

For FY 1999, ATP officials decided to suspend focused program competitions in favor of holding one general competition open to all areas of technology. They said that since ATP

funding was reduced in FY 1996¹, they have been unable to support as many focused programs as they would like. They also said that they believe ATP's uncertain funding has discouraged industry from submitting white papers that serve as the basis for programs (see chart at the right). Also, ATP is concerned that an industry may sometimes delay performing research, knowing that ATP is considering establishing a focused program to support its technology. The decision to suspend focused programs for FY 1999 was made after we began this audit. Nevertheless, we decided to complete our audit because ATP has indicated that they may resume focused program competitions at a later date.



From FYs 1990 through 1997, ATP held 30 competitions, funding 352 projects involving 842 participants, including for-profit companies, universities, and nonprofit organizations. The total amount of ATP awards during this period was approximately \$1.2 billion. In FY 1998, ATP made 23 awards totaling \$50 million in general competitions and 56 awards totaling \$184.5 million in focused program competitions. For FY 1998, the last time focused program competitions were held, eight of nine competitions involved focused programs. Over the past five years, most of the ATP funds awarded were through focused program competitions (see chart below).



* These amounts were based on information extracted from the NIST database. In its response to our draft report, NIST stated that the total amount for FY 94 was \$309 million (with \$224 million in focused competition) and for FY 95 was \$414 million (with \$376 million in focused competition).

¹ In FY 1995, ATP's appropriation was \$340.5 million. The appropriation was reduced to \$221.0 million in FY 1996.

PURPOSE AND SCOPE

The purpose of our audit was to determine (1) how focused programs are selected; (2) if ATP adequately documents the basis for selecting each focused program; (3) whether and to what extent ATP's focused programs were selected based on its four selection criteria: (a) potential for economic benefit, (b) good technical ideas, (c) strong industry commitment, and (d) opportunity for funds to make a difference; and (4) the extent to which ATP utilizes outside information and/or expert viewpoints in formulating and evaluating proposed focused programs. We reviewed and evaluated documentation related to the selection of focused programs, and interviewed current and former ATP management officials. We also contacted outside experts in the areas of technology covered in focused programs to solicit their views on the quality of the choices made by ATP.

We evaluated the adequacy of internal controls related to the selection of ATP focused programs and reviewed ATP's compliance with applicable laws, regulations, policies, and procedures. We found that key steps in the ATP focused program selection process were not documented, as described in detail in the body of the report. Our field work was conducted from October 1998 through December 1999 at NIST headquarters in Gaithersburg, Maryland.

We did not test the reliability of computer-generated data. Our use of computer-generated data was confined to summary information provided by NIST in selecting our sample. Accordingly, the information was not significant to the audit results, and we determined that testing its reliability was unnecessary.

The audit was conducted in accordance with generally accepted government auditing standards and was performed under the authority of the Inspector General Act of 1978, as amended, and Department of Commerce Organization Order 10-13, dated May 22, 1980, as amended.

FINDING AND RECOMMENDATION

I. External Reviewers Help with ATP Focused Process Selection Process, but Key Steps in the Selection Process Were Not Documented

ATP uses external reviewers to help evaluate proposed focused programs. Also, ATP has established criteria for evaluating and selecting technology areas for focused programs from those ideas submitted by industry, but key steps in the ATP focused program selection process were not documented. As a result, we were unable to determine whether and to what extent the focused programs were selected based on that criteria.

The Comptroller General's guidance on internal controls in the federal government, *Standards for Internal Controls in the Federal Government*, requires that all transactions and significant events be clearly documented, and that the documentation be readily available for examination. Documentation on the ATP focused program selection process should facilitate tracing the entire selection process from the solicitation of white papers to the selection of specific focused programs.

ATP officials told us that when focused programs first began in 1994, ATP program managers who were responsible for developing program ideas from white papers presented their proposals directly to the ATP and NIST directors. After hearing all proposals, the two directors would decide jointly which focused programs to fund based on the four ATP criteria. Some of the early focused programs that were selected from this process included Information Infrastructure for Healthcare, Manufacturing Component Structures, and Component Based Software.

In 1997, ATP changed the selection process to obtain more and earlier feedback about program ideas from individuals both inside and outside ATP. A process (see Appendix I) was introduced whereby program managers would refine the content and appearance of their proposed focused programs by making as many as three successive presentations to peers within ATP and NIST. The process culminated in a fourth and final presentation to a group of external reviewers who were chosen from government, business, and academia by the ATP director. The final presentations were held twice during the year. ATP continued to use the four selection criteria elements and to address each criteria in the final white papers. The revised process was adopted and followed in FY 1997 and FY 1998.

Additionally, ATP concluded that the NIST director should not be directly involved in selecting focused programs. This would provide a more optimal separation of duties and avoid the potential appearance of favoritism in the focused program selection process. Hence, a change was made whereby the ATP director makes the final decision about which programs will be selected and funded.

Overall, such ATP changes have helped improve the selection process, but documentation of key steps in the focused program selection process is needed. In the focused programs we reviewed, it was not possible to trace the documentation from the program selected back to the original white papers. One program manager that we interviewed was able to provide original white papers. However, another program manager was unable to provide any documentation of the original white papers used to prepare the final white paper. Instead, he relied on his memory to highlight from a list of all white papers the specific white papers used. Because of the lack of documentation, we were unable to determine whether all white papers received were given

proper consideration. The program manager should have available those white papers used to prepare the final white paper or, at a minimum, a list of the original white papers used. The program manager should also document the reasons why an original white paper was not considered.

ATP management uses individuals selected from outside ATP and NIST to help them select the best focused program from among the ones proposed. We interviewed three external reviewers. Two of these reviewers told us that they were asked to formally rank and provide a documented assessment of the focused program criteria used to evaluate the focused program presentations. However, the third reviewer stated that he was not required to formally rank or score the focused program presentations. A formal ranking and documented assessment of the four selection criteria elements is essential to provide assurance that ATP has made an effort to objectively compare and evaluate proposed focused programs. Also, ATP program managers use the documented assessment to revise their focused program presentation. For some focused programs selected, ATP has only the original and the final white papers to justify its selection with little or no documentation to show what choices were considered, and how the selection was made. ATP should ensure that all external reviewers provide written ranking and evaluations of focused programs under consideration.

Another part of the selection process not documented is the actual selection decision. The decision to establish a focused program is made solely by the ATP director with no documentation as to why one program was selected over another. We believe that ATP should document its justification for selecting a focused program. This will improve the internal controls and provide credibility to the overall selection process.

If ATP returns to focused program competitions, its focused program selection process should be better documented. Since the establishment of a focused program can involve as much as \$100 million in grants for an industry, ATP's selection process should offer assurance that focused programs are objectively evaluated based on ATP criteria.

II. Recommendation

We recommend that before ATP resumes program-specific competitions, the NIST director should require that the ATP director:

1. Ensure that program managers document the basis for preparing the final white paper;
2. Ensure that all external reviewers provide written rankings and evaluations of focused programs under consideration; and
3. Document her justification for selecting a focused program.

III. NIST Response and OIG Comments

Recommendation 1

NIST Response:

NIST stated that the program manager provided documentation of the original white papers used to prepare the final white paper and that all white papers received were appropriately considered. NIST further commented that the focused program discussed in our report was planned for funding three competitions as stated in the focused program solicitation booklet and that the white papers that justified the first competition were sufficient for the following two competitions.

OIG Comments:

We disagree with NIST's comments. The program manager we interviewed specifically stated that he did *not* believe documentation was an important issue. To him the important issue was whether the research was having an economic or social impact. As noted in our draft report, the program manager stated that he could *not* provide us with the original white papers received from industry that were used to prepare the final white paper. Instead, he relied *on his memory* to pick from a listing of the original white papers that we obtained from NIST. We also note that NIST did not provide documentation to support its statement that the program manager had provided documentation of the original white papers used. With regard to NIST's comments that the focused program was planned for three competitions, please note that our report did *not* question NIST's rationale for conducting three competitions for the same focused program. We reaffirm our recommendation.

Recommendation 2

NIST Response:

NIST stated that pursuant to ATP established procedures, all external reviewers were required and did provide written assessments/evaluations of the focused program presentations based on the established focused program criteria. NIST also stated the ATP files contain the required documentation, i.e., written assessments/evaluations, including one from the individual identified by the OIG, and that these written assessments were critical in the decision making process.

OIG Comments:

As stated in our draft report, the third external reviewer told us that he was *not* required to formally rank or score the focused program presentations. NIST provided no documentation to support its conclusion that formal ranking and scoring documents were prepared by this external reviewer. We reaffirm our recommendation.

Recommendation 3

NIST Response:

NIST informed us that they had no comments on the third recommendation.

OIG Comments:

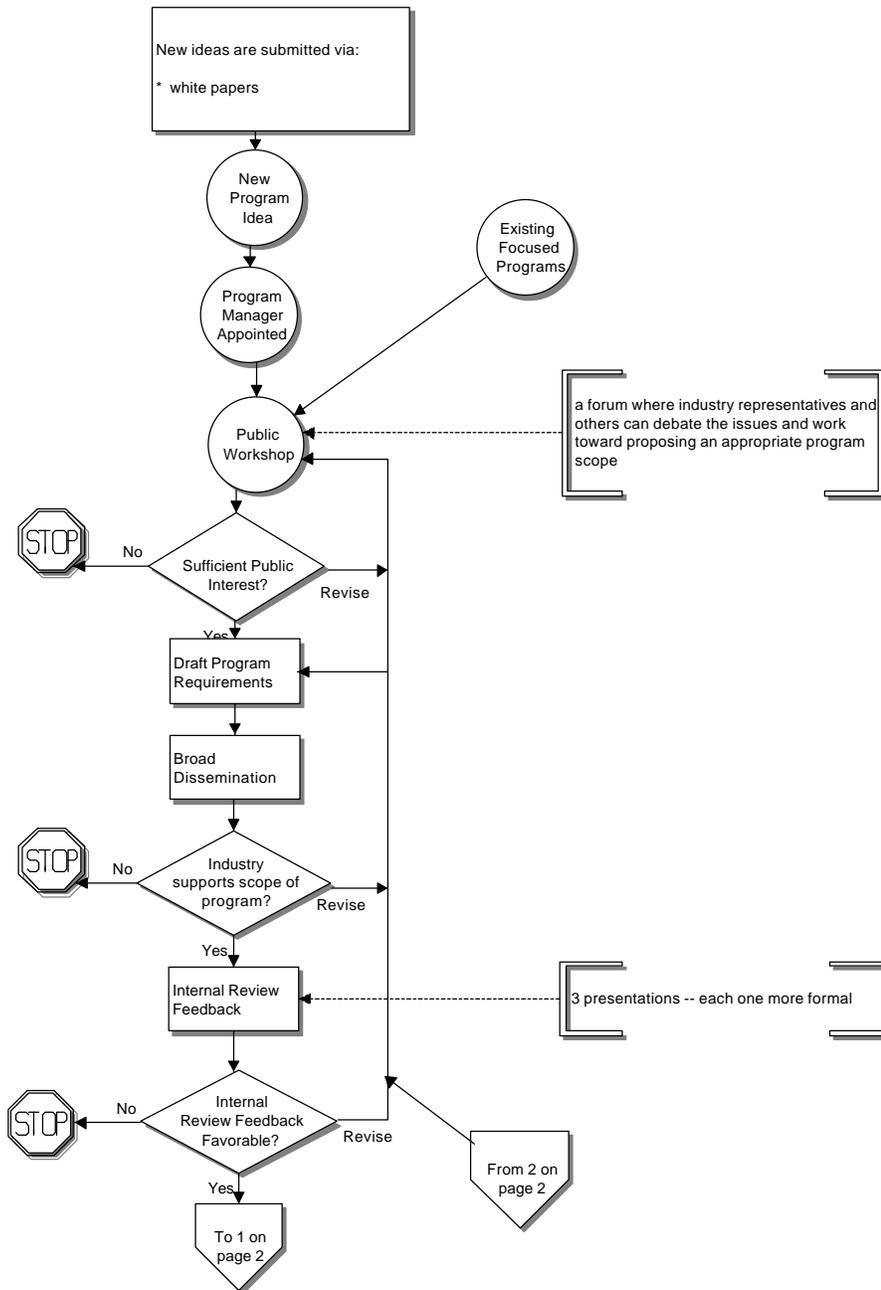
As no comments were provided, we reaffirm our recommendation.

Attachments

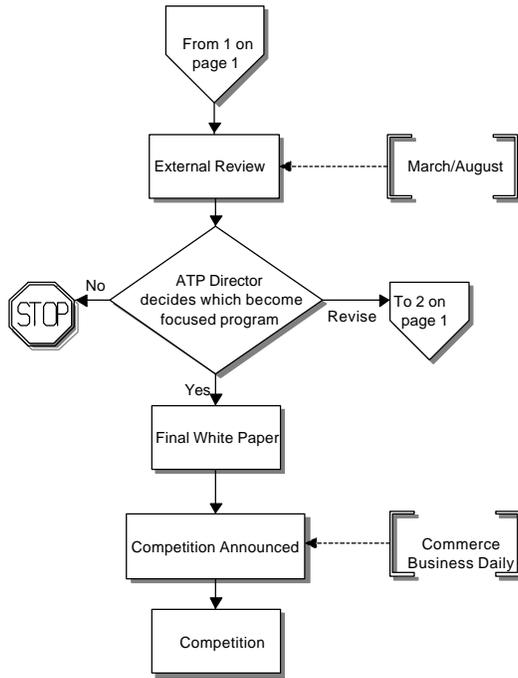
cc: Cita Furlani, Acting Director, Advanced Technology Program

APPENDIX I
(Page 1 of 2)

ATP FOCUSED PROGRAM SELECTION PROCESS



APPENDIX I
(Page 2 of 2)



Does not meet ATP Criteria



NIST

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899
OFFICE OF THE DIRECTOR

APPENDIX II
(page 1 of 2)

MEMORANDUM FOR Mary L. Casey
Acting Inspector General for Auditing

From: Raymond G. Kammer
Director

Subject: External Reviewers Help with ATP Focused Program Selection Process, But Key Steps in the Selection Process were Not Documented - Draft Audit Report No. STD-11113-0-0001

Thank you for the opportunity to comment on the subject draft audit report. The following comments are provided:

Page 3:

The chart entitled "General vs. Focused Competitions" should be revised to reflect the following funding amounts for FY94 - Total \$309M, General \$85M, and Focused \$224, and for FY95 - Total \$414M, General \$38M, and Focused \$376M.

Page 5, last paragraph:

OIG Finding: "In the focused programs we reviewed, it was not possible to trace the documentation from the program selection back to the original white papers. One program manager that we interviewed was able to provide original white papers. However, another program manager was unable to provide any documentation of the original white papers used to prepare the final white paper. Instead, he relied on his memory to highlight from a list of all white papers the specific white papers used. Because of the lack of documentation, we were unable to determine whether all white papers received were given proper consideration. The program manager should have available those white papers used to prepare the final white paper or, at a minimum, a list of the original white papers used."

NIST Response: There may be a misunderstanding with the OIG with respect to this finding. The program manager was able and did provide documentation of the original white papers used to prepare the final white paper. All white papers received were appropriately considered. This focused program was planned for funding for three competitions as stated in the focused program

solicitation booklet (page 5). The white papers that justified the first competition were sufficient for the following two competitions. Based on input from industry, there was no need to make major changes to the technical scope for the later competitions. If there had been, new white papers would have been solicited. It was not required by ATP to have new white papers if the technical scope did not need to be substantially revised.

Page 6, first complete paragraph:

OIG Finding: “ATP management uses individuals selected from outside ATP and NIST to help them select the best focused program from among the ones proposed. We interviewed three external reviewers. Two of these reviewers told us that they were asked to formally rank and provide a documented assessment of the focused program criteria used to evaluate the focused program presentations. However, the third reviewer stated that he was not required to formally rank or score the focused program presentations. . . .ATP should ensure that all external reviewers provide written ranking and evaluations of focused programs under consideration.”

NIST Response: Pursuant to ATP established procedures, all external reviewers were required and did provide written assessments/evaluations of the focused program presentations based on the established focused program criteria. The ATP files contain the required documentation, i.e., written assessments/evaluations, including one from the individual identified by the OIG. These written assessments were critical in the decision making process.

We hope these comments will be helpful to the OIG. Any questions concerning these comments should be directed to Barbara Lambis at 301-975-4447.