

**Directorate for Social, Behavioral & Economic Sciences**  
**Office of the Assistant Director**  
**4201 Wilson Boulevard, Suite 905**  
**Arlington, VA 22230**

**MEMORANDUM**

DATE: June 11, 2009

TO: Dr. James Lightbourne, Senior Advisor for the Integration of Research & Education

FROM: David W. Lightfoot, AD, SBE

SUBJECT: Report of the Committee of Visitors-like activity for the Division of Science Resources Statistics (SRS) within the SBE directorate

Please find attached the report of the Committee of Visitors (COV)-like activity for the Division of Science Resources Statistics (SRS). Because SRS is not a grant-making organization, the focus of the review of SRS was quite different than a traditional COV. Therefore the review was described as a COV-like activity.

The COV-like report was discussed and accepted at the May 21-22, 2009 meeting of the Social, Behavioral, and Economic Sciences Advisory Committee. Attached, please find SBE's formal response to the recommendations of the review, the COV-like report of the review, and lists of COV-like members, the charge, and SBE Advisory Committee members.

The COV consisted of 6 members selected to span all of the areas covered by the review. It was composed of 4 women and 2 men from regionally diverse areas of the U.S. and one international (Canada) member; 3 were from academic institutions and 1 from an international research organization and 2 were retired from federal statistical agencies . It included 1 underrepresented minority. Three members of the committee were members of the SBE Advisory Committee. None of the members had received past funding from SRS. One member had a potential conflict of interest because she was a member of the board of trustees of the National Opinion Research Center (NORC), an SRS contractor, but no topics were discussed that involved NORC activities.

Attachments

cc: Arden Bement, Jr., OD  
Cora Marrett, OD

Thomas Cooley, BFA  
Anthony Arnolie, OIRM  
Allison C. Lerner, OIG  
Lance Haworth, OIA  
Susanne Bolton, OIRM

## CHARGE TO THE COMMITTEE OF VISITORS

### Division of Science Resources Statistics Directorate for Social, Behavioral, and Economic Sciences National Science Foundation

March 31<sup>st</sup> and April 1<sup>st</sup> 2009

The National Science Foundation has a long-standing practice of reviewing all programs on a three-year cycle. The review is performed by a Committee of Visitors (COV), which serves as a subcommittee of the Advisory Committee for the Directorate for Social, Behavioral, and Economic Sciences. These reviews provide NSF officials and others throughout the government with an independent assessment of the performance of NSF's programs.

To meet the requirements of the Government Performance and Results Act (GPRA) for annual performance assessment, NSF developed performance goals for results of NSF's investment in research and education. However, because SBE's Division of Science Resources Statistics (SRS) has a different mission and set of activities than most NSF programs, the focus of this "COV-like" activity will be tailored to several conclusions and recommendations from a 2004 National Research Council report, *Measuring Research and Development Expenditures in the U.S. Economy*. These conclusions/recommendations are:

- Meet the accepted standards of a federal statistical agency;
- Redesign the Survey of Industrial R&D; and
- Initiate a regular and comprehensive program of measurement and research related to innovation.

SRS/SBE would like your advice about several questions related specifically to the division. **Please comment on both the scientific and management aspects of each of the following division-specific questions:**

- Integrity and efficiency of SRS as a federal statistical agency: Has SRS, with its small staff of federal employees, supported by specialists in a number of areas and contractual data collectors, been able to maintain its continuous improvement in its performance as a federal statistical agency? Has SRS continued this progress with respect to timeliness, survey redesign, data quality programs, and establishment of statistical guidelines, among other areas?
- Redesign of the Survey of Industrial Research and Development: Has SRS undertaken a redesign of the Industrial R&D Survey, including consulting with an

- appropriate set of individuals and organizations as part of the redesign? Has SRS replaced the questionnaire with a new one? Will the new questionnaire enhance understanding of new and emerging R&D issues? Will the new questionnaire capture needed data on R&D funds from abroad and outsourcing of R&D? Has SRS implemented a web-based data collection technology? Did SRS undertake appropriate cognitive and methodological research in developing the new instruments, including a study of record-keeping practices? Does the new questionnaire incorporate the *Frascati* manual definitions?
- Development of information on innovation: Has SRS begun to develop an internal capacity to collect data on innovation? If so, is its proposed approach methodologically sound? Should SRS support research in the area of measuring innovation? Should SRS be more involved with the development of science metrics? Has SRS's involvement in the Science of Science Policy program been an appropriate response to these recommendations?

SBE would also like the COV's advice on anything else they would like to comment upon.

To assist COVs, NSF has developed a basic set of questions and a report template for the entire Foundation. **Please remember that your report must be completed and submitted before final adjournment.**

David Lightfoot  
Assistant Director  
Social, Behavioral, and Economic Sciences Directorate  
National Science Foundation

**National Science Foundation**  
**Advisory Committee for Social, Behavioral and Economic Sciences**  
**Listing of Current Members' Addresses and Phone Numbers**

**Dr. Michael F. Goodchild (Chair)**

Department of Geography  
University of California, Santa Barbara  
Office: Ellison 5707  
Santa Barbara, CA 93106-4060  
Phone: (805) 893-8049  
Cell: (805) 455-6529  
Fax: (805) 893-3146  
Email: [good@geog.ucsb.edu](mailto:good@geog.ucsb.edu)

**Dr. Christine Almy Bachrach (EX OFFICIO)**

National Institute of Health/OBSSR  
31 Center Drive Bldg 31/Room B1C19  
Bethesda, Maryland 20892-7510  
Phone: 301-496-9485  
Fax: 301-496-0962  
[bachracc@mail.nih.gov](mailto:bachracc@mail.nih.gov)  
Assistant: Janaki Nibhanupudy  
[janakin@mail.nih.gov](mailto:janakin@mail.nih.gov)

**Dr. Ernst R. Berndt**

MIT Sloan School of Management  
50 Memorial Drive  
MIT E52-452  
Cambridge, MA 02142  
Email: [erberndt@mit.edu](mailto:erberndt@mit.edu)  
Phone: (617) 253-2665  
Fax: (617) 258-6855  
Assistant: Sarah Hufford  
Phone: (617) 253-9746  
Email: [shufford@mit.edu](mailto:shufford@mit.edu)

**Dr. Susan L. Cutter (AC-ERE Liaison)**

Director, Hazards & Vulnerability Research  
Institute  
Department of Geography  
University of South Carolina  
Callcott, Room 312  
Columbia, SC 29208  
Email: [scutter@sc.edu](mailto:scutter@sc.edu)  
Phone: (803) 777-1590  
Fax: (803) 777-4972  
Assistant: Charlie Faucette  
Email: [faucette@mailbox.sc.edu](mailto:faucette@mailbox.sc.edu)

**Dr. Kaye Husbands Fealing**

Williams Brough Professor of Economics  
Williams College  
Williamstown, MA 01267  
\*On leave as Visiting Professor  
University of Minnesota

Mail all Correspondence to:  
6965 Lake Harrison Circle  
Chanhassen, Minnesota 55317  
Email: [kaye.husbands@williams.edu](mailto:kaye.husbands@williams.edu)  
Phone: (952) 470-1106  
Fax: No. (952) 470-1107

**Sir Roderick Floud (EX OFFICIO)**

London Metropolitan University  
31 Jewry Street  
London EC3N 2EY  
United Kingdom  
Fax: 44 20 7320 1390  
Email: [roderick.floud@btinternet.com](mailto:roderick.floud@btinternet.com)  
Assistant:

**Dr. Fred Gault**

Visiting Fellow  
International Development Research Centre  
PO Box 8500  
Ottawa, Canada K1G 3H9  
Phone: + 1 613-236-6163 Ext. 2414  
Email: [fgault@idrc.ca](mailto:fgault@idrc.ca)

**Dr. Morton Ann Gernsbacher**

1202 West Johnson Street  
University of Wisconsin-Madison  
Madison, WI 53706-1611  
Phone: (608) 262-6989  
Fax: (608) 262-4029  
Email: [MAGernsb@wisc.edu](mailto:MAGernsb@wisc.edu)  
[www.Gernsbacherlab.org](http://www.Gernsbacherlab.org)

**Dr. Lila R. Gleitman**

Emerita, Institute for Research in Cognitive Science  
University of Pennsylvania  
Mail all Correspondence to:  
260 Sycamore Avenue  
Merion Station, PA 19066  
Phone: (610) 667-7895  
Email: [gleitman@cattell.psych.upenn.edu](mailto:gleitman@cattell.psych.upenn.edu)

**Dr. Ira Harkavy (AC-GPRA Liaison)**

Associate Vice President & Director  
Center for Community Partnerships  
University of Pennsylvania  
133 South 36th Street, Suite 519  
Philadelphia, PA 19104  
Phone: (215) 898-5351  
Fax: (215) 573-2799  
Email: [harkavy@pobox.upenn.edu](mailto:harkavy@pobox.upenn.edu)  
Assistant: Tina M. Ciocco  
Email: [ciocco@pobox.upenn.edu](mailto:ciocco@pobox.upenn.edu)

Phone: (215) 898-6612

Assistant: Andrea Daly  
Email: [andreliz@umich.edu](mailto:andreliz@umich.edu)

**Dr. Janet A. Harkness**

Director, Survey Research and Methodology  
Program  
University of Nebraska-Lincoln  
UNL Gallup Research Center  
200 North 11th Street  
P.O. Box 880241  
Lincoln, NE 68588-0241  
Email: [jharkness2@unl.edu](mailto:jharkness2@unl.edu)  
Phone: (402) 458-5585  
Fax: (402) 458-2031  
Assistant: Barbara Rolfes  
Email: [broffes3@unl.edu](mailto:broffes3@unl.edu)  
Phone: (402) 472-7758

**Dr. Samuel L. Myers, Jr. (CEOSE Liaison)**

Roy Wilkins Professor of Human Relations  
And Social Justice  
Hubert H. Humphrey Institute of Public Affairs  
University of Minnesota  
257 Humphrey Center  
301 19th Avenue South  
Room 130 HHH Center  
Minneapolis, MN 55455  
Fax: (612) 625-6351  
Phone: (612) 625-9821  
Email: [myers006@umn.edu](mailto:myers006@umn.edu)  
Assistant: Blanca Monter  
Email: [monte064@umn.edu](mailto:monte064@umn.edu)

**Dr. Nina G. Jablonski**

Head, Department of Anthropology  
Penn State  
413 Carpenter Building  
University Park, PA 16802  
Phone: (814) 865-2509  
Fax: (814) 863-1474  
Email: [ngj2@psu.edu](mailto:ngj2@psu.edu)  
Assistant: Melissa Strouse  
Email: [mvs5@psu.edu](mailto:mvs5@psu.edu)  
Phone: (814) 867-0005

**Dr. Ruth Delois Peterson**

Department of Sociology  
300 Bricker Hall  
190 N. Oval Mall  
Ohio State University  
Columbus, OH 43210  
Phone: (614) 292-6681  
Fax: (614) 292-6687  
Email: [Peterson.5@sociology.osu.edu](mailto:Peterson.5@sociology.osu.edu)

**Professor Guillermina Jasso**

Silver Professor  
Department of Sociology  
295 Lafayette Street; 4th floor  
New York University  
New York, NY 10012-9605  
Phone: (212) 998-8368  
Fax: (212) 995-4140  
Email: [gj1@nyu.edu](mailto:gj1@nyu.edu)

**Dr. David Poeppel**

Department of Psychology  
New York University  
6 Washington Place  
New York, NY 10003  
Phone: (212) 992-7489  
Fax:  
Email: [dpoeppe@umd.edu](mailto:dpoeppe@umd.edu)

**Dr. John L. King (AC-CI Liaison)**

University of Michigan  
503 Thompson Street  
3074 Fleming Adm. Bldg.  
Ann Arbor, MI 48109-1340  
Phone: (734) 764-2571  
Fax: (734) 764-2475  
Email: [jking@umich.edu](mailto:jking@umich.edu)  
Assistant: Robyn Cleveland  
Phone: (734) 764-2571  
Email: [rlgrimes@umich.edu](mailto:rlgrimes@umich.edu)

**Dr. Jeffrey K. MacKie-Mason (AC-CISE)**

School of Information  
University of Michigan  
3218 SI North  
Ann Arbor, MI 48109  
Phone: 734-647-4856  
Email: [jmm@umich.edu](mailto:jmm@umich.edu)

Member	Affiliation	E-mail
Irwin Feller, Chair	Professor Emeritus of Economics Director, Institute for Policy Research and Evaluation Penn State University	<a href="mailto:iqf@ems.psu.edu">iqf@ems.psu.edu</a>
Fred Gault	Visiting Fellow International Development Research Centre  SBE Advisory Committee member	<a href="mailto:fgault@idrc.ca">fgault@idrc.ca</a>
Sue Okubo	President and Founder Meridian Analytics, LLC  former Associate Director of Industry Economics Bureau of Economic Analysis, Department of Commerce	<a href="mailto:sokubo@cox.net">sokubo@cox.net</a>
Janet Norwood	Vice Chair, Board of Trustees National Opinion Research Center  Senior Fellow and Counselor New York Conference Board  former Director Bureau of Labor Statistics, Department of Labor	<a href="mailto:janetnor@aol.com">janetnor@aol.com</a>
Janet A. Harkness	Director Survey Research and Methodology Program and Gallup Research Center University of Nebraska at Lincoln  SBE Advisory Committee member	<a href="mailto:Jharkness2@unl.edu">Jharkness2@unl.edu</a>
Kaye Husbands Fealing	Visiting Professor Center for Science, Technology, and Public Policy Hubert H. Humphrey Institute of Public Affairs University of Minnesota	<a href="mailto:khf@umn.edu">khf@umn.edu</a>

SBE Advisory Committee member

**CORE QUESTIONS and REPORT TEMPLATE**  
**for**  
**FY 2009 SRS “COMMITTEE OF VISITORS-LIKE” REVIEW**

**Introduction:** The attached report template and the questions it contains are adapted from the FY 2009 NSF Committee of Visitors (COV) standard report template and questions. As in a standard COV, the report for the Division of Science Resources Statistics (SRS) should provide a balanced assessment of NSF’s performance in two primary areas: (A) the integrity and efficiency of the *processes* related to program operations; and (B) the quality of the *results* of NSF’s investments that appear over time.

**Focus of the Committee:** This review will start with three recommendations from the 2005 National Research Council (NRC) review of the SRS portfolio of R&D surveys and a recommendation from the 2006 COV-like activity of SRS. The COV-like Committee members are asked to review the record of activities SRS has undertaken in response to those recommendations. To assist in preparing your final report, the documentation you received includes a copy of the 2006 SRS COV-like activity report. Please note that you may choose to decline to respond to some questions on this template if you decide they are inappropriate or not applicable to your review.

**Charge to the Committee:** This review will take as its starting point the 2005 NRC study, *Measuring Research and Development Expenditures in the U.S. Economy*. SRS is the federal statistical agency responsible for data and analysis on the science and engineering enterprise writ large, and as such is involved in unique cross-agency activities and has specific legislative directives. SRS’s mission also calls for it to serve as a “clearinghouse” for data on a broad range of science and technology topics; that is, it both produces and disseminates data from its own survey programs and synthesizes and disseminates data from other government, international, and private sources. Finally, SRS provides staff and other support to the National Science Board for the biennial *Science and Engineering Indicators* series, the hallmark compendium of its kind both in the United States and internationally

**Science of Science and Innovation Policy (SciSIP):** In 2005, Dr. John Marburger, President Bush’s Science Advisor, called for the development of the data, tools, and knowledge needed to reliably evaluate returns from past R&D investments and to assess likely returns from future investments. In response, NSF established the SciSIP initiative to create new exploratory models, analytic tools, and datasets designed to inform the nation’s public and private sectors about the processes through which investments in science and engineering (S&E) research can be transformed into social and economic outcomes. SciSIP has two parts: (1) a [grants program](#) and (2) support for new data development and redesigns of existing surveys in SRS and for analytical and statistical activities related to data sharing, linking, extraction, and matching. One question in the COV-like report template under the topic of development of information on innovation relates to SciSIP and to a specific recommendation from the 2006 COV-like review.

**Other matters:** This COV-like activity also explores the relationships between SRS activities and SRS/NSF-wide goals to determine the likelihood that the SRS portfolio will lead to desired results in the future. Reports generated by COVs are used in assessing agency progress to meet government-wide performance reporting requirements and are made available to the public. Since material from COV reports is used in NSF performance reports, they may be subject to an audit.

We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions. For past COV reports, please see <http://www.nsf.gov/od/oia/activities/cov/covs.jsp>.

**FY 2009 REPORT TEMPLATE FOR  
NSF COMMITTEES OF VISITORS (COVs)**

<b>Date of COV:</b> March 31 and April 1, 2009
<b>Division:</b> Science Resources Statistics
<b>Directorate:</b> Social, Behavioral, and Economic Sciences

**Recommendations from the NRC:** The COV-like review will start with three conclusions and recommendations from the 2005 NRC review of the RDS portfolio entitled *Measuring Research and Development Expenditures in the U.S. Economy*. These conclusions/recommendations are:

**NRC Recommendation 8.4** (pp.8-9): “There are several tools that NSF has in its toolbox that will help the agency gain more control over aspects of survey operations. As a start, the panel recommends that NSF, in consultation with its contractors, revise the Statistical Guidelines for Surveys and Publications to set standards for the treatment of unit nonresponse and to require the computation of response rates for each item, prior to sample weighting.

The panel would like to note that significant progress has been made by the Science Resources Statistics Division in fostering an environment for the improvement of data quality. We continue to be hopeful that these recent initiatives, buttressed by additional resources and supplemented by further initiatives such as those outlined in this report, will lay a basis for further improvements in the future.”

**NRC Conclusion 3.1:** “The panel concludes that it is time to implement another major redesign of [the Survey of Industrial R&D]. The redesign would take a four-pronged approach:”

1. A reassessment of the U.S. survey against the “standard,” which is the OECD *Frascati Manual*.
2. An updating of the questionnaire to facilitate an understanding of new and emerging R&D issues.
3. Encompass an extensive program of research, testing and evaluation to resolve issues regarding the appropriate level at which to measure R&D.
4. Revise the survey sample to enhance coverage of growing sections and improve the collection procedures.

**NRC Recommendations 4.1 and 4.2:** Furthermore, “the panel recommends that resources be provided to SRS to build an internal capacity to resolve the methodological issues related to collecting innovation-related data. The panel recommends that this collection be integrated with or supplemental to the Survey of Industrial Research and Development. We also encourage SRS to work with experts in universities and public institutions who have expertise in a broad

spectrum of related issues. In some cases, it may be judicious to commission case studies. In all instances, SRS is strongly encouraged to support the analysis and publication of the findings."

An additional recommendation is that "SRS, within a reasonable amount of time after receiving the resources, should initiate a regular and comprehensive program of measurement and research related to innovation."

**The 2006 COV-like Final Report Recommendation:** Implement the desire expressed in the "white paper" on the science metrics initiative [the science metrics initiative has become the Science of Science and Innovation Policy (SciSIP) initiative] regarding increased interaction among SBE divisions to bring SRS into greater contact with the research and issues that should inform the development of science metrics.

**PART A. INTEGRITY AND EFFICIENCY OF SRS'S PROCESSES AND MANAGEMENT**

Briefly discuss and provide comments for *each* relevant aspect of SRS's activities as a statistical agency. Comments should be based on a review of activities *completed during the past three years*. Constructive comments noting areas in need of improvement are encouraged.

SRS AS A STATISTICAL AGENCY	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE <sup>1</sup>
<p>1. The NRC report notes the need for SRS to improve the timeliness of release of data from the R&amp;D surveys (pages 159-160). Has SRS improved the timeliness of release of the data from its surveys?</p> <p>Comments:</p> <p>SRS has been successful in improving the timeliness of selected releases, but the issue is one that continues to need careful attention. This is in part because response rates in many government surveys have been falling. Among the contributing factors are the rising respondent concerns about privacy and cost, and the increasing difficulty of maintaining response rates in telephone surveys. Another problem is that government agencies and other businesses frequently are late reporters because they do not fully understand the uses and usefulness of the data.</p> <p>Recognizing these difficulties, SRS has been working to improve response rates but problems remain. More personal contact between SRS and respondents could help, but the agency does not have sufficient staff to work with slow or reluctant reporters. This should be made part of a carefully developed quality assurance program.</p> <p>Nevertheless, the work that has been done in this area has been impressive.</p>	<p>Yes</p>

<sup>1</sup> If "Not Applicable," please explain why in the "Comments" section.

<p>2. The NRC report has a section (pages 157-169) on the need to improve the data quality of the R&amp;D surveys. Has SRS begun the steps suggested by the report to improve data quality?</p> <p>Comments:</p> <p>SRS has taken many steps to improve data quality, along the lines identified in the NRC report. It has taken the lead on redesigning the Survey of Industrial R&amp;D (SIRD) as urged by the panel (NRC report, page 157), undertaken methodological research including cognitive research to find out more about respondents' perceptions of questions and their response needs, and undertaken steps to improve analysis.</p> <p>At the same time, the activities of and demands upon the SRS have continued to grow. Even as they followed through on recommendations from the 2005 report, new surveys have been added to their responsibilities. The additional work has further strained existing resources, already identified as inadequate in both the NRC 2000 and 2005 reports. In the COV's view, this makes it extremely difficult for SRS with its present skeletal level of staffing and funding to develop a theoretically grounded framework within which a thoroughgoing data quality program can be implemented.</p> <p>With regard to data quality, the NCR report from 2005 clearly identifies challenges facing SRS (beginning page 155), courses of action that would allow SRS to address some of its needs (page 156) and specific goals to pursue in regard of data quality (pages 157-169). In doing so the report specifically reiterates concerns of the 2000 NCR report that SRS lacked the staff to undertake various larger procedural steps needed to further improve data quality.</p>	<p><b>Yes</b></p>
<p>3. The NRC report suggests that on a longer-term basis, SRS engage in a deliberate process to redesign, or at least revitalize, all of its surveys on a rotating schedule (pages 170-171). Has SRS begun to engage in such a process for its surveys?</p> <p>Comments:</p> <p>Within its resource constraints, SRS has done an impressive job of undertaking major redesigns of six large surveys and outlining plans for completing redesigns of its other surveys. The task of redesigning all of SRS surveys, even on a rotating basis, as suggested by the NRC, is most ambitious given the size of the SRS staff. If no additional staff are made available, it will be necessary to prioritize the redesign work and devote resources to the largest and most important of the surveys; for example, the size of total R&amp;D spending by industry suggests that this survey should be given priority.</p>	<p><b>Yes</b></p>

<p>4. The NRC report in Recommendation 3.8 (page 83) states “that NSF again develop a panel of R&amp;D experts, broadly representative of the R&amp;D performing and R&amp;D data-using communities to serve as a feedback mechanism to provide advice on trends and issues of importance to maintaining the relevance of the R&amp;D data.” Has SRS put in place such a panel, and what role has that panel served with respect to the redesign of the industrial R&amp;D survey?</p> <p>Comments:</p> <p>In June 2005, SRS contracted with SRI International to establish and provide administrative coordination for an Industry Expert Panel (IEP). The IEP met three times in 2006 to discuss priorities and strategies to improve the relevance of statistics derived from the Survey of Industrial Research and Development (SIRD). The results provided an input to decisions on content, marketing and implementation procedures for the survey redesign.</p> <p>A Business Expert Panel was established and met twice in 2008. It provided perspectives on the fast-changing environment for the conduct and organization of business R&amp;D and business-user data needs. It also considered how best to introduce the survey to the business community, how to ensure accuracy of the data collected, and priorities and strategies for on-going activities and new directions to ensure the relevance and utility of BRDIS data.</p> <p>While these panels satisfied the recommendation of the NRC report, they did not provide an on-going means of consultation, supported within the NSF, to provide advice on current and future surveys. SBE and SRS may wish to consider the establishment of such an advisory function.</p>	<p><b>Yes</b></p>
<p>5. Has SRS revised its Statistical Guidelines for Surveys and Publications (NRC recommendation discussion on data quality, page 157)? Are the Guidelines that SRS has put in place been in accord with the NRC suggestions?</p> <p>Comments:</p> <p>SRS has created supplemental guidelines to cover the survey lifecycle for new surveys and for major revisions of existing surveys (last revision 12/11/08). These provide additional detail and guidance, are compliant with OMB guidelines and accord with the NCR report recommendations. SRS has also produced a manual of editorial style and publication standards (November 2007) and a manual in March 2008 on “Development, Review and Production of SRS Publications”.</p> <p>The NSF has supported the Data Documentation Initiative, an international effort to establish a standard for technical documentation describing social science data. SRS may wish to consider the value of using (a subset of) DDI identified elements for documenting agreed upon features of their data.</p>	<p><b>Yes</b></p>

<p>6. The NRC in Recommendation 8.1 (page 158) suggested that SRS control the redesign of the industrial survey. As part of that process, has SRS put in place an effective and appropriate process for oversight of its Memoranda of Agreement with the Bureau of Census?</p> <p>Comments:</p> <p>SRS has responded fully and creatively in securing control of the industrial R&amp;D survey, and has established cooperative working relationships with the U.S. Census Bureau.</p>	<p><b>Yes</b></p>
--	-------------------

Briefly discuss and provide comments for *each* relevant aspect of SRS's processes to redesign the industry R&D survey and institute quality improvements and methodological work to enhance the overall survey. Comments should be based on a review of activities *completed during the past three years*. Constructive comments noting areas that need improvement are encouraged.

<p><b>REDESIGN OF THE SURVEY OF INDUSTRIAL RESEARCH AND DEVELOPMENT</b></p>	<p><b>YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE<sup>2</sup></b></p>
<p>1. NRC Conclusion 3.1 (page 50) states: "The panel concludes that it is time to implement another major redesign of this survey." SRS has undertaken a major redesign of the survey. The COV is asked to comment on whether this activity was undertaken in a timely manner and whether SRS has consulted with an appropriate set of individuals and organizations as part of the redesign.</p> <p>Comments:</p> <p>Sections 1-5 of BRDIS represent highly responsive, systematically planned and phased-in actions to address several recommendations in the NRC report calling for a major redesign of the Survey of Industrial Research and Development. Planning for the redesign, including initiation of joint planning activities with Census, began even before the NRC report was officially released. The redesign included extensive consultation and interaction with a wide set of individuals and organizations. These included sessions directed at defining key concepts and measures, negotiations with Census over relative responsibilities and roles; meetings with data users, which included convening and meetings of an Industry Expert Panels, several rounds of cognitive testing with prospective respondents of possible BRDIS questions; support and participation of several relevant international forums and organizations, such as the Ottawa Blue Sky II Forum, and NESTI.</p> <p>SRS notes that a decision to include specific innovation questions to BRDIS, contained</p>	<p><b>Yes</b></p>

<sup>2</sup> If "Not Applicable," please explain why in the "Comments" section.

<p>in Section 6, was not made until Spring, 2008. As noted below, although the one specific question directly addressing innovation mirrors core CIS approaches and has the potential to be a valuable data set for both future research and policy discussion, the consultative processes underlying the construction of this question and the construction of Section 6 are not identified. If, as intended by SRS, this section is viewed as providing a “platform” for future SRS activities on innovation, a well-defined, transparent consultative process comparable to that employed in construction of Sections 1-5 is recommended.</p>	
<p>2. NRC Conclusion 3.1 (pages 51-52) indicates that as part of the redesign, SRS should update the Survey of Industry Research and Development (SIRD) questionnaire to enhance understanding of new and emerging R&amp;D issues (page 51). SRS has replaced the SIRD questionnaire with the new Business R&amp;D and Innovation Survey (BRDIS). Will the new questionnaire enhance understanding of new and emerging R&amp;D issues?</p> <p>Comments:</p> <p>The redesigned survey holds the promise of providing a much needed set of US government statistics on important aspects of industrial R&amp;D. In addition to surveying most of the variables contained in this longstanding NSF series, the revised survey clarifies and disaggregates R&amp;D expenditures from R&amp;D performance, offers data on domestic and international sources of industrial R&amp;D and performance, on collaborative R&amp;D arrangements, on sources of new technologies, and on innovative behavior (as distinct from performance of R&amp;D).</p>	<p><b>Yes</b></p>
<p>3. NRC Conclusion 3.1 (page 51) suggests that as part of the redesign, SRS test and implement the collection of data on R&amp;D funds from abroad and sharpen the question on the outsourcing of R&amp;D to distinguish between payments to affiliated firms, to independent firms, and to other institutions abroad (page 51). Did SRS undertake the testing of these concepts? Will the questions SRS designed capture the needed data on R&amp;D funds from abroad?</p> <p>Comments:</p> <p>SRS conducted record-keeping studies in 2005 and 2006 to determine what companies could report on sources of funds for and expenditures on the performance of R&amp;D. New questions were developed and tested and the present questionnaire contains those that survived. These questions provide answers to how much companies receive from abroad for the performance of R&amp;D and also, how much companies pay for the performance of R&amp;D by companies abroad. As a result of having this information, SRS will, for the first time, be able to report this component of the ‘technological balance of payments’ to the OECD and the United States will be able to compare the amount of foreign funding received, by industry, for R&amp;D performance.</p> <p>The new questions also support analysis of R&amp;D outsourcing to both domestic and foreign companies, a topic that is particularly relevant in a global economy.</p>	<p><b>Yes</b></p>

<p>4. NRC Conclusion 3.1 suggests that, as part of the redesign, SRS and its partner, the Census Bureau, implement a web-based data collection technology based on appropriate cognitive and methodological research (pages 51-52). SRS and Census have designed and implemented paper, web, and Excel spreadsheet versions of the new questionnaire. Did SRS undertake appropriate cognitive and methodological research in developing these instruments?</p> <p>Comments:</p> <p>SRS and Census provided paper, web and Excel spreadsheet versions of the questionnaire. The paper version was subjected to extensive cognitive testing both for comprehension of content and for ease of navigation. This testing will continue after the survey has been conducted. For operational reasons, the web version had to be programmed in the functionally limited Census Taker software. The resulting instrument was tested on business respondents and revised.</p> <p>For large R&amp;D performing firms, the questionnaire was provided as an Excel spreadsheet or as a writable PDF file. As these were not intended as a principal means of collection, but as way of reducing burden, they were not tested. However, firms welcomed the initiative as it saved time and effort.</p> <p>The limitations of the Census Taker software are being addressed in a redesign project being undertaken by Census. SRS has prepared of list of its user needs based on its experience with the existing software. Work on improving the web questionnaire should be pursued in order to reduce burden and to encourage response.</p>	
<p>5. NRC Recommendation 3.11 (page 88) suggests that SRS and the Census Bureau resume a program of field observation site visits to examine record-keeping practices and conduct research on how respondents fill out the forms. SRS undertook a series of 60 recordkeeping site visits with the assistance from the Energy Information Administration Statistics and Methods Group. Did these activities benefit SRS's work in redesigning the survey, and what steps should SRS take to continue these activities in the future?</p> <p>Comments:</p> <p>In response to the NRC Recommendation 3.11, SRS engaged an Interagency Agreement with the Energy Information Administration's Statistics and Methods Group to conduct site visits. The Census Bureau, with the assistance of their Survey Methodology Division staff, also conducted a series of site visits. The purpose of these visits was to fine-tune the survey instrument in ways that would ultimately reduce the number of non-responses to surveys and to understand better why some firms did not readily respond to the survey. As a result of the site visits, there were material changes to the Industry R&amp;D Survey. The visits were integral to the development of the survey redesign process.</p> <p>The COV recommends that this site visit process be formalized. In addition, SRS could implement an on-going or rotating panel of users who could inform the survey design process. Although COV members recognize staffing and budget constraints at SRS, it is important that SRS staff visit companies themselves as part of the survey-development</p>	<p><b>Yes</b></p>

<p>process. By conducting site visits directly, SRS staff will be better positioned to understand how the survey instrument is received and what the data themselves measure. It will also provide an opportunity for SRS staff to interact with data respondents and users to determine how well the redesign process has been accomplished.</p>	
---	--

<p>6. The NRC report contains a number of recommendations (Recommendations 3.3-3.5, pages 76-77) related to SRS undertaking research to determine the appropriate level to collect data and measure R&amp;D. Specifically, the Committee directed SRS to determine whether R&amp;D could be collected at the line-of-business level. Did SRS support an extensive program of research, testing, and evaluation to resolve issues regarding the appropriate level at which to measure R&amp;D? SRS has developed a method of collecting partial line-of-business level data in the new BRDIS. Will SRS's approach meet the NRC recommendations?</p> <p>Comments:</p> <p>Collecting R&amp;D data at the line-of-business level is an important innovative part of the survey. SRS first began this process with a small sample of firms in its 2003 Industry R&amp;D Survey. Firms that were selected to receive the additional set of voluntary questions were asked to identify how difficult it would be to allocate R&amp;D expenditures across the categories reported for their most important business units. The results of this test in part informed the redesign of SRS' R&amp;D survey. SRS' approach did address the NRC recommendations 3.3-3.5.</p>	<p><b>Yes</b></p>
--	-------------------

<p>7. NRC Conclusion 3.1 (page 52) indicates that SRS should use the OECD <i>Frascati Manual</i> international definitions as a core component of the redesign. Did SRS assess its Survey of Industrial Research and Development (SIRD) against the definitions in the "standard," the <i>Frascati Manual</i>? Does the new BRDIS incorporate, to the extent possible, the <i>Frascati</i> definitions?</p> <p>Comments:</p> <p>The new BRDIS incorporates <i>Frascati</i> definitions. It does this in a way that allows respondents to provide information in a manner consistent with their own record keeping. It also explains the difference between R&amp;D expense, as defined in accounting practice, and expenditure on R&amp;D performance, which is the <i>Frascati</i> standard, in order to capture information needed for international and historical comparisons. In essence, a contract for R&amp;D services is not seen as an R&amp;D expense according to accounting conventions, but it is important to capture the expenditure on the R&amp;D actually performed by the firm, whether it is done on own account or as a contract. This is particularly relevant for firms, classified to NAICS 5417, which perform R&amp;D as a service to other firms.</p> <p>SRS staff were extensively involved in the 5<sup>th</sup> revision of the <i>Frascati Manual</i> published in 2002 and were able to influence that process and to draw from it information of use in</p>	<p><b>Yes</b></p>
---	-------------------

<p>the BRDIS design. As BRDIS moves from a pilot exercise to an on-going survey, it is expected to influence subsequent revisions of the <i>Frascati Manual</i>.</p>	
--	--

Briefly discuss and provide comments for *each* relevant aspect of SRS’s processes to develop information on innovation. Comments should be based on a review of activities *completed during the past three years*. Constructive comments noting areas that need improvement are encouraged.

<p align="center"><b>DEVELOPMENT OF INFORMATION ON INNOVATION</b></p>	<p align="center"><b>YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE<sup>3</sup></b></p>
<p>1. The NRC report in Recommendation 4.1 (page 100) states that SRS should develop the capacity to resolve methodological issues related to the collection of data on innovation. SRS has begun to collect data it describes as a “platform” to collect future data on innovation. Has SRS begun to develop an internal capacity to collect data on innovation? And, is its proposed approach methodologically sound?</p> <p>Comments:</p> <p>There is one innovation question in BRDIS, and it follows the international practice of not mentioning the word ‘innovation’. This one question asks about firm behavior which, if answered in the affirmative, classifies the firm as innovative. The question and its components are taken directly from the Community Innovation Surveys run in Europe, 2004 and 2006, and the question has been shown to be understood by respondents.</p> <p>SRS has begun the process of collecting data on innovation with its BRDIS survey. This is the beginning of an extremely important and difficult data-gathering process. SRS has added a question that can be answered by firms for the given period. Specifically, the question asks, for the period 2006 to 2008, whether the respondent has introduced new or significantly improved goods or services, new or significantly improved methods of manufacturing, new or significantly improved logistics, delivery or distribution methods, or new or significantly improved support activities. This is an important first step in the direction of collecting information on innovation.</p> <p>The question covers product and process innovation and is supported by the same survey methodology as used in the rest of BRDIS, so it is expected to produce the first official statistics on product and process innovation in the U.S. which can be broken down by industry or by region. The development of the question, which has been shown to be robust, and its use in the survey, have been done in a methodologically sound manner.</p>	<p align="center"><b>Yes</b></p>

<sup>3</sup> If “Not Applicable,” please explain why in the “Comments” section.

<p>The question on innovation provides data for SRS to analyze and demonstrates that SRS has begun to develop an internal capacity to collect data on innovation. The next step is to develop the internal capacity to analyze the data and then, in subsequent rounds of BRDIS, to probe organizational innovation and business practices and market development. These components of the definition of innovation were added in the third edition of the <i>Oslo Manual</i> released in 2005 and are appearing in the Community Innovation Surveys. Both the internal analytical capacity and the work needed to use the broader definition of innovation require additional resources in SRS.</p> <p>The architecture of the innovation initiative is the next major task for SRS. The framework of what needs to be done now for future work—a blueprint—is imperative. This process is interactive. SRS staff will have to be deeply engaged in site visits with firms and with data users if they are to collect appropriate data that can be used to answer important near-term issues and if they are to develop a sustainable innovation survey instrument. NSF is likely to be engaged domestically and internationally in these kinds of policy debates, and should be at the forefront of research to be able to address them. If successful, this innovation module or survey would restore NSF to a leadership position at the OECD.</p> <p>An important part of the process of measuring innovation is the need to take a systems approach. This is a difficult but important task. SRS needs the resources to prepare for the task. Development of this data infrastructure is expected to have longevity—an instrument developed for today should be designed with the flexibility to be useful tomorrow.</p>	
--	--

<p>2. The NRC report in Recommendations 4.1 and 4.2 (pages 100-101) notes that SRS should support research in the area of measuring innovation. In addition, the 2006 COV-like activity final report stressed the need for SRS to be in "...greater contact with the research and issues that should inform the development of science metrics (SciSIP)." Has SRS's involvement in SciSIP been an appropriate response to these recommendations?</p> <p>Comments:</p> <p>SRS was a central actor in the conceptual and programmatic formation of SciSIP. Commendably, close interaction continues between the two programs, with frequent meetings and informal discussions occurring between the respective program managers. This is as it should be. Effectively linked, the combined activities of the two programs provide for a much needed interaction of theory, data, and measurement, with advances in each fostering advance in the other.</p> <p>Closer interaction and joint initiatives between the two would be beneficial, especially in presenting an integrated programmatic approach to relevant research, science, and innovation policy communities. For example, how can the SciSIP community of academics and practitioners provide information as SRS designs the new survey? Such interaction could also involve participation of other divisions within SBE and elsewhere in NSF. Toward this end, it is recommended that SBE</p>	<p><b>Yes</b></p>
---	-------------------

<p>convene a strategic planning task force from among these two units and other SBE units. The charge to the task force would be to identify future trends and needs in relevant theories, data, methods, as well as prospective science policy questions.</p>	
<p>3. The NRC report in Recommendation 3.9 (page 84) commends SRS for having initiated a project to link data from SIRD with data from the Bureau of Economic Analysis (BEA) Survey of Foreign Direct Investment. However, the report strongly suggests that the data files be placed in the Census Bureau's Center for Economic Studies (CES) to facilitate research and analytical studies. Has SRS placed the data files in the CES, and have researchers been able to use the data?</p> <p>Comments:  A number of technical and organizational issues have slowed the process of establishing a data link to Census Bureau CES centers. It would be very useful for researchers and other users to have access to this linked database. However, there are a number of issues that must be addressed before the data can be made available. Resolving technical questions such as differences in industry and product classification by each agency make linking data sets more difficult and more time-consuming than would have been expected. Organizational issues have also slowed the process; each agency must meet internal departmental requirements, especially with respect to confidentiality of responses. These issues cannot be solved by a single agency.</p>	<p style="text-align: center;"><b>No</b></p>

**PART B. RESULTS OF NSF INVESTMENTS**

The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. SRS's activities fall under the outcome goal of Research Infrastructure. The COV should look carefully at and comment on (1) noteworthy achievements based on SRS activities; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of activities.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

**Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals (where relevant). Provide examples of outcomes from the materials provided by SRS, as appropriate. Examples should reference the NSF award or contract number, the names of**

the Principal Investigator(s) and their institutions, or the names of the contractors or other federal agency.

**B.1 OUTCOME GOAL for Discovery:** *“Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering.”*

Comments:

High quality, comprehensive and timely data are essential components of the advance of knowledge. Data are a means of testing both existing and emerging theories, as well as identifying new, or previously obscured relationships that call out for new theoretical approaches. SRS’ ongoing, expanded, and improved activities in survey redesign, quality control, and enhanced standing as a federal statistical agency contribute to NSF’s performance under this goal.

**B.2 OUTCOME GOAL for Learning:** *“Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens.”*

Comments:

This question is not applicable to SRS’ activities. However, the COV sees the potential for revitalizing a dissertation fellowship program that would simultaneously increase the human resource pool of individuals trained in methodological and subject areas, as well as providing SRS with the capacity to explore new research areas without adding to the workload of its existing staff.

**B.3 OUTCOME GOAL for Research Infrastructure:** *“Build the nation’s research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools.”*

Comments:

Data are a key component of the infrastructure of social, behavioral and economic science. SRS’ ongoing activities, and even more its expanded and redesigned surveys, such as BRDIS, constitute important contributions to building the nation’s research infrastructure.

## **PART C. OTHER TOPICS**

### **C.1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.**

The COV’s review has highlighted impressive achievements of SRS over the past several years, including specifically in the context of this review its responsiveness to the NRC’s call for a redesign of SIRD. Although the Panel has identified specific aspects of SRS’s recent work where further refinements will be required, its summary assessment is that SRS operates within the standards expected of a

Federal statistical agency and, moreover, that it has accomplished a great deal with limited resources. It is hard to see how the agency can continue to do the kind of work required of it in the future without a major reorientation and expansion of its programs and closer coordination within SBE, and a significant increase in resources. At the present time, the agency is one of the smallest in the federal statistical system with its current staff of some 44 people and a budget of \$28 million dollars is dwarfed by the total statistical budget of our government which proposed spending of \$5,765.4 million in 2008, without counting the very large decennial census. SRS is severely underfunded. [See *Statistical Programs of the United States Government, FY 2008*, Executive Office of the President, Office of Management and Budget.]

This is a retrospective assessment. The COV also addressed prospective issues. The overarching perspective of the COV is that the areas in which SRS is working are becoming increasingly important in US science and innovation policy. These developments in turn will place increasing demands on NSF to provide timely, comprehensive, high quality, and policy relevant data on the US science, technological, and innovation enterprises. The methodological and analytical issues, particularly those related to innovation that will confront SRS, are more difficult than those faced by other Federal statistical agencies.

SRS will not be able to perform the work required of it without a major reorientation and expansion of its programs, closer coordination within the research units in SBE, and a significant increase in resources, staff as well as budget. As part of this reorientation, SRS should undertake a strategic planning exercise, preferably in coordination with SciSIP. The strategic plan would help SRS prioritize its efforts to redesign and improve its surveys. It would highlight the costs of redesigning each survey, and would provide a means of ranking the relative importance of each survey, and evaluating the tradeoffs in trying to improve each survey, in terms of timeliness, accuracy, and relevance. It would also help to underscore the value of expanding its internal research capability in improving the data collected in its surveys.

**C.2. Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.**

SRS has been tasked to develop the capacity to resolve methodological, definitional, and measurement issues related to the collection of data on innovation. SRS has added a section on innovation to the BRDIS, as an initial step in meeting this request.

It would be useful to consider a panel study of a small number of selected firms in similar industries to inform data collection on innovation. This pilot would allow study of the dynamics of innovation and would provide information about what could and could not be collected.

**C.3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.**

The mission and activities of SRS within the Foundation need to be re-examined. (See C.1.)

**C.4. Please provide comments on any other issues the COV feels are relevant.**

The COV finds merit with the NRC conclusion 8.1 that “an elevation of the visibility of the resource base for SRS would be a positive step and would serve to direct attention to the needs of the programs for sustainment and improvement.”

The COV also suggests that SRS consider establishing a permanent Advisory Panel.

**C.5. NSF would appreciate your comments on how to improve the COV review process, format, and report template.**

SRS did an excellent job in providing the COV with a comprehensive, well-organized set of documents needed for the meeting, and in quickly responding to requests for supplemental information. SRS staff provided clear, concise information during the COV meetings. Their support made it much easier for the COV to complete its job in a timely manner.

**SIGNATURE BLOCK:**

---

For the FY 2009 Division of Science Resources Statistics COV  
Irwin Feller  
Chair