

Accountability in Science Research Funding

“Evaluating & Managing Risks”

Summary Report

Workshop Held on May 31 – June 2, 2006
The Hague, Netherlands

Purpose

The primary purpose of the workshop was to present and discuss strategies to address accountability challenges using case studies and discussing best practices. The workshop agenda is contained in **Appendix A**.

Invitees

Invited persons were mainly people who have responsibility for operating programs that prevent and detect fraud, waste, and abuse in government funded science and engineering programs. In addition, research universities and institutions were represented. International attendees and their affiliations are listed in **Appendix B**.

Overview

Christine Boesz, Dr.PH, Inspector General of the National Science Foundation (NSF) [USA], and Gertjan Boshuizen, Manager, Financial and Control, Netherlands Organisation for Scientific Research (NWO) [Netherlands] hosted the Workshop at the offices of the NWO in The Hague.

In welcoming the attendees, Dr. Boesz introduced the topics that would be discussed during the two and a half days, with the focus on internal audit, risk assessment and risk management. Mr. Boshuizen also welcomed the attendees to The Hague and to the Workshop.

The remainder of the agenda was devoted to 1) evaluating and managing risks, 2) misconduct in research allegations, and 3) general auditing and internal control issues. The language for communication was English.

NARRATIVE SUMMARIES

The following narratives are summaries only. Please refer to the accompanying compact disk to view full presentations in PowerPoint or PDF format.

Overview of the Netherlands Organisation for Scientific Research (NWO)

Following a warm welcome, Dr. Nijkamp presented an overview of NWO and its research portfolio. He also discussed the values and costs of scientific research. Performance measures in the public sector are problematic. No single methodology works. The expectation of research funding is scientific excellence and societal benefits. The benefits of research affect productivity and economic growth, culture and society, employment, education and training, and competitive potential. The dynamic link between Knowledge Investment Quotient and growth in the Gross National Product was explained. The long-lead times associated with scientific discoveries require public trust. Conditions for trust in public research funding are: quality and originality, achieved through an independent peer review process and an appropriate code of conduct; benefits to society, assessed as value for money and flagship research; and

accountability, demonstrated through financial statements and performance indicators. He finished by discussing the NWO strategy and European challenges.

[Presenter: Peter Nijkamp, Chairman, NWO General Board],

Challenges for Administration and Finance

The European Science Foundation's (ESF) core mission is coordination of research, not direct research funding. ESF is a non-profit organization under French law, with 78 member organizations in 30 countries. ESF core mission is cooperation, reducing duplication and fragmentation in scientific research. The 3 pillars of ESF Strategy are science, synergy, and programme management. Mr. Weber discussed challenges and strategies within a context of change and growth. The main challenges for administration and finance are management of human capital and management of finance. He gave examples of best practices in meeting these challenges and applied them to ESF operations. He concludes by stating that the challenges of growth are difficult to anticipate, but excellent administrative and financial systems are necessary to support scientific initiatives.

[Presenter: David Weber, European Science Foundation]

Sense and Sensibility: A balanced Approach to Performance Management

Prime Minister Tony Blair has made science a priority in the United Kingdom. The future of the UK economy depends on science. Therefore, there have been significant increases in the budget for research, making the UK an attractive place for scientists. This interest in science calls for an accountability framework. Mr. Ward discussed a performance management framework to measure two outputs of a ten year science and innovation framework: 1) A healthy UK science and engineering base and 2) Better exploitation. An example of a quality measure is percent of world citations for UK scientists. He stated that performance management systems are currently only loosely connected, indicating a need for a more coherent framework. He then discussed the EPSRC vision and the EPSRC implementation of a balanced scorecard approach that provides feedback around both internal business processes and external outcomes in order to continuously improve strategic performance results. He also discussed research and knowledge transfer deliverables, giving specific examples of information being collected by his organisation.

[Presenter: Stuart Ward, Director, Resources, Engineering and Physical Sciences Research Council (EPSRC), United Kingdom]

Misconduct in Research Issues

At a working lunch, Dr. Boesz provided an update on handling misconduct in research allegations in the United States and led a discussion on the challenges of handling such issues. She then presented 5 cases that had had been handles by her office. Each case showed a different aspect of research misconduct. She described the standard NSF OIG policy and procedure, the varied University policies and procedures, and the process of adjudication. Federal regulations state that misconduct means fabrication, falsification, or plagiarism in proposing or performing research funded by NSF, reviewing research proposals submitted to NSF, or in reporting research results funded by NSF.

[Presenter: Christine Boesz, NSF Inspector General, United States]

National Science Foundation Risk Assessment Model

Mr. Cooley discussed the NSF mission, and his approach to oversight and monitoring of federal awards. He described the evolution of internal controls within the federal government, and discussed the current drivers and policy-makers concerns. He then discussed why internal controls are important to promote effectiveness and efficiency of operations, to ensure reliability of financial reporting, and to maintain compliance with applicable laws and regulations. He explained the COSO Framework and how it addresses the control environment, risk assessment, control activities, and communication.

[Presenter: Tom Cooley, NSF Chief Financial Officer, United States]

National Science Foundation Post Award Monitoring

Government emphasis on stewardship of federal funds, combined with constrained resources, leads to NSF conducting an annual risk assessment of all awards. This approach allows NSF staff to focus on high risk awards. The monitoring program is not done to audit standards. Site visits are an outreach, technical assistance activity that is designed to assist awardees in understanding and complying with government requirements. Ms. Santonastasso described in detail NSF's Risk Assessment Model, covering about 35,000 awards. Major areas of concern are: time & effort reporting, participant support costs, use of consultants, sub-recipient monitoring, and cost sharing. She then presented a case study involving a new awardee, a small non-profit company with a large award amount,

[Presenter: Mary Santonastasso, NSF Director, Division of Institution and Award Support, United States]

Risk Assessment Management at the Organizational Level

The Research Council of Norway's organizational chart was presented to show how internal audit fits into the structure. The audit framework is based on the COSO model. Also, the budget over 12 years was discussed to show the challenge of growth. Ms. Tengborn then described the Enterprise Risk Management Framework (ERM) that is used to evaluate risk in order to target internal audit work. A diagram that presents the role of internal audit in ERM was discussed. Implementation is ongoing and is expected to assist the Research Council in its financing activities.

[Presenter: Trine Tengborn, Director, Internal Audit, The Research Council of Norway]

Evaluating Your Own Organization

Evaluation is a core competency of the Swiss National Science Foundation. Two external audits are regulated by law: the annual financial statement audit and the financial surveillance authority. The framework for internal audit is defined by statute. It is focused on management, not science. The Internal Audit process reports to the President of the Foundation. The audit cycle follows a path of implementation recommendations then follow-up audits. Ms. Schenker discussed audit goals and audit scope (fields). The advantage of the audit cycle is that it reflects work practices and is a continuous improvement process. The disadvantage is that some recommendations are not adaptable to the Foundation and some are already underway. Also, there is no positive feedback. The challenge is how to select audit topics and how to evaluate the evaluators.

[Presenter: Elisabeth Schenker, Controller, Swiss National Science Foundation (SNSF)]

How the US-Israel Foundation Operates and Evaluates Performance

The U.S.-Israel Binational Science Foundation (BSF) is jointly owned by the governments of Israel and the United State for the purpose of providing monetary support for basic scientific research. The organization and its governing board were described. Applications for funding must have a PI from each country. The BSF is supported by an endowment fund. One challenge is peer review because reviewers are difficult to find. They are not paid. Presently there is a funding success rate of 25%. The funds flow is about 75% to the Israeli investigators; 25% to US. Because endowment yield is declining and the cost of research is rising, the BSF is conducting a funding feasibility study in the U.S. BSF has an audit program that examines Israeli institutional handling of funds. It is developing an audit program for the US. Overall success of scientific programs is measured by publications, with a special emphasis on jointly authored papers.

[Presenter: Yair Rotstein, Director, US-Israel Binational Science Foundation, Israel]

Risk Assessment Management on an Organizational Level

The Science Foundation of Ireland (SFI) made its first awards in 2001, and was established as an independent Irish State body in 2003. Ms. Cavanaugh defined risk management, explaining that it is a normal management activity. The objective is to manage risk, not to eliminate it. It should aid in the decision-making process and in allocation of resources. She then discussed the role of internal audit in risk management and the risk management process at SFI. Risk management at SFI began in 2004. There was Foundation-wide participation in identifying key risks over strategic, financial and operational issues.

The process is to identify and evaluate potential risks, monitor indicators of risk and to report on risk management actions to management and the Board. Buy-in by management and staff was critical to the success of the program, and future challenges include embedding risk management in day-to-day operations.

[Laura Cavanaugh, Director, Internal Audit, Science Foundation Ireland]

Single Audit Concept

Since the 1960s there has been a steep rise in federal grants. More money required more accountability. The 1960s there was grant by grant audits. In the 1970s there were hundreds of different audit guides. In 1979 a government-wide evaluation disclosed that there was no single agency overseeing all federal funds to a single recipient. There were many duplicate audits. The wide variety of audit scope and objectives left many gaps. In October 1984 the notion of a single-audit became law, providing uniform audit requirements on entity-wide audits of state and local governments. In 1996 universities, colleges, etc. were brought under this framework. Now Circular A-133 is in place covering all organizations receiving greater than \$500,000 in a year on federal awards. For-profit entities are not covered. Ms. Cureton explained the requirements of an A-133 audit. These audits are submitted to a federal clearing house for dissemination to appropriate federal agencies. The Single audit concept has resulted in more efficient audits, uniform standards, and strengthened grantee accountability for federal funds. The single-audit notion has become an important accountability tool. Yet challenges remain. The quality of single audits is being looked at by the federal Inspector General community. Also, effective use of the audits remains an issue. The single audit does not provide audit coverage of smaller institutions. Fragmented funding sources make it difficult to efficiently operate the Clearing House. Ms. Cureton concluded that the single audit concept has been successful in providing a structure and more efficient approach to assuring accountability, but achieving quality audits remain a serious challenge.

[Presenter: Deborah Cureton, Assistant Inspector General, NSF, United States]

Developments in Single Audits in the Netherlands

Mr. Boshuizen described the government of NWO. NWO has been taking steps to implement a single audit process to handle earmarked funds and to reduce administrative burden on researchers. Also, the central government has initiated steps to a single audit. Five years ago Internal Audit spent 80% of time on 20 % of the budget. The other 80% was audited on the basis of an audit guide from the Ministry of Education. Recent developments include establishing an Internal Audit Department and engaging an external auditor for the financial statement audit. Steps have been taken to improve internal controls. The first steps to a single audit have involved negotiations with Economic Affairs regarding accounting and audit standards. The first year (2004) resulted in a lot of extra work for internal audit. The next step is to convince other Ministries that a single audit is desirable and to establish one set of audit guidelines. To decrease administrative burden for the researcher, several actions have taken place in the following areas: electronic applications and financial accountability. The successful researcher has multiple sources of funding. Also, the single-audit concept has been introduced for NWO funded universities. Their external auditors use guidelines for Education and NWO, reporting remarkable findings. NWO has also engaged in post-award monitoring with visits to universities. The central government is also exploring steps to single audit. Risk analysis has been introduced. Auditors are auditing internal control statements. There is a reduction in the number of audit statements in the public sector. Discussion is ongoing with success dependent upon the willingness of individual departments.

[Presenter: Gertjan Boshuizen, Finance & Control Manager, NWO]

Discussion of Accountability Challenges

A discussion was held on accountability challenges facing funding overseers, auditors, investigators, and others in the next several years. The results of the discussion are summarized below:

Structures

- Role of audit committee in boards
- Role of audit committee in funded organisations
- How to convince the management for accountability?

- Structure of finance committee
- Risk Assessment process
- Project risk assessment (i.e. the assessment of individual projects, and then how to cumulate risk for a departmental portfolio of projects)

Strategies and policies

- Performance agreement between funding agencies and the government
- Indicators to achieve strategic plans
- Indicators to measure the performance and the accuracy of the measures
- Risks and policy conflicts in KT activities

Framework conditions of the reviewing and auditing process

- Paying referees?
- Link between the accountability of the scientific and financial reports
- Overhead costs/operation costs
- Different legal environment of funded institutes/organisations; how to define the wage level in our projects
- International granting schemes
- Code of conduct/conflict of interest
- Intellectual proprieties
- Audit capacity building in human resources and (training) knowledge
- Time recording: effort reporting is required in the US, but not quite at the level of daily timesheets; it is required for EU projects, and is required, in a loose form, in the UK for full economic costing. But how accurate is it?

Miscellaneous

- IT-system security
- Influence of the freedom of information act on the review process and auditing in general
- International efforts to address research misconduct issues

[Facilitator: Elisabeth Schenker, SNSF]

Performance Issues: International Sub-Recipient Monitoring

The Nature Conservancy (TNC) is the world's largest conservation organization. Each year TNC receives and distributes federal and private award funds to US and international partners. The monitoring program was designed to comply with Circular A 133 requirements that funds passed through to other organizations must be monitored for compliance. Mr. Austin described TNC's award framework and its grants service network, designed to ensure effective and consistent awards administration. TNC's Internal Audit program uses a sub-recipient monitoring (SRM) consisting of three parts: information, risk assessment, and monitoring activities and analysis. Risk assessments are done using A-133 single audits, site visits, and desk assignments. A risk assessment tool is used to score risk ranking. Risk Ranking and Funding Ranking (TNC funding expended) are combined to comprise the SRM Rating for risk, used to determine degree of monitoring. Mr. Austin described the SRM responsibilities of internal audit, grants specialists, and program directors. He also discussed the top 5 award administration issues for TNC and its partners. The most common challenge is that a sub-recipient partner is often unfamiliar with grant regulations and the US approach to grants administration.

[Presenter: Michael Austin, The Nature Conservancy, United States]

Overhead Cost Discussion

A discussion of science-funding agencies overheads was added to the agenda because of high level of interest indicated by Workshop participants. Mr. Ward presented public information on major science funding agencies in several countries. There is wide variation in the rates and in the cost components that

go into the rates. In some instances peer reviewers are paid for their time and expenses. Others, they were paid only expenses. While this explained some of the variation, there are other differences to explore.

[Facilitator: Stuart Ward, EPSRC]

Return on Investment

Global expenditure in research and development is growing steadily with no sign of slowdown and will soon reach one trillion USD worldwide. As a matter of fact, a growth in investment in R&D (and higher education) is widely considered as the strongest driver of health and wealth of nations; statistical data at a highly aggregated level as well as historical evidences support this causal relationship.

Methods and statistical instruments to describe both investments in and output from R&D have been developed for more than 50 years and offer useful measurements and indicators (OECD science Technology and Industry Scoreboards to name one).

However a particular difficulty arises from the intangible nature of the output from investment in R&D which is “knowledge”, and the fact that it may manifest itself in the very long term and in unexpected areas. This difficulty is amplified by the evolution of research activities and the multiplication of collaborations, international and interdisciplinary teams with public/private partnership and multiple funding sources.

As a result of this spread and lack of “traceability” and to the growing frustration of policymakers, existing methods and tools fail to capture the performance of a given research funding organisation, i.e. its contribution to the creation of knowledge and the diffusion of that knowledge within the scientific and technical sphere.

Although intangible *per se*, knowledge comes under many forms such as trained and experienced researchers, but also publications, conferences proceedings, patents etc. which constitute “building blocks” which will be more or less “successful” as a basis for further research and applications.

This information is increasingly digital and retrievable on a very broad basis by search engines. Recent internet technologies such as metalanguages also make possible to add content to a digital documents (“tags”) that is not necessarily visible to the reader but is machine readable. Publication authors names are already handled that way.

If “knowledge building blocks” were tagged with the identity of the relevant funding organization(s), this later’s contribution would become traceable and the impact of the research it funded could be evaluated on real time as “knowledge building blocks” circulate. With enough history of use a funding organisation’s performance could also be apprehended retrospectively.

To be effective in a highly interconnected and diverse scientific community this approach would have to be « universal » and initiated bottom up by a consortium of authoritative stakeholders. As already proven in other fields this is realistic, feasible and efficient.

[Presenter: Patrick Vincent, Director Administration and Finance, Human Frontier Science Program (HFSPO), France]

The Board and the Audit Function: Closing the Gap

Comparisons were made between the US Board system (monolithic), Societas Europea (monolithic), and the German Aktiengesellschaft (dualistic), looking at structure, roles, and responsibilities. Then Mr. Habel described the DFG organizational structure. The DFG has no advisory board and no audit committee. A Joint Committee is responsible for financial matters, including budget. External auditors check the internal auditors and verify accounts. Selected auditors report to the General Assembly, taking into account the report of the external auditors. It is a multidimensional system. The conclusion is that information is more transparent in a monolithic system than in dualistic and multidimensional systems. The gap in the system of oversight (surveillance) can be filled by creating an audit committee that

involves substantive discussions with management, internal audit and external audit. Audit committees can reduce the burden on boards with the assistance of internal audit. He also notes that while internal audit has an important role to play, it has limitations in the amount of information it can produce for management.

[Presenter: Florian Habel, Head, Internal Auditing Section, Deutsche Forschungsgemeinschaft (DFG), Germany]

Industry Collaborations: Conflicts of Interest

Ms. Westerburg discussed issues involving the public funding of technology transfer. She suggested that the process of German technical transfer has both strengths and weaknesses. Germany has strong research capabilities and a strong economy, but technology transfer links between science and industry are weak. In general, German firms have strong output drivers, but are weaker in innovation drivers, innovation demand from industry, and governance. These weaknesses will influence future performance of the German economy so they must be strengthened. Technology transfer involves the transfer of concepts and ideas. The best way to make such transfer work is to bring together business and academics. DFG funds research projects that involve industrial partners, which must be active participants. Transfer projects must benefit both the university and the industrial partner. Legal restrictions on the DFG and its tax-exempt status and the requirements of public funding complicate the process. Cooperation agreements must be approved by the DFG to be sure there are no violations of law that would affect the DFG. Two important aspects of cooperation agreements that must be balanced are: usage rights and publication policy.

[Presenter: Sandra Westerburg, Counsel, DFG, Germany]

International Accounting Standards: Introduction of IPSAS in the Netherlands Central Government

Mr. Touw discussed the objectives of the IPSAS, which are to improve financial management, accountability, and transparency. The IPSASB requires that government entities move from cash to accrual accounting. Critical elements of IPSAS accrual based reports were discussed. Then the current practice in The Netherlands was described. The expectation is that information based on accrual accounting will result in higher quality information for long-term budgeting and will improve the efficiency and effectiveness of the internal organization. There is concern about consequences of implementation, including cost and effort. The experiences of the Ministry of Agriculture were described. The transition was found to be more complex than expected. The conclusion is that IPSAS requires long-range planning. Mr. Touw ended by talking about the implementation consequences for various organizations.

[Presenter: Wim Touw, KPMG Partner, The Netherlands]

The Role of Internal Audit: Making the Most of External Consultants

An overview of the German public procurement law and how it affects DFG's awarding contracts to external consultants, e.g., certified public accountants (CPAs), was presented. In short, DFG is not a public law body so public procurement regulations do not apply. Mr. Kuhn discussed the advantages and disadvantages of three options for procuring CPS services: invitation to tender open to the public, limited invitation to tender, and single tender action. CPAs are most important external consultants. The case study described the role of CPAs in auditing the annual accounts of DFG and the Federal Auditing Courts recommendation to abolish the annual audit of the DFG by the CPAs, still an open issue. The complexities of implementing an annual audit and the consequences of the recommendation were explained.

[Presenter: Robert Kuhn, Director of Finance, DFG, Germany]

General Observations and Conclusions

The participants agreed that the workshop achieved its objectives. It was recognized that scientific research involves more international collaborations using both formal agreements and informal collaborations. While collaborations make complex and expensive projects more feasible, the accountability challenges are enormous both in scope and resources needed. Therefore, global communication and cooperation among accountability professionals is necessary to gain efficiency and to produce timely, useful accountability information. During the workshop there was discussion on the importance of devising ways to rely on the work of others in the accountability profession. There is interest in holding another workshop in 2007 with a focus on the accountability challenges identified during the discussion on the second day.

Also special thanks to Mr. Gertjan Boshuizen at The Netherlands Organisation for Scientific Research for his assistance with the agenda and all the logistical and organizational arrangements he coordinated to make this Workshop such a success. The Workshop participants are grateful for the generosity of the NWO in providing the facilities and support for this meeting.

For additional information, contact Christine C. Boesz, Dr.P.H., Inspector General, National Science Foundation, U.S.A., e-mail: cboesz@nsf.gov

FINAL July 5, 2006

AGENDA

International Workshop on Accountability in Science Funding “Evaluating & Managing Risks”

Meeting Place

**The Netherlands Organisation for Scientific Research (NWO)
Laan van Nieuw Oost Indie 300, Java Building
The Hague, Netherlands
May 31 – June 2, 2006**

**Co-Chair: Dr. Christine C. Boesz
Inspector General
National Science Foundation (NSF)
United States of America**

**Co-Chair: Mr. Gertjan Boshuizen
Manager, Finance & Control
Netherlands Organisation for Scientific Research (NWO)
Netherlands**

Theme: *Accountability in Science Funding – Evaluating and Managing Risks*

Purpose: To present and discuss strategies to address accountability challenges using case studies and discussing best practices.

Tuesday, May 30

6:30 – 8:00 PM “Meet & Greet” reception – Nieuwspoord International Press Centre located at Lange Poten 10 in the Hague

Wednesday, May 31

8:30 AM Workshop Registration
NWO, The Hague, Netherlands

9:00 AM Welcome and General Overview
“Evaluating and Managing Risks”
Christine C. Boesz, Inspector General, NSF

9:15 AM Welcome and Overview of the Netherlands Organisation for Scientific Research
Peter Nijkamp, Chairman, NWO General Board

9:45 AM Challenges for Administration and Finance in a Context of Significant Growth
David Weber, ESF

- 10:45 AM *Break*
- 11:00 AM Sense and Sensibility: A balanced approach to Performance Management
Stuart Ward, United Kingdom
- Noon Working Lunch: Introduction to Misconduct in Research Accountability
Christine Boesz
- 1:30 PM Misconduct in Research Case Studies
Christine Boesz
- 2:15 PM National Science Foundation Risk Assessment Model
Thomas Cooley, Chief Financial Officer, NSF
National Science Foundation Post Award Monitoring
Mary Santonastasso, NSF
- 3:30 PM *Break*
- 3:45 PM Risk Assessment Management at the Organizational Level
Trine Tengborn, Norway
- 4:20 PM Evaluating your own Organization
Elisabeth Schenker, SNSF
- 5:00 PM Close for the Day

Thursday, June 1

- 8:30 AM How the US-Israel Foundation Operates and Evaluates Performance
Yair Rotstein, U.S. Israel Binational Science Foundation
- 9:15 AM Risk Assessment Management on an Organizational Level
Laura Cavanaugh, SFI
- 10:00 AM *Break*
- 10:15 AM Single Audit Concept: Pros and Cons
Debbie Cureton, NSF OIG
- 11:00 AM Developments in Single Audits in the Netherlands
Gertjan Boshuizen, NWO
- 11:30 AM Discussion of Single Audit Programs
Leader: Debbie Cureton, NSF OIG

- 12:00 PM Working Lunch: Discussion of Accountability Challenges
Leader: Elisabeth Schenker, Switzerland
- 1:30 PM Performance Issues: International Sub-recipient Monitoring
Michael Austin, The Nature Conservancy, US
- 2:30 PM Overhead Cost Discussion
Leader: Stuart Ward, United Kingdom
- 3:15 PM *Break*
- 3:30 PM Return on Investment: Pros and Cons
Patrick Vincent, HFSPO
- 4:15 PM The Board and the Audit Function: Closing the Gap
Habel Florian, DFG
- 5:00 PM *Close for the Day*

Friday, June 2

- 8:30 AM Industry Collaborations: Conflicts of Interest
Sandra Westerburg, DFG
- 9:15 AM International Accounting Standards
Introduction of IPSAS in The Netherlands Central Government
Wim Touw, KPMG Partner, Netherlands
- 10:15 AM *Break*
- 10:30 AM The Role of Internal Audit: Making the Most of External Consultants
Robert Kuhn, DFG
- 11:45 AM Workshop Summary: Next Steps
Gertjan Boshuizen
Christine Boesz
- Noon *Workshop Adjournment*

PLEASE NOTE: All sessions will be conducted in English.
Times of Presentations may change, but not the day.

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The Hague, Netherlands - Attendee List - Final
ACCOUNTABILITY IN SCIENCE RESEARCH FUNDING
WORKSHOP - May 31- June 2, 2006

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APPENDIX B

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