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G8 Working Group on Research Assessment:

*Assessment of S&T Outcomes in Canada –
The Current State in the Federal Government*

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Assessment of S&T Outcomes in Canada The Current State in the Federal Government

1. Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support
2. Data Issues and Challenges
3. Efforts to Advance the Evaluation of Science in Canada



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Overall context for evaluation
 - Value for Money key preoccupation
 - Influence on expenditure management review
 - Increased focus on measures of effectiveness, efficiency and economy



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Issues - Relevance, Impacts, Efficiency and Economy
 - Continued need for program
 - Alignment with government priorities
 - Consistency with Federal roles and responsibilities
 - Achievement of expected outcomes
 - Demonstration of cost-efficiency and economy



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Program Activity Architecture (PAA) defines the units of analysis (i.e., program) for evaluation
- Program definition
 - On-going set of activities in support of common objectives
 - “group of related resource inputs and activities that are managed to address one or more specific needs to achieve certain expected results, and is treated as a budgetary unit”



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Timing and Coverage
 - Grants and contribution programs evaluated every five years for relevance and effectiveness (Financial Administration Act)
 - Programs with sunseting funding (e.g., specified period of time) must present evaluation results prior to renewal of the program
 - Moving towards 100% coverage of all other programs (i.e., direct spending) over a five year period (under a proposed Evaluation Policy)



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Multiple methods – mix of quantitative methods balanced by qualitative
 - Quantitative: surveys, file reviews, administrative data analysis, econometric modeling, scientometrics (e.g, bibliometrics, patent analysis)
 - Qualitative: interviews, case studies, focus groups, expert opinion (peer review)



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Research Design
 - Comparison groups
 - To assess counterfactuals (“What would have happened in the absence of the program”)
 - Benchmarks



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Methodological Approaches for Evaluating Grant Programs, R&D and Innovation Support

- Limiting Factors
 - Time frames for evaluating – often too early to assess results of R&D. However, the longer you wait, the more difficult attribution becomes
 - The ability of programs to operationalize and collect data
 - The time and resources available to collect information



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Question to the Group

- Issues of cost-efficiency, economy and cost-effectiveness
 - Do you measure this in your agency?
 - How can this be measured in an S&T context?
 - What are the challenges you face?



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Data

- National level
 - Innovation system level indicators - international benchmarks (OECD)
- Council level (Corporate performance)
 - report to parliament on priorities through a Report on Plans and Priorities (RPP) and on performance through a Departmental Performance Report (DPR)
 - Statistics Canada data
 - Some international benchmarks (OECD: HERD, Ph.D. graduates per million)
 - Balanced scorecard
 - Core performance measures



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Data

- Program level
 - Research output (bibliometrics)
 - Knowledge transfer (self-report data - survey of all NSERC funded researchers)
 - Training (exit survey, career survey)
 - Commercialization (post-award studies)
 - Influence on standards



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Data Issues and Challenges

- A tendency to rely on qualitative measures from recipients – trying to move away from that and increase reliance on more objective measures
- Difficult to obtain information from the user community (e.g., industry)
- Limited opportunity for comparators – tends to be unsuccessful applicants or non-clients
- Difficulty rolling up data from multiple sources/programs



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Question to the Group

- Improving impact measurement
 - How do you engage users of the research that your agency funds?
 - What challenges do you face in obtaining information over the long-term?
 - Any solutions?



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Efforts to Advance the Evaluation of S&T in Canada

- Increasing Accountability Measures
- S & T Strategy
 - Federally performed research (Policy Research Initiative - PRI)
 - Federally funded research (Granting Councils Indicators Working Group)



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Increasing Accountability Measures

- Introduction of the Federal Accountability Act (2006)
 - all grant and contribution programs be reviewed at least every five years to ensure their relevance and effectiveness
- Emphasis on results-based expenditure management (Treasury Board)
 - Emphasis on restraining growth of government spending
 - Cyclical review of all departmental programs. Identification of lowest performing areas/programs to result in government reinvestment in priority areas (internal or external to the department)
- Value for money concepts and demonstrable results
 - Piloting concepts that examine program relevance and performance in terms of economy, efficiency and effectiveness
- Renewed Evaluation Policy (planned spring 2009)
 - Requirement to address 100% of programs over a 5 year period. Core issues of relevance (role of government and need); effectiveness (achieves results); and efficiency (achieves results at lowest cost)



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S&T Strategy Commitments

- Policy Research Initiative
 - Improving measurement and reporting on the impacts of Federal science and technology. Neutral policy research organization for the federal government, which co-ordinates and synthesizes policy research on key horizontal issues
 - Current research projects
 - Development of measurement framework
 - Working papers
 - Literature Reviews
 - Forum: Public Science and the Marketplace - Connecting, Measuring and Reporting



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S&T Strategy Commitments

- Improve the government's understanding of the impact of federally funded S&T
- Granting Councils Indicator Working Group
 - Identify a limited set of core indicators to capture key impact of Council's funded S&T and assess the feasibility of adopting a common approach (framework) to measure impact
 - Collaboration with Industry Canada on a pilot project to map and develop new indicators of impact of federally funded research
 - Mobilize research community in developing new approach



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