


U.S. R&D Program Evaluation: Methods and Status



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March 26, 2004



“Government should be
results-oriented—guided not
by process but by performance.”

— *George W. Bush, 2000*

Motivation and Context

- The focus for the Bush Administration – and for the U.S. Congress – must not be just the amount of funding provided to a program, but also on how effective the program is.
- This focus is only strengthened by the current need for fiscal restraint. The U.S. is current in a period of deficit spending, and the Administration intends to reduce the deficit by half in the next five years.

The Challenge

- Challenge: How to incorporate program results into funding and management decisions?
- The Government Performance Results Act (GPRA) currently requires detailed plans and reports on agency performance.
- However, these requirements:
 - Do not yield useful information for funding decisions and management reform.
 - Do not provide performance reports in time for Executive Branch decisions.

President's Management Agenda

- In 2001, the Bush Administration released its President's Management Agenda (PMA) to provide standards and goals for improving management across U.S. Government agencies.
- The President's Management Agenda features five broad management initiatives, plus several more specific initiatives, including one on Federal R&D.

For more information on the PMA:

<http://www.whitehouse.gov/omb/budget/fy2002/mgmt.pdf>

Better Research and Development Investment Criteria

Objectives:

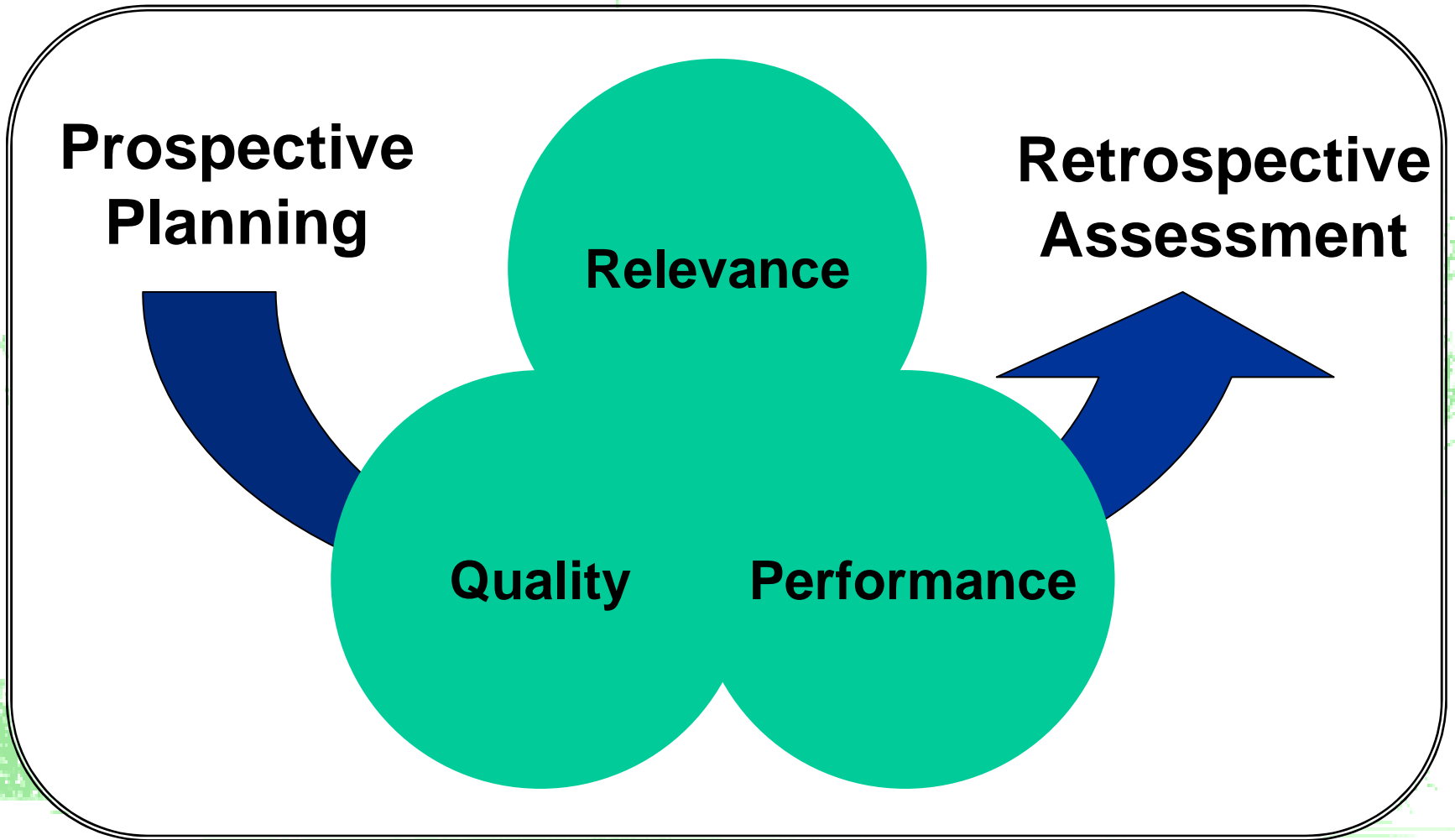
- Better understand what our investments yield.
- Link information about potential benefits and proven performance to funding and management decisions.
- Articulate expectations to agencies and research community.

The R&D Investment Criteria were first implemented at the U.S. Department of Energy.

Criteria for All Agencies

- In 2002, OMB revised the Investment Criteria to apply to all Government R&D. New Challenges:
 - Creating meaningful guidelines for the broad spectrum of R&D, such as:
 - Basic research
 - Mission-driven basic and applied research
 - Construction and operation of facilities and equipment
 - Development of technologies relevant to industry
 - Performance guidelines for basic research, which has outcomes that are uncertain or that may take years to achieve.

The Result: Criteria for All R&D



I. Relevance -- *“Why?”*

Programs must, for example:

- Have complete plans, with clear goals and priorities.
- Articulate the potential national benefits of the program.
- Demonstrate relevance to customers (such as fields of science or other programs) through independent assessments.

II. Quality -- *“How?”*

Programs must:

- Allocate funds through a competitive, merit-based process, or else justify funding methods and document how quality is maintained.
- Demonstrate continuing quality through independent expert assessments.

III. Performance -- *“How Well?”*

Programs must, for example:

- Define appropriate outcome measures, schedules, and decision points.
- Demonstrate continuing performance.

IV. In addition, for Industry-Related Technology Programs

Programs must:

- Articulate public benefits of the program.
- Justify the appropriateness of federal investment.
- Demonstrate that R&D is a more effective way to support the program's goals than other policies.
- Document industry relevance, including readiness of the market to adopt technologies.
- Identify “off ramps” and transition points.

From Criteria to PART...

- The availability of performance information was inadequate in all programs, not just R&D.
- Agency performance measures were ill-defined and results were not integrated into agency decisions and requests.
- To address this, another of the initiatives of the President's Management Agenda is called "Budget and Performance Integration."
- To provide timely information, OMB needed a new tool...

The Program Assessment Rating Tool (PART)

- OMB developed the PART as a tool for assessing programs consistently across the government.
- The PART has four sections:
 1. Program Purpose and Design
 2. Strategic Planning
 3. Program Management
 4. Program Results/Accountability
- Each section has 5 to 10 questions.

PART Results

- PART assessments yield overall program “effectiveness” rating.
- More importantly, PART assessments provide detail of specific strengths and weaknesses.
 - Together, these observations provide input to budget and management decisions.
 - Agencies and programs are accountable for recommendations.

PART Status



- In 2004, we have had the most sweeping, detailed assessment of U.S. Government programs - 400 programs (about \$1 trillion).
- 20% of programs to be added each year.

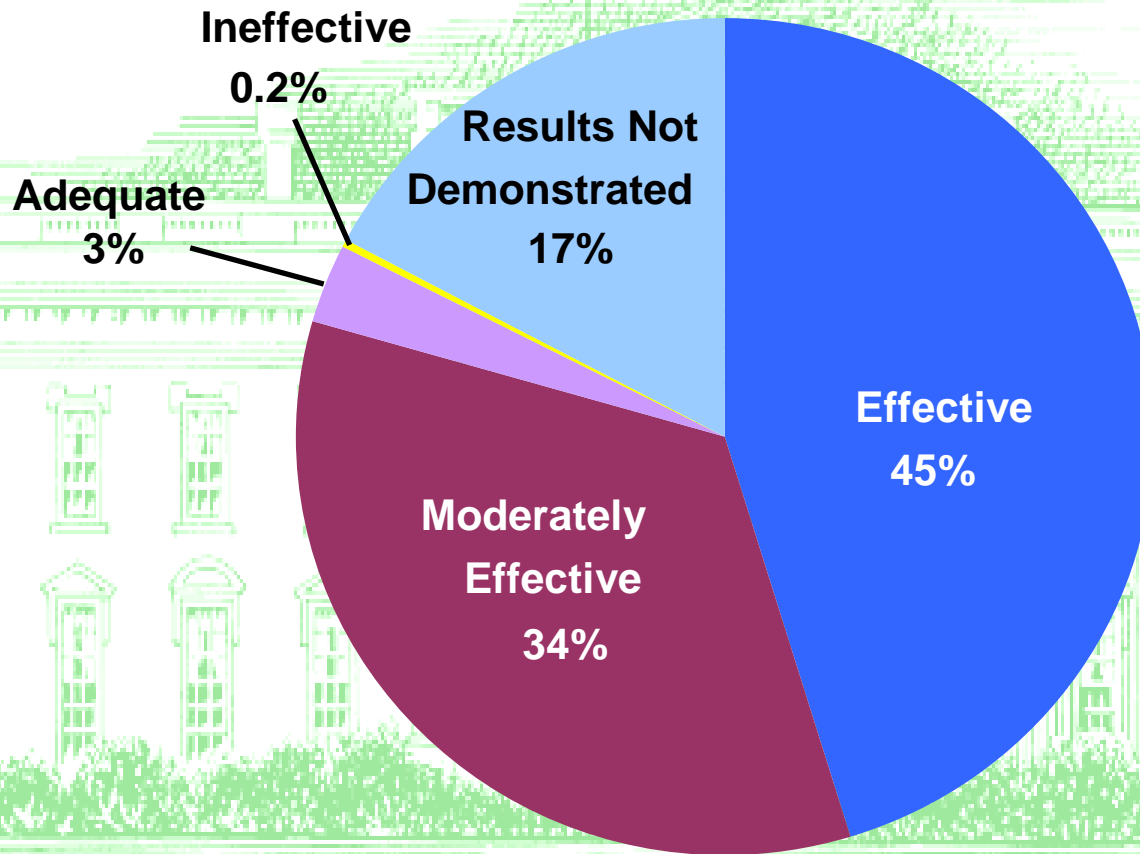
*For more information on the PART or
the R&D Investment Criteria:*

<http://www.omb.gov/PART>

The R&D PART

- The PART has seven versions for different types of program, including one for R&D.
- Initially, the Administration wanted all government programs to be judged on annual performance measures, but R&D is perhaps the most difficult to measure.
- The “R&D PART” relies on principles of the R&D Investment Criteria, including special considerations for basic research.
- Of the 400 programs assessed so far, 58 have been R&D.

PART Assessments of 58 R&D Programs



Specific R&D Examples

Effective	Commerce: NIST Laboratories NASA: Solar System Exploration NSF: Nanoscale Science & Engineering
Moderately Effective	Energy: Geothermal Energy US Geological Survey: Geologic Hazard Assessments
Adequate	Health and Human Services: Patient Safety Energy: Building Technologies
Ineffective	Energy : Oil Technology
Results Not Demonstrated	Agriculture: Food Safety Research Environmental Protection: Particulate Matter Research Veterans Affairs: Research & Development

R&D Program Assessment: Status and Next Steps

This year, we will:

- Continue to implement the R&D Investment Criteria at additional agencies.
- Continue to integrate the R&D Investment Criteria with the PART.
- Assess another 20% of the government using the PART.
- Work with the Congress to improve the integration of the President's Management Agenda into decisions and reforms.