

**Assessing Public R&D Programs
in the United States:
*Priority Setting, Monitoring, Impact Appraisal***

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Evolution of the US S&T Policy

- ☐ Mission-Oriented Science Policy: up to 1970s**
 - Mission-oriented**
 - Science-focused**

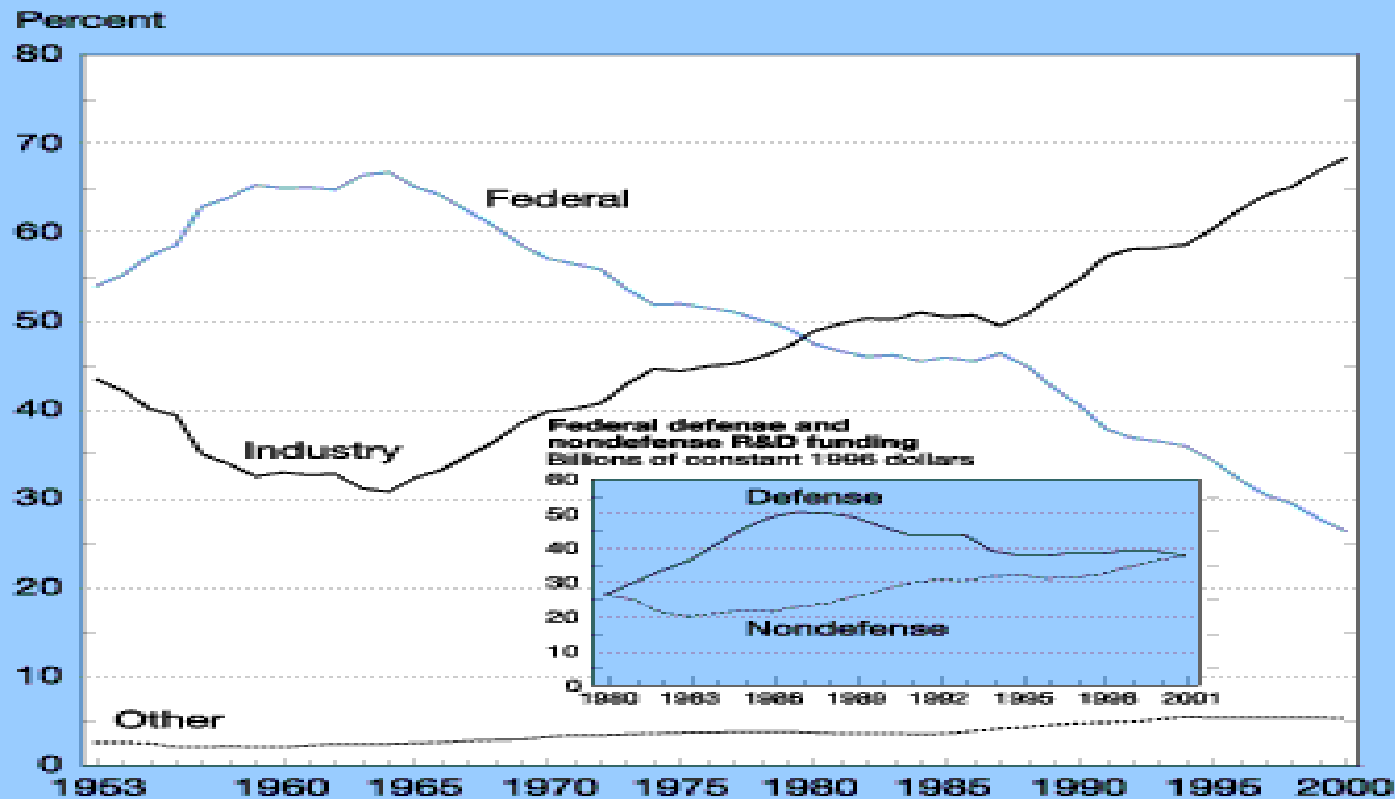
- ☐ Technology Policy: 1980s**
 - Competitiveness Crisis**
 - Technology-focused**

- ☐ Balanced Innovation Policy: 1990s**
 - Balanced Demand and Supply Policy**
 - Lax Antitrust / Strict IPR**

- ☐ Revisited Mission-Oriented Policy: Bush Adm.**
 - 9/11 Attack**
 - Mission of Antiterrorism**

National R&D Exp. by source

Overview Figure 15.
**National R&D expenditures, by source of funds:
1953–2000**

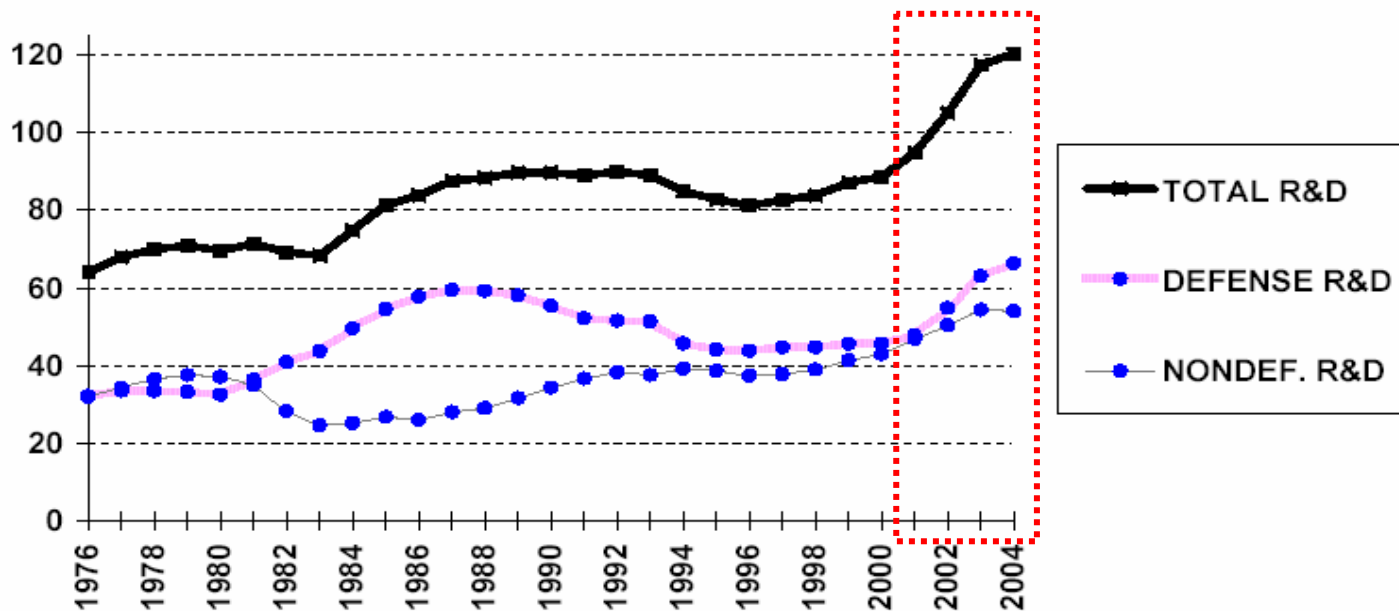


See appendix tables 4-5 and 4-26.

Science & Engineering Indicators – 2002

Trends in Federal R&D, 1976-2004

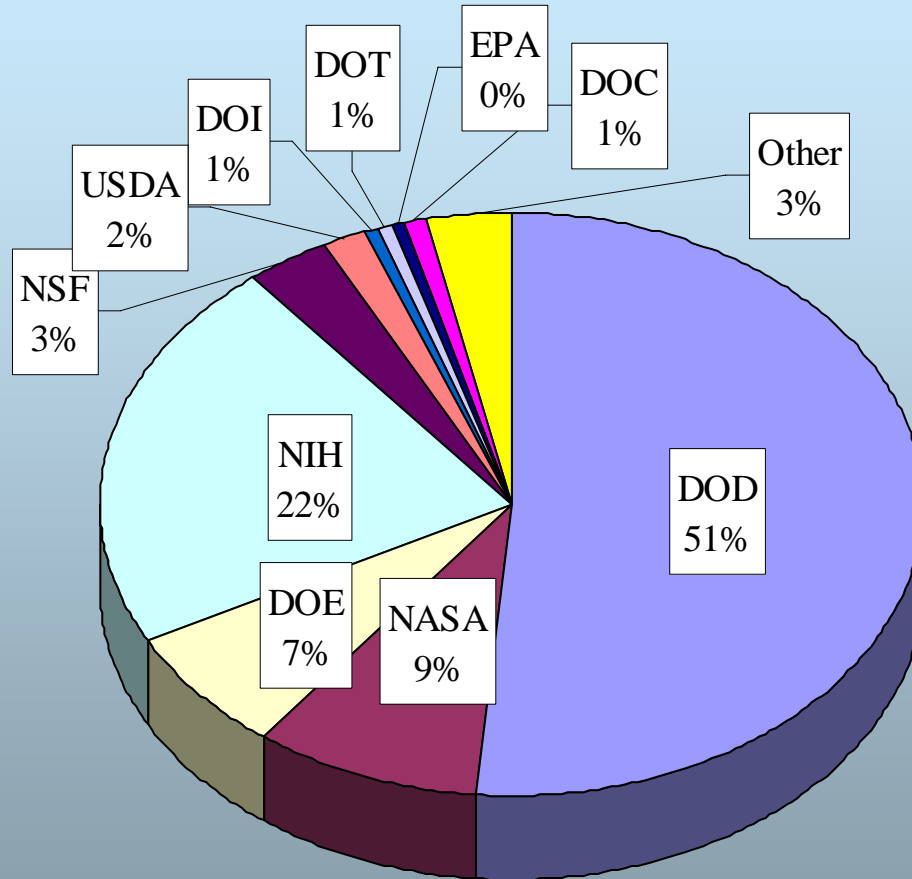
Trends in Federal R&D, FY 1976-2004
in billions of constant FY 2003 dollars



Source: AAAS analyses of R&D in *AAAS Reports VIII-XXVIII*. FY 2004 figures are President's request; FY 2003 figures are AAAS estimates of final FY 2003 appropriations.
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 AMERICAN ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE

Federal R&D Exp. by Agency (FY2004: requested)



Total Federal R&D : \$122.5 B

Characteristics of the US Public R&D Programs

□ Tradition of Vannevar Bush (1945)

- Mission-oriented
- Science-focused

➤ Pluralistic System

- Occasional National Emergencies and Needs
- Competitiveness Crisis
- Anti-terrorism

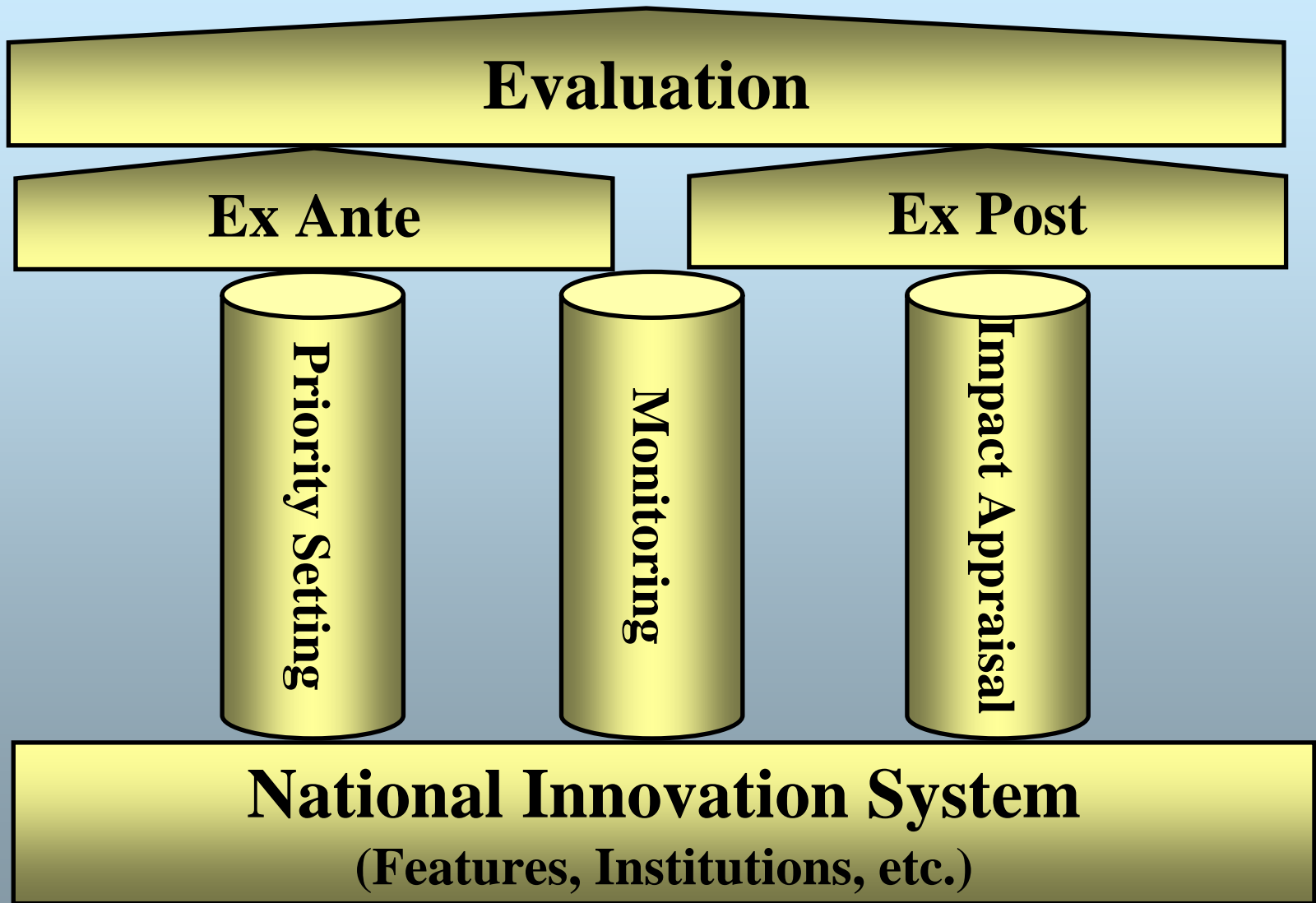
➤ Fragmented Structure

- DOD, NASA
- NSF, NIH

□ Interagency R&D Programs

- Coordination at OSTP/OMB
- NNI, NITRD, etc.

A Framework for Public Research Evaluation



Characteristics of the US Evaluation Practices

□ Peer Review

- Extensive Use of Expert Review**
- Qualitative Evaluation**

□ Pluralism

- Decentralized System**
- Evaluation Practices vary at each agency**
- Ad hoc evaluation by task forces, consulting firms, academic researchers, and individual agencies**

□ Need of Systemic Appraisal: GPRA

- Performance-based Evaluation**
- Linking Performance and Budget**
- Reinforcing Implementation of GPRA**
- President's Management Agenda**
- PART (Program Assessment Rating Tool)**

Program Assessment Rating Tool (PART)

**OMB Guidelines for assessing all Fed. Programs (including R&D)
in following four criteria:**

(Will apply to all Federal Programs by FY 2006)

- Program Purpose/Relevance/Federal Role**
- Strategic Planning**
- Program Management**
- Program Results**

Program Purpose/Relevance/Federal Role

- **Clear purpose/priorities**
- **Relevant to Presidential priorities, agency mission, science field, and “customer” needs**
- **Appropriate federal role – market failure**
- **Potential public benefits**
- **Industry-related program – comparable benefits**
- **Duplicative of other efforts**
- **Effective way to support the federal policy goals vs. legislation or regulation**

Strategic Planning

- **Limited number of specific, ambitious long-term performance goals**
- **Track and report relevant program inputs annually**
- **Annual performance goals and outcome and output measures**
- **Commitments of program partners (grantees)**
- **Periodic, independent review of program structure and quality**
- **Periodic demonstration of relevance**

Program Management

- **Timely and credible performance information for management**
- **Performance measurements used to increase accountability**
- **Obligation of funds in timely manner**
- **Use of funds for the intended purpose**
- **Estimate and Budget for the full annual operating costs**
- **Reasonable administrative costs – strong financial management practices**
- **Competitive, merit-based allocation of funds**
- **Encourage the participation of new/first-time performers through a fair and open application process**
- **Adequate definition of appropriate termination & decision points**
- **Clear Definition of deliverables and required capability/performance characteristics**
- **Appropriate, credible, cost and schedule goal**
- **Consider Alternatives (trade-offs between cost, schedule, and performance goals)**

Program Results

- **Demonstrate adequate progress in achieving its long-term outcome goal(s)**
- **Achieve its annual performance goals**
- **Goal Achievements within budgeted costs and established schedules**
- **Compare the performance with other similar programs**
- **Comprehensive, independent evaluations – effective and achievement of results**



**First Evaluation Workshop
December 4 & 5**

@ The George Washington University

Need for International Evaluation Network

**WREN aims to expand “World Research Evaluation Network”
CISTP will be the Center of new WREN**

- Cross-Check of Evaluation Criteria**
- Co-Development of Advanced Measurement Tools**
- Exchange of Best Evaluation Practices**
- Exchange of Evaluation Experts**