

# Issues in Assessing Performance of Public-Private R&D Partnerships

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# Reasons for Conducting Assessment Studies

- Improve Program Management
- Identify and Measure Impacts of Policy on
  - Firms
  - Universities
  - Regions
  - National Innovation System

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# Issues in Assessing Performance of Public-Private R&D Partnerships

- Addressing Complexity: Multiple objectives  $\Rightarrow$  multiple measures
- Choosing Methodologies & Indicators
- Controlling for Context & Variation in Program Structure
- Making Comparisons

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# Multiple Objectives

- Fostering Knowledge & Technology Transfer
- Facilitating Institutional Change
  - Education
  - Research
- Accelerating Innovation
  - New processes & products
  - New industries
- Capturing Returns from R&D Investment
  - By firm
  - By region
  - By the nation

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# Choice of Indicators

- Quantitative Measures
  - Avoiding Lake Woebegone  
(Avoiding bias in questionnaire design)
- Perceptions of Participants & non-participants
  - The Good, the Bad & the Ugly  
(Including all participant projects, individuals, & organizations)

# Choice of Methodologies

- Case History Analysis
  - Learning Lessons from Successes & Failures
- Quantitative Data & Surveys
  - KISS (keep it simple & systematic)
- Data Collection & Analysis
  - Internal vs. External

# R&D Partnerships & Location Decisions: Case Example of a Start-up

## SAGEGLASS®

dynamic windows that can be electronically lightened or darkened depending on the amount of sunlight, the time of day, the season, or consumer preferences

- ❑ Joint Venture -- new partnership formed for ATP (startup company & experienced partners)
- ❑ Sun Active Glass Electrochromics (SAGE) & 3M Company
- ❑ Center for Ceramics Research (CCR) Rutgers University (subcontractor)
  - ❑ ATP funding = \$2 Million in 1992 Competition
  - ❑ Project duration = 93 – 97
  - ❑ All SAGE R&D conducted at CCR
  - ❑ ATP project patents (3) held by 3M
  - ❑ SAGE develops prototype SAGEGLASS®
  - ❑ Rated best overall performance by National Renewable Energy Laboratory
  - ❑ New partnership with Apogee Enterprises in 1998
    - for scale-up & production in Minnesota
  - ❑ Beta test in commercial buildings, 2001

**Source:** Status Report, Vol. II

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# Context & Controls

- Organizational Demographics
- Technical Risk
- Resources
- Program Structure

# The Power of Comparisons: ATP Award Winners & Non-Winning applicants

- ✓ Independent of the technical merits of a particular R&D project, what factors affect the probability of winning an ATP award?
- ✓ Do non-winners continue with the proposed research project without ATP funding?
- ✓ Does the ATP award induce additional investment by other organizations in this type of R&D activity?

# Factors Affecting Winning an ATP Award

Compared to non-winners, ATP awardees are more likely to have:

- ✓ formed a new partnership with another organization for the ATP project
- ✓ begun a new technical direction
- ✓ have a high tolerance for knowledge leakages -- sharing research results & allowing other firms to benefit
- ✓ have more extensive linkages to other businesses

# Factors that don't matter

Winning is not related to:

- ✓ prior success or experience with ATP
- ✓ extent of linkages to universities

# Do Non Winners Continue the R&D Project without ATP Funding?

<i>Did not proceed</i> with the project, at any scale	<b>63%</b>
Began project on a <i>much smaller scale</i> than proposed to ATP	<b>17%</b>
Began project on a <i>somewhat smaller scale</i>	<b>12%</b>
Began project at about the <i>same scale</i>	<b>5%</b>
Began project on a <i>somewhat larger scale</i>	<b>3%</b>
Began project on a <i>much larger scale</i>	<b>1%</b>

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# Success in Seeking Funds from non-ATP Sources: Halo Effect of Award

	<i>Award Winners</i>	<i>Non Winners</i>	<i>All Applicants</i>
<i>Pct. of Firms that sought Other Funding</i>	25%	47%	38%
<i>Pct. of Funding Seekers who were successful</i>	73%	33%	44%

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*For additional information*

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