

Thoughts on TAFTIE Self-Assessment Tool on Value-Added Behavior

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Keynote Address

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Workshop objective and questions

- Objective: to provide guidelines and ideas on how the assessment tool should be complemented by a monitoring and evaluation system/process and implications this could have on methods, tools, processes, and organization of evaluations
- Questions:
 - How should the operational processes support the evaluation of added value of the agency? Implications on the design and monitoring of RTDI programs?
 - How can evaluators become facilitators of these learning processes? Do evaluators have to “run along” the program execution? Implications on the evaluation of added agency value?

Reflection on the questions

How do we see our jobs?

... beyond administering tax payer funds
responsibly

... to “innovation enablers”?

Reflection on the questions ...

How do we strengthen integration of evaluation?

... beyond discrete evaluations

... to creating in-house evaluators or
intermediaries?

Reflection on the questions ...

What “abilities” are we looking for?

... beyond administrators

... to hiring and cross-training
qualified “innovation enablers”?

Reflection on the questions ...

How do we use strategic planning more
effectively?

... beyond discrete exercise

... to integrating agency added value?

Reflection on the questions ...

Fundamentally ...
what is the role of government in a knowledge-based economy?

Experience of U.S. Advanced Technology Program

- Brief background
- Survey questions and results

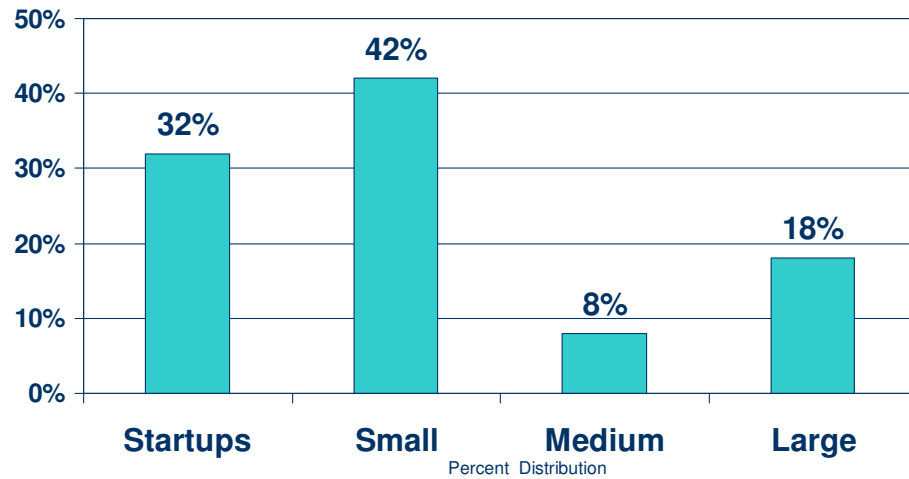
Brief description of ATP

- Public-private partnership to support technology innovation in the U.S. by funding high-risk R&D
- Since 1990, ATP has funded 768 projects in all technology areas, with over 1,500 participant companies and organizations
- On average, \$1M/project of ATP funding plus equal cost share from industry and 3 years duration
- ATP is part of the National Institute of Standards and Technology, Technology Administration, U.S. Department of Commerce

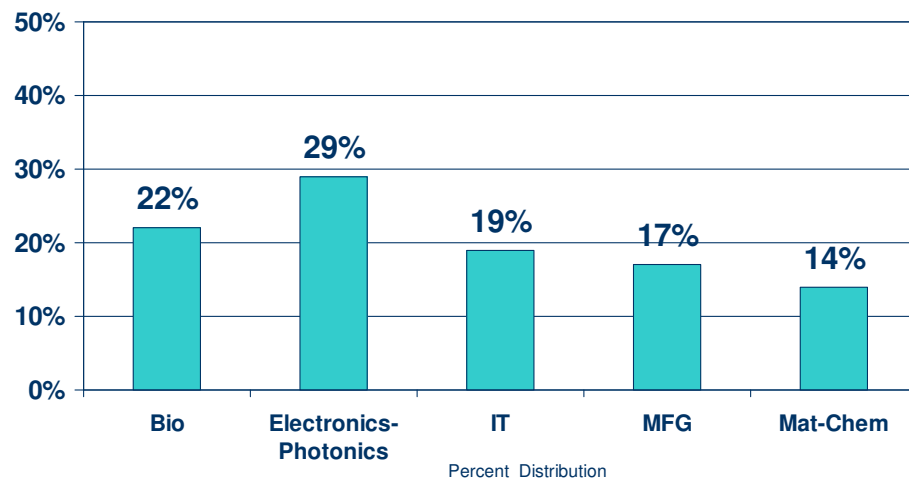
Characteristics of ATP Projects

- Significant contribution to scientific and technical knowledge-development of high-risk R&D (peer-reviewed selection)
- Development of early-stage innovative technologies that will be further developed and introduced into the marketplace
- Substantial benefits to the economy beyond direct benefits to award recipients

The majority of ATP companies are startups or small



ATP projects are distributed across 5 technology areas

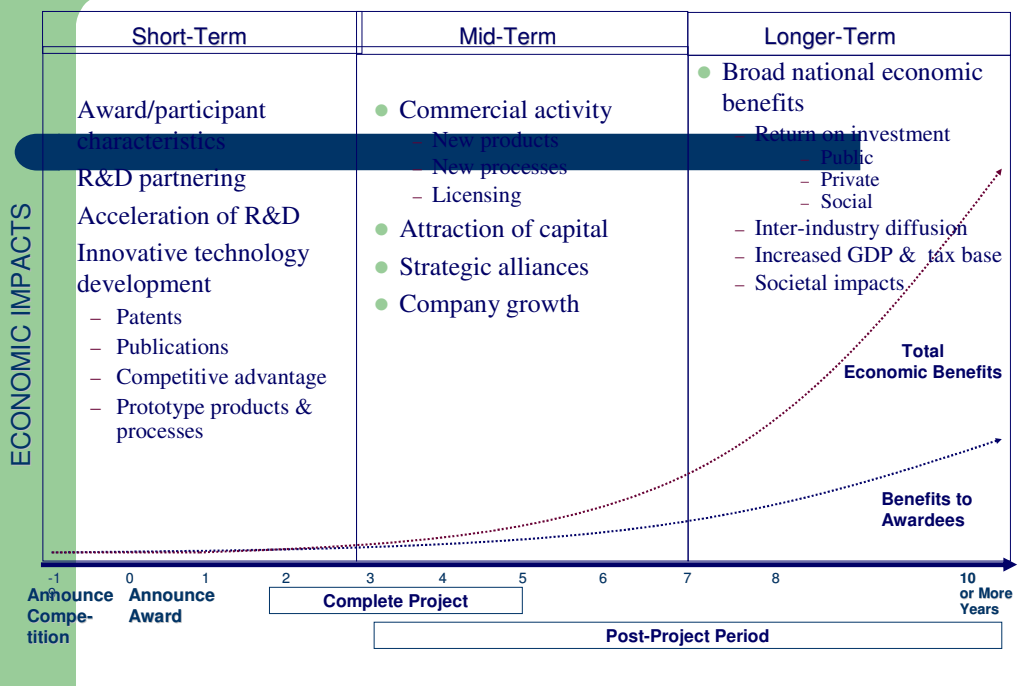


Innovation survey goals

Goals:

- To understand the black-box innovation process
- To assess R&D effectiveness (outputs and outcomes)

Project evaluation timeline: what we measure when



ATP's innovation survey (longitudinal project level innovation data)

Input, output, outcome behavioral additionality

- Risk
- Technical outcomes (patents, publications & presentations)
- Commercialization outcomes
- Capital attraction
- Crowding out/crowding in
- Benefits to society (social rates of returns)
- Strategic collaborations
- Further R&D work

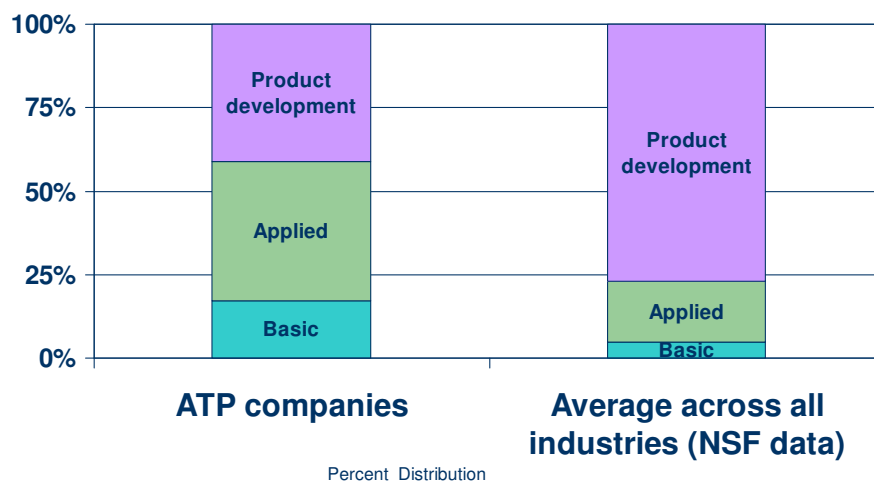
Innovation survey data collection

- Projects are tracked using the online ATP Business Reporting System of innovation surveys
- Annual collection of data on the company and project characteristics during the life of the ATP funding
- Biennial collection of data on technical and commercialization progress for up to 6 years after ATP funding ends

Line of research questions

- Companies asked to “define” the line of research (LOR) served by the ATP project
- “Baseline” report
 - Company asked for the total R&D expenditures for the LOR in the three years prior to the ATP award
 - Company then asked for percentage funded internally and externally
- Annual and Closeout reports
 - ATP project R&D expenditures
 - Company
 - ATP
 - LOR R&D expenditures (excluding ATP project)
 - Mutually exclusive

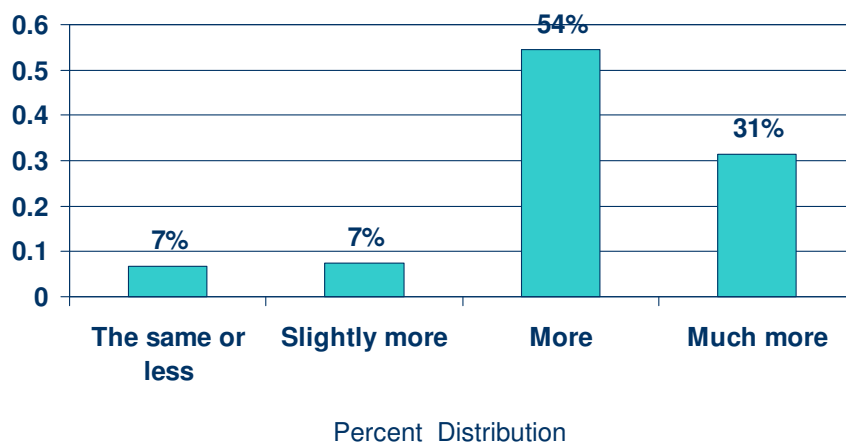
ATP companies allocate more for basic and applied research when compared to industry averages



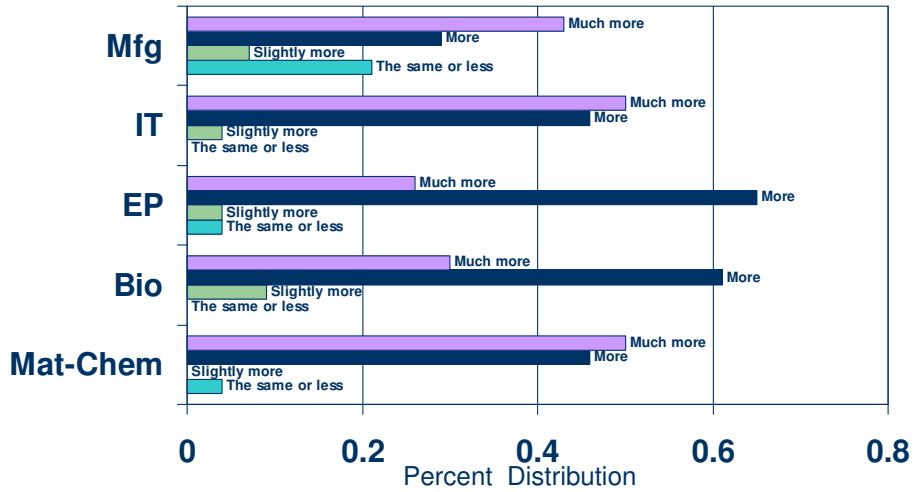
1. Two ways to define risk

- 1.a. Project ambitiousness (qualitative)
- 1.b. Risk (probability of not achieving goals)
 - Minimum technical goals
 - Maximum or “stretch” technical goals
 - Max and min differential
 - how much is the company stretching to achieve their project goals?

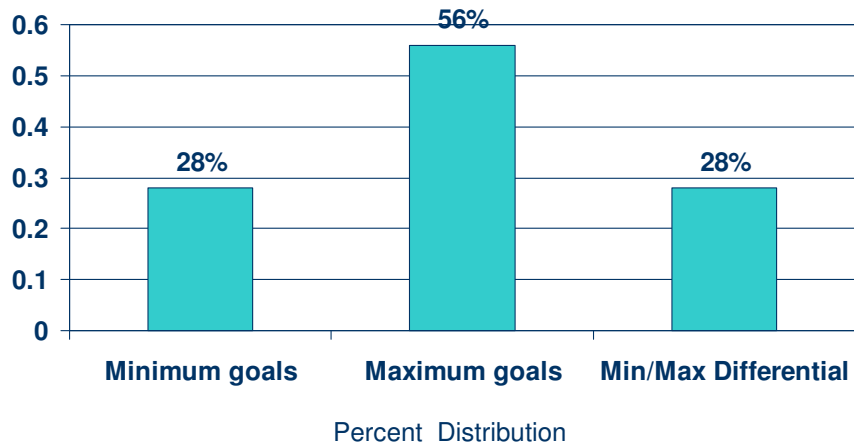
1.a. Risk: 94 percent of ATP projects are more ambitious relative to other R&D initiatives in industry



1. a. Risk: ATP funds more ambitious projects when compared to industry-funded work, across all technology areas

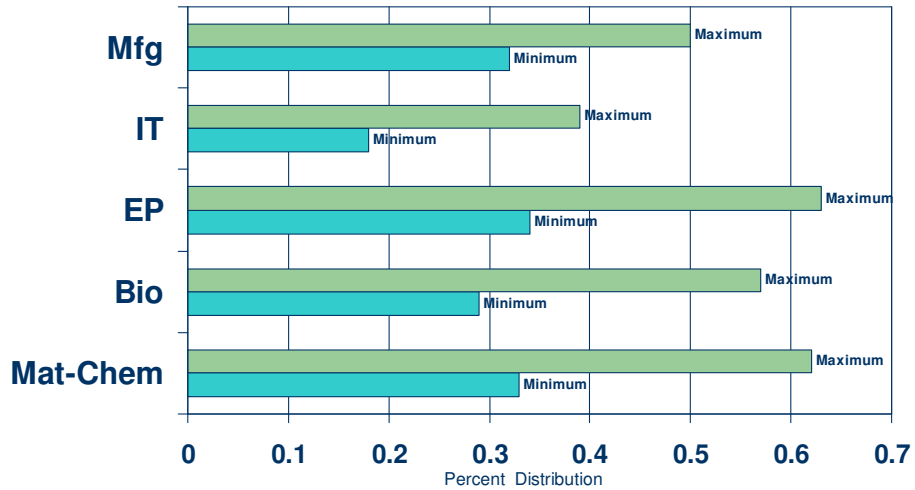


1.b. Risk: Probability of NOT achieving ATP project goals



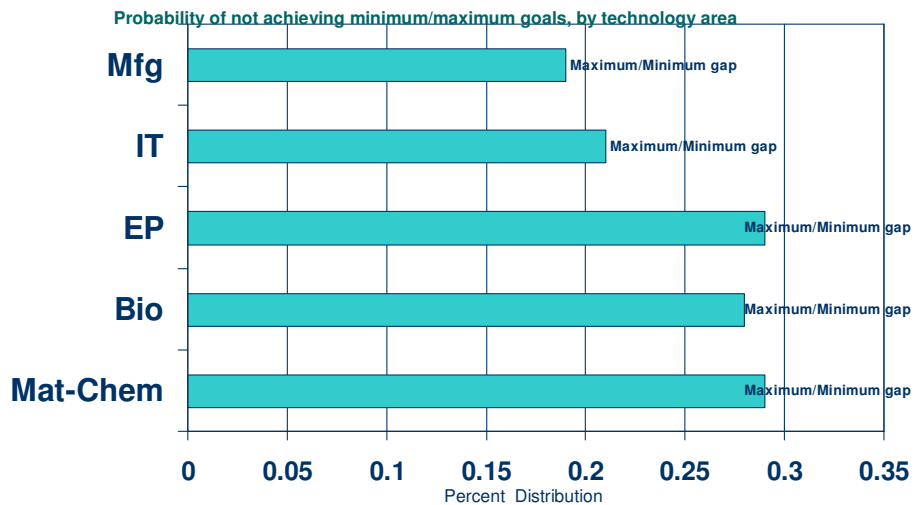
1.b. Risk: Probability of not achieving minimum & maximum ATP project goals by technology area

(the larger the gap, the more the company is stretching to achieve goals)



1.b. Risk: Manufacturing and IT projects' stretch goals are smaller than for other technology areas

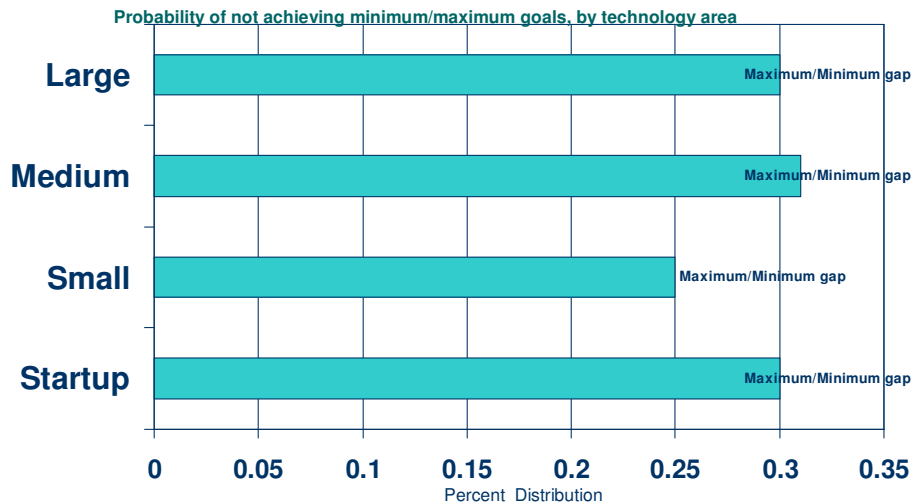
(the larger the gap, the more the company is stretching to achieve goals)



1.b. Risk:

Stretch goals are lower for small companies

(the larger the gap, the more the company is stretching to achieve goals)



7. Collaboration

- 90% of ATP projects involve collaboration during project
- Why collaborate?
 - Access to IP
 - Increase breadth of research (scale and scope)
 - Access to specialized equipment, identify customer needs, and research management skills
 - More important for R&D work than commercialization

Source: ATP BRS Closeout Survey

7. Collaboration

- 90% of ATP projects involve collaboration during project
 - 65% are collaborations with new organizations
 - 4 out of 5 work with universities
 - 53% extend existing relationships
- 93% of Joint Ventures said that they would not have collaborated with any of their partners without ATP

Source: ATP BRS Closeout Survey

7. Collaboration: Trust Index (1)

ATP Joint Venture participants trust partners to show good will and to treat each participant fairly (trust)

- To a large extent 57%
- To a moderate extent 32%
- To a small extent or not at all 11%

Source: ATP Joint Venture Survey

7. Collaboration: Trust Index (2)

ATP Joint Venture participants think their partners would take unfair advantage (trust)

- Not at all 41%
- To a small extent 38%
- To a moderate extent 15%
- To a large extent 6%

Source: ATP Joint Venture Survey

7. Collaboration: key findings

Trust but verify: Governance (formal agreements about protection and ownership of IP, resolution of disputes or disagreements among alliance participants, verification of collaborators' performance of tasks, and relative position of roles, such as how equal are partners)

Frequency of communications: face-to-face versus joint venture coordination (pair-wise and as a group important for knowledge sharing)

Source: ATP Joint Venture Survey

7. Collaboration: post-project

ATP companies expect to continue to collaborate:

- 57% are more likely to collaborate with companies in the future
- 43% are more likely to collaborate with universities and nonprofits

Source: ATP BRS Closeout

8. Further R&D work: Two Years After ATP Project Ends: Did ATP Companies Continue in any R&D?

- Yes: 83% continued R&D
 - 55% due to positive ATP experience
 - 39% no ATP impact
 - 6% negative impact or DK
- NO:
 - 17% did not continue any R&D
 - Only 2 out of 78 said it was due to negative ATP experience

Source: ATP Post-Project Survey (2 years after ATP project ends)

Use of survey results in program management

- ATP customer satisfaction survey provide further data
- Now that we obtained survey results on outcome behavioral additionality, how do we integrate that into our daily program responsibilities?
 - Examples of risk, collaboration, and further R&D work
 - Question: how do we encourage companies during project acquisition and portfolio management phases to reach for higher risk, establish new partnerships, and further their R&D work together?
- Strategic leadership is necessary, encouragement of innovative agency behavior