

# More Proposers' Conferences

April 13, 2007 -- Gaithersburg, MD

April 16, 2007 -- Detroit, MI

April 18, 2007 -- Boston, MA. &  
-- Los Angeles, CA

April 20, 2007 -- Austin, TX

- No registration fee. Can register on-site.
- Proposers are not required to attend
- TODAY'S Conference is being webcast LIVE



**Advanced Technology Program**  
**Shaping the Nation's**  
**Future In Technology**

**ATP 2007 Proposers' Conferences**

**National Institute of**  
**Standards and Technology**

Technology Administration  
U.S. Department of Commerce



# ATP Proposers Conference

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# Today's Program

- ATP Overview
- Crosscutting Areas of National Interest
- Business Criterion

\* \* \* \* \* **BREAK** \* \* \* \* \*

- Technical Criterion
- Project Selection Process
- Administrative Highlights
- Closing Remarks
- Q & A
- Human and Animal Subjects (*Optional*)

# FY2007 Competition

## ATP Budget Includes \$60M for New Awards

- **Due Date for Submission is 3 p.m. Eastern Time, May 21, 2007**
- **Prepare your proposal based on April 2007 ATP Proposal Preparation Kit**  
([www.atp.nist.gov/atp/kit-07/2007kit.pdf](http://www.atp.nist.gov/atp/kit-07/2007kit.pdf))

# ATP's Mission ...

To accelerate the development  
and widespread dissemination of  
***innovative, high-risk technologies***  
with the potential for  
***broad-based benefits for the nation***  
through  
***industry-led partnerships.***

# ATP is Part of NIST

**NIST's Mission...** *To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life*



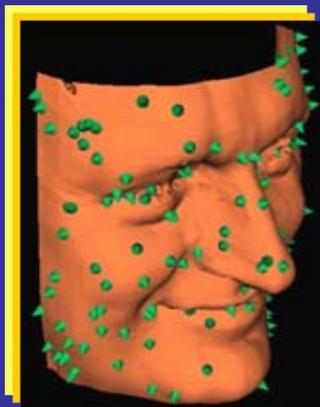
**Helping America  
Measure Up**

- \$836.1 million FY 2007 operating budget
- 2,800 employees
- 2,500 associates and facility users
- **NIST laboratories:** National measurement standards
- **Advanced Technology Program:** \$2,269 million co-funding with industry since 1990
- **Hollings Manufacturing Extension Partnership:** 59 centers and over 400 offices nationwide to help small manufacturers
- **Baldrige National Quality Award**

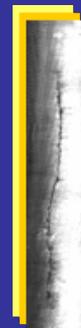
# Since 1990 ...

- 6,924 proposals in 44 competitions requesting \$14,708 M from ATP
- 768 awards with 1,511 participants and a similar number of subcontractors
  - **66% of projects led by small businesses**
- 218 joint ventures, 550 single companies
- \$4,101 M of high-risk research funded
  - **ATP share = \$2,269 M**
  - **Industry share = \$2,102 M**
- Over ...
  - **170 universities as participants**
  - **30 national laboratories participants**
  - **1,526 patents**

# Exciting New Technologies ...

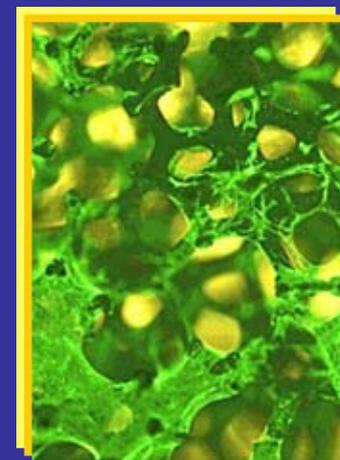


***Bridging the Gap  
Between the  
Laboratory and the  
Marketplace***

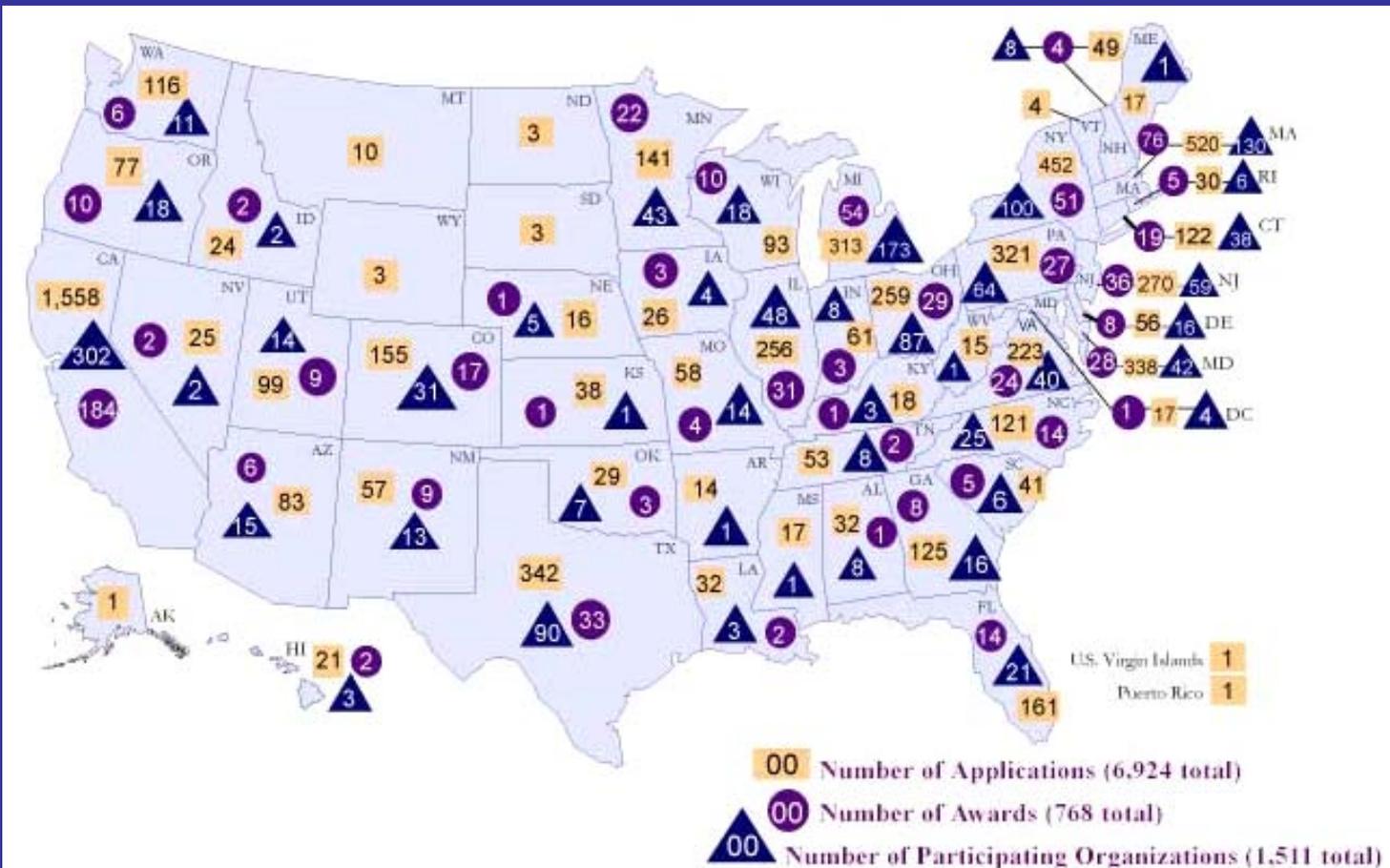


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# ATP Reaches Across the Nation...



- Geographic location is not a consideration in project selection.
- ATP has an active outreach program that seeks to increase awareness across the entire nation.
- ATP has received applications from organizations based in every state.
- ATP has provided funding to participating organizations located in 45 states, and the District of Columbia.

# Is ATP Right for You?

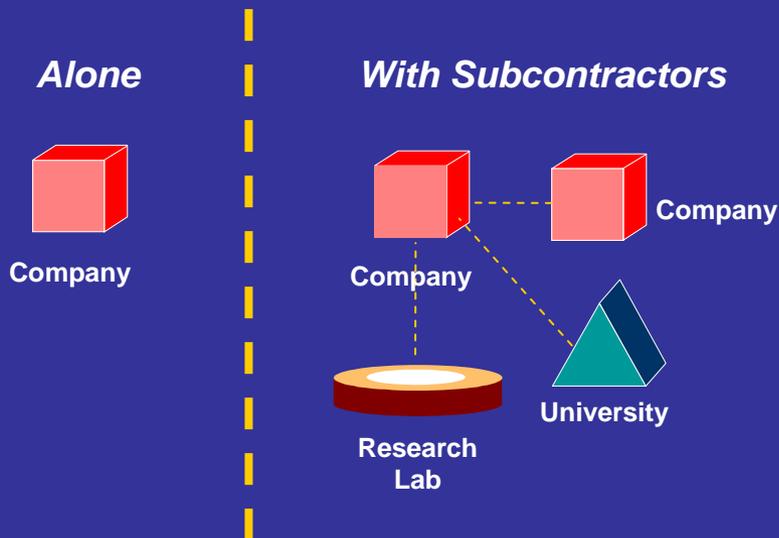
- Are you looking to further your technical advantage by conducting challenging research?
- Are the risks primarily technical?
- Does your project have the potential to generate significant and broad-based economic benefits for the United States?
- Are you committed to taking the research into the marketplace?

# What Can ATP Do for You?

- Create sustainable technical advantage
- U.S. for-profit companies retain intellectual property rights from ATP-funded projects
- Encourage integration of ***business*** and ***technical*** planning
- Gain recognition within industrial and financial sectors

# Two Ways to Apply ...

## As a Single Company

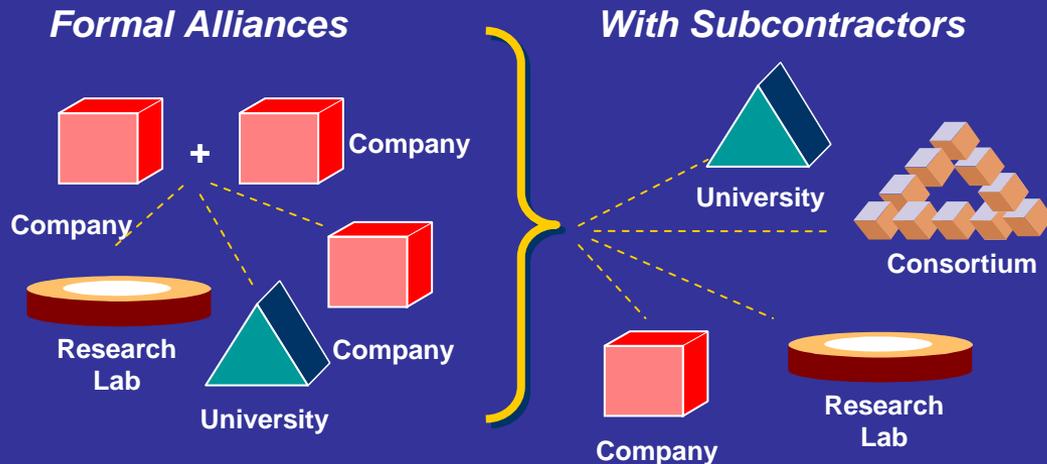


- For-profit company
- 3-year time limit
- \$2 M award cap
- Company pays indirect costs
- Large companies cost share at least 60% of total project costs

- *ATP encourages teaming arrangements*
- *Most projects involve alliances*

# Two Ways to Apply (cont'd)...

## As a Joint Venture:



- At least 2 separately-owned for-profit companies
- 5-year time limit
- No limit on award amount (other than availability of funds)
- Industry share >50% total project costs

- *ATP encourages teaming arrangements*
- *Most projects involve alliances*

# New This Year...

## *Crosscutting Areas of National Interest*

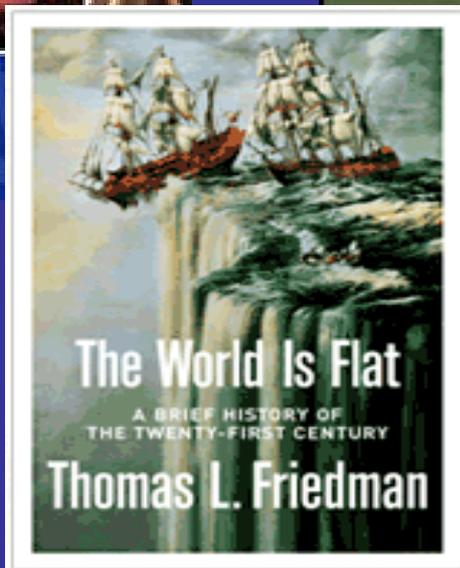
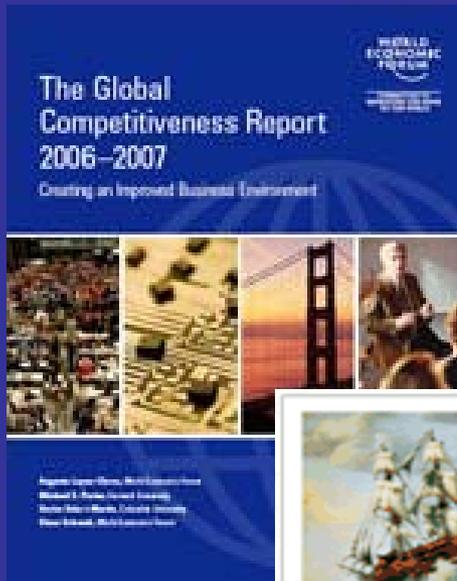
ATP is soliciting proposals in **ALL** technology areas, including four broad Crosscutting Areas of National Interest

<http://www.atp.nist.gov/atp/2007interestareas.pdf>

- Links program to areas of National Needs
- Helps strengthen discussion of Broad Based Economic Benefits beyond benefits to proposers
- Preserves industry-led approach

# New This Year...

## Crosscutting Areas of National Interest



# The World is Changing...

# New This Year...

## *Crosscutting Areas of National Interest*

**An Assessment of the  
United States Measurement System:  
Addressing Measurement Barriers to  
Accelerate Innovation**



NIST Special Publication 1048

**NIST**  
National Institute of Standards and Technology  
Technology Administration, U.S. Department of Commerce

# The World is Changing...

# New This Year...

## *Crosscutting Areas of National Interest*

- National needs from key reports that used broad industry input
- For example:
  - ✓ Industry roadmaps
  - ✓ National Academy of Sciences and other reports:
    - “Rising Above the Gathering Storm”*
    - “An Ocean Blueprint”*
  - ✓ Initiatives such as American Competitiveness, National Nanotechnology and Advanced Energy
  - ✓ NIST’s U.S. Measurement System (USMS) study

# Crosscutting Areas of National Interest

## ■ AREA 1: Technologies for Advanced and Complex Systems

Benefit area examples include (not exclusive list):

- Life Science System Discovery Tools & Methods
- Ocean and Lake System Management, Monitoring and Cultivation Technologies
- Information Systems
- Energy System Technologies
- Environmental System Technologies

*“Systems science is capable of networking specialized sciences and fields of knowledge, and integrate concrete knowledge about specific situations into complex problem solving processes.”*

Eberhard Umbach  
International Society for the Systems Sciences

# Crosscutting Areas of National Interest

## ■ AREA 2: Challenges in Advanced Materials and Devices

Benefit area examples include (not exclusive list):

- Energy and Power Technologies
- Electronics and Photonics
- Microsystem Devices
- Broadband Networks and Communications
- Healthcare Diagnostics and Assays
- Composite Materials
- Recycling Materials

*“Materials with tailored functionality (such as high strength, electronic, or optical properties) are critical to modern technologies.”*

Materials Science and Technology: Challenges for Chemical Sciences in the 21st Century  
Board on Chemical Sciences and Technology, The National Academies, 2003

# Crosscutting Areas of National Interest

## ■ AREA 3: 21st Century Manufacturing

Benefit area examples include (not exclusive list):

- Computer and Electronic or Photonic Products
- Motor Vehicles and Mechanical Products
- Biomanufacturing/Bioprocessing
- Bulk Materials
- Chemical or Material Processing
- Manufacturing Systems and Controls
- Energy
- Food Processing

*“Manufacturing is an essential part of our economy. Not only are manufactured goods the currency of world trade, but manufacturing is what creates wealth.”*

Dr. G. Wayne Clough, in Congressional testimony, 2005  
President, Georgia Institute of Technology

# Crosscutting Areas of National Interest

## ■ AREA 4: Nanotechnology

Benefit area examples include (not exclusive list):

- Life Sciences, Biotechnology, Healthcare
- Electronics and Photonics
- Information Technology
- Energy Systems
- Advanced Materials

*“Nanotechnology touches upon a broad array of disciplines, including chemistry, biology, physics, computational science, and engineering. Like information technology, nanotechnology has the potential to impact virtually every industry, from aerospace and energy to healthcare and agriculture.”*

The National Nanotechnology Initiative at Five Years:  
Assessment and Recommendations, National Nanotechnology Advisory Panel  
May 2005

# Two Major Selection Criteria

- Scientific and Technological Merit (**50%**)
  - **Technical innovation**
  - **High technical risk with evidence of scientific feasibility**
  - **Detailed technical plan**
  
- Potential for Broad-Based Economic Benefits (**50%**)
  - **National economic benefits**
  - **Need for ATP funding**
  - **Pathway to economic benefits**

# Business Drivers and Technical Planning

What is Needed for Technical Success?



What is Needed for Market Success?

# Two Major Selection Criteria

- Scientific and Technological Merit (**50%**)
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# National Economic Benefits

## *ATP Perspective*

*ATP cares about longer term  
net benefits for the nation*

## *Private Investor Perspective*

*Private investors care about near  
term and own return on their  
investment*

# National Economic Benefits (cont'd)

- Describe the business opportunity
  - How does the technology address a problem of economic importance to the nation?
- Describe the technology's markets
  - Who are potential users of the technology?
  - What are the expected market sizes/growth trends?
- Describe the source of benefits
  - How do you and your industry benefit?
  - How do your customers, competitors, or others benefit?
- Magnitude of impact
  - Quantify economic advantages created by your technical approach (health, energy efficiency, manufacturing cost etc.)

# Need for ATP Funding

- Describe your efforts to secure funding
  - From internal or private sources
  - From other government agencies
  - From industrial partners
- Describe the difference ATP can make
  - Scale, scope, and timing of project
  - Difference in economic benefits
- Include letters documenting efforts

# Pathway to Economic Benefits

## ■ Commercialization Plan with any / all of the following

**ATP-Funded  
Projects**

- Strategic vision
- Products and markets
- Windows of opportunity
- Strategy for bringing the products to market
- Strategic alliances and early adopters
- Pricing and sales
- Investment strategy

**New / Improved  
Products,  
Processes,  
and Services**

**Broad-Based  
Economic  
Benefits**

# Commercialization Plan Tips

- Plan for commercialization at the outset
  - Involve your business staff, end users, etc., as appropriate
  - For companies without business or marketing expertise, we recommend you seek help to generate a commercialization plan
- Recognize fantastic technologies may capture the imagination but not necessarily the market
  - Understand the difference between “*market pull*” and “*technology push*”

# Intellectual Property Protection and Broader Diffusion

- How will the core technology be protected so the results can be commercialized?
- How do technology benefits reach others?
- How will new knowledge diffuse to others in the same or other industry sectors?
  - Publish results? Patent?
  - Seek licensing partners?
  - Include user groups? Form alliances?
- What will you do to increase the likelihood of diffusion beyond project participants?

- Company resources
  - Human, financial, equipment, research facilities, etc.
- Priority of project to the company
  - Involve highest appropriate level of management
  - Strong company role; not just pass-through to subcontractors
  - Every JV partner has a clear role
- Evidence of customer / supplier / investor interest and support
  - Letters showing real interest and involvement
  - Formal and informal alliances
  - Other forms of active involvement

# Organizational Structure, Project Management, and Business Experience / Qualifications

- Roles / responsibilities of participants
  - Show qualified business personnel involved
- Plan for managing project's tasks
- Business experience / track record of each company and its principals
- Evidence of financial viability

# Organizational Information

- Date and state of incorporation
- Previous and ongoing Federal awards – ATP will not fund identical work being carried out with other agencies
- Source of cost share
- Financial, employment, and ownership information

# Common Proposal Weaknesses: Business

- Lacks connection between technical goals and business opportunity
- Insufficient evidence of economic benefits
- Poorly developed or no commercialization plan
- Insufficient plan for broader diffusion
- Insufficient plan for including critical business partners
- Failure to address market opportunity
- Unconvincing case for the need for ATP funding

# Business Drivers and Technical Planning

What is Needed for Technical Success?



What is Needed for Market Success?

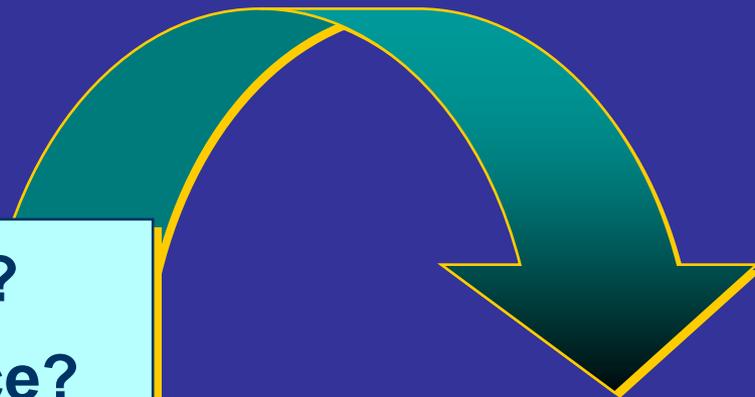
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# Linking Innovation and Risk: Describing a Successful Leap

*Does your idea...*

- ✓ Extend the state-of-the-art?
- ✓ Change the state of practice?
- ✓ Integrate multi-disciplinary technologies?



*Path Changing  
R&D*

# Technical Innovation

## Your New Technology

*What are the project's objectives?*

*What are the quantified targets?*

*What innovations are needed?*

*How will it compare to future competition?*



Technical  
Barriers  
to  
Overcome

## Baseline: State-of-the-Art

*Within the team?*

*Within the industry at large?*

# Technical Innovation (cont'd)

- Describe technical barriers preventing significant technical advances by industry
  - Discuss efforts by others; why not successful?
  - Discuss why proposed solution has not previously been attempted or successful
- Describe your proposed solution
  - Why is it innovative?
  - Explain how the proposed solution overcomes the technical barriers

# Technical Innovation (cont'd)

- Define quantifiable technical targets
- Describe innovative solution relative to approaches being pursued by competitors
- Impact on U.S. knowledge base
  - What is learned if successful?
  - What is learned if not successful?
  - What is the technical leverage?

# High Technical Risk and Feasibility

## *High Technical Risk*

- Overcoming risk results in dramatic change in future directions of the technology
- Significant uncertainty of technical success
- Technical challenges
- Innovation(s) or integration that can fail

## *Feasibility*

- Approach and metrics to manage project based on
  - sound scientific foundation
  - sound engineering approach

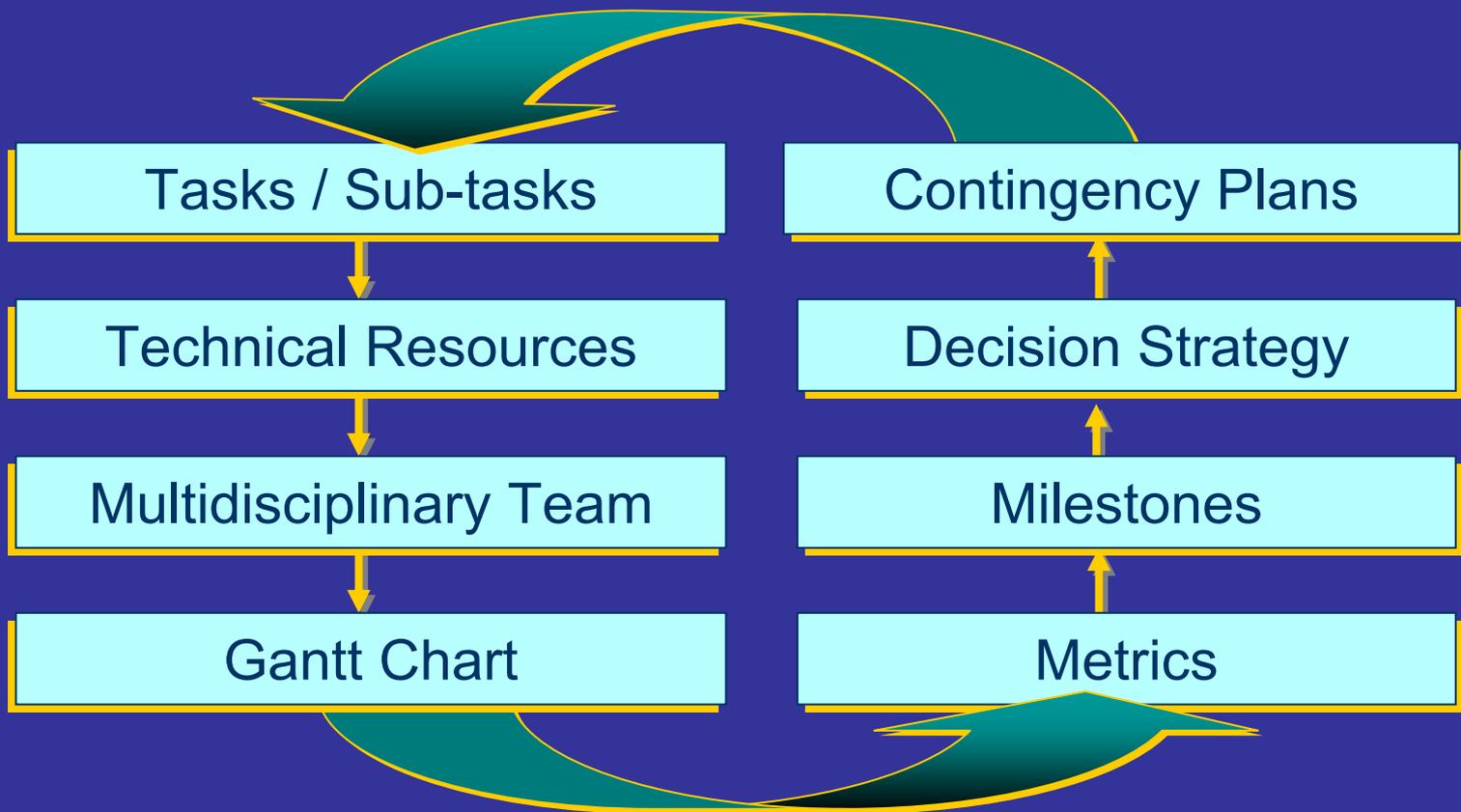


**Your ATP proposal should balance both!**

# High Technical Risk With Evidence of Scientific Feasibility

- Analyze the highest technical risk elements
  - Which tasks are the most challenging and why?
  - Would the risks be credible to those in the field?
  - Where / how could the project fail technically?
- Provide evidence approach is feasible
  - Why are scientific and engineering foundations sound?

## How will you achieve your goals?



## *Essential Elements of a Quality R&D Plan*

# Detailed R&D Plan (cont'd)

- Detailed description of technical approach
  - Tasks and subtasks described and linked to key team member(s)
  - Interrelationships of tasks
  - Metrics - quantitative, objective
  - Milestones - interim and final
  - Decision-point strategy
  - Contingency plans / alternate approaches
  - Project timeline or Gantt chart

# Technical Experience and Qualifications

- Technical experience, qualifications and location of all technical performers, key subcontractors, and informal collaborators
  - Subcontractors and key suppliers
  - Joint Venture partners
  - Critical informal collaborators
  - Describe any ownership or financial arrangements between performers with any of the proposer(s)
  - Explain R&D at non-U.S. sites and see Exhibit 12

# Facilities and Resources

- Adequacy of facilities, equipment and resources
  - Existing vs. needed
  - Timeline for meeting needs

# Human and Animal Subjects

- ATP funds projects involving human and / or animal subjects
- Must comply with applicable Federal rules
- Not just biomedical research
- You may be required to submit additional information
- Refer to “*Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects*”
  - [www.atp.nist.gov/atp/helpful.htm](http://www.atp.nist.gov/atp/helpful.htm)
- Call Human & Animal Subjects Advisor for help

# Common Proposal Weaknesses: Technical

- Lacks sufficient detail
  - How will you reach technical objectives?
  - What's innovative?
  - Why is a risky technical approach needed?
- Unsupported assertions
- Outside ATP mission
  - Low risk (e.g., product development)
  - Lacks demonstrated feasibility (e.g., basic research)
  - Scale-up or demo to only prove economically feasible
- Lacks connection between technical goals and business opportunity

# Ineligible Projects

- Straightforward improvements of existing products or product development
- Basic research
- Phase II, III, or IV clinical trials
- Pre-commercial-scale demonstration projects
- Predominantly straightforward, routine data gathering
- Projects that ATP believes would likely be completed without ATP funds in the same time frame or nearly the same time frame

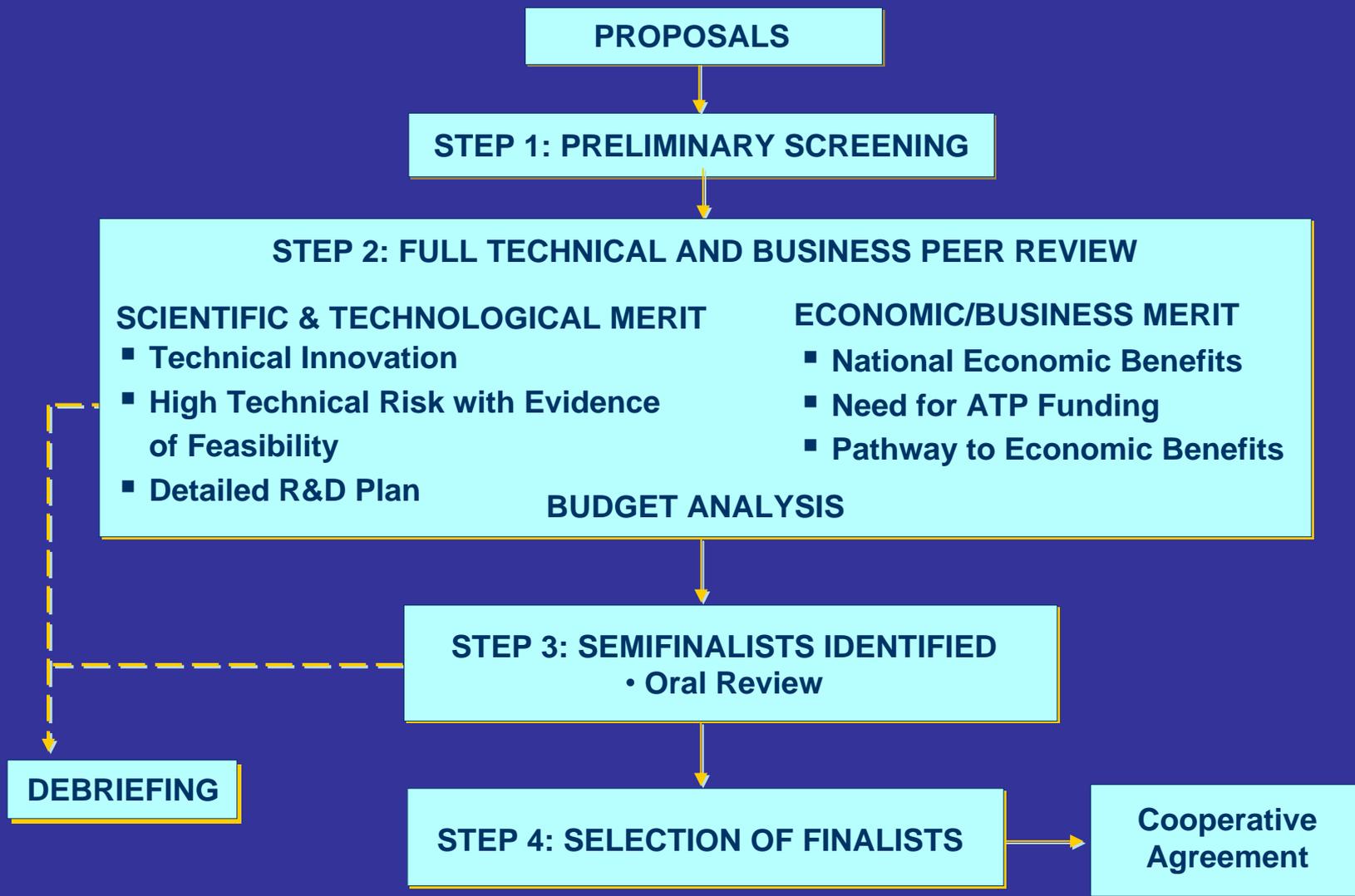
# Ineligible Projects (cont'd)

- Follow-on continuation of tasks for previously funded ATP projects from essentially the same proposing team
- The only risk is market oriented
  - The risk is that the end product may not be embraced by the marketplace
- Projects with software work, that are predominantly about final product details and product development

# Project Selection Process

- STEP 1: Preliminary screening
- STEP 2: Peer review of technical and economic / business narratives and budget analysis
- STEP 3: Semifinalists identified
  - Highly competitive against ATP selection criteria
  - Oral review
- STEP 4: Final selection & award
  - Selecting Official selects finalists
  - Grants Officer issues awards

# Project Selection Process (cont'd)



# Executive Summary

- Identify the primary *Area of National Interest*
- Briefly highlight major proposal sections
  - Scientific and Technological Merit
  - Potential for Broad-Based Economic Benefits
- Address the ATP selection criteria
  - Link technical objectives, planned commercial application, and expected economic benefits

➤ ***2 pages maximum length***

# Scientific and Technological Merit

- Fully address “Scientific and Technological Merit” selection criterion
  - Technical innovation
  - High technical risk with evidence of scientific feasibility
  - Detailed technical plan

# Economic/Business Narrative

- Fully address “Potential for Broad-Based Economic Benefits” selection criterion
  - National economic benefits
  - Need for ATP funding
  - Pathway to economic benefits

# Think About the Proposal as a Whole

- Identify the economic opportunity / national benefit
- Identify technical barriers standing in the way of realizing that opportunity
- Relate specific R&D objectives to barriers
- Show a detailed R&D plan for eliminating barriers
- Envision a commercialization strategy and plan for taking the proposed technology, once developed, to market
- Use the right team members to get the job done

# Administrative Highlights

- Intellectual Property Provisions
- Foreign-Owned Company Participation
- Budget Preparation
- Administrative Requirements and Cost Principles
- Accounting System Certification
- Page Limits
- Modes of Proposal Submission

# Intellectual Property Provisions

- U.S. for-profits retain title to inventions
- Companies may license inventions
- Universities and non-profits
  - May receive royalties
  - Cannot own title
  - Cannot be granted exclusive licenses
- Government reserves right to paid-up, royalty-free, non-exclusive license for governmental use

# Foreign-Owned Company Participation

- U.S.-incorporated company with a parent company in another country may participate
- As with all projects, each company's participation must be:
  - In the economic interest of the U.S.
- Home country of parent must afford U.S. companies:
  - Comparable opportunities to participate in government-funded programs
  - Comparable local investment opportunities
  - Adequate and effective protection of U.S.-owned intellectual property rights

# Foreign-Owned Company Participation (cont'd)

- Submit Foreign-Owned Company Questionnaire (Exhibit 9 in Kit)
- Refer to *“ATP Eligibility Criteria for U.S. Subsidiaries of Foreign-Owned Companies: Legislation, Implementation, and Results”*

[www.atp.nist.gov/eao/ir-6099/contents.htm](http://www.atp.nist.gov/eao/ir-6099/contents.htm)

# Budget Preparation

- Submit detailed budget narrative
- Page 3 of Forms NIST-1262 and NIST-1263
- Direct costs
- Indirect / overhead costs
- Cost share contributions

- Any costs that can be identified specifically with a particular cost objective:
  - Personnel
  - Fringe benefits (vacation, sick, and military leave; insurance; retirement; etc.)
  - Travel
  - Equipment
  - Materials/supplies
  - Subcontracts
  - Other

# Indirect/Overhead Costs

- Any costs not directly identified with a single cost objective but identified with two or more final cost objectives:
  - Depreciation on buildings and equipment
  - Facility operations and maintenance
  - General administration
    - Salaries / expenses of executive officers
    - Personnel administration
    - Accounting and auditing

# Cost Share Contributions

- Identify cash and in-kind contributions
- In-kind contributions
  - Equipment, research tools, software, supplies, etc.
  - Refer to 15 CFR Part 14.23
  - Limited to 30% of total cost share

# Administrative Requirements and Cost Principles

- Administrative Requirements
  - 15 CFR Part 14
- Cost Principles
  - 48 CFR Part 31 (For-profits)
  - OMB Circular A-21 (Universities)
  - OMB Circular A-122 (Non-profits)
  - 45 CFR Part 74, Appendix E (Hospitals)
- See [www.atp.nist.gov/atp/helpful.htm](http://www.atp.nist.gov/atp/helpful.htm)

# Accounting System Certification

- NIST may require some recipients to provide an accounting system certification within 90 days of the award if:
  - Recipient has had no prior federal support
  - Concerns are raised about the recipient's financial management system
  - Recipient is considered to be high-risk
- Cost of certification may be included in “other” cost category

# Page Limit

- Single company: 40 pages maximum
- Joint venture: 60 pages maximum
- See Exhibit 1, Section D in ATP Kit for documents excluded from page limit

# Modes of Proposal Submission

- Paper
- Electronic via Grants.gov
  - General Instructions for Submitting ATP Proposals Electronically via Grants.gov (Exhibit 3 in ATP Kit)

➤ **REGISTER EARLY!**

# FY2007 Competition

## Important Dates

- The Competition is **currently open**
- The **deadline** is:
  - **Monday, May 21, 2007**
  - **All proposals must be received by ATP by 3:00 PM Eastern time**

**➤ *To ensure timely receipt,  
don't wait to submit on deadline day***

# For Info on ATP and to Join Our Mailing List . . .

- Call toll-free: 1-800-ATP-FUND  
(1-800-287-3863)
- Fax your name  
and address to: 301-926-9524
- Send e-mail to: ***atp@nist.gov***
- Visit ATP's website: ***www.atp.nist.gov***

# Q & A Time