Information Technology and Applications Office (ITAO)

Accelerating Tomorrow's Information Technology Systems and Applications

DEPENDABLE COMPUTING SYSTEMS

www.atp.nist.gov **1-800-ATP-FUND**

The ITAO

- **Vision**
  - ATP is the centerpiece of the government's investment in civilian technology in the new millennium
- **Mission**
  - Accelerate the development of innovative information technologies and IT applications for broad national benefit through partnerships with the private sector

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Investments in Innovative Technologies

Electronics and Photonics ($329 M)

- Microelectronics
- Optoelectronics
- Optics Technologies
- Power Technologies
- Wireless Electronics
- Organic Electronics

Biotechnology ($254M)

- DNA Technologies
- Tissue Engineering
- Drug Discovery Methods
- Proteomics
- Medical Devices & Imaging
- Microfluidics

Manufacturing ($180 M)

Information Technology ($389 M)

- Advanced Learning Systems
- Component-Based Software
- Digital Video
- Information Infrastructure for Healthcare
- Electronic Commerce
- Dependable Computing Systems
- Technologies for the Integration of Manufacturing Applications

Chemistry and Materials ($344 M)

- Chemical Processing
- Sensors
- Metabolic Engineering/Catalysis
- Combinatorial Methods
- Separations/Membranes
- Materials Processing
- Advanced Materials
- Nanotechnology
- Material Interfaces

What the ATP Offers

- Early financial support
  - Reduced risk for R&D investment
- Research support
  - Information on assembling a JV
  - Links to additional technical resources
- Recognition
  - Leverage for additional financing
  - External validation
- Independence
  - Companies retain their intellectual property rights

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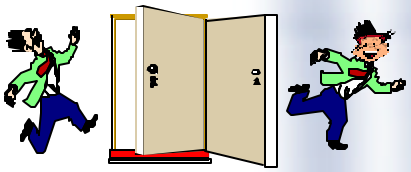
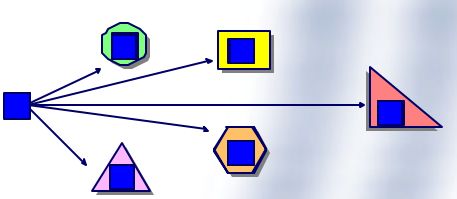
Emphasis on "Enabling" Technologies

- **Pathbreaking** technologies - open up new possibilities
  - Revolutionary
  - Dramatic Improvements in
    - performance
    - cost
    - quality of life



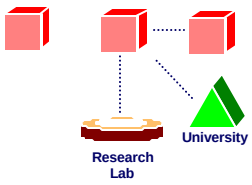
- **Infrastructural** technologies - support R&D, production, and the business of entire industries

- **Multi-use** technologies - have many distinct applications



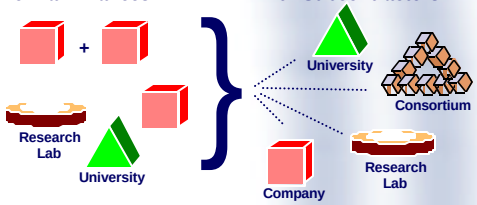
ATP Eligibility

SINGLE COMPANIES



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

JOIN VENTURES



- At least 2 for-profit companies
- 5-year time limit
- No limit on award amount
- Industry share >50% total cost

- Intellectual property is owned by the for-profit companies
- ATP encourages teaming arrangements - most projects involve alliances

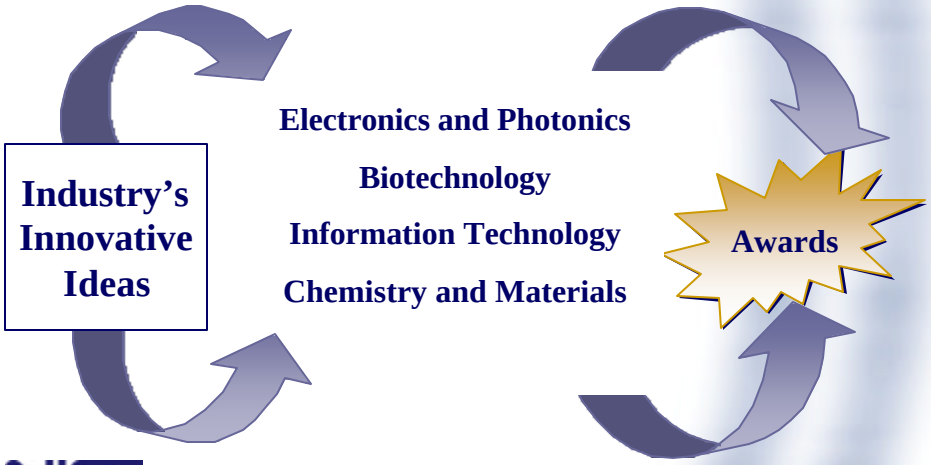
ATP Criteria

Critical Elements of a Proposal ...

- **Scientific and Technological Merit (50%)**
  - ✓ Innovations in the Technology
  - ✓ High Technical Risk & Feasibility
  - ✓ Quality of R&D Plan
- **Broad-Based Economic Benefits (50%)**
  - ✓ Economic Benefits
  - ✓ Commercialization Path
  - ✓ Need for ATP Funding

Competition Structure

2000 Technology-Specific Project Selection Committees



Program Impacts

- Developing **Leap-frog Technologies**
  - ✓ 37% of applications represent "new-to-the-world" solutions
- Leading to **Multiple Applications**
  - ✓ 4.5 applications per project
- Resulting in 100 **Commercialized Technologies**
- Stimulating **Collaboration**
- Accelerating **High Risk R&D**
  - ✓ 86% ahead in R&D cycle

ITAO Relationship with Industry

- **Project Development**
  - Support industry efforts to define high-risk, innovative projects and solicit related proposals for ATP
  - Enable greater understanding of ATP criteria & objectives in the information technology community through education and outreach
- **Project Selection**
  - Main group responsible for the evaluation of information technology proposals and funding recommendations for projects that best meet the ATP criteria
- **Project Management**
  - Collaborate with companies to ensure project success
  - Government's technical & business representatives
    - Monitor project technical and business progress against agreed milestones and expenditures

ITAO Funding Background

Investments in Information Technology

ATP funding: over $400 million

Projects: 99

Single Companies: 73

Joint Ventures: 26

Participants: 196

University Participants: 81

ITAO Areas of Interest
Examples: Systems

System Development

Quality Assurance, Dependable Computing,
Real Time Systems, Component Based SW

Electronic Commerce

Interoperability, Infrastructure, Security, e-Payment

Healthcare Information Systems

Medical Data, Telemedicine

ITAO Areas of Interest Examples: Systems

Advanced Learning Systems
Authoring tools, Data Mining, Knowledge Bases

Human Computer Interface
Digital Video, Voice and Multimedia

Virtual Reality On the Internet
Tele-collaboration, Tele-presence, Avatars, Animation

General Information Technology Systems

ITAO Areas of Interest Examples: Applications

Intelligent Manufacturing
Robotics, Control, E-Design

IT for Transportation
Smart Vehicles, Trains and Highways

IT for Construction
Architectural Design, Engineering, Supply Chain

IT for Civil & Urban Planning
Utilities Planning, Communication, Traffic Modeling

ITAO Areas of Interest
Examples: Applications

IT for Environment

Air Quality Systems, Natural Resources Modeling

Intelligent Home

Smart Appliances, Smart Room

Biometrics and Physical Security

Finger-Print, Face Recognition

General Information Technology Applications

ITAO Areas of Interest
New Areas

Pervasive Computing

Portable Intelligence, Smart Appliances, Smart Room

Artificial Intelligence

Agent Technology, Search Engines

Discrete Parts Manufacturing

Tools, Systems

Quantum Computing

General Information Technology Applications

Dependable Computing Systems

www.atp.nist.gov/itao/dc/intro.htm

Certifying Security in Electronic Commerce Components

- *Project Objective:*

  Design a rigorous process and core testing technologies for assuring the security of software components, a key enabling technology for Internet-based electronic commerce.

- *Technical Accomplishment:*

  A prototype pipeline developed to analyze C code (the code of most legacy e-commerce applications) to determine all possible build configurations for a given component and to analyze the code for known and/or suspected security holes.

Certifying Security in Electronic Commerce Components

- *Economic Impact:*

  Potential for great impact in assuring the security of software components in e-commerce systems, thus accelerating the development and deployment of Web-based technologies.

- *Overall assessment:*

  On Target (>50% Goals Met)

Year 2000 Competition

Government Funding for year 2000

- Competition Closed on March 8th, 2000
- $50.7 Million of first year funding
- 416 Proposals received at ATP
- Next year Competition will be announced in the Fall
- Pre-proposals are accepted year around

How to Apply Algorithm

- *Step 1:* **Go to ATP web site www.atp.nist.gov Click on "Competitions" to get information on current and past funding opportunities.**
- *Step 2:* **Develop your idea and contact an ITAO member in your field.**
- *Step 3:* **Write a four page pre -proposal. From main web page click on** and then click on **"ATP Proposal Kit"**

How to Apply Algorithm

- *Step 4:* **Develop a detailed technical idea and write the technical plan.**
- *Step 5:* **Write a business plan and then prepare a budget.**
- *Step 6:* **Incorporate the feedback from the pre-proposal.**
- *Step 7:* **Submit a proposal maximum 40 pages for single company and 60 pages for joint venture.**

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ITAO Points of Contact

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Areas of Interest: ***Virtual Reality, Intelligent Manufacturing and Home, Biometrics***		
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Contact Information

www.atp.nist.gov

To Get on the ATP Mailing List:

Call toll-free:	800-ATP-FUND (800-287-3863)
Fax your name and address to:	(301) 926-9524
Send an e-mail message to:	atp@nist.gov

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