Engineering AdComm:
Division of Industrial Innovation and Partnerships (IIP) COV Report
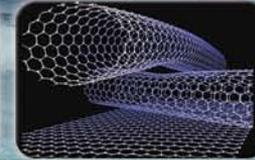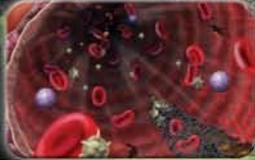
Agenda

➡️ Background on IIP COV

- Findings & Recommendations

What is a Committee of Visitors

❖ Group of external experts

   (IIP included industry, small business, academics, investors)

❖ Convened every three years (the first COV for IIP)

❖ For each division within NSF (IIP in this case, which is > SBIR)

❖ To assess:

   ❖ Proposal review process and program management (Part A)

   ❖ Significance of the results (Part B)

   ❖ Opportunities to improve (Part C)

❖ And present recommendations to Eng. AdComm (in October)

COV Members

Photo	Name	Affiliation
	Louis Martin-Vega (Co-Chair)	North Carolina State University
	Tom Knight (Co-Chair)	Invistics
	Alex Krem	Admiralty Investment Group
	Fred Cannon	Penn State University Park
	Duane Detwiler	Honda R&D
	Raul Valdes-Perez	Vivisimo
	Alex Ishii	Cyclos Semiconductor
	Karen Kerr	Intellectual Ventures
	David Luzzi	Northeastern University
	Karl Reid	Oklahoma State University
	Edward Sommer	National Recovery Technology
	Jose Zayas-Castro	University of South Florida
	Mike Moradi	Venture Development Assoc.
	Jean Bonney	Harvard Life Long Learner

COV Charge

❖The integrity, efficacy, and quality of the <u>processes</u> used to solicit, review, recommend and document proposal actions.

❖The quality of project management, monitoring, and evaluation of funded proposals.

❖The quality and <u>significance</u> of the results of the Division's programmatic investments in terms of program, division, and NSF-wide goals.

❖The Division's <u>balance</u>, priorities, and strategies for realizing the potential of the Division.

Industrial Innovation and Partnerships (IIP) Programs

❖ SBIR/STTR

❖ I/UCRC: Industry & University Cooperative Research Program

❖ GOALI: Grant Opportunities for Academic Liaison with Industry

❖ PFI: Partnership for Innovation

I/UCRC: Industry & University Cooperative Research Program

❖Stimulates industry/university interactions by providing seed funding for planning grantees

❖Considered a high leverage center program

❖Enhances technology transfer to industry

❖52 active centers and ~135 sites (universities)

❖NSF funding in FY 09 was approximately $10M

GOALI: Grant Opportunities for Academic Liaison with Industry

❖Promotes university-industry partnerships by an eclectic mix of linkages.

❖Provides faculty and students opportunity to conduct research and gain experience in an industrial setting

❖Brings industry's perspective and integrative skills to academe

❖Targets high-risk/high-gain research with fundamental research and new approaches to solving generic problems

❖Develops innovative collaborative industry-university educational programs

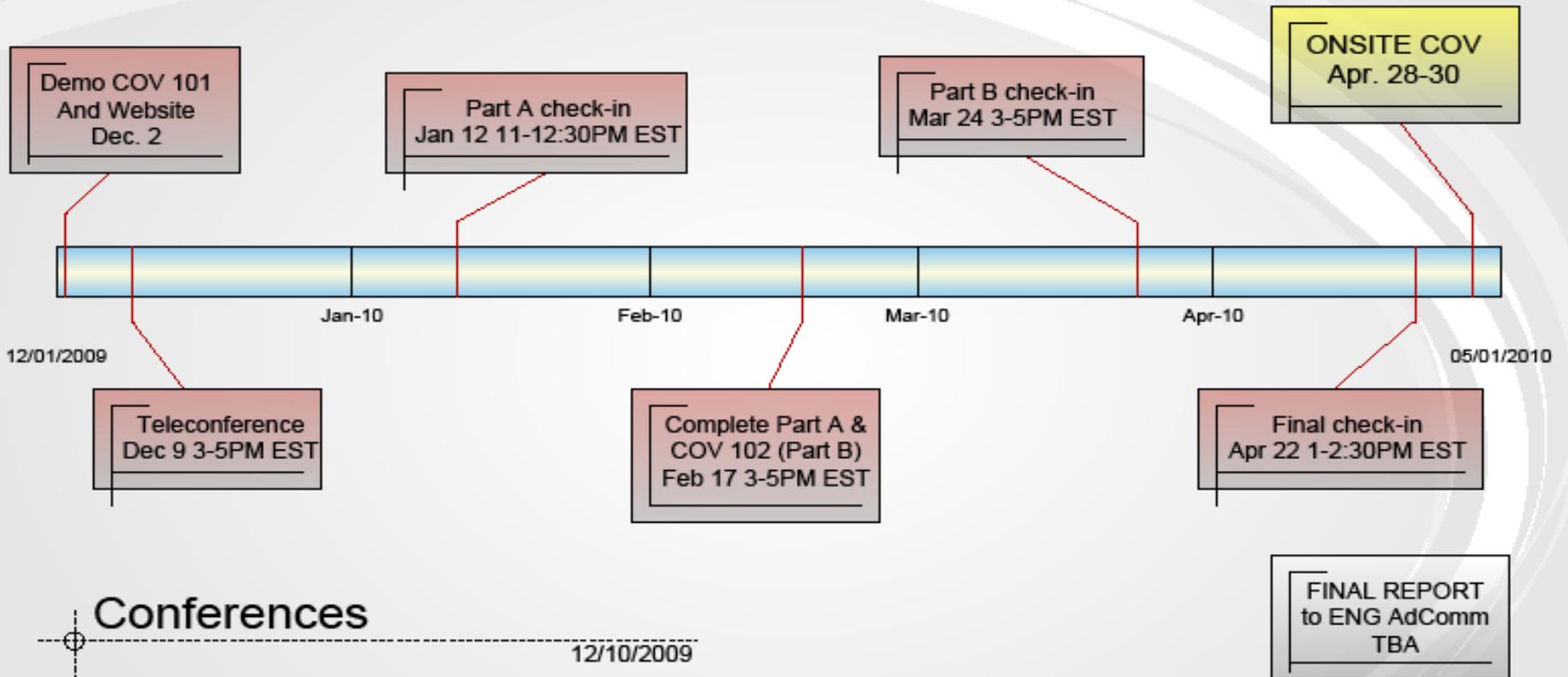❖Seeks to fund transformative research beyond normal industry funding

PFI: Partnership for Innovation

❖Includes private sector, governmental, and other organizations (tribal councils, law firms, hospitals, NGOs, trade associations, and consortia)

❖Intra-institutional partnerships between schools, administrative offices, research centers, and incubators as well as between departments and subfields

❖The possible inclusion of nearly any group is a unique feature of the PFI program

IIP 2010 COV Timeline
Thursday, December 10, 2009

ONSITE COV
Apr. 28-30

Demo COV 101
And Website
Dec. 2

Part A check-in
Jan 12 11-12:30PM EST

Part B check-in
Mar 24 3-5PM EST

Jan-10   Feb-10   Mar-10   Apr-10

12/01/2009   05/01/2010

Teleconference
Dec 9 3-5PM EST

Complete Part A &
COV 102 (Part B)
Feb 17 3-5PM EST

Final check-in
Apr 22 1-2:30PM EST

FINAL REPORT
to ENG AdComm
TBA

Conferences
12/10/2009

- I/UCRC Grantees Conference (Jan. 6-8)

- SBIR/STTR Grantees Conference (Mar. 8-10)

- PFI Grantees Conference (Apr. 26-28)

Agenda

- Background on IIP COV

➡ Findings & Recommendations

IIP Mission, Vision and Goals

Vision: to be the pre-eminent federal resource driving the expansion of the nation's innovation capacity by stimulating partnerships among industry, academe, investors, government and other stakeholders.

Mission: to enhance the nation's economic competiveness by catalyzing the transformation of discovery into societal benefits through stimulating partnerships and promoting learning environments for innovators.

"The COV applauds the IIP division for its ambitious vision and mission."
"[The COV finds] strong commitment to the vision & mission throughout IIP"

"IIP is Aligned with National Priorities"
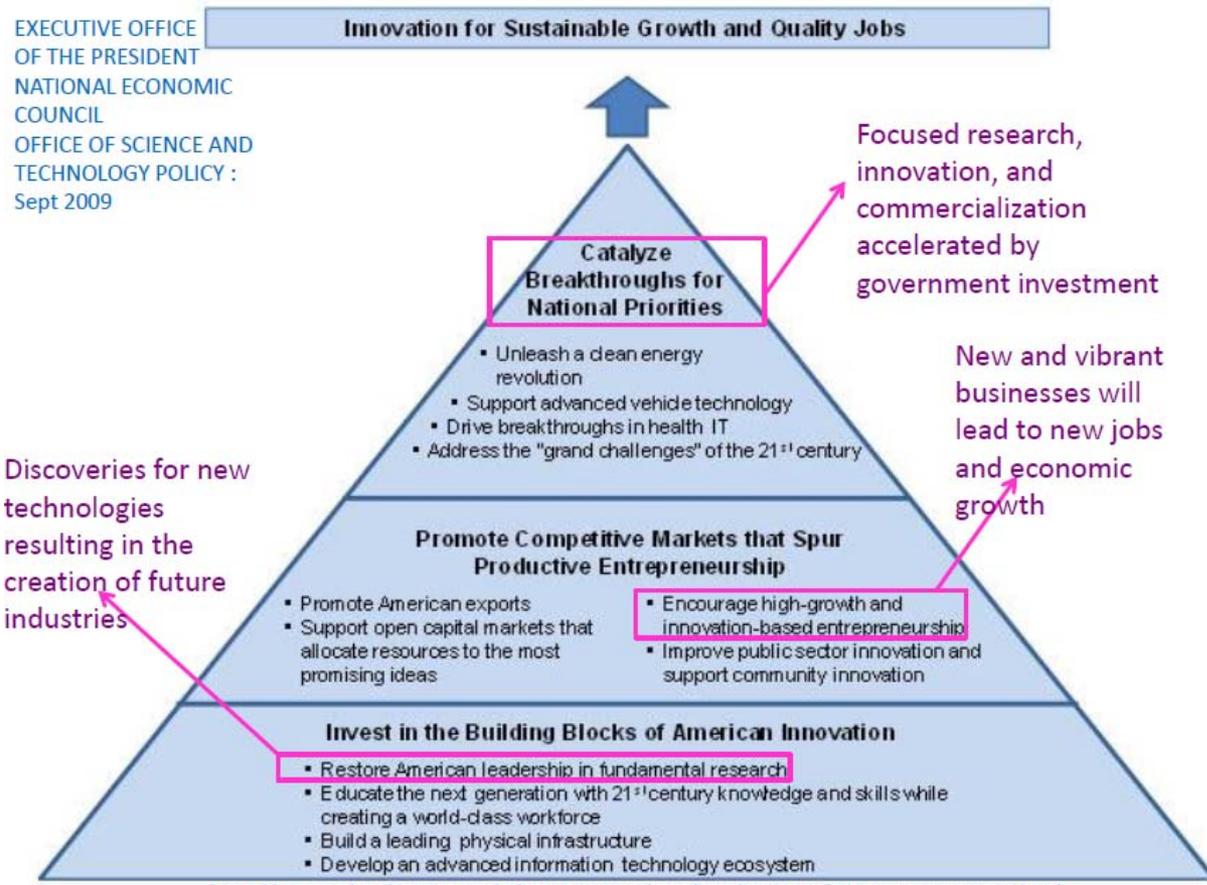
Processes & Management (Part A) Findings

❖A1 (1-8) Quality and Effectiveness of Merit Review Process

- •High quality and effectiveness
- •IIP's merit review process is "best-in-class"

❖A2 (1-4) Selection of Reviewers

- •Generally appropriate

❖A3 (1-13) Portfolio of Awards

- •Appropriate for almost all categories
- •Cross institution partnering is very strong

❖A4 (1-5) Management of Program

- •Well managed

Reviewer Selection (Part A)
Opportunities for Improvement

- Increase underrepresented groups (including women) (A2)
- Expand remote/phone review program to include video conferencing and other internet based mechanisms (A2)
- Expand processes and tools to ID panel participants (A2)
- Continue to increase reviewers from industry (A4)
- Continue to engage industry on program direction (A4)
- Explore why panelists decline invitation (A2)

Proposal Review Process (Part A)
Opportunities for Improvement

- Better define "Intellectual Merit", "Broader Impact", "Innovation" and "Transformative" (A1)

- POs provide a more detailed rational for going against the panels rating (A1)

- Shorten time from decision to disbursement of funds (A1, C1)

- Use more external written reviews from reviewers with deep domain knowledge (A4)

Broadening Participation (Part A)
Opportunities for Improvement

"The COV recommends
(a) a greater sense of urgency,
(b) increased resources, and
(c) Objective measures of success with time-based goals,
to attract **proposals and panelists** from underrepresented groups
(A2, A3, C1)"

Results of NSF Investments (Part B) Findings

❖B1 Outcome Goal for Discovery
  •IIP promotes NSF mission

❖B2 Outcome Goal for Learning
  •IIP successfully cultivating outcome goal

❖B3 Outcome Goal for Research Infrastructure
  •10-15% have some level of impact

Assessment (Part B1)
Opportunities for Improvement

"The COV recommends IIP continue to investigate broader assessment methodologies
to **quantitatively assess** the outcomes across the IIP portfolio delivered by taxpayer investments. (B1, C1)"

Learning (Part B2)
Opportunities for Improvement

"The COV recommends that the IIP explore mechanisms by which IIP can help the learning and <u>innovation capacity growth</u> of all applicants, including those that are not funded. (B2, C1)"

Research Infrastructure (Part B3)
Opportunities for Improvement

"The COV recommends increased emphasis on…building <u>research infrastructure</u> particularly in the creation of both physical and virtual tools as enablers of transformative research. (B3, C1)"

	NAE Grand Challenges
Sustainability	•Provide access to clean water •Manage the nitrogen cycle •Develop carbon sequestration methods •Make solar energy economical •Provide energy from fusion
Health	•Advance health informatics •Engineer better medicines •Reverse-engineer the brain
Security	•Restore and improve urban infrastructure •Prevent nuclear terror •Secure cyberspace
Joy of Living	•Enhance virtual reality •Advance personalized learning •Engineer the tools of scientific discovery

Other Opportunities to Improve (C1)

- Greater emphasis on Grand Challenges in solicitation topics

Click here for Grand Challenges movie

Or visit www.engineeringchallenges.org

Other Opportunities to Improve (C1)

- Cross pollinate best practices of each IIP program (C1)
    - Expand commercialization beyond SBIR
    - Revise highlights to be uniform across IIP programs
    - Increase communication of technical content across IIP
    - Create combined IIP conferences

Other Opportunities to Improve (C1)

- Bridge the "Valley of Death"
  - Stimulate earlier investment & partnering from industry
  - Increase industry funding of university programs
  - Improve pre-proposal training for SBIR/STTR Ph I prop.
  - Provide SBIR PhII commercialization assistance

Other Opportunities to Improve (C2, C3)

❖ C2 Other Goals and Objectives
- IIP is aligned with national priorities
- Lack of quantitative methods to assess IIPs portfolio

❖ C3 Agency-Wide Issues
- Representation of underrepresented groups (incl. women)
- Clarify definition of "innovation"
- Broader assessment methodologies

Other Opportunities to Improve (C3, C4)

❖ C3 Agency-Wide Issues (continued)

- Partner with Contracts and Grants to shorten time from decision to disbursement of funds
- NSF should adopt a consistent definition of "innovation"

❖ C4 Other Issues

- Find additional third party investments from non-NSF partners
- NSF faculty funding

Improving the COV Process (C5)

- Spoon-feed the COV
- Expand use of teleconferencing
- Additional discussion on strategy, vision and mission
- Provide access to assessment data-bases
- Customize IIP COV template
- Continuity of COV members
- Improve highlight formats
- Better definition of "stars"
- Inclusion of "super-stars" more then 3 years old
- More quantitative results in IIP's response to COV report
- More information on process to generate solicitations (A4)

IIP!!