Industrial Innovation and Partnerships
Divisional Plan

Kesh Narayanan

Innovation through Partnerships
Innovation Definition(s)

- Innovation is the complex process of introducing novel ideas into use or practice - *Lemelson/MIT*
- Innovation occurs at the intersection of invention and insight; it’s about application of invention - *Council on Competitiveness*
- Knowledge applied to tasks that are new and different is Innovation – *Peter Drucker*
- Research is the transformation of money into knowledge;
  Innovation is the transformation of Knowledge into money – Geoff Nicholson (retired, *3M*)
IIP Divisional Planning

• Three Divisional Retreats
  – November ’06 for 2 Days
  – December ’06 for 1 Day
  – January ’07 for 1 Day
  – Murali Nair, Coordinator

• Build on earlier OII Plan

• Organizational Alignment
  – ACI to NSF to ENG to IIP

Innovation through Partnerships
American Competitiveness Initiative

- “America's economic strength and global leadership depend in large measure on our Nation’s ability to generate and harness the latest in scientific and technological developments and to apply these developments to real world applications.”

Innovation through Partnerships
Innovation through Partnerships

Advancing Discovery, Innovation and Education beyond the frontiers of knowledge, and empowering future generations in science and engineering.

*NSF Strategic Plan FY 2006-2011

Innovation through Partnerships
Discovery Research for Innovation*

- To address priorities identified in the ACI and to promote research that will drive innovation, NSF will target programs in cyberinfrastructure, engineering, mathematics, and the computing and physical sciences, as well as programs that promise to have a substantial impact on quality of life.

*FY 2008 NSF Budget Request

Innovation through Partnerships
Discovery to Innovation

Proposals to accelerate Innovation

• Longer Term
  – Discovery to Innovation Networks

• Shorter Term
  – Discovery to Innovation Partnerships

Innovation through Partnerships
The R&D perspective*

- The special case of new **breakthrough products** based upon new or **disruptive technology**
  - *Fuzzy Front End*
- The front end of innovation is the back end of R&D

*Angus Kingon
N.C. State U.
The role* of Industry ‘Champions’

The T-P-M construct
Technology – Product – Market
Linkage Diagram

Technology capabilities
Product features
Customer needs

M
M
M
M
M
M
M
M

*Angus Kingon
N.C. State U.

Innovation through Partnerships
Discovery to Innovation (DIN)

Decision space between opportunity discovery and product development

Innovation through Partnerships
Discovery to Innovation Networks

- Contrasts with Discovery Centered Networks
- Brings together Emerging Technologies (T) (NSF investment) and incremental technologies (t) (industry support) into launching ‘Breakthrough Products’

Innovation through Partnerships
Discovery to Innovation Partnerships

Supplement discovery research ‘Ready’ for Innovation

– Third Party Commitments
– Commercial Reviewers

– Examples:
  • NSF-SIA model on nano-electronics
  • SBIR/academic centers
Innovation Partnerships

• **‘Industry’ supports transformational research**
  - Innovate America
  - Rising Above Gathering Storm

• **Industry also seeks innovation ‘ready’ research**
  - Technology Insertion Index
  - Venture Readiness

• **National Academies**
  - Grand Challenges for Engineering
  - GUIRR – UIDP ‘turbo-negotiator’

• **ENG AdCom sub-committee on university – industry partnerships**
  - Sponsored Research Opportunities
  - Proactive matching

*Innovation through Partnerships*
Innovation Partnerships

• **2007 ERC Solicitation**
  – Build a culture of innovation in academe
    • partnership with industry/practitioners
    • engage small innovative firms

• **New Partnerships**
  – I/UCRC Membership for SBIR/STTR Grantees
  – ERC & SBIR/STTR
  – Supplement innovation ‘ready’ research with breakthrough potential
  – Discovery to Innovation Networks

*Innovation through Partnerships*
IIP Divisional Plan

Vision

To be the pre-eminent federal resource driving the expansion of our nation’s innovation capacity by stimulating partnerships among industry, academe, investors, government and other stakeholders.

Mission

IIP will enhance our nation’s economic competitiveness by catalyzing the transformation of discovery into societal benefits through stimulating partnerships and promoting learning environments for innovators.

Innovation through Partnerships