

Enhancing Innovation and Competitiveness Through Investments in Fundamental Research

A Workshop

Sponsored by NSF, NIST, and NIBIB

December 3-5, 2006

Workshop Background

- **Council on Competitiveness: Innovate America**
- **Augustine Report: “Rising Above the Gathering Storm”**
- **American Competitiveness Initiative**
- **Where would additional investments in fundamental research most enhance innovation and competitiveness?**

Workshop Participants, Format

- **Co-Chairs:** Dr. Joseph A. Miller, Exec VP and CTO, Corning, Inc. and Dr. Mark S. Wrighton, Chancellor, Washington University
- **~25 participants, two thirds from companies, one third from academia**
- **Highly participatory sessions on areas such as nanotechnology, materials, imaging, pharmaceuticals, plant science, measurement and instrumentation, infrastructure and human resources**

Key Themes

- Fundamental research results from an earlier time are critical to technological success of the present
- Enduring investment in fundamental research proves rewarding, eg. Council on Chemical Research study showing enormous economic gains from chemical research
- Sustaining the US technological edge requires enhanced investment in fundamental research
- Universities and industry need to find better ways to work together

Key Areas for US Leadership

- **Energy**
- **Environment**
- **Food**
- **Water**
- **Individualized Healthcare**
- **Alternate Feedstocks for Chemicals and Materials**

Workshop Conclusions, Recommendations

- **Areas of Special Opportunity in Science and Engineering**
 - Plant Science
 - Complex Structural Materials Systems
 - Electronic and Optical Materials and Systems
 - Energy and Materials
 - Nanotechnology: Science and Applications
 - Development of New Pharmaceuticals
 - Imaging Science and Technology

Workshop Conclusions, Recommendations

- **Development of the US Talent Pool for Science and Engineering**
 - **Women and Underrepresented Minority Groups**
 - **The People We Need: Team Members and Innovators**
- **Infrastructure for Advancing Technological Innovation**
- **Academia and Industry: Enhancing a Strong Partnership**