

National Institute of Standards and Technology

PCAST

July 16th, 2010

Dr. Patrick Gallagher

Director

National Institute of Standards and Technology

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



NIST Mission and Programs

“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”

NIST Laboratories

- Create critical measurement solutions and promote equitable standards to stimulate innovation, foster industrial competitiveness, and improve the quality of life.

Hollings Manufacturing Extension Partnership

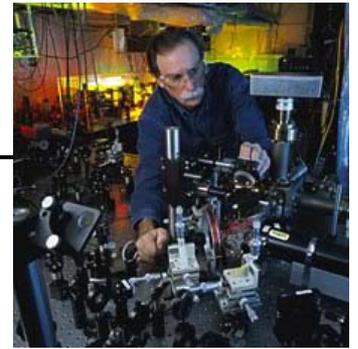
- Nationwide network of resources helping smaller manufacturers compete globally

Baldrige National Quality Program

- Promoting and recognizing performance excellence via information and Presidential awards in manufacturing, service, small business, education, health care, and the nonprofit sector

Technology Innovation Program

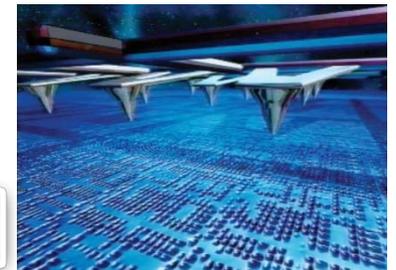
- Supports development of cutting edge technologies by the private sector and universities to address critical national needs and key societal challenges



© Geoffrey Wheeler



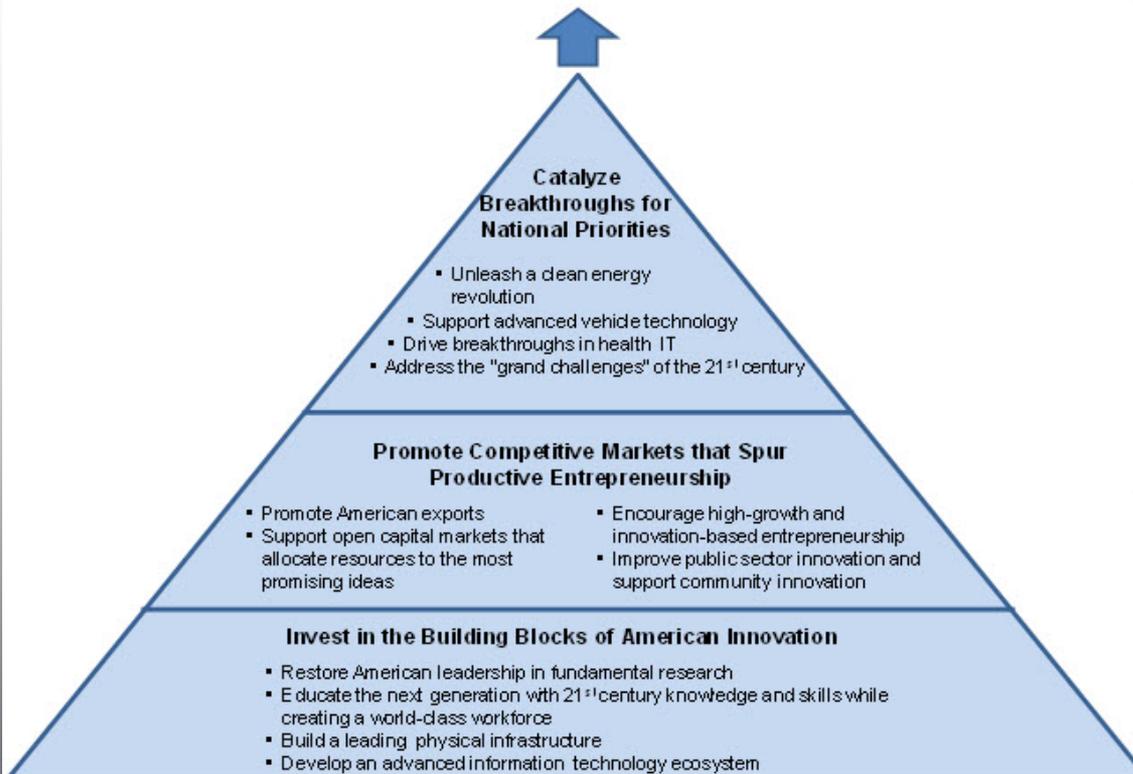
Courtesy Steuben



NIST is the nation's innovation agency

NIST and the President's Innovation Strategy: Driving Towards Sustainable Growth and Quality Jobs

Innovation for Sustainable Growth and Quality Jobs



NIST Programs impact innovation through:

R&D directly impacting technological innovation and the manufacture of advanced technologies:

- Advanced Solar
- Biomanufacturing
- Nanoelectronics

Standards and best practices enabling an advanced IT infrastructure and foundation for future innovation:

- SmartGrid
- Cloud Computing
- Health IT
- Cyber

NIST Research Programs and Partnerships Stimulate Innovations in Manufacturing and the Manufacture of Advanced Technologies

NIST Laboratory Research – Cutting-edge measurement science enabling the adoption and manufacture of advanced technologies

- **Solar** – Addressing measurement challenges to facilitate the manufacture and adoption of solar technologies (e.g. accelerated testing, measurements to improve efficiency of manufacture and performance of cells)
- **Biomanufacturing** – Real time monitoring of bioreactors and improved sensing and measurement of aggregation of manufactured biotherapeutics
- **Manufacturing Systems** – Developing standards and modeling tools to promote sustainable manufacturing, and efficient supply chain engineering



©rezachka courtesy Shutterstock

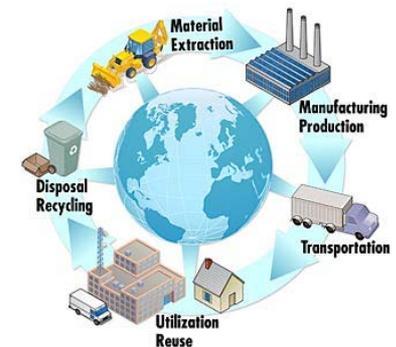
NIST Partnerships with Industry and Academia

- **TIP** – Funding Transformational R&D to accelerate the utilization of advanced materials in manufacturing and the implementation of more efficient manufacturing process
- **Innovation partnerships** – Working with industry and universities to accelerate innovation in key technology areas
 - Partnership with the Nanoelectronics Research Institute supporting industry-directed basic research to develop a logic alternative to CMOS.



NIST MEP – Providing Small and Medium Manufacturers the Tools to:

- Accelerate technology innovation and commercialization
- Implement environmentally sustainable business practices
- Utilize renewable energy initiatives
- Strengthen market diversification and supplier development
- Increase export opportunities for domestic manufacturers



NIST Laboratories Provide the Standards and Best Practices to Enable an Advanced IT Infrastructure – A Foundation for Future Innovation

- **Smart Grid:** Coordinating “development of a framework that includes protocols and model standards...to achieve interoperability of smart grid devices and systems” (Energy Independence and Security Act of 2007)
- **Cloud Computing:** Leading and facilitating development of standards that address high-priority security, interoperability, and portability requirements, with the goal of expediting secure adoption of cloud technologies
- **Health IT:** Enabling interoperability and adoption of health IT technologies by accelerating standards development and harmonization, developing a conformance testing infrastructure, and expanding R&D for security and usability
- **Cybersecurity:** Supporting many domains, including cryptography, biometrics, identity management, FISMA, security automation, and Internet security/stability

