NIST’s Mission

- 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: Basic Stats and Facts

• Major assets
  – ~ 3,000 employees
  – ~ 2,700 associates and facilities users
  – ~ 1,200 field staff in partner organizations
  – Two main locations: Gaithersburg, Md., and Boulder, Colo.
  – Four Main Programs:
    Laboratories, MEP, AMNPO/AMTech, BPEP
  – Six external collaborative institutes: JILA, JQI, IBBR, HML, CHiMaD, NCCoE

FY 2014 Appropriations $850 M

NIST Labs ($651 M)
MEP & AMTech ($143 M)
Construction ($56 M)
The NIST Laboratories

NIST’s work enables
- Advancing manufacturing and services
- Helping ensure fair trade
- Improving public safety and security
- Improving quality of life

NIST works with
- Industry
- Academia
- Other agencies
- Government agencies
- Measurement laboratories
- Standards organizations

Providing measurement solutions for industry and the Nation
Manufacturing Drivers and Challenges

• Demand for Manufacturing Products
  – Customer demand for product variety
  – Customer demand for faster response to needs
  – Growing importance of global markets
  – Societal and economic pressure to increase sustainability

• Pressures on Industry
  – Challenges in maintaining pace with and integrating technology
  – Increasing need for asset and resource efficiency
  – Growing reliance on supply chain and need for robustness and tracking
  – Increasing security risks
  – Shorter product cycles
  – Importance of value-added services throughout the product life-cycle
  – Increasing challenges to integrate with supply chain

• Changing Workforce Skills
  – Growing scarcity of technical manufacturing talent
Technology Trends

• **Digital Technologies**
  – Internet of Things/Ubiquitous Sensing
  – Big data & advanced analytics
  – Cloud computing
  – Broadband communications, wireless
  – Mobile computing/apps
  – Security technologies

• **Advanced Manufacturing Capabilities**
  – Advances in additive processes/3D printing
  – Advances in robotics
  – Model-based everything
  – Complex systems engineering
  – Advances in materials
Smart Manufacturing: Harnessing technology to meet manufacturing challenges

Smart Manufacturing: the synthesis of advanced manufacturing capabilities and digital technologies to collaborate and create highly customizable products faster, cheaper, better, and greener

The NIST Contribution:
Measurement science and standards to drive innovation and reduce risks of adoption of Smart Manufacturing technologies
EL Smart Manufacturing Programs

Measurement science and standards to enable system-level technologies
- Smart Manufacturing Systems Design and Analysis
- Smart Manufacturing Operations Planning and Control

Measurement science and standards to enable disruptive process technologies
- Robotic Systems for Smart Manufacturing
- Measurement Science for Additive Manufacturing

Learn more at www.nist.gov/el/goalsprograms.cfm
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