

Testimony of

Patrick D. Gallagher, Ph.D.

Under Secretary of Commerce for Standards and Technology
United States Department of Commerce

Before the

United States House of Representatives
Committee on Science, Space, and Technology
Subcommittee on Technology

An Overview of the Fiscal Year 2014 Budget
for the
National Institute of Standards and Technology

April 18, 2013

Chairman Massie, Ranking Member Wilson, and members of the Subcommittee, thank you for the opportunity to appear before you today to present the President's Fiscal Year (FY) 2014 budget request for the National Institute of Standards and Technology (NIST). This budget reflects the important role that NIST plays as part of President Obama's Plan to Make America a Magnet for Jobs by Investing in Manufacturing" that was laid out in the State of the Union. From transforming communities across the country into global centers of manufacturing through the establishment of the National Network for Manufacturing Innovation (NNMI) to strengthening supply chains through MEP, to supporting innovative advanced manufacturing technologies by investing in the R&D of the NIST laboratories, the proposed FY 2014 budget reflects NIST's critical role in the Administration's efforts to strengthen manufacturing through critical investments in key research and development areas.

The NIST mission is to promote U.S. innovation and industrial competitiveness through measurement science, standards and technology. This mission is very well-aligned with the priority goals as articulated by the President. The FY 2014 budget for NIST reflects that alignment. The NIST budget is comprised of three discretionary spending accounts, as well as a mandatory proposal.

Mr. Chairman, the President's discretionary funding request for \$928.3 million, excluding transfers, reflects an increase of \$177.5 million above FY 2012 enacted levels. More than half of the proposed increased funding would be focused on advanced manufacturing research both at NIST laboratories and through a new industry-led consortia program. This budget was carefully crafted to address pressing needs for standards and measurement work in emerging technology areas and provide seed funding to encourage industry and academia to come together to address common technology problems too large for individual institutions to tackle. Moreover, this budget is consistent with the President's Plan for Science and Innovation and the goals of the America COMPETES Reauthorization Act of 2010, both of which call for significant increases in basic federal R&D funding to make America more competitive.

Scientific and Technical Research and Services (STRS) Account

For the NIST Scientific and Technical Research and Services (STRS) account, which funds our laboratory programs, the 2014 President's Budget request of \$693.7 million recognizes the important role NIST programs play in advancing innovation. The request is an increase of \$126.7 million from the FY 2012 enacted level. Within the \$693.7 million request, current Administration priority areas targeted for budget increases include Advanced Manufacturing, Cybersecurity, Healthcare IT, Disaster Resilience, Forensics, Advanced Communications, and NIST Centers of Excellence in measurement science and new technology areas. The request will help ensure that NIST research laboratories, facilities and service programs continue to work at the cutting edge of science to ensure that U.S. industry, as well as the broader science and engineering communities, have the measurements, data and technologies they need to further innovation and industrial competitiveness.

Industrial Technology Services (ITS) Account

For the NIST Industrial Technology Services (ITS) account, the budget requests a total of \$174.5 million, an increase of \$46.1 million above the FY 2012 enacted level. The account includes

NIST's external programs: the Hollings Manufacturing Extension Partnership (MEP) program and the Advanced Manufacturing Technology Consortia (AMTech) program.

The request includes \$153.1 million for MEP, a \$24.7 million increase from the FY 2012 enacted level. MEP is a Federal-State-private sector partnership that provides U.S. manufacturers with access to technologies, resources, and industry experts. The program consists of MEP Centers that work directly with their local manufacturing communities to strengthen the competitiveness of our Nation's domestic manufacturing base. The budget request for MEP includes newly requested funding of \$25.0 million for MEP Manufacturing Technology Acceleration Centers (M-TAC).

The request also includes \$21.4 million for the AMTech program. This program will establish industry-led consortia to identify and prioritize research projects supporting long-term industrial research needs. AMTech creates the incentive for manufacturers to share financial and scientific resources with universities, state and local governments and non-profits. The proposed program is a critical component of the Administration's emphasis on advanced manufacturing as a way to accelerate innovation and create high-quality U.S. jobs.

Construction of Research Facilities (CRF) Account

The budget requests \$60 million for the Construction of Research Facilities (CRF) account which is a \$4.6 million increase over the FY 2012 enacted level. The increased funding will allow NIST to reduce the backlog of maintenance and repair projects by up to three percent and improve NIST's overall Facilities Condition Index (FCI)—a measure of a building's condition relative to its intended purpose—by a similar amount. This construction request also provides for the first year of a major project to renovate Wing 5 of the "Building 1" laboratory complex at NIST's Boulder, Colorado facility. The increase in funding for the Wing 5 renovation is balanced by a decrease in funding for the renovation of Wing 6, which will be completed using funding from FY 2013. Critically needed renovations to the 60 year old Building 1 in Boulder began in FY2010. The building houses the majority of research and measurement laboratories on the NIST Boulder campus, supporting discovery and development in a number of critical areas, including public safety communications and telecommunications, precision timing, electromagnetic interference, and quantum computing.

Mandatory Funding Account

As part of the Administration's efforts to revitalize manufacturing, the President's budget proposes a \$1 billion mandatory account to establish a National Network for Manufacturing Innovation (NNMI), which aims to bring together companies, universities and community colleges, and government to co-invest in the development of cutting-edge manufacturing technologies.

Mr. Chairman, also included in this request are scientific and programmatic initiatives that are tied to the overarching themes of this budget: Advanced Manufacturing, Cybersecurity, Advanced Communications, Forensic Science and Disaster Resilience. These themes directly relate to the President's plans for an innovative and vibrant economy built on American manufacturing.

Advanced Manufacturing – Building Prosperity Through Innovation

Manufacturing is critical to the U.S. economy. As President Obama said in his 2013 State of the Union address, “*Our first priority is making America a magnet for new jobs and manufacturing.*” By itself, if the U.S. manufacturing sector were a country, it would be the 12th largest economy in the world.¹ Over 11 million Americans have manufacturing jobs.² Many of these are high-quality jobs.³ Total hourly compensation in the manufacturing sector is, on average, 19% higher than that in the services sector.⁴ After ranking as the world’s largest manufacturer for more than a century, the U.S. is facing some stiff competition and has lost ground to China on total volume of its manufacturing output. It has also slipped below Germany, Korea, and Japan in the rankings of research and development manufacturing intensity, a critical indicator of future job-creating innovation.⁵

However, during the past three years of the Obama Administration, we have begun to see positive signs in American manufacturing. After shedding jobs for more than 10 years, our manufacturers have added about 500,000 jobs over the past three. Caterpillar is bringing jobs back from Japan. Ford is bringing jobs back from Mexico. And this year, Apple will start making Macs in America again.

To accelerate and strengthen these trends the President has laid out a comprehensive set of programs and priorities including new partnerships, investments in R&D, workforce training, and tax-reform. NIST plays a key role in this effort and the NIST FY2014 budget includes robust investments in a set of initiatives that covers the entire range of the manufacturing lifecycle spectrum to reduce the gap between cutting-edge science and development and the deployment of advanced manufacturing technologies. Providing the measurement tools and other essential technical assistance that U.S. manufacturers need to invent, innovate, and produce—more rapidly and more efficiently than their competitors—is a top NIST priority.

To reap the economic benefits of our ability to innovate, our Nation’s manufacturing sector must be able to renew itself by adopting new technology and developing new markets. The Nation’s manufacturers must respond quickly and effectively to an ever-changing mix of requirements, risks, and opportunities, from rising energy costs to emerging technologies and markets. The revitalization of the U.S. manufacturing base is critical to driving innovation and job creation in the future, and will play a major role in building an economy that can help raise the standard of living for all Americans.⁶

¹ Bureau of Economic Analysis Manufacturing Industry Data Tables 2010

² Bureau of Economic Analysis, 2012 *Persons Engaged in Production by Industry*.

³ NSTC *A National Strategic Plan for Advanced Manufacturing* February 2012 pg 2.

⁴ Bureau of Labor Statistics, 2012 *Employer Costs for Employee Compensation*, Table 6.

⁵ NSTC *A National Strategic Plan for Advanced Manufacturing* February 2012 pg 5.

⁶ Overview to the National Science Board’s *Science and Engineering Indicators 2012*; pp 16-20

The NIST FY2014 initiatives targeting manufacturing include:

Measurement Science for Advanced Manufacturing (+\$50 million)

The largest overarching NIST initiative is the \$50 million dollar effort targeting Advanced Manufacturing. Manufacturing plays a central role in realizing the benefits of technological innovation and in the overall growth and health of the U.S. economy. The ability to rapidly introduce product innovations will provide a foundation for future U.S. manufacturing market growth, competitiveness, and creation and retention of high skill, well-paying jobs. With its FY 2014 budget request, NIST is expanding its laboratory efforts in the following areas critical to advanced manufacturing:

Developing the measurement science and data infrastructure for the manufacture of emerging materials – Much of advanced manufacturing depends upon the ability to make at scale or integrate the use of new materials into existing manufacturing processes. To support this need NIST will continue to invest in strengthening its efforts to develop the standards and data needed to support advanced materials modeling and design. These efforts are central to NIST’s role in the Material’s Genome Initiative.

Supporting the manufacture of emerging technologies – There is enormous potential for U.S. leadership in the manufacture of products in emerging technology areas, which have grown out of the U.S. investment in the biosciences and nanotechnology. NIST will provide the measurement science, data, and tools that are needed for efficient manufacturing in these areas. NIST programs in the areas of: nanomanufacturing will ensure that materials can be produced at scale and at viable cost; and, biomanufacturing where NIST research will help create new manufacturing paradigms that use cells as factories for fuels, pharmaceuticals and specialty chemicals.

Precision measurements for manufacturers – Precise manufacturing metrology enables high-quality, high-throughput production, increasing the competitiveness of U.S. manufacturers. Current methods for calibrating machinery and assessing quality can introduce cost and time delays to manufacturing processes. Through increased investment in miniaturization techniques and quantum-based measurement capabilities, NIST will be able to deliver self-calibrating measurement science technology that can be directly integrated into instruments and processes on the manufacturing floor, and thus, eliminate the need for costly calibrations.

Measurement science to enable the integration and use of smart manufacturing technologies – The next generation of smart manufacturing processes and equipment such as automation, distributed sensing, and advanced control systems need to be optimized to enable cost-effective and agile manufacturing of high-tech products and systems. NIST will continue to strengthen its efforts focused on standards for the closer integration of robotics and humans in the manufacturing environment, and in the development of a testbed to evaluate the performance of automated in-process quality monitoring and control systems which are critical to the efficient operation of modern factories.

Advanced Manufacturing Technology Consortia Program (+21 million)

The proposed \$21 million AMTech program will provide grants to leverage existing consortia or establish new industry-led consortia to develop road-maps of critical long-term industrial research needs. The program will also fund research at leading universities and government laboratories directed at meeting these needs. This program would be based on NIST's experience with the Nanoelectronics Research Initiative (NRI) partnership and would expand and improve on that model.

Hollings Manufacturing Extension Partnership (MEP) – Manufacturing Technology Acceleration Centers (M-TAC) (+\$25 million)

The MEP, a federal-state partnership, has a national network of MEP Centers located in all 50 states and Puerto Rico. There are over 1,400 technical and business experts associated with the Centers helping small- and medium-sized manufacturers navigate economic and business challenges and connecting them to public and private resources essential for increased competitiveness and profitability. The budget request for MEP includes newly requested funding of \$25.0 million for MEP Manufacturing Technology Acceleration Centers.

U.S. small manufacturers are a critical segment of our economy, comprising 90 percent of all manufacturing establishments and 45 percent of employment. U.S. small and mid-sized manufacturers are playing a growing role in technology innovation, including product and process technologies. This trend has been supported by the expanded portfolio of services for small and mid-sized manufacturers offered by the Hollings Manufacturing Extension Partnership (MEP) program through MEP's Next Generation Strategies. These strategies include: technology acceleration, supply chain development, sustainability, continuous improvement and workforce.

Many of these efforts, especially technology acceleration and supply chain development, require deep expertise specific to a given supply chain or sector. Small manufacturers have proven to be flexible and adaptable in their approach to profitable growth through new markets, customers, products, and processes. Yet, there remains a gap between the research being performed through universities, federal labs, consortia, and other entities with the readiness of many small manufacturers to adopt new technologies into their products and processes.

The gap is most readily identified along the continuum of MEP's Technology Framework for Small Manufacturers, and commonly referenced as the "valley of death." In fact, the valley includes both the "immediately before" with limited translation of available technologies into market opportunities and the "immediately after" with manufacturers struggling to incorporate new technologies into their processes and new product portfolio. The "valley of death" includes technology transfer, technology transition, and technology diffusion steps.

In order to address this broadly-defined gap of "technology transition," MEP is proposing to create Manufacturing Technology Acceleration Centers (M-TAC). The M-TAC approaches this problem through a focus on supply chains so that the flexibility and adaptability common to many U.S. manufacturers results in increased job creation and economic growth. The M-TACs

will provide technology transition services to U.S. small manufacturers through a program that is locally driven and nationally connected, by fostering the small manufacturer's readiness to adopt and adapt advanced technologies into their manufacturing processes and products.

National Network for Manufacturing Innovation (NNMI) (+1 billion)

In addition to the discretionary programs described above, the FY2014 request also includes a request for \$1 billion in mandatory appropriations to establish the National Network for Manufacturing Innovation that is a cornerstone of the President's plan to strengthen American manufacturing as mentioned in the State of the Union.

This funding would catalyze the creation of a network of institutes where researchers, companies, and entrepreneurs can come together to develop new manufacturing technologies with broad applications. Each institute would have a unique technology focus. These institutes, to be known as Manufacturing Innovation Institutes (MII), will help support an ecosystem of manufacturing activity in local areas. The MII would support manufacturing technology commercialization by helping to bridge the gap from the laboratory to commercialization.

This initiative is designed to:

- Induce industry and non-federal co-investment to rapidly seize innovation opportunities that lead to industrial capabilities, bridging the gap between fundamental technical discoveries in the U.S. and manufactured products.
- Promote direct collaboration on industry-relevant research and development to address emerging technology areas where market failures are causing U.S. innovations to be scaled and manufactured elsewhere
- Facilitate the adoption of new manufacturing technologies, tools, and methodologies that will make U.S. manufacturers more competitive, especially recognizing the role of small and medium manufacturers in supply chains and innovation
- Build workforce skills and enhance education needed in advanced manufacturing
- Support identification and diffusion of "best practice" approaches to governance structure, IP management, partnering, facilities access, etc.

In addition to addressing key challenges in advanced manufacturing the President's FY2014 request for NIST also provides support for NIST programs addressing other critical priorities including:

Cybersecurity R&D and Standards (+15 million)

Cybersecurity is a strategic asset and vital to the economic and national security interests of the United States. In addition to nearly \$200 billion of e-commerce transactions in the U.S. alone for 2011, interconnected networks of computers are essential for critical functions such as air traffic control, factory operation, and electric power distribution. NIST requests an increase of \$15 million to improve the security and interoperability of our nation's cyberspace infrastructure, accelerate the development and adoption of cybersecurity standards in support of Administration priorities, and to support the leading-edge work of the National Cybersecurity Center of

Excellence (NCCoE).

Of that \$15 million increase, \$8 million would fund cybersecurity research and development in areas such as security for federal mobile environments and techniques for measuring and managing security. The request continues and expands efforts to improve the cybersecurity of current and future information technologies, while improving the trustworthiness of IT components such as claimed identities, data, hardware, and software for networks and devices.

In addition, \$2 million would fund development of cybersecurity standards. The availability of cybersecurity standards and associated conformity assessment schemes is essential for improving the security and resiliency of critical U.S. information and communication infrastructure. NIST support for industry-developed consensus standards enhances the deployment of sound security solutions and builds trust among those creating and those using the solutions throughout the country.

A \$5 million increase would fund the National Cybersecurity Center of Excellence. The NCCoE is a public-private collaboration of experts from industry, government, and academia. The center designs, implements, tests, and demonstrates integrated cybersecurity solutions and promotes their widespread adoption. Participants develop practical, interoperable cybersecurity approaches that address the real-world needs of complex information technology (IT) systems.

Advanced Communications (+\$10 million)

This \$10 million initiative will support research, standards, and testing efforts in the area of advanced communications for the development and deployment of next-generation and emerging communication technologies through the NIST Center for Advanced Communications Technologies headquartered at its Boulder laboratories.

Rapid advances in communications technology have fundamentally changed the way we as a nation work and live. With these advances have come significant challenges that if not addressed will significantly impact our nation's ability to reap its civilian and economic benefits while ensuring that our national security needs are met. Examples of these challenges include: the exponential growth of wireless data usage – scarce spectrum must be more efficiently used to meet the demand; the evolution of broadband access in the home – this has moved from a luxury to a necessity with increasing needs for ever-higher bandwidth; and, the vulnerability of all internet capable devices to various security threats.

To address these challenges, the budget request includes funds for research, testing, and evaluation in the areas of spectrum sharing, testing, standards coordination, public safety communications, electromagnetics and quantum electronics, among others. By taking advantage of and leveraging the critical mass of NIST and NTIA research and engineering capabilities concentrated in Boulder, Colorado, the Department of Commerce will create a unique national asset that will provide the infrastructure necessary for effective engagement and collaboration with industry and government partners that is required to effectively and efficiently address current and future communications challenges. NIST's efforts in this area will:

- Promote interdisciplinary research, development, and testing in advanced communication related areas such as Radio Frequency (RF) technology, digital information processing, cybersecurity, interoperability, and usability.
- Provide a single focal point for engaging both industry and other government agencies on advanced communication technologies, including testing, validation, and conformity assessment.

Cyberphysical Systems (+10 million)

This \$10 million FY 2014 budget initiative will help U.S. manufacturers create a new generation of “smart” systems to support the Administration’s priorities in advanced manufacturing and networking technology for complex systems. The convergence of networking and information technology with manufactured products, engineered systems of products, and associated services are enabling a new generation of “smart” or cyber-physical systems (CPS). These CPS are critical components and key value added features of items that consumers use every day from cars and telecommunications to buildings and medical devices. As CPS have grown exponentially in complexity, dramatic improvements in the systems engineering, integration and testing are needed. This initiative will enable NIST to develop the measurement tools and standards to address three key problem areas that cut across all CPS: model-based diagnostics and prognostics needed to manage and optimize the performance of CPS (like electric grids, and transportation networks); time synchronization, which is critical to the efficient operation of systems; and, secure operation in order to ensure that widely deployed CPS systems have appropriate risk-based security solutions.

NIST Centers of Excellence (+20 million)

The proposed \$20 million will fund the NIST Centers of Excellence. The NIST Centers of Excellence support collaboration on the front end of the manufacturing spectrum that builds upon a legacy of successful consortia with universities. With the requested funding, NIST will provide grants to establish four competitively selected Centers of Excellence in measurement science areas defined by NIST. The grants to multi- or single-university centers are envisioned to be for multiple years, contingent upon available resources. Each Center of Excellence will provide an interdisciplinary environment where NIST, academic, and industry researchers would collaborate on basic and applied research focused on innovations in measurement science and new technology development.

Health Information Technology (+3 million)

Moving to electronic health records and automation of health IT is a major component of efforts to improve the value and quality of health care. With this \$3 million initiative NIST will work in coordination with the Department of Health and Human Services Office of the National Coordinator for Health Information Technology (HHS/ONC) to advance work to develop interoperability standards and the supporting testing and validation infrastructure for the meaningful use of electronic health records (EHR). The funding would support work that advances detailed interoperability standards in support of the Meaningful Use Stages 2 and 3 as

defined by the Centers for Medicare & Medicaid Services (CMS) EHR Incentive Programs that govern the use of (EHR). The funding would also support demonstration of EHR interoperability and the traceability of software application interactions, as well as patents, publications, and presentations related to EHR interoperability and conformance. The initiative will also support development of a test infrastructure to help industry measure their software's conformance to standards and of more efficient and accurate data analysis methods.

Measurement Science and Standards in Support of Forensic Science (+5 million)

The forensic science community needs standards and measurements to strengthen and improve the accuracy and efficacy of crime scene investigations and laboratory analyses of forensic evidence. This initiative focuses on programs and research efforts to develop innovative measurement systems, standards, quality assurance tools, and validated test methods. The products developed as a result of this initiative will ultimately strengthen the scientific foundation of the forensic sciences and, in turn, strengthen the U.S. justice system while reducing costs. This \$5 million proposed initiative will enable NIST to create a strategic program to broadly address the most critical issues in forensic science today, such as new reference methods and technologies for understanding crime scenes and identifying criminals, including the uncertainty and standards associated with those techniques. A major outcome of this initiative will be to strengthen the utility and reliability of forensic evidence in the courtroom. This work also has the potential for significant cost savings for the U.S. justice system by reducing the number of mistrials or retrials related to questions about forensic analysis. One economic analysis of cost savings from forensic DNA testing alone estimated a cost savings of \$35 for every dollar invested.

Public trust in the justice system relies on the validity and certainty of evidence presented to the courts. Increasingly that evidence is gathered and analyzed with innovative forensic technologies. Working with the Department of Justice under a recently signed Memorandum of Understanding (MOU), NIST will support:

- efforts with the forensic science community to develop agreed-upon standards, methodologies, and accreditation systems for key forensic science disciplines;
- new reference methods and technologies for understanding crime scenes and identifying criminals, including the uncertainty and standards associated with those techniques;
- improved calibration systems, reference materials and databases, and technology testbeds for ensuring reliable and accurate forensic practices; and
- the development of rigorous training programs.

Disaster Resilience (+5 million)

A \$5 million initiative will support the measurement and standards for disaster resilience and reduce the risk from natural hazards. With a large percentage of the nation's buildings and infrastructure clustered in disaster-prone regions, U.S. communities can and do suffer catastrophic losses from extreme events such as hurricanes, tornadoes, wildfires, earthquakes, and flooding. Despite significant progress in disaster related science and technology, natural and technological disasters in the United States are responsible for an estimated \$60 billion in costs in 2012 terms of lives lost, disruption of commercial and financial networks, properties destroyed, as well as the cost of mobilizing emergency response personnel and equipment.⁷ In 2012, the U.S. experienced 11 disasters each costing over a billion dollars in losses. Two major events - Hurricane Sandy and the year-long drought - were the biggest cost drivers, the economic effects of which are still being calculated. Metrics, tools, and standards are needed to ensure community-level resilience and to enable communities to minimize the impact of such disasters and to recover rapidly from them.

NIST has significant statutory responsibilities in this area, including the National Earthquake Hazards Reduction Program Reauthorization Act of 2004 (PL 108-360); the National Construction Safety Team Act (PL 107-231); the National Windstorm Impact Reduction Act of 2004 (PL 108-360); and the Federal Fire Prevention and Control Act of 1974 (PL 93-498).

The requested initiative will fund the development of a public-private partnership program strategy that will work with stakeholder interests in all hazard areas to develop and adopt a national resilience framework and associated resilience models, standards, and policies.

National Strategy for Trusted Identities in Cyberspace (+8 million)

The Budget provides an increase of \$8 million to the National Strategy for Trusted Identities in Cyberspace (NSTIC) which builds upon FY 2012 funding of \$16.5 million. The initiative envisions an online environment—the “Identity Ecosystem”—that improves on the use of passwords and usernames, and allows individuals and organizations to better trust one another, with minimized disclosure of personal information. The Identity Ecosystem is a user-centric online environment, a set of technologies, policies, and agreed upon standards, that securely support transactions ranging from anonymous to fully authenticated and from low to high value. It would include a vibrant marketplace that allows people to choose among multiple identity providers—both private and public—that would issue trusted credentials that prove identity. Key attributes of the Identity Ecosystem include privacy, convenience, efficiency, ease-of-use, security, confidence, innovation, and choice. Creating this Identity Ecosystem will require input from the private sector, advocacy groups, public sector agencies and others. The request continues and expands existing efforts to coordinate federal activities needed to implement NSTIC.

Specifically, the FY 2014 request funds competitively selected pilot project grants that will enable the private sector to work with state, local, and regional governments to improve

⁷ <http://www.ncdc.noaa.gov/oa/reports/billionz.html>

acceptance of Identity Ecosystem components. The selected NSTIC pilot programs will demonstrate innovative frameworks that can provide a foundation for more trusted online transactions and tackle barriers that have, to date, impeded the Identity Ecosystem from being fully realized. This initiative is expected to lead to the emergence of privacy-enhancing, trusted authentication solutions that lead to better protections against cybercrime; improved privacy and protection of data; improved security and interoperability of credentials; improve the resilience of data breach recovery; and a self-sustaining, private-sector-led Identity Ecosystem by 2015. It will also support the Steering Group to bring together all stakeholders—the private sector, advocacy groups, and public-sector agencies—to address authentication challenges and allow continued expansion of the nation’s online economy.

National Initiative for Cybersecurity Education (+1 million)

The \$1 million request supports the continued work under the National Initiative for Cybersecurity Education (NICE). Cybersecurity is much more than technological solutions to technical problems; it is also highly dependent on educated users who are aware of and routinely employ sound practices when dealing with cyberspace. NIST will continue to work with federal, state, local, and regional governments for improving cybersecurity education. NIST will ensure coordination, cooperation, focus, public engagement, technology transfer, and sustainability of NICE. NIST will continue to support DHS and other Federal Agencies in the implementation of the cybersecurity education framework that addresses: national cybersecurity awareness; formal cybersecurity education; Federal cybersecurity workforce structure; and cybersecurity workforce training and professional development.

Summary

The FY 2014 NIST budget request reflects the Administration’s recognition of the important role that NIST plays in innovation, as well as the impact that the research and services NIST provides can have on moving the Nation forward by laying the foundation for long-term job creation and prosperity.

More than half of the proposed increased funding in the NIST budget is focused on advanced manufacturing research at NIST laboratories and through new industry-led consortia programs. NIST will continue its mission to work with the private sector to ensure U.S. manufacturers have the research support they need to make the best products in the world and remain globally competitive. The NIST laboratory programs, along with its outreach efforts and standards development work, are dedicated to providing U.S. industry with the tools needed to innovate, compete and flourish in today’s fierce global economy.

I look forward to working with you, Mr. Chairman and members of the Committee, and would be happy to answer any questions.

Dr. Patrick D. Gallagher, Director



Dr. Patrick Gallagher was confirmed as the 14th Director of the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) on Nov. 5, 2009. He also serves as Under Secretary of Commerce for Standards and Technology, a new position created in the America COMPETES Reauthorization Act of 2010, signed by President Obama on Jan. 4, 2011.

Gallagher provides high-level oversight and direction for NIST. The agency promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. NIST's FY 2013 resources total \$755.4 million from the Consolidated and Further Continuing Appropriations Act of 2013 (P.L. 113-6), with an estimated additional annual income of \$62.7 million in service fees, and \$128.9 million from other agencies. The agency employs about 2,900 scientists, engineers, technicians, support staff, and administrative personnel at two main locations in Gaithersburg, MD, and Boulder, CO.

Gallagher had served as Deputy Director since 2008. Prior to that, he served for four years as Director of the NIST Center for Neutron Research (NCNR), a national user facility for neutron scattering on the NIST Gaithersburg campus. The NCNR provides a broad range of neutron diffraction and spectroscopy capability with thermal and cold neutron beams and is presently the nation's most used facility of this type. Gallagher received his Ph.D. in Physics at the University of Pittsburgh in 1991. His research interests include neutron and X-ray instrumentation and studies of soft condensed matter systems such as liquids, polymers, and gels. In 2000, Gallagher was a NIST agency representative at the National Science and Technology Council (NSTC). He has been active in the area of U.S. policy for scientific user facilities and was chair of the Interagency Working Group on neutron and light source facilities under the Office of Science and Technology Policy. Currently, he serves as co-chair of the Standards Subcommittee under the White House National Science and Technology Council.