June 2018 Progress Report

On June 23, 2015, the heads of nine large U.S. corporations issued a call to action – Innovation: An American Imperative – urging Congress to enact policies and make investments to ensure that the United States remains the global innovation leader. Over 500 leading industry, higher education, science, and engineering organizations from all 50 states endorsed the statement. Responding to this call, Members of Congress have already taken several bipartisan steps to bolster American innovation.

With much work remaining to be done, the organizers of Innovation: An American Imperative provide the following update to highlight areas of recent success as well as those requiring increased attention.

Renew the federal commitment to scientific discovery

Status: PROGRESS MADE – MORE NEEDED. For FY18, Congress built on the modest step it made the previous year and took critical strides to reinvest in scientific research. The final funding package included significant increases for some federal research agencies, including a $3 billion increase for the National Institutes of Health (NIH) and a 16 percent increase for the Department of Energy's (DOE) Office of Science. Among others, these investments are beginning to reverse more than a decade of decline in federal research investment and represent a step forward for the U.S. to regain its global innovation leadership.

Congress has an opportunity in FY19 and beyond to provide similar increases for basic research sponsored by federal agencies, including the National Science Foundation (NSF), the Department of Defense (DOD), NASA, NIST, USDA, and NOAA. Unfortunately, the Administration has proposed significant cuts to several federal science programs and agencies in its FY19 budget. If Congress were to follow the Administration's proposal it would result in devastating consequences for the nation's research enterprise.

Make permanent a strengthened federal R&D tax credit

Status: ENACTED. The Protecting Americans from Tax Hikes Act of 2015 made the R&D tax credit permanent and extended its benefits to start-ups and small businesses.

Improve achievement in science, technology, engineering, and mathematics (STEM)

Status: IN PROGRESS. Congress passed legislation to expand STEM teacher recruitment and training programs and to strengthen standards and accountability in K-12 education. Yet the President's Council of Advisors on Science and Technology stated in 2012 that funding for such programs continues to lag far behind what is needed to truly make a difference in student achievement. Meanwhile, U.S. students have slipped to 31st in math and 19th in science among the 35 OECD nations. In 2017, President Trump signed a Presidential Memorandum for the Secretary of Education on the importance of STEM education and expanding it and computer science education. Congress and the Administration must make progress to improve STEM education during the next decade by increasing investments in key STEM programs supported by federal science agencies.

June 2018 Progress Report

Reform U.S. visa policy

Status: **INCREASING CONCERN.** Clear messages and policies that demonstrate the United States welcomes the best and brightest international scientists and engineers is vital to future innovation, American competitiveness, and security. Continuing decisions to slow down the visa process and create burdensome paperwork requirements are significant impediments for American efforts to attract top talent from around the world. For the first time in 12 years, the number of international students coming to study and conduct research in the U.S. declined. America must reshape its policies to attract and retain the best and brightest students and researchers in an increasingly competitive global market. This includes increasing the number of green cards to allow high-skilled talent from U.S. universities to remain in the U.S.). More than half of the graduates in STEM fields at U.S. colleges and universities are foreign nationals. In the field of computer science alone, the U.S. graduates just 50,000 new students each year while the information technology industry has 550,000 open positions. Until this gap can be filled through increased investments in STEM education and training programs for American students, U.S. colleges, universities, and companies need a robust high-skilled visa program and additional green cards to access the top talent graduating from our higher education institutions.

Take steps to streamline or eliminate costly and inefficient regulations

Status: **PROGRESS MADE – MORE NEEDED.** In 2017, the 115th Congress passed three important pieces of legislation – the 21st Century Cures Act, the American Innovation and Competitiveness Act, and the National Defense Authorization Act – all of which included provisions to help eliminate, reduce, and streamline research-related regulations. These provisions reflect specific recommendations made in reports from the National Academies' Committee on Federal Research Regulations and Reporting Requirements, the Government Accountability Office, and the National Science Board. Perhaps the most significant of these provisions is a requirement that the Office of Management and Budget (OMB) establish by December 2017 a Research Policy Board charged with coordinating, streamlining, and reducing research related regulations. OMB, which was also directed to conduct an ongoing review of regulations to improve efficiency and optimize the federal investment in research, has yet to stand up the Research Policy Board.

Reaffirm merit-based peer review

Status: **ENACTED.** The American system of independent, merit-based peer review is the global gold standard for ensuring scientific excellence and integrity as well as the most effective use of taxpayer dollars. This standard is increasingly being adopted by competitor nations. This well-respected system for reviewing grant proposals was recently reaffirmed through the passage of the American Innovation and Competitiveness Act, which was signed into law on January 6, 2017.

June 2018 Progress Report

Stimulate further improvements in advanced manufacturing

Status: **PROGRESS MADE – MORE NEEDED.** Earlier this year, the National Science and Technology Council's Committee on Technology, Subcommittee on Advanced Manufacturing requested public input on the development of a **National Strategic Plan for Advanced Manufacturing**. This is a promising step by the Administration to develop a long-term plan to improve advanced manufacturing research and development in order to create jobs, grow the economy, strengthen national security, and improve healthcare.

Congress continues to support the important NIST **Manufacturing Extension Partnership** (MEP) at $140 million and DOE's Advanced Manufacturing Office (AMO) at $305 million, despite the Administration's proposals to eliminate the former and reduce funding for the latter by $230 million. MEP provides regional support throughout the country to small- and medium-sized manufacturers to ensure domestic manufacturers are capable of meeting national needs. AMO supports advanced manufacturing R&D, as well as the operation of R&D facilities such as the Clean Energy Manufacturing Institutes, Manufacturing Demonstration Facility, Carbon Fiber Test Facility and R&D hubs focused on critical materials and energy-water desalination. These programs will ensure U.S. manufacturers will have access to cutting-edge technologies to test and validate new processes, new materials, and new products.

Congress established **Manufacturing USA** in 2014 as a public-private partnership to strengthen domestic advanced manufacturing. To date, 14 Institutes have been established to move early-stage research into capabilities ready for adoption by U.S. manufacturers: eight at DOD, five at DOE, and one at NIST. However, the future of these Institutes is in jeopardy as the Administration continues to propose eliminating funding for the program at NIST and at DOE's AMO. In FY18, the NIST Institute was cut 50 percent to $10 million; the five DOE Institutes continued to receive $70 million; the eight DOD Institutes received $133.8 million; and the DOC institute received $5 million for coordination, as authorized. Congress must still develop a plan for sustaining existing Institutes and for creating new Institutes as mandated in the original authorization of the program.

In FY18, Congress made the **Manufacturing Engineering Education Program (MEEP)** eligible for funding as part of the funds appropriated for manufacturing initiatives under the National Defense Education Program and the Defense-Wide Manufacturing Science and Technology Program. The FY17 National Defense Authorization Act sanctioned MEEP, allowing universities, nonprofit institutions, and industry to develop manufacturing-focused curriculum, workshops, trainings, and job placement activities.