

THE WHITE HOUSE
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FACT SHEET & REPORT: President Obama Announces New Pen and Phone Actions to Spur Innovation and Entrepreneurship to Revitalize American Manufacturing

U.S. manufacturing is on the rise, and the U.S. manufacturing sector is as competitive as it has been in decades for new jobs and investment. The manufacturing sector has added 646,000 jobs since February 2010, the fastest pace of job growth since the 1990s. And this week, President Obama will outline new actions to accelerate an emerging trend in U.S. manufacturing: new technologies and entrepreneurship in manufacturing that are providing advantages for the United States and helping hardworking Americans get ahead.

Attached is a new White House report, *Making in America: U.S. Manufacturing Entrepreneurship and Innovation*, that demonstrates how new game-changing technologies are reducing the cost, increasing the speed, and making it easier for entrepreneurs and manufacturers to translate new ideas into products Made in America. These new technologies are already having an impact, with the growth rate in manufacturing entrepreneurship at its fastest pace in over 20 years.

Today, the Obama Administration is announcing new actions by the Federal government and new commitments from Mayors and local leaders around the country who, following the President's call to action, are investing locally in manufacturing. On Wednesday, the President will host the first-ever White House Maker Faire, where he will announce new actions by Federal agencies and new public-private commitments to spur local entrepreneurship and inspire young people to pursue careers in manufacturing and engineering.

New Actions Announced Tuesday

- **Communities stepping up to support manufacturing entrepreneurship.** Responding to the President's call to action, more than 90 Mayors and local leaders have committed to the 'Mayors Maker Challenge' to expand access to physical locations and new manufacturing and prototyping equipment in their communities, spur manufacturing entrepreneurship, and inspire young people to pursue careers in manufacturing and engineering.
- **Streamlining access to over \$5 billion worth of advanced equipment in over 700 R&D facilities available to entrepreneurs.** The Administration is helping manufacturing entrepreneurs access more than \$5 billion worth of advanced equipment in federal R&D facilities that they may use to develop new technologies and launch new inventions. For example, entrepreneurs may be able to access NASA's National Center for Advanced Manufacturing to produce the high-strength, defect-free joints required for cutting-edge aeronautics, and DOE's Manufacturing Demonstration Facility at Oak Ridge National Laboratory for collaborative projects in additive manufacturing, composites and carbon fiber, and other leading clean energy technologies.
- **Expanding investment in the Materials Genome Initiative to ensure U.S. leadership in inventing and manufacturing advanced materials.** Five Federal agencies will invest more than \$150 million in ground-breaking research to support the Materials Genome Initiative, upping the Administration's investment in the manufacturing of game-changing advanced materials. The Materials Genome Initiative is a public-private endeavor that aims to cut in half the time it takes to develop novel materials that can fuel advanced manufacturing and bolster the 21st century American economy.

Background: New Actions to Support the Revitalization of U.S. Manufacturing

To augment and capture the momentum in manufacturing innovation and entrepreneurship, the Administration has made spurring innovation in U.S. manufacturing a core priority of its manufacturing agenda. Through these investments and a continued focus on strengthening domestic production, the Administration is laying the foundation for a revitalized U.S. manufacturing sector. By spurring innovation and entrepreneurship in manufacturing, we can shore up the central pillar of America's innovation enterprise.

- Through the National Network for Manufacturing Innovation – with four hubs already and four more on the way – the Administration is bringing together private industry, leading universities, and public agencies to co-invest in emerging technologies like additive manufacturing, lightweight materials, next-generation

power electronics, and digital design and fabrication and to develop the skills our workers need to provide ongoing American leadership in manufacturing.

- Across Federal agencies, the Administration has supported an increase in federal investment in manufacturing R&D by 35 percent in just three years – from \$1.4 billion in 2011 to \$1.9 billion in 2014.

New Actions Announced Today

➤ Recognizing more than 90 Mayors and community leaders who are responding to the President's Call to Action as part of the Mayors' Maker Challenge to expand access to innovative manufacturing technologies and grow the Maker movement in their communities:

- Mayors and community leaders from around the country have recognized the value of new innovative tools for production and the Maker movement for manufacturing entrepreneurship, STEM education, and inspiring the next generation manufacturing workforce.
- Spearheaded by the Manufacturing Alliance of Communities, Mayors have come together to support expanded access and education around these technologies in communities as diverse as:
 - Lansing, MI, which has appointed an urban manufacturing coordinator to support the expansion of making with the city, to
 - Pittsburgh, PA, which has launched a new generation of hardware startups and is engaging students in new STEM learning at its libraries, to
 - Raleigh, NC, which has opened up new design and technology innovation centers for the community
- Each of these Mayors has stepped up to expand Making in their communities. You can view the full list of Mayors and read more about their efforts in the Manufacturing Alliance of Communities' report.

➤ Helping manufacturing entrepreneurs discover, access, and use the more than \$5 billion worth of research, prototyping, and testing equipment and expertise included in over 700 Federal R&D facilities.

- The Administration is upgrading [Data.gov/research](https://data.gov/research) to include, for the first time in one place, machine-readable data on over 700 Federal R&D

facilities that may be utilized by external entrepreneurs and innovators to research, prototype, and test new technologies in manufacturing and other industries. These facilities, operated by agencies including DOE, NASA, and NIH, include cutting-edge research tools and together represent over \$5 billion dollars of taxpayer investment. For example, entrepreneurs may be able to access NASA's National Center for Advanced Manufacturing to produce the high-strength, defect-free joints required for cutting-edge aeronautics, and DOE's Manufacturing Demonstration Facility at Oak Ridge National Laboratory for collaborative projects that involve additive manufacturing, composites and carbon fiber, and other leading clean energy technologies.

- Over time, [Data.gov/research](https://data.gov/research) will expand to include more comprehensive data on other R&D assets available to manufacturing entrepreneurs, including federally funded intellectual property (IP). Moreover, as part of the President's Management Agenda and Lab-to-Market initiative, the Administration will continue to accelerate and improve the transfer of new technologies from the laboratory to the commercial marketplace, including by reducing the time, cost, and complexity of licensing Federal IP and utilizing Federal R&D facilities, where appropriate and consistent with the agency's mission.
- Today, the Administration is issuing a call to the developer community and other stakeholders to leverage these open government data resources to build tools that will enhance the ability of innovators, entrepreneurs, and manufacturers to utilize available Federal R&D facilities and other resources.
- Launching a \$150M expansion of the Materials Genome Initiative to deliver new domestic manufacturing capabilities for advanced materials, providing a foundation for ongoing U.S. leadership.
 - Five Federal agencies will invest more than \$150 million in ground-breaking research to support the Materials Genome Initiative, upping the Administration's investment in the manufacturing of game-changing advanced materials and building on the progress made since the MGI was launched by President Obama in June 2011.
 - Since its launch in 2011, the Federal government has invested over \$250 million in the Materials Genome Initiative – funding new R&D and innovation infrastructure to build U.S. leadership in advanced materials – from carbon fiber to electronic materials to new polymers – that are essential for modern manufacturing. Early milestones include:

- A \$25 million multi-stakeholder NIST Center of Excellence, focusing on the development of industrially ready advanced materials in emerging fields as diverse as self-assembled biomaterials, organic photovoltaic materials, advanced ceramics, and novel polymer and metal alloys for structural applications.
 - Support from the DOD, DOE and NSF to over 500 research scientists across 80 companies, 60 universities, and 8 national labs – defining the cutting edge in materials innovation and developing new tools in computation, instrumentation, and data science to compress the time to discover and deploy new materials to market.
 - Two DOD-sponsored collaborative partnerships to engineer and produce high performance industrial components within highly constrained environments in both composite and superalloy materials. Industrial participation includes: GE, Lockheed Martin, Autodesk, Convergent Materials, Pratt & Whitney, Rolls-Royce Corporation, Honeywell, Boeing, and ATI-Ladish.
- The Materials Genome Initiative is a public-private endeavor that aims to cut in half the time it takes to develop novel materials that can fuel advanced manufacturing and bolster the 21st century American economy. Stay tuned later this week as more executive actions, including a new report on progress and future plans, are unveiled for the third anniversary of the Initiative.

Background: New White House National Economic Council Report – Making in America: U.S. Manufacturing Entrepreneurship and Innovation

- **U.S. manufacturing plays an outsized role in supporting and driving American innovation.** Manufacturing represents 12 percent of U.S. GDP, yet accounts for 75% of all U.S. private sector research and development, and the vast majority of all patents issued in the United States.
- **U.S. manufacturing is more competitive than it has been in decades.** Manufacturing output has increased 30% since the end of the recession, growing at roughly twice the pace of the economy overall, the longest period where manufacturing has outpaced U.S. economic output since 1965.
 - Since February 2010, the United States has directly added 646,000 manufacturing jobs, with the sector expanding employment at its fastest rate in nearly two decades. In addition, manufacturing supports millions of

additional jobs across its supply chain and in the communities where it locates.

- The United States' renewed competitiveness in manufacturing is bringing production back. Fifty four percent of U.S.-based manufacturers surveyed by the Boston Consulting Group are actively considering bringing production back from China to the United States, up from 37 percent only 18 months prior.
- Global executives surveyed by AT Kearney across all industries and geographies ranked the U.S. as the #1 destination for business investment for the second year in a row. Due to a highly productive workforce, sizeable and transparent markets, low-cost energy, and our historic lead in innovation, the United States is once again the leading destination for business investment.
- **New technologies are lowering the cost and reducing the time required for businesses and entrepreneurs to design, test, and produce new products.** Advances in new technologies for rapid prototyping – from laser cutters to CNC routers to 3D printers – have placed a premium on locating close to American markets, and opened new doors to entrepreneurship and innovation in manufacturing. These new technologies can dramatically lower the cost of prototyping in manufacturing, costs that historically have been a barrier to manufacturing startups and to rapid customization at established companies.
- **These emerging technologies and the renewed focus on manufacturing innovation, while nascent, are already spurring change in U.S. manufacturing.** Manufacturers have accelerated investment in research and development, while entrepreneurs in manufacturing are starting new businesses at the fastest rate in over 20 years.
 - Entrepreneurship in U.S. manufacturing is on the rise, with the rate of growth in manufacturing entrepreneurship at its fastest pace since 1993: The rate of growth in new manufacturing firm openings, a leading indicator of entrepreneurship, has reached its highest levels since 1993. And for the first time since 1999, the number of manufacturing establishments is growing, as new companies form and existing companies branch out into new factories, with more than 1,400 new establishments opening in 2013.
 - American manufacturers have accelerated investments in U.S. innovation. Manufacturers represent 75 percent of total annual U.S. private sector investment in R&D, having reached an all-time high of \$202 billion in 2012, as a result of an acceleration in U.S. R&D intensity from 2007 to now. Established manufacturers, like Ford and GE, are taking advantage of new technologies like rapid prototyping networks to develop new products and increase the rate of innovation within their firms.

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