

Middle Class Economics: Investing in American Innovation

The President's 2016 Budget is designed to bring middle class economics into the 21st Century. This Budget shows what we can do if we invest in America's future and commit to an economy that rewards hard work, generates rising incomes, and allows everyone to share in the prosperity of a growing America. It lays out a strategy to strengthen our middle class and help America's hard-working families get ahead in a time of relentless economic and technological change. And it makes the critical investments needed to accelerate and sustain economic growth in the long run, including in research, education, training, and infrastructure.

These proposals will help working families feel more secure with paychecks that go further, help American workers upgrade their skills so they can compete for higher-paying jobs, and help create the conditions for our businesses to keep generating good new jobs for our workers to fill, while also fulfilling our most basic responsibility to keep Americans safe. We will make these investments, and end the harmful spending cuts known as sequestration, by cutting inefficient spending and reforming our broken tax code to make sure everyone pays their fair share. We can do all this while also putting our Nation on a more sustainable fiscal path. The Budget achieves about \$1.8 trillion in deficit reduction, primarily from reforms to health programs, our tax code, and immigration.

Creating jobs that pay good wages is the best way to grow our economy and the middle class. To compete in the 21st Century economy and make America a magnet for job creation and opportunity, we need to invest in American innovation, strengthening our manufacturing base and keeping our Nation at the forefront of technological advancement. And to ensure our energy security and address global climate change, we must continue to focus on domestic energy production, the development of clean energy alternatives, and the promotion of energy efficiency. The Budget therefore includes investments in advanced manufacturing, research and development (R&D), and clean energy and energy efficiency technologies.

Making America a Magnet for Jobs. The President is committed to making America a magnet for jobs and manufacturing so that we can create new opportunities for American workers.

- *Transforming Communities into World-Leading Centers of Advanced Manufacturing.* To support investment and accelerate innovation in U.S. manufacturing, the President has called for investments to launch more regional manufacturing innovation institutes across the country and expand the National Network for Manufacturing Innovation. Leveraging the strengths of a particular region, each institute brings together companies, universities and community colleges, and government to co-invest in the development of world-leading manufacturing technologies and capabilities strengthens the competitiveness of U.S. manufacturing for jobs and investment. The Budget builds on the Administration's progress to date, with nine manufacturing innovation institutes underway, and on the bipartisan legislation passed in December that authorizes a network of institutes, to fund a national network of manufacturing institutes that will position the United States as a global leader in advanced manufacturing technology. Specifically, the Budget provides \$350 million in additional discretionary funds in 2016 to support seven new manufacturing institutes at the Departments of Commerce, Agriculture, Defense, and Energy, as well as funds for ongoing support of the nine underway.. With these seven new institutes, the national network will surpass 15 institutes by the end of

the President's term and put the Nation on pace to achieve the President's vision of a full network of 45 institutes over a decade. The Budget includes a mandatory spending proposal of \$1.9 billion to fund the remaining 29 institutes.

- *Expanding SelectUSA to Attract Investment to Our Shores.* In 2011, the President launched SelectUSA at the Department of Commerce, creating the first Federal effort to actively attract and retain business investment in the United States. Building on the \$10 million provided in the 2015 Appropriations Act, the Budget supports the President's proposal to significantly expand and enhance SelectUSA, using a whole of Government approach.
- *Helping New Innovative Manufacturing Technologies Reach Commercial Viability.* The Budget also calls on the Congress to work together with the President to launch the \$10 billion public-private, Scale-Up Manufacturing Investment Fund to help emerging American-made advanced manufacturing technologies reach commercial scale production, so that if a technology is invented in the United States, it can be made in the United States. To address the gap in financing for these new manufacturing firms, the Budget proposes a \$10 billion public-private investment fund, with \$5 billion of public investment matched by \$5 billion or more of private funds. Administered by the Small Business Administration, the Scale-Up Manufacturing Investment Fund will encourage more private investment in the first commercial production facilities for American-made technology intensive manufacturing start-ups. These funds will help entrepreneurial firms secure capital to scale from idea to prototype, and into full commercial production.
- *Providing Incentives for Manufacturing and Insourcing.* Recent productivity growth has made the U.S. more competitive in attracting businesses to invest and create jobs by reducing the relative cost of doing business compared to other countries. But further progress is possible. That's why the Budget creates a tax incentive to bring offshore jobs and investments back into the U.S., and reduces tax benefits in current law for expenses incurred to move U.S. jobs offshore. In addition, because the loss of a major employer can devastate a community, and incentives could encourage investments that help such communities recover more quickly, the Budget provides a tax credit for these communities to spur re-investment and economic revitalization.
- *Facilitating the Availability of Next-Generation Wireless and Wired Broadband.* High-speed wired broadband and fast, reliable mobile connectivity are essential for new business formation, economic growth, advances in health care and energy independence, and robust democratic discourse. The Budget proposes expanding the availability and speed of wireless data by making more spectrum available for broadband, through authorizing targeted uses for the Spectrum Relocation Fund that compensates Federal agencies for the costs of relocating their operations from spectrum bands so they can be repurposed for commercial use via auction. This would facilitate more efficient spectrum usage by Federal agencies and accelerate progress towards the President's goal of making available an additional 500 megahertz of spectrum for commercial use by 2020. The Budget also expands broadband competition and access by more than doubling funding for BroadbandUSA, from \$3 million to \$6.7 million, at the Department of Commerce's National Telecommunications and Information Administration. BroadbandUSA supports deployment of new community broadband systems through online and in-person technical assistance, regional workshops, and guides and tools providing proven solutions to problems in broadband planning, financing, construction, and operations. Through

USDA's Rural Utilities Service, the Budget also doubles funding for broadband access in hard-to-serve rural areas where broadband access can mean access to jobs, new markets, and increased productivity.

Investing in Research & Development. America's long-term economic competitiveness and growth -- including sustaining efforts to grow domestic manufacturing -- also depend on robust investments in research and development (R&D), which provide the foundation needed to further grow the economy. Federal funding for R&D has helped lead to new products, new capabilities, and new industries, resulting in sustainable economic growth and highly-skilled, high-wage jobs, as well as the creation of an astounding array of products and services that benefit every American. Today, we look to engineering and science to address our biggest challenges: creating jobs; improving the health of all Americans; enhancing access to clean energy, water, and food; addressing global climate change; managing competing demands on environmental resources; and ensuring the security of the Nation. Continuing our commitment to world-class science and research, the Budget provides \$146 billion for R&D overall, a \$8 billion or 6 percent increase from 2015 enacted levels. The Budget targets resources to areas most likely to directly contribute to the creation of transformational knowledge and technologies that can benefit society and create the businesses and jobs of the future; the Budget provides \$67 billion for the basic and applied research (the "R" in R&D), a \$2 billion or 3 percent increase from 2015 enacted levels. The Budget targets investments in several key R&D priorities:

- *Basic Research.* To continue the cutting-edge R&D that is essential to U.S. innovation and economic competitiveness, the Budget provides the DOE's Office of Science with over \$5.3 billion and the National Science Foundation (NSF) with over \$7.7 billion. These investments support ground-breaking research and world-leading facilities across fields of science and engineering, including advanced manufacturing, clean energy, climate science, information technology, and life science. The Budget also provides \$755 million for the National Institute of Standards and Technology (NIST) laboratories. The Budget increases total funding for these three key basic research agencies by \$0.7 billion over the 2015 level.
- *Advanced Manufacturing.* In the area of manufacturing, the Budget will support the development and scaling of new advanced manufacturing technologies, helping smaller manufacturers adopt new technologies to increase their competitiveness, and accelerating the transfer of new technologies from Federal labs to industry. The Budget provides the Department of Energy's (DOE's) Advanced Manufacturing Office over \$400 million to develop and help commercialize emerging energy-efficient and cross-cutting clean energy manufacturing technologies, including funding for clean energy Manufacturing Innovation Institutes. DOE's efforts help strengthen U.S. competitiveness and increase industrial energy productivity. More broadly, the 2016 Budget provides \$2.4 billion for Federal R&D directly supporting advanced manufacturing at NSF, DOD, DOE, DOC, and other agencies, consistent with the goals and recommendations of the National Strategic Plan for Advanced Manufacturing.
- *Health Care R&D.* The Budget provides \$31.3 billion to support biomedical research at the National Institutes of Health (NIH), an increase of \$1 billion over 2015, providing about 10,000 new NIH grants that will help us better understand the fundamental causes and mechanisms of disease. The Budget provides increased resources for Alzheimer's, cancer and other diseases that affect millions of Americans and includes \$135 million for NIH's contribution to the multi-agency BRAIN Initiative that is helping to revolutionize our understanding of the human brain.

The Budget also provides over \$450 million for NIH to support research on combating antibiotic-resistance, as part of a \$1.2 billion government-wide investment by HHS agencies, DOD, VA, and USDA on combating antibiotic-resistant bacteria.

- *Precision Medicine Initiative.* The Budget also includes \$215 million at three HHS agencies (NIH, FDA, and ONC) to launch a Precision Medicine initiative that will accelerate our ability to develop prevention, diagnostic and treatment approaches tailored to individual patients. The Budget will support key components of the Precision Medicine initiative, such as initiating a national research group of a million or more Americans, expansion of research to define cancer subtypes and identify new therapeutic targets, modernizing the regulatory framework for DNA-sequence-based diagnostic tests, and enhancement of patient-generated electronic data with appropriate protections.
- *Agriculture R&D.* The Budget recognizes the importance of science and technology to meet challenges in agriculture, and provides significant investment increases in three major areas of agricultural R&D. Competitive grants are funded at \$550 million to support extramural research grants through the Department of Agriculture's (USDA) flagship Agriculture and Food Research Initiative, for advanced manufacturing public-private institutes addressing opportunities in biobased manufacturing, and for a new program to provide competitive support to land grant institutions. USDA's in-house research programs are funded at \$1.19 billion, which includes increases for current and new programs in climate change resilience and vulnerability, agricultural sustainability (e.g. vertical agriculture), transformational genetics, antimicrobial resistance and pollinator health, as well as major investments in the repair and maintenance of USDA laboratories to increase their lifespan and respond to health and safety issues. Lastly, \$206 million in key infrastructure investments fully funds USDA's five highest laboratory construction and renovation needs, including the poultry biosafety and laboratory consolidation in Athens, GA.
- *Supporting Private-Sector R&D by Reforming and Making Permanent the Research and Experimentation Tax Credit.* The Research and Experimentation (R&E) Tax Credit is an important Federal incentive for private-sector R&D. But the R&E Tax Credit is less effective than it could be in spurring additional R&D because it is complicated and temporary. Currently, businesses must choose between using a complex, outdated formula that provides a 20 percent credit rate and a much simpler one that provides a 14 percent credit rate. The Budget would create a single formula with an 18 percent credit rate, which would make it more attractive and simplify tax filing for businesses. In addition, the Budget makes the R&E credit permanent to provide certainty and increase effectiveness.

Investing in Homegrown Clean Energy. In order to secure America's energy future and cut carbon pollution to protect our children from the impacts of climate change, the Budget strongly invests in clean energy, improving energy security, and enhancing preparedness and resilience to climate change. For example, increased funding is proposed for clean energy technology investment at the Department of Energy, supporting efforts to increase the affordability and convenience of advanced vehicles and domestic renewable fuels, advance technologies to improve the efficiency of the residential and commercial buildings of today and tomorrow, and make energy systems more easily integrated into the electric grid. These investments support components of the President's Climate Action Plan, helping to expand American leadership in the clean energy economy with new businesses, jobs, and opportunities for American workers.