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**FACT SHEET: New Commitments in Support of the President's
Nation of Makers Initiative to Kick Off 2016 National Week of Making**

"During National Week of Making, we recommit to sparking the creative confidence of all Americans and to giving them the skills, mentors, and resources they need to harness their passion and tackle some of our planet's greatest challenges."

-- President Obama

In June 2014, President Obama launched the Nation of Makers initiative, an all-hands-on-deck effort to give many more students, entrepreneurs, and citizens access to a new class of technologies – such as 3D printers, laser cutters, and desktop machine tools – to design, build, and manufacture just about anything, as well as increased access to mentors, spaces, and resources to support making.

Today, the President is proclaiming a National Week of Making, and the Obama Administration is announcing important progress on the Nation of Makers initiative, including:

- 8 Federal agencies are announcing new grants, education initiatives, training, knowledge networks, and other supports to help create more makers and assist more entrepreneurs to take prototypes to scale with new ventures.
- More than 1,400 K-12 schools, representing almost 1 million students from all 50 states, are committing to dedicating a space for making, designating a champion for making, and having a public showcase of student projects.
- More than 100 additional commitments including the distribution of 1 million foldable microscopes to children around the world by **Foldscope Instruments**; the investment in 100 new makerspaces by **Google** as part of the *Making Spaces* program; and new steps to support making at 77 universities and colleges through **Make Schools Alliance**.

Background

America has always been a nation of tinkerers, inventors, and entrepreneurs. In recent years, the rise of the maker movement and growing community of self-identified

makers have come to represent a huge opportunity for the United States. In the same way that the Internet and cloud computing have lowered the barriers to entry for digital startups, the democratization of the tools needed to design and prototype physical products can support entrepreneurship and a renaissance of American manufacturing.

Tools such as 3D printers, desktop machine tools, and tools for digital design are becoming more powerful, less expensive, easier to use, and more widely available through shared spaces. These trends, when combined with crowdfunding and online communities of practice, are empowering tinkerers, entrepreneurs, and companies to transform an idea from a drawing on the back of a napkin to a working prototype faster than ever before.

Public and private investments focused on increasing access to modern tools, shared facilities, and manufacturing-specific curricula will contribute to the right conditions for even more entrepreneurs to join a renaissance of American manufacturing and hardware innovation.

At its core, making involves higher-order reasoning and problem-solving skills as well as individual and collaborative project-based learning, all of which instill the employability and technical skills that are needed in tomorrow's workplace. Additionally, the "maker mindset" actively fosters dispositions and skills which have inherent value, such as curiosity, collaborative problem-solving, and self-efficacy. By helping students experience hands-on science, technology, engineering, and math (STEM) learning and real-world problem solving, making can spark deep interest and develop the necessary passion for students to excel in the 21st century.

Details on National Week of Making

Today, President Obama is proclaiming June 17-23 the National Week of Making. During the week, which marks the anniversary of [the first-ever White House Maker Faire](#) and the [2015 National Week of Making](#), hundreds of related events celebrating home-grown ingenuity will be taking place around the country in recreation centers, libraries, museums, schools, universities, and community spaces.

The week will coincide with a **National Maker Faire** in Washington, D.C. June 18 - 19, organized by a broad range of national and local organizations on the University of the District of Columbia campus. The National Maker Faire will include participation from **Department of Agriculture, Department of Energy, Department of the Navy (Navy), Institute of Museum and Library Services, National Aeronautics and Space Administration (NASA), National Endowment for the Arts, and National Institute of Standards and Technology (NIST).**

In addition, a growing community of organizations are participating in and supporting National Week of Making, including:

- **America Makes**, together with **the City of Dayton, OH** and **Sinclair Community College**, is planning a Maker Mayors and Innovation Cities Convening with key leaders from over 15 cities to develop local and regional roadmaps for advancing 3D printing in the participating cities.
- **Backyard Brains** will host a "TechTrek" event in downtown Ann Arbor, MI, with 10 live hands-on neuroscience experiments for local students to develop low-fi versions of graduate-level research tools relating to the brain and neuroscience.
- **Elizabeth Forward High School**, in partnership with the **Grable Foundation**, will host 140 K-12 educators for the free 2016 Pittsburgh FAB Institute.
- **The Exploratorium's Tinkering Studio** will launch "Tinkering Fundamentals: A Constructionist Approach to STEM Learning," a massive open online course (MOOC) free for anyone interested in making and tinkering.
- **GE Appliances** and **FirstBuild** will provide 20,000 career and technical education (CTE) students, advisors, and business participants access to an interactive makerspace experience that will demonstrate how different skills can come together in the workforce.
- **NASA** will print a Multipurpose Precision Maintenance Tool, the winning design from the first "Future Engineers" 3D printing challenge, on the International Space Station and host a live Q&A between the designer and the astronauts on the space station.
- **LittleBits** will host a free online summer camp during the National Week of Making with daily challenges, in-person events, and prizes for young inventors.
- **Yale University** will launch "Making at Yale!" – a new workshop series serving the youth and community of New Haven, CT.

New Steps Announced by the Administration Today

Federal agencies are announcing an array of new steps to deepen their connections with the maker movement, help more makers take their ideas and prototypes to scale, and help more communities get involved. These include:

- **The Department of Education (ED) and Alliance for Excellent Education** are announcing the launch of **Future Ready Librarians**, an expansion of the **Future Ready** initiative aimed at raising awareness among district and school leaders about the valuable role librarians can play in supporting the Future Ready goals of their school and district. Among other critical roles, Future Ready Librarians design

collaborative library spaces that enable open-ended exploration, tinkering, and making that empower students as creators, and will serve as digital learning coaches who work side by side with teachers. In addition, a network of nationally recognized librarians, with support from Follett, will provide input on the development of strategies aligned with the Future Ready Framework, and five Future Ready Summits will be held in regional locations throughout the country and will include librarian-designed and facilitated sessions for district leadership teams on designing collaborative learning spaces.

- **The Navy-led Joint Advanced Manufacturing Region IPT (JAMR IPT) is launching a Maker Mentor Initiative.** The effort, in conjunction with the **Open Source Maker Labs** and other **JAMR IPT** members, will create a national public registry where experienced manufacturers may volunteer to serve as technical subject matter experts and mentors for makers interested in manufacturing their prototypes.
- **The Department of Veterans Affairs (VA) Center for Innovation is collaborating with 3D Veterans to train Veterans in using 3D printing techniques.** The effort will launch with a pilot program in San Antonio, training 15 Veterans over 3 months with the tools and skills associated with additive manufacturing. These Veterans will also collaborate with clinicians at San Antonio VA Medical Center to co-design prototypes of 3D printed assistive technology devices for Veterans with disabilities. At the end of the curriculum, seed funding will be available to Veterans for additional prototyping and commercialization of these devices.
- **The Food and Drug Administration (FDA) will help more makers navigate its regulatory process** by the end of 2016. Starting with medical devices, FDA will release streamlined web resources with early-assistance content to enable makers and other potential first-time entrepreneurs to navigate the regulatory landscape and facilitate early and ongoing interaction between the FDA and industry, small businesses, and entrepreneurs. Early and frequent interaction facilitates innovations that provide safe and effective care for patients and smoothing the pathway for these innovations to reach the medical market.
- **NASA will expand the CubeSat Launch Initiative to reach all 50 states.** NASA commits to expanding opportunities for schools to build and launch small satellites through the CubeSat Launch Initiative – an opportunity for makers to build small satellites to demonstrate new innovative technologies and conduct scientific research in a space environment – until schools from all 50 states are successfully engaged. This builds on NASA’s work with 32 states already engaged to launch

small satellites, including new states New Jersey and Idaho selected in 2016. It also includes launches in 2015 of the first CubeSat from the state of Alaska, the first CubeSat built by a tribal college, **Salish Kootenai College** in Pablo, Montana, and the first CubeSat built by an elementary school, **St. Thomas More Cathedral School** of Arlington, Virginia.

- The National Science Foundation (NSF) will introduce a new “Maker to Manufacturer” category in their third annual Community College Innovation Challenge. Launching this fall, this category will focus on developing the hardware, software, collaborative systems, and educational tools necessary to “democratize” small-scale manufacturing for the maker community, building on advances that have already occurred in the cost and ease-of-use of tools to digital design and prototyping.
- NSF’s Small Business Innovation Research and Small Business Technology Transfer program will introduce a new “Maker to Manufacturer” subtopic to its existing solicitation. NSF will seek proposals focused on innovative, high-risk technologies that hold the potential to enable small-, medium-, and large-volume manufacturing of cutting-edge, high-value added products leveraging the maker movement.
- NIST will help more makers to scale production. NIST is committing up to \$2 million of existing funds for **Manufacturing Extension Partnership (MEP) Program Centers** to develop consulting and hands-on technical services in direct support of makers interested in scaling prototypes through U.S. manufacturing services, including assistance in selection of manufacturing process, materials, and suppliers.
- The U.S. Patent and Trademark Office (USPTO) will take steps to support makers and maker educators. USPTO is committing to working regionally along with its Patent and Trademark Resource Centers (PTRCs) across the nation to provide workshops and support for Makers, work with the YMCA to create mobile maker spaces and provide Maker Ambassadors to support students in those spaces, and help educators more easily integrate making into classrooms through the USPTO National Teacher Institute.

In addition to these commitments, Federal agencies are taking other actions. For example, agencies will form a new interagency working group on making under the National Science and Technology Council to catalog existing collaborations between Federal agencies and the maker community, as well as to identify promising practices or methods to build support for collaborative maker projects inside the Federal Government.

Additional Commitments in Response to the President's Call to Action

Today, more than 1,500 different organizations are announcing new commitments, demonstrating the strong response to the President's call to give every student, every entrepreneur, and every American the opportunity to tinker, design, and bring their ideas to life.

Creating More Makerspaces

At the turn of 20th century, Andrew Carnegie gave away \$60 million – \$1.5 billion in today's dollars – to build 2,500 community libraries across America. That investment sparked a movement to build and sustain public libraries in nearly every neighborhood and school. It gave Americans of all means access to the knowledge economy and preparedness for the century that lay ahead. Today, our Nation faces a similar inflection point, where access to spaces with the right tools and mentors will help level the playing field for all Americans, particularly for girls and under-represented minorities.

- More than 1,400 schools, representing almost 1 million students from all 50 states are signing the *Maker Promise*. Developed in collaboration with **Digital Promise** and **Maker Ed**, *Maker Promise* is a pledge by a K-12 school leader to support the students in his or her school or district by taking three concrete steps: (1) dedicating a space for making; (2) designating a champion for making; and (3) hosting a public showcase of what the students made. With support from **Chevron** and **Google**, Digital Promise and Maker Ed are also launching a national network of *Maker Promise* schools with professional development guides, safety kits, storytelling tools, and other resources. As part of *Maker Promise*, Digital Promise and Maker Ed are also collaborating with the **Department of Education's** Career and Technical Education (CTE) MakeOver Challenge, which launched earlier this year and has already received entries from more than 600 schools. A few example actions include:
 - **Albemarle County Public Schools** in Charlottesville, VA will extend its integrated maker learning across 26 schools and release an open-source resource and video stories for other educators around the country.
 - **Avonworth School District** in Allegheny County, PA will create a Maker Education Specialist position in partnership with the Children's Museum of Pittsburgh to further scale making in the district serving 1,600 students and the region through teacher training, outreach, and program development. As a result of this initiative, the Children's Museum of Pittsburgh will research and publish findings on engagement and making in the formal education.

- **Baltimore County Public Schools** in Baltimore County, MD will launch a Mobile Innovation Lab to support access for maker learning opportunities to over 110,000 students in 175 schools and programs districtwide.
- **Deerfield Public School District 109** in Deerfield, IL is committing to opening a new makerspace, called SmartLabs, in August 2016, which will serve more than 2,000 of its elementary school students and its teachers.
- **Enlarged City School District of Middletown**, in Middletown, NY will create over 43,000 square feet of dedicated spaces by September 2017 to create three new all-purpose makerspaces, four new engineering and fabrication labs, and a new biomedical lab. Additionally, the district will create a dedicated daily block of time for collaborative maker projects for more than 2,200 students.
- **Fort Cherry School District** in McDonald, PA will create a Fabrication Lab that will provide space for creative ideation, prototyping, and digital fabrication for more than 1,050 students from its rural community in grades K-12.
- **Fox Chapel Area School District** in Pittsburgh, PA, will integrate making into its computer science curriculum for more than 2,000 elementary school students, including the student-created and facilitated program, Code to Create.
- **Holland Christian Schools** in Holland, MI will create a new staff position called Maker Coordinator and commits to launching new makerspace with access for all of its students Pre-K through 6th grade by June 2017.
- **Iowa City Community School District**, with support from the **Iowa City Community School District Foundation**, will open makerspaces in each of its six secondary attendance centers. The pedagogical approach at each school will incorporate a creation station, mobile makerspace, and visiting “makers” and experts from the field.
- **Madison Cross Roads Elementary School** in Toney, AL will expand its “Thinking Outside the Box” Initiative to every student in the district receives a design-thinking starter kit with tools and materials by June 2017.
- **Mentor Public Schools** in Mentor, OH will create new makerspaces in one middle school and one high school by the beginning of 2016-2017 school year.
- **Ravenswood City Elementary School District** in East Palo Alto, CA will open a new makerspace in fall 2017 and will develop new curriculum to integrate making into Common Core and Next Generation Science Standards.
- **South Eastern School District** in York County, PA is committing to establishing makerspaces in each of its six schools during the 2016-17 school year, which will serve 2,800 students. The district will also host at least two community build events for the surrounding York County region.

- **South Fayette School District** in McDonald, PA will complete the building of makerspaces in all schools, offer professional development in maker education in the region through the STEAM Innovation Summer Institute, and embed maker experiences in the curriculum for all students, such as every 2nd grader making their own computer using a Kano Raspberry Pi.
- **Vancouver Public Schools** in Vancouver, WA commits to implementing Learning Studio, with support from **HP, Microsoft** and **Digital Promise Global**, to make digital design tools available in support of monthly student design challenges and sharing student projects online.
- **Vista Unified School District** in Vista, CA will add maker spaces at all the district's 23 elementary and middle schools, serving more than 15,000 students.
- **West Contra Costa Unified School District** in Contra Costa County, CA will launch a Fab Lab at Crespi Middle School in fall 2016 and create additional STEM curriculum.

In addition to the CTE MakeOver Challenge and the *Maker Promise* commitments by schools and districts, an array of communities, companies, and other organizations are taking steps to create and repurpose existing space – from recreation centers to libraries to rooms within schools – with requisite tools, helpful experts, and inclusive community support.

- **4.0 Schools** will equip up to 100 aspiring founders to launch pop-up versions of learning spaces, from makerspaces to recreation centers to coding labs. Up to 30 of these founders will be equipped with coaching, \$10,000 in capital, and community support to grow these pop-ups into ten-student pilot programs in the next year.
- **American Forests**, together with the **U.S. Forest Service**, will create a Green Cities Lab in fall 2016 to showcase the importance of trees and other vegetation to cities, help urban leaders and advocates access research, share promising practices, and tap into local maker community to create innovative urban greening initiatives.
- **Chevron** is announcing that an additional \$3 million in cash and in-kind support has been raised to further support their original 2014 commitment to create fab labs in the United States. These contributions support the addition of three fully equipped mobile labs and additional programs to allow students in more communities to get access to making.
- **City of Pittsburgh**, the **Sprout Fund**, and organizations from the **Remake Learning Network** will work together to reimagine Pittsburgh's recreation centers as

accessible neighborhood-based places for technology-enhanced learning. By May 2017, this partnership will yield a community plan, site-specific curriculum, renderings and space designs, and a demonstration effort.

- **Fab Foundation** will support the opening of 12 new fab labs over the next year, reaching 20 more communities across the United States and introducing approximately 20,000 individuals to making and digital fabrication over the next year.
- **Google** is partnering with **MakerEd** and the **Children’s Museum of Pittsburgh** to award \$1 million over the next two years to schools, libraries, non-profits, and recreation and community centers to build more than 100 new makerspaces as part of a new *Making Spaces* program.
- **Horizons Greater Washington** will launch this summer three new makerspaces in the Washington D.C. and Maryland area, with the goal of serving 360 underserved youth in grades K-9 during afterschool time.
- **Makerspaces.com** will launch a "Make a Makerspace" initiative, through which it will provide training, consulting, resources and other supports to schools and libraries interested in creating an educational makerspace.
- **National Recreation and Park Association**, representing over 50,000 local parks and recreation professionals, will launch a “Rec-to-Tech” campaign to help more of its members know how to convert underutilized recreation centers into technology-center makerspaces. For 2016-2017, this will include developing and sharing a curriculum and best practices guide on making Rec-to-Tech a core function of all neighborhood-based recreation centers, highlighting examples through its publications, and providing training to its 50,000 members at the NRPA conference.
- The **Teaching Institute for Excellence in STEM (TIES)** will partner with **Toyota** and **California State University, Dominguez Hills (CSUDH)** to bring four mobile digital fabrication labs to K-12 schools in the Los Angeles region, reaching 2,000 teachers and 12,000 students over the next 5 years.

Additional Steps to Supporting Maker-Centered Learning

In 2013, President Obama issued a challenge in his State of the Union address to redesign our Nation’s high schools to better prepare students to succeed in the global

economy, with the creativity, collaboration, problem-solving skills, and passion for lifelong learning that are becoming increasingly necessary for a growing number of careers. A full transformation of the high school experience requires actions above and beyond the physical spaces for learning to include numerous additional steps that support the kind of learning required for success in the modern world. The maker movement, by emphasizing a student-centered model of learning, builds on the President's call and provides students the time and agency necessary to foster passions as well as the guidance and support to build competencies necessary to foster tomorrow's innovations today.

Today, in addition to building makerspaces, a broad coalition of organizations are announcing a set of additional steps to support student-centered learning in both formal and informal environments, by expanding their offerings to in-need students and working with teachers.

- [Seventy-seven colleges and universities in 32 states](#) representing more than 1.1 million students are committing to take new actions in support of the maker movement on their campuses and in their communities. Continuing to build on commitments made over the last 2 years, university partners convened through the **Make Schools Alliance** network, led by **Carnegie-Mellon University** with support from **Bucknell University, Case Western Reserve University, and Cornell University**, are making new commitments in the following collective action areas: (1) allowing students to submit maker portfolios during admissions; (2) new investments in makerspaces serving students across campus, or serving as anchor tenants for externally-operated makerspaces; (3) supporting maker education, outreach and service-learning; (4) supporting research that advances maker-focused technologies and approaches as well as access for makers to existing university facilities and scientific instrumentation; (5) encouraging interdisciplinary design projects to explore making and maker-entrepreneurship; (6) participating in regional efforts with companies, state and local governments, and community-based organizations to create stronger maker ecosystems; and (7) providing scholarships to students based upon excellence in making. A few example actions include:
 - **Art Academy of Cincinnati, California College of the Arts, College of Engineering, Folsom Lake College, Sierra College, Sweet Briar College, University of Iowa, University of Louisville, and the University of Massachusetts Lowell** will award new scholarships to students based on excellence in making.
 - **Arizona State University** commits to host a Citizen Science Maker Summit in October 2016 to convene experts and stakeholders to share best practices, publish case studies, create a white paper focused on broadening

- participation among traditionally under-represented communities, and crowdsource ideas for future citizen science and making collaborations.
- **Boise State University** will expand the current Albertsons Library's MakerLab – currently serving all 19,000 students and a core community of 100 students – to serve 500 core students and collaborate with other campus partners to expand access to equipment and services by May 2017.
 - **Carnegie Mellon** announces the development of a Maker Wing in the College of Engineering and a new 30,000 square foot facility, the ANSYS Building, which will include a simulation and collaboration lab with a large open-bay facility for undergraduate students building full-scale projects.
 - **Cornell Systems Engineering** will introduce the Maker Pro Awards as part of the Intel-Cornell Cup to give students the opportunity to target the development of professional design skills through making and makeathons.
 - **Northeastern University** will build capstone (senior design) and other courses to explore making and the design of outstanding devices.
 - **Radford University** will create the first cohort of freshman in RU Makers, a residential campus living-learning community.
 - **University of Iowa** commits to allowing students applying for the College of Engineering to submit a maker portfolio.
 - **Yale University** will launch a student-in-residence program in the Yale Center for Engineering Innovation and Design focused on university students designing and fabricating real-world products during summer months.
- **The 1881 Institute of Technology** will partner with the **New Orleans Recreation & Development Commission** to launch a 6-week summer camp, with 75 teenagers, focused on electronics, robotics, and computer-aided design.
 - **Albemarle County Public School District** is launching the Design+Make+Launch Summer Academy for high school students to earn credits through maker-model portfolios documenting real-world problem solving through making. Additionally, the district is announcing a Youth-Maker-in-Residence internship program in collaboration with **University of Virginia**.
 - **AS220 Industries** will contribute maker kits of \$1,000 worth of electronics and sensors to up to 20 maker and artist projects in Rhode Island who otherwise may not be able to afford these supplies.
 - **Bitsbox** will launch a home-based making and coding education pilot in partnership with **AT&T Aspire**, with the goal of doubling the overall number of young people

making apps on the Bitsbox website to more than 1.2 million and working explicitly to reach thousands of youth in under-represented communities.

- **Bootstrap** will provide additional hands-on professional development and support to more than 700 math and computer science teachers in middle and high-schools across the country, to reach an estimated 15,000 additional students annually.
- **The Brandeis School of San Francisco** commits to hosting a 2-week Summer Creativity Institute for its faculty to learn about design thinking, making and tinkering. Staff will then develop curriculum focused on ethical creativity for the classrooms and in the school's makerspace, CREATE+BUILD.
- **CA Technologies** and their nonprofit partner **PENCIL** are committing to hosting an app creation challenge for NYC middle school students, reaching an estimated 30 schools during the 2016-17 school year.
- **Chevron** and **Digital Promise** will launch a national campaign to crowdsource the stories of student makers, showing how students use making to solve a problem, produce a project, or make something personally meaningful. Additionally, Chevron and Digital Promise will launch a safety campaign to advance the understanding of safety in school makerspaces, helping equip maker schools with tools to develop safe and responsible makerspaces. Combined, these efforts are anticipated to reach over 1,000 schools and more than 500,000 students.
- **Children's Museum of Houston**, in partnership with **Chevron** and **Houston Texas** will launch the STEM Maker Challenge during the 2016-2017 school year and commits to making public more than 50 lesson plans showcased at the Children's Museum of Houston.
- **Constructing Modern Knowledge** will host 300 educators for hands-on Invent to Learn workshops exploring the potential for integrating making, tinkering, and engineering into classrooms and makerspaces.
- **CraftED Curriculum**, in partnership with **Fab Lab San Diego**, commits to providing experiential professional development opportunities to 55 local educators, focused on planning design thinking instruction to address a local community issue.
- **Creating Awareness in Research and Education (CARE)** commits to distributing 400 maker kits to schools and hosting maker workshops for an estimated 1,200 individuals by June 2016.

- **The Digital Harbor Foundation** in partnership with **Printrbot**, **MatterHackers**, and **BuildTak** commits to providing the multi-day 3D Printing for Educators Workshop with accompanying 3D printer for free to one educator from every state.
- **DIY Girls** is launching DIY Girls Clubs across the nation to enable anyone interested in leading a DIY Girls STEM program in their community by providing materials, curricula, and additional support.
- **Edhesive** will launch a 3-year computer-science sequence of courses in hundreds of districts around the country that will give every student in the district access to introductory and AP-level computer science coursework in the 2016-17 school year.
- **Foldscope Instruments and Prakash Lab**, with support from the **Gordon and Betty Moore Foundation** and other partners, will provide 1 million Foldscope Origami microscopes to children around the world in 2017, engaging them in hands-on, curiosity-driven science learning focused on biodiversity, public health, and environmental conservation.
- **Globaloria** commits to train 400 additional educators this year to teach making through Computer Science and Game Design to an additional 20,000 students.
- **Google**, in collaboration with **Digital Promise**, will donate 1,000 sets of safety gear to schools across the country to help students be able to safely tinker, and bring their ideas to reality.
- **HP, Inc., Microsoft, and Digital Promise** commit to developing Learning Studios with 3D capture, design, and printing tools in more than 60 schools with over 10,000 students in 11 countries around the world.
- **Idaho Library Association** will create a maker committee and connect maker libraries across the state to become a network of makerspaces and programs sharing best practices and ideas by December 2016.
- The **Idaho STEM Action Center** is dedicating over \$4 million during fiscal year 2017 to provide educator grants, professional development opportunities, family engagement, businesses and communities events, competition for middle school students (such as FIRST Robotics and the FabSLAM 3D Design and Fabrication), pilot *Makerspaces in Schools* grant project, scholarships for making and STEM summer camps, and launching the Idaho Science and Engineering Fair.

- **Infosys Foundation USA** is launching the #WhyIMake campaign to create a platform for makers to tell their own stories, serving both as role models and inspiration for others. Additionally, the Foundation will provide more than \$1 million in new funding over the next 12 months to support maker education programs including the Infy Maker Awards, the launch of the Infy Maker Certified Educator program, funds to match crowdfunding of educator proposals for making, and a pilot maker program specifically benefiting students with disabilities.
- **The Commonwealth of Virginia** in collaboration with the **Innovative Solutions Consortium (ISC)** is expanding the ISC's Student-Led Ideation Challenge (SLIC), a maker competition that addresses real world challenges through design thinking and hands-on prototyping, to the entire state of Virginia and being audited by school districts from 10 additional states.
- **InnovatorsBox** will host 50 creativity workshops in 10 cities for over 1,000 individuals, in addition to two creativity community projects with partners in Washington, D.C.
- **Ithaca Generator** will host a workshop with representatives from several recreation programs to explore and plan how to increase technology offerings in Ithaca, New York. By the end of 2016, a publication will be issued that will identify and share each organization's strengths, needs, short-term actions, and long-term goals towards increased inclusion and access for all youth and adults.
- **KID Museum** in Bethesda, Maryland is committing to expanding maker-based learning experiences to more than 35,000 people in the coming year through new school partnerships, field trips, camps, and a new maker learning collaborative, with an emphasis on reaching students from low-income and minority populations.
- **The Maker Education Initiative (MakerEd)** commits to launching the Practical Guide to Open Portfolios, a publication that draws from its field research in Phases 1 and 2 of the Open Portfolio Project, and will present the findings in a way that is free and easily accessible to practitioners who are looking to begin or further develop facilitation of youth portfolios in their various educational settings. These efforts were made possible with the support of the **Gordon and Betty Moore Foundation**.
- **Maker Media**, with support from **Microsoft, Barnes & Noble, Intel, AT&T, and Google**, is committing to engage more than 1 million kids nationally over the next 12 months in hands-on, project-based learning through its Maker Faires, School Maker Faires, and online Maker Camps.

- **National Society of Black Engineers (NSBE)** is committing to inspiring more than 3,000 youth from diverse backgrounds to become tinkerers and makers through its Summer Engineering Experience for Kids (SEEK) program. During these three-week programs, held in 12 cities across the United States this summer, 250 collegiate engineering students will serve as SEEK mentors guiding students in grades 3–5 and 9–12 through a hands-on, team-based engineering design curriculum and competitions to develop self-efficacy, collaborative problem-solving and a maker mindset.
- **New York Hall of Science (NYSCI)**, in collaboration with **Cognizant’s** Making the Future program and **Children’s Hospital of Colorado**, is announcing an expansion of the Maker Therapy initiative to three additional hospitals over the next year. Through access to mobile in-hospital makerspaces, this program will give children with chronic illnesses at these hospitals: (1) increased independence within hospital environments; (2) increased access to creative outlets and learning opportunities; (3) additional encouragement for social interchange with others; and (4) additional opportunities for increased physical mobility, all of which have been shown to contribute to overall patient health and mental well-being.
- **Open Works**, a Baltimore nonprofit community-facing makerspace, is committing to offer STEM education programming for 50 youth per semester and workforce development training for up to 25 individuals per year.
- **Other Machine Co.** commits to developing and distributing Bits & Blips, an open source curriculum for basic electronics education.
- **The POLLEN Group** and **MakerNet** are launching MakeItGo, a global collaborative challenge designed to connect makerspaces around the world. The first month-long challenge will focus on engaging participants in working together to develop a kinetic sculpture. More than 12 maker spaces from the United States, Spain, Romania, the United Arab Emirates, and other countries will participate in the first challenge. Subsequent challenges will be focused on developing solutions to shared global problems. By the end of 2017, MakeItGo will engage makerspaces from more than 20 different countries in collaborating on a challenge.
- **Project Paradigm** commits to expanding its national youth STEM innovation challenge, the Paradigm Challenge, to reach more than 150,000 young makers in 2016-17 and will award cash prizes and grants totaling more than \$250,000 to the top 100 student teams and instructors.

- The **Robotics Education & Competition Foundation**, manager of the VEX IQ Challenge, VEX Robotics Competition, and VEX U currently serving 16,000 robotics teams worldwide, is launching Girl Powered, an initiative focused on engaging more girls in robotics engineering by providing team grants of robotics materials, training and support to start all girl teams across the United States, and will implement at least one new district-wide grant to provide robotics supplies to more than 50 schools in the district and train educators to offer robotics engineering in the classroom.
- **The School of Library and Information Science (SLIS) at the University of South Carolina** will provide makerspace training sessions to over 600 school librarians attending the S.C. Department of Education Regional Workshops across the state during the 2016-17 school year.
- **Shapeways** is partnering with the **New York Public Library** to launch a curriculum for patrons to learn how to design with free and low cost 3D design software for 3D printing and advanced manufacturing. After its formal pilot launch this fall, they will publish the curriculum under an open source license so that it can be offered by other public libraries and institutions across the country.
- **STE(A)M Truck** is partnering with the City of Atlanta to provide four week-long maker camps in the summer of 2016, allowing access for a hundred youth. Additionally, STE(A)M Truck will travel around the state of Georgia to work with approximately 200 teachers. STE(A)M Truck is also committing to growing its program by 2019 to annually serve more than 4,000 youth and 100 teachers.
- **Thanksgiving Point** in Lehi, Utah commits to serving an additional 600 youth and families through Maker Camp programs and Family Design Challenges.
- **unBound**, a technology library in Meridian, Idaho, will launch a free workforce development program to allow more than 50 individuals the opportunity to gain education and mentorship in maker careers by January 2017.
- **University of Akron's EX[L] Center for Entrepreneurship & Civic Engagement** will support maker learning within the Akron Public School system through a new program (EXporting EX[L]) in which the university will provide training to educators and will bring 3D printers, laser cutters and other maker tools to participating public schools and local libraries. Additionally, EX[L] commits to

covering the cost of materials up to \$1,000 for every Akron public school that participates during the 2016-2017 academic year.

- **Utah State University Extension 4-H** will engage by June 2017 an additional 1,600 youth, educators, and volunteer leaders across the state of Utah in maker activities including camps, afterschool clubs, and service learning experiences.

Maker to Manufacturer

In recent years, individuals and small teams have been able to gain access to hardware and software tools for designing and prototyping that were previously only available to large manufacturers. This trend of less expensive, easier-to-use hardware is likely to continue, giving more hobbyists and hardware-centered startups the option to go from maker to manufacturer. This has the potential to fuel a new wave of innovation and entrepreneurship in manufacturing, in the same way that cloud computing has dramatically lowered the cost associated with launching an Internet startup. The continued resurgence of the American Manufacturing sector is leading to new partnerships, annual celebrations like [Manufacturing Day](#), and fresh opportunities for makers to scale-up in the United States.

Today, organizations across the country are announcing steps to help more students and adults acquire the skills and resources to take their ideas to scale.

- **Adafruit** will host monthly Maker to Manufacturer live video chats featuring guests that are working to bridge the gap between maker and manufacturer. To further develop a community of practice, these live chats will be recorded and disseminated as a resource of promising practices. The video chats will also facilitate a growing network of connections that will empower makers from across the country to find support as they work to bring their innovations to market.
- **America Makes** will announce a \$5 million investment in applied R&D research to advance 3D Printing and additive manufacturing technology.
- **Case Western Reserve University's Sears think[box]** is committing to launching a new free open online course (MOOC) entitled “Making, Manufacturing & Innovation: A New Economic Narrative” by June 2017.
- **Dragon Innovation** is committing to educating more than 1,000 new entrepreneurs about the factors that drive costs and manufacturing schedules during the critical

phase of transitioning from prototype to the production floor, and is providing these entrepreneurs access to a new cloud-based manufacturing management tool.

- **Lowe's** is expanding its partnership with **Made in Space** to begin new efforts to explore methods to up-cycle plastic waste into 3D printer filament, which can be used to 3D print new tools and other products, decreasing the cost and environmental impact of plastic waste.
- **Made Right Here** is committing to expanding its Maker Professional Apprenticeship Program to another 10 cities, bringing the total to 30 cities. The Maker Professional Apprenticeship program trains individuals at local makerspaces in the knowledge and skills needed to operate a range of digital tools for the modern workplace, transitions trainees into apprentice programs and manufacturing jobs.
- **Northern Michigan University**, in cooperation with the **State of Michigan**, will expand the Invent@NMU program, a student-run innovation and manufacturing service, with retail-like invention intake centers strategically located throughout the state. Invent@ intake centers will tie directly into a proposed Rural Manufacturing Alliance that will assist makers as they transition from making one-offs and prototypes into producing small lot manufacturing runs.
- **Open Source Hardware Association (OSHWA)** is announcing Open Source Hardware Month for October 2016, and will host free events to document open hardware, invite more people to contribute to the open source hardware movement, and provide education around how to publish a project or product as open source hardware.

Strengthening Maker Ecosystems and Expanding Outreach to All Communities

As the President has noted, "Every community is different, with different needs and different approaches." A true strength of the maker movement is how much it is a grassroots and local movement, bringing together a diverse set of students, hobbyists, professionals, nonprofits, businesses, teachers, and parents. Each community stakeholder can make significant contributions to the local economy and job market through numerous ways, such as launching new startups, organizing new activities for under-served students, or encouraging more innovators to tackle a region's

challenges. Through such collective action, local maker communities have the potential to contribute substantially to the economic and cultural health of a region.

For example, the **Remake Learning Network** in Pittsburgh has brought together the maker community and collected more than 150 commitments that accelerate relevant, hands-on, personalized learning in the region, and represent more than \$25 million in new investments from philanthropies, businesses, and governments to support 21st century learning across southwest Pennsylvania and West Virginia. These commitments are anticipated to impact more than 400,000 kids and nearly 20,000 educators in the next 12 months alone and will serve to strengthen the region for decades to come.

Today, other cities and regional organizations are announcing additional steps to strengthen the maker ecosystem and leverage their own growing maker communities.

- **Adam Savage**, former co-host of *Mythbusters*, will launch a national tour in collaboration with **Tested.com** to both discover and share promising practices and innovations in the maker movement. The tour will build off of a recent tour of Cleveland where Adam Savage visited a local makerspace, hosted a community conversation, and interviewed a series of local makers to share their stories.
- **The City of Los Angeles Mayor's Office**, through the MAKE IT IN LA initiative, will unveil the results of a year-long 1,600-company study and launch a free podcast called the Art of Manufacturing to spotlight new manufacturing entrepreneurs every week. Additionally, through a coalition of organizations, the initiative commits to developing educational programming that will serve at least 1,000 entrepreneurs and manufacturers over the next 18 months.
- **Wenatchee** will host its 2nd annual, all youth run and produced, MiniMaker Faire on October 29. The event, directed by area youth with mentorship and support from the **Greater Wenatchee Area Technology Alliance (GWATA)**, will highlight area makers in a community-oriented location for the thousands of anticipated attendees from Central Washington.
- **Cleveland Public Library** commits to creating a new position that will serve in the **Office of the Mayor of Cleveland** as an advisor and coordinator to support the awareness and growth of the local maker movement.
- **Great Lakes Science Center** in Cleveland, Ohio is committed to increase public awareness through multiple collaborative “community build” maker projects expected to reach approximately 21,000 guests over a month time period.

- **Heritage Farm Museum and Village** in Huntington, WV will launch “Appalachia Makes,” a public campaign connecting early settlers’ survival ingenuity and unique Appalachian problem-solving skills with today’s technology. This will include the creation of educational curricula and more than 5,000 original works of art and technology by the end of 2017.
- **Idea Foundry** commits to producing a series of videos about “what it means to be a maker,” highlighting members, instructors, events, and projects hosted at their makerspace. Idea Foundry will also be curating special content regarding the maker movement and the maker community, as well as hosting a Family Maker Night.
- **Maker City Project**, a collaboration between the **Kauffman Foundation**, the **Gray Area for the Arts**, and **Maker Media**, will release the Maker City Playbook with comprehensive case studies and how-to information useful for city leaders, civic innovators, nonprofits, and others engaged in urban economic development. The Maker City Playbook is committed to going beyond stories to find patterns and discern promising practices to help city leaders make even more informed decisions.
- **Other Machine Co.** will create and launch Catalyst, a media campaign highlighting the makers and educators on the front lines in community colleges and technical high schools who are translating curriculum into launch pads for jobs in manufacturing, engineering, and applied technology roles.

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