

## A Federal Agenda for Revitalizing America's Manufacturing Communities

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**Dek:** The U.S. has underinvested in its manufacturing base. Here's a \$2 billion plan to accelerate the development of good paying manufacturing jobs for communities that need them.

### WYSK:

- This report is in partnership with The Great Cities Institute and The Century Foundation's Bernard L. Schwartz Rediscovering Government Initiative. This work was supported by a grant from The Joyce Foundation.
- The High Wage America project researched and toured Pittsburgh, Cleveland and Chicago, and developed a \$2 billion, 12 point action plan to revitalize good paying manufacturing jobs and Industrial heartland communities.
- Manufacturers are hiring again (in Chicago there were two openings in manufacturing for every person hired) but are struggling to fill positions with candidates from diverse backgrounds.
- Rejecting the "Rust Belt" label, leaders from the industrial heartland are looking for federal investments in high-tech, highly innovative manufacturing.

The United States has now entered a record-long period of job growth, driving the unemployment rate to its lowest level in nearly two decades. Yet for millions of workers across the country, the U.S. economy continues to fail to provide enough high-wage, family-sustaining jobs. While this [problem has been decades in the making](#), it has become increasingly acute. Over the past year, for example, real [wages of workers actually declined](#), while [pay for corporate executives has soared](#).

There is perhaps no region where the impact of stagnant wages is felt more strongly than in the industrial heartland. The region is still recovering from years of deindustrialization and disinvestment that has led to limited job opportunities and put downward pressure on wages. From 2000 to 2010, the states of Indiana, Illinois, Michigan, Ohio, Pennsylvania, and Wisconsin [lost a combined 1.8 million manufacturing jobs](#). In the twentieth century, these jobs—and the union pay and benefits they often brought—drew millions of Americans to the Midwest and helped build the country's middle class. Conversely, the industrial decline of the twenty-first century has dealt a blow to the vitality of the entire region, [leading to population loss](#) and hurting communities that relied on manufacturing both directly and indirectly.

Neither the phenomenon of low wages, nor America’s manufacturing struggles, is the sole result of economic forces of nature. Rather, they are [the result of conscious policy choices made by our elected leaders](#). Trade policy accelerated the offshoring of millions of manufacturing jobs. The loss of production capacity has kneecapped our ability to innovate, as America has ceded its edge in research and development to East Asian nations. And as our country has disinvested in manufacturing, nations such as Germany—where manufacturing represents 20.6 percent of GDP, compared to just 11.6 percent here—have steadily increased their investment in modernizing manufacturing.<sup>1</sup>

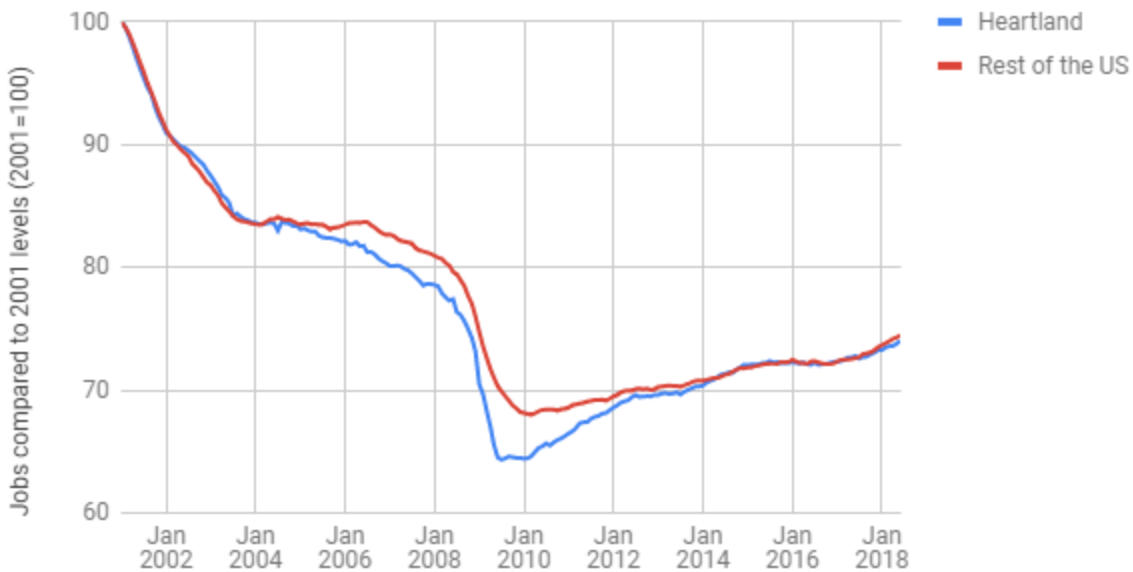
Still, American manufacturing has remained resilient. In the darkest days for the industrial heartland, communities refused to accept the notion that manufacturing was a lost cause. Local and state leaders came up with innovative models to save jobs, retain industry, and shore up regional economies. These efforts have led to a promising, if nascent, manufacturing recovery. The six states cited above have brought back [nearly a half-million manufacturing jobs since 2010](#), recovering a greater share of industrial losses than have the rest of the country. This turnaround has led to a newfound optimism that future economic development can build on the region’s history and its strategic advantages in manufacturing.

This growing momentum behind, and renewed commitment to, manufacturing is starting to rise to the national level, too. The United States today is still a manufacturing powerhouse—the world’s second-largest manufacturing nation—and the sector’s future is critical to the country’s overall economic health and global competitiveness. Manufacturing represents 68 percent of all U.S. private research and development spending, and is key to cutting the trade deficit, which [reduces national income by \\$566 billion per year](#). Moreover, a robust manufacturing sector is vital if America wants to be a leader in [environmental sustainability](#) (climate change innovation requires a new generation of products), as well as to our [national security](#) (which is compromised by reliance on foreign suppliers). As Figure 1 demonstrates, manufacturing is on the rise again, in the industrial heartland and throughout the country.

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<sup>1</sup> “Manufacturing, value added (% of GDP),” World Bank, <https://data.worldbank.org/indicator/NV.IND.MANF.ZS?locations=DE-US> accessed on August 31, 2018.

## Change in Manufacturing Employment since 2001, Heartland v. Rest of the US



Source: Bureau of Labor Statistics and authors' calculations. Heartland includes Indiana, Illinois, Michigan, Ohio, Pennsylvania and Wisconsin.

The last two presidential elections demonstrated the surprising political relevance of manufacturing, leading commentators to declare that U.S. manufacturing is “[having a moment](#).” The problem, however, is that campaign rhetoric does not move from political photo-ops on factory floors into a long-term, sustainable commitment to manufacturing. The debates today in Washington, D.C. are largely limited to the topics of trade and tariffs, and neglect to focus on strategies to support and scale efforts to bolster the competitiveness of manufacturing clusters and resilience of manufacturing communities.

For the last year, the Century Foundation’s [High Wage America \(HWA\) Project](#) and key partners have worked to develop an inclusive policy agenda to revitalize manufacturing communities, with regional and federal governments working hand-in-hand.<sup>2</sup> An

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<sup>2</sup> The Century Foundation would like to thank the High Wage America advisory committee for the support of the project and for helpful comments on this report, especially the institutional leadership from Tom Croft and the Heartland Capital Strategies/Steel Valley Authority as well as Brad Markell and the Industrial Union Council of the AFL-CIO. Additionally, the committee consists of Steve Herzenberg (Keystone Research Center, PA), Jack Mills (Insight Center, MA), Steve Sleigh (Sleigh Strategies, DC), Teresa Cordova (Great Cities Institute, IL), Bishara Addison (Towards Employment, OH), Christy Veeder (Jobs to Move America, NY), Joel Yudken (High Road Strategies), David Robinson and Dan Swinney (Manufacturing Renaissance), Riley Ohlson and Brian Lombardozi (American

initiative of the Bernard L. Schwartz Rediscovering Government Initiative at The Century Foundation, HWA kicked off at an event in Washington, D.C. in June 2017, followed by the publication of “Revitalizing America’s Manufacturing Communities,” which [highlighted state and regional best practices in manufacturing](#) and produced a broad framework of four major drivers to accelerate the growth of manufacturing and the redevelopment of communities that depend on them.<sup>3</sup>

We then spent the past year hosting summits to hear from more than 500 leaders in the industrial heartland: [Pittsburgh](#), in October, 2017; [Cleveland](#), in March, 2018; and [Chicago](#), in June, 2018. HWA experts listened to and learned from political, academic, business, labor, and community leaders at the forefront of efforts to build a high wage regional economy. In each location, we partnered with local groups to research the state of manufacturing in that region today, as well as its continuing impact on workers and communities. This research and events fleshed out the critical areas for action, testing our framework, and surfacing new ideas, models and priorities. Most importantly, we left each stop on the tour better informed and more attuned to the growing, diverse array of promising initiatives that are taking hold in manufacturing communities across the nation, as well as the need for federal action and national coordination. Communities are not satisfied with manufacturing recovery for its own sake, but rather as a driver toward a more inclusive and sustainable economy. This view prioritizes labor and community as stakeholders in economic and policy decision-making, and measures success in terms of wage growth and sustainability, not just profits.

This report is the culmination of that tour. It combines insights gleaned from our earlier reports and summits in the Midwest, with the [best of national research](#) and expertise from over the past year to build a concrete policy agenda to bolster regional manufacturing initiatives and grow good-paying manufacturing jobs. And while it is directed at federal policymakers, it is grounded in the experiences of communities in the heartland. The High Wage America tour and research surfaced five priorities for action: increasing the pipeline of qualified workers; preventing and mitigating the displacement of manufacturing; fostering high-tech manufacturing; enhancing manufacturing partnerships; and unlocking new sources of capital. Regional communities have relied

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Alliance for Manufacturing), Michael Goff (Northeast Midwest Institute, DC), Katy Stanton (Urban Manufacturing Alliance, WI), Harriet Applegate (Cleveland AFL-CIO, OH), Lee Geisse (Blue Green Alliance, OH), Lisa Jordan (United Steelworkers, PA), Bob Bower (Massachusetts AFL-CIO, MA), and Ted Chandler (AFL-CIO Housing Investment Trust). The authors would also like to thank Amanda Novello and Jeff Madrick very helpful comments and research support.

<sup>3</sup> Joel Yudken, Andrew Stettner and The four drivers are spurring innovation; reinvesting in workers; mobilizing responsible capital; retaining, restoring and growing sustainable industries.

on federal support to drive their efforts forward, and the recommendations below will allow them to continue to accelerate their efforts.

### **Priority 1: Communities and Employers Must Increase the Pipeline of Qualified Workers**

Even though jobs are coming back, communities and employers must work harder to ensure a pipeline of qualified employees for unfilled positions, while ensuring that manufacturing provides workers in distressed communities, including communities of color, opportunities to obtain these jobs. After bearing the brunt of the largest drop in manufacturing in U.S. history from 2000–2010, manufacturers in the heartland are coming back—so much so that their growth is outstripping their ability to find labor for all the new positions. Our research found that over the past year there were [two manufacturing job openings for every person hired in the Chicago region](#).<sup>4</sup> Even in an economically diversified metropolis such as Chicago, [manufacturing offered more job openings than all but three sectors](#)—including 15,000 unfilled frontline production jobs that rarely require a college degree.<sup>5</sup> With a rapidly aging workforce ([one in three manufacturing workers are over the age of fifty-five in Chicago](#)), companies and government need to invest in the manufacturing workforce of the future. It’s a major endeavor: the elements of the education and workforce system that addressed the industrial workforce in the past—including vocational high schools and apprenticeships—have been allowed to wither for decades. For example, the most recently available data, from 2013, shows that in that year Chicago Public Schools had only trained [118 young people](#) to industry-recognized credentials in manufacturing, in part because educational systems had turned away from manufacturing to focus more exclusively on other high-growth occupations.<sup>6</sup>

The good news is that communities are taking the first steps to rebuild these systems in line with the opportunities that exist today. Companies, training providers, unions, and schools have worked together to set up new pilot programs, such as the AFL-CIO’s multi-city [Industrial Maintenance Technician apprenticeships](#) and Cleveland’s [Steelworker for the Future](#), to create a new educational pipeline to manufacturing jobs. These diverse pilots have a consistent approach—on-the-job training, training students up to industry recognized credentials and pre- and post-job placement support—but they are just that: pilots and model programs. They need a timely infusion of public support to go to a greater scale and to reach even deeper into communities with high levels of joblessness.

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<sup>4</sup> Teresa Cordova, Andrew Stettner, and Matt Wilson, “Revitalizing Manufacturing and Expanding Opportunities for Chicago’s Black and Latino Communities,” The Century Foundation and the University of Illinois-Chicago, Great Cities Institute, June, 2018, <https://tcf.org/content/report/revitalizing-manufacturing-expanding-opportunities-chicagos-black-latino-communities/>.

<sup>5</sup> Teresa Cordova, Andrew Stettner, and Matt Wilson, “Revitalizing Manufacturing and Expanding Opportunities for Chicago’s Black and Latino Communities,” The Century Foundation and the University of Illinois-Chicago, Great Cities Institute, June, 2018, <https://tcf.org/content/report/revitalizing-manufacturing-expanding-opportunities-chicagos-black-latino-communities/>.

<sup>6</sup> Rebecca Harris, “Ticket to a Job,” *Catalyst In Depth*, Community Renewal Society, Winter, 2014, <http://www.chicagoreporter.com/wp-content/uploads/assets/20140206/catalystindepth-winter2014f.pdf>.

Manufacturing still stands out as a field that can provide good-paying opportunities for individuals without a college degree and who have barriers to employment, such as criminal records.<sup>7</sup> While manufacturing jobs don't pay as well as they once did, workers in Ohio (for example) [still earn \\$2.99 more per hour in manufacturing than they would in other sectors](#).<sup>8</sup> These jobs are especially critical in small towns in the heartland, where nearly one in four private sector jobs are still in manufacturing.<sup>9</sup> For urban communities of color, there is tremendous still-untapped potential for manufacturing to address stubborn levels of joblessness, especially among young people in places such as Cleveland and Chicago, [where more than one out of three young African-Americans are neither in school or in a job](#).<sup>10</sup> While African Americans are still under-represented in manufacturing (numbers are worse among women), our tour revealed encouraging efforts by companies such as Chicago's [Laystrom Manufacturing](#) and Cleveland's [Dan T. Moore](#) companies to reach into communities of color to recruit a new generation of workers. The time is right for community-based programs that can equalize access to good-paying jobs in manufacturing trades for community of color. As described at our Pittsburgh summit by [Allegheny County Councilmember DeWitt Walton](#), the goal is to ensure that, when minority workers enter the employment game in a manufacturing or construction trade, "a hundred yards is a hundred yards." In Cleveland, [Towards Employment](#)'s Bishara Addison explained that community-level recruitment and ongoing post-employment support services and mentoring was even more critical to manufacturing employment success among people of color than hard skills training. This sentiment was echoed by numerous other leaders, who also observed that publicly supported workforce programs don't provide community leaders the resources they need to effectively recruit people of color into them.

- **Recommendation 1: Provide federal grants for career-based K–12 programs targeting manufacturing.** A \$100 million grant program could use revenues from the H1B fees (which are visa fees paid by firms who bring in skilled immigrant workers; the proceeds are reserved in a federal account for skills training) to fund thirty communities across the nation to develop innovative efforts to introduce young people into manufacturing.<sup>11</sup> (This program would build on the 2014 [Youth Career Connect grant](#)

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<sup>7</sup> Interview with Victor Dickson, president and CEO of Safer Foundation, By Andrew Stettner, May 29, 2018.

<sup>8</sup> Teresa Cordova, Andrew Stettner, and Matt Wilson, "Revitalizing Manufacturing and Expanding Opportunities for Chicago's Black and Latino Communities," The Century Foundation and the University of Illinois-Chicago, Great Cities Institute, June, 2018, <https://tcf.org/content/report/revitalizing-manufacturing-expanding-opportunities-chicagos-black-latino-communities/>.

<sup>9</sup> Andrew Stettner, Joel S. Yudken and Michael McCormack, "Why Manufacturing Jobs are Worth Saving," The Century Foundation, June, 2017, <https://tcf.org/content/report/manufacturing-jobs-worth-saving/?session=1>.

<sup>10</sup> Teresa Cordova, Andrew Stettner, and Matt Wilson, "Revitalizing Manufacturing and Expanding Opportunities for Chicago's Black and Latino Communities," The Century Foundation and the University of Illinois-Chicago, Great Cities Institute, June, 2018, <https://tcf.org/content/report/revitalizing-manufacturing-expanding-opportunities-chicagos-black-latino-communities/>.

<sup>11</sup> H1B training funds were equal to \$176 million in FY 2017. See "FY 2019 Budget Appendix: Department of Labor," U.S. Office of Management and Budget, <https://www.whitehouse.gov/wp-content/uploads/2018/02/lab-fy2019.pdf>, accessed July 12, 2018.

[program](#).<sup>12)</sup> The goal is to accelerate career awareness and preparation through a funding stream that goes beyond what is available through current federal efforts such as the Carl Perkins Career and Technical Education Act and the Workforce Innovation and Opportunity Act (WIOA); and to intervene earlier in the career pipeline than would apprenticeship grants. Eligible programs would include work-based learning, robust engagement of employers, and attainment of industry-recognized credentials, and grants that fund school districts that broadly market the benefits of manufacturing careers within their communities. Preferences for aid would be given to communities with high levels of unemployment and with a large manufacturing footprint (over 25,000 workers in the metro area).

- ***Recommendation 2: Double manufacturing apprenticeships in five years and build the infrastructure for sector based education and training.*** Federal funding should continue to be expanded for apprenticeship training programs with a goal of doubling the number of registered manufacturing apprenticeships from 17,000 to 35,000 in the next five years, using tax credits or grants of \$2,000 per apprenticeship to catalyze expanded enrollment.<sup>13</sup> To benefit manufacturing, federal funding should go to proposals such as the PARTNERS Act in support of the development of sectoral partnerships that bring together companies within the same industry and geography with labor and educational institutions. Critically, the PARTNERS Act provides resources to stand up these intermediary organization that can drive regional investment toward the shared needs of companies and address broader employment opportunities on an industry-wide scale. These partnerships can establish apprenticeships for multiple firms (many of whom don't have the resource to manage apprenticeship on their own). Some proposals include programs outside of the current system of registered apprenticeship regulated by the Department of Labor. All federally funded programs should still adhere to the nondiscrimination rules present in current registered apprenticeships and limit funds to only those programs that pay a liveable post-apprenticeship wage. In addition, federal support should also be given to states, industrial partners, and educational institutions to establish pre-apprenticeship and pipeline programs, with a specific goal of increasing participation of women and people of color in manufacturing apprenticeships. These programs ensure that there are diverse cohorts of potential apprentices equipped for the technical requirements and ready for the rigors and challenges of apprenticeship programs.
- ***Recommendation 3: Use wraparound services to strengthen manufacturing employment programs in communities of color.*** In order for disinvested populations to take advantage of employment opportunities in manufacturing, communities need to [implement complementary wraparound services](#) to address the financial and personal issues that impact employment success; these services currently are not adequately

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<sup>12</sup> U.S. Department of Labor, "Youth Career Connect," accessed August 9, 2018, <https://doleta.gov/ycc/>.

<sup>13</sup> U.S. Department of Labor, "Registered Apprenticeship National Results," [https://doleta.gov/oa/data\\_statistics.cfm](https://doleta.gov/oa/data_statistics.cfm) accessed August 9, 2018.

supported by federally funded education and training programs.<sup>14</sup> Wraparound services such as transportation, child care, and emergency funds, as well as career counseling, case management, and mentoring should be delivered by organizations with specific experience in the diverse communities which they are serving. Several key policy proposals move in this direction. The [Gateways to Careers Act](#) would deliver comprehensive services to individuals enrolled in career pathway programs that link community colleges and community workforce programs. The [PARTNERS Act](#) would deliver these services in the context of work-based learning approaches, with a specific focus on recruiting communities (especially people of color and women) that have been historically underrepresented in construction and manufacturing trades. In addition to legislation, the presidential administration can amplify support by providing the Departments of Labor and Education guidance on the importance of community-based marketing of workforce programs, as well as on how to leverage existing federal resources to mount those marketing campaigns. The administration can also advance this goal by supporting the use of U.S. employment plans in procurement processes by grantees of the U.S. Department of Transportation, to favor not only domestic manufacturing but inclusive hiring practices.<sup>15</sup>

## **Priority 2: Prevent and Mitigate the Displacement of Manufacturing**

In spite of growth, many parts of the manufacturing sector are vulnerable to job loss and instability; and there are not adequate tools to help communities save jobs and help workers and communities adjust when mass layoffs do come. The heartland in particular has borne the brunt of plant closures and permanent layoffs. Advocates for manufacturing communities in the region have taken a two-prong approach. First, they have sought to be proactive in doing everything they can to prevent layoffs. One successful model of this approach, the Steel Valley Authority's Strategic Early Warning Network in Pittsburgh, has saved thousands of manufacturing jobs through its layoff aversion model that identifies factories at risk of closure and provides them targeted business turnaround assistance—a strategy that has been [replicated nationwide](#).<sup>16</sup> Like the workforce, many small manufacturers have aging owners who may shut down their shops unless a proactive approach is taken. Second, they have supported a strong system of transition assistance for those who are laid off, and count on government-funded benefits and retraining to get back on their feet. Policy Matters Ohio's Mike Shields called on [worker protection policies to foster a partnership with workers](#) in the heartland—the same impulse that inspired Ohio and Wisconsin to enact the first unemployment insurance

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<sup>14</sup> "Skills for Good Jobs: An Agenda for the Next President," National Skills Coalition, November, 2016, <https://www.nationalskillscoalition.org/resources/publications/file/Skills-for-Good-Jobs-Agenda.pdf>.

<sup>15</sup> Madeline Janis, Roxana Aslan, and Katherine Hoff, "Harnessing Government Spending to Revitalize Good Manufacturing Jobs," The Century Foundation and Jobs to Move America, October 3, 2017, <https://tcf.org/content/report/harnessing-government-spending-revitalize-good-manufacturing-jobs/>.

<sup>16</sup> Joel S. Yudken, Thomas Croft and Andrew Stettner, "Revitalizing America's Manufacturing Communities," The Century Foundation, October 16, 2017, <https://tcf.org/content/report/revitalizing-americas-manufacturing-communities/>.



schemes in 1930s to ensure that the economy would retain skilled workers through industrial ups and downs.<sup>17</sup>

- **Recommendation 4: Expand trade adjustment assistance into trade, technology, and policy adjustment assistance.** Congress should overhaul the Trade Adjustment Assistance (TAA) program into what manufacturing workers expect it to be—[an effective, comprehensive approach to mitigate the harmful effects of permanent job loss](#).<sup>18</sup> This would require moving from the laborious current standard of factory-by-factory certification to industry- and occupation-wide certification, shortening the time frame for certifications, and significantly expanding the eligibility rules to cover involuntary job losses not just to trade but also to automation and policy changes, such as the [closure of a major military base](#) or carbon taxes.<sup>19</sup> TAA employment services should be reformed to have better connections to well-documented reemployment programs that help dislocated workers get rehired with their existing skills, and to proven sectoral training programs when they need to retrain in an occupational course or apprenticeship. And TAA should provide a genuine promise of extended income support, to guarantee dislocated manufacturing workers an adequate income to live on while they go through training and experience extended periods of joblessness. It also should provide [wage insurance](#) to those laid off workers who won't be well served by training, such as those approaching retirement.<sup>20</sup> And the generally effective TAA for firms program, operated by Department of Commerce, should follow this broadening of eligibility and also shorten the decision-making process for firms at-risk, which is now three to four months.
- **Recommendation 5: Improve the implementation of WIOA layoff aversion.** The Workforce Innovation and Opportunity Act requires states to use federal funds to quickly provide information about available employment, training, and social services to workers impacted by large announced layoffs, services known as rapid response.<sup>21</sup> A new aspect of that law now requires states to use a portion of these rapid response dollars to [prevent layoffs](#) (such as help finding new markets, business consulting, identifying new owners or investors, and retraining incumbent workers), but guidance about this

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<sup>17</sup> Michael Shields, "Manufacturing a High-Wage Ohio" The Century Foundation, March 12, 2018, <https://tcf.org/content/report/manufacturing-high-wage-ohio/>.

<sup>18</sup> Robert D. Atkinson, "How to Reform Worker-Training and Adjustment Policies for an Era of Technological Change," Information Technology & Innovation Foundation, February, 2018, [http://www2.itif.org/2018-innovation-employment-workforce-policies.pdf?\\_ga=2.27933820.1317036802.1529525938-770564724.1529525938](http://www2.itif.org/2018-innovation-employment-workforce-policies.pdf?_ga=2.27933820.1317036802.1529525938-770564724.1529525938).

<sup>19</sup> Robert D. Atkinson, "How to Reform Worker-Training and Adjustment Policies for an Era of Technological Change," Information Technology & Innovation Foundation, February, 2018, [http://www2.itif.org/2018-innovation-employment-workforce-policies.pdf?\\_ga=2.27933820.1317036802.1529525938-770564724.1529525938](http://www2.itif.org/2018-innovation-employment-workforce-policies.pdf?_ga=2.27933820.1317036802.1529525938-770564724.1529525938).

<sup>20</sup> Andrew Stettner, "Mounting a Response to Technological Unemployment," The Century Foundation, April 26, 2018, <https://tcf.org/content/report/mounting-response-technological-unemployment/?agreed=1>.

<sup>21</sup> "Training and Employment Guidance Letter, No. 19-16," U.S. Department of Labor, March 1, 2017, [https://wdr.doleta.gov/directives/attach/TEGL/TEGL\\_19-16\\_acc.pdf](https://wdr.doleta.gov/directives/attach/TEGL/TEGL_19-16_acc.pdf).

requirement came too late to influence state plans for WIOA dollars.<sup>22</sup> The Department of Labor needs to give stronger guidance to get more states to provide effective business turnaround services to manufacturers at risk of closure, including a directive to immediately amend their state plans with more specific layoff aversion plans that conform to the guidance.

### **Priority 3: Foster High-Tech Manufacturing**

American manufacturing is high-tech and highly innovative—but federal support is needed to help manufacturing communities win the global race for twenty-first-century process and product development. Heartland communities embrace manufacturing as part of a high-tech future, rather than a nostalgic look to the past. In [Cleveland, Senator Sherrod Brown](#)'s keynote remarks included this call for clarification: “To call us Rust Belt demeans our work and diminishes who we are. Today’s factories in Ohio and around the country are not rusting, they’re innovative, they’re high tech plants.” Brown cited Cleveland’s ArcelorMittal steel mill as the first plant in the world where [one person-hour of work creates one ton of steel](#).<sup>23</sup> In Ohio, jobs in advanced manufacturing industries pay \$65,000 per year compared to \$53,000 in less advanced industries, and \$47,700 in jobs across the state.<sup>24</sup> Advanced manufacturing refers to industries and processes that are capital intensive and rely on technological innovation.<sup>25</sup> Examples of advanced subsectors include aerospace, electronics, pharmaceuticals, and motor vehicles.

Leaders in all three cities that TCF visited called for increased public–private partnerships to bolster advanced manufacturing clusters. Moreover, they are betting on initiatives such as the [Advanced Robotics for Manufacturing Institute](#) at Carnegie Mellon University (one of fourteen institutes funded by the new [Manufacturing USA](#) program) to firmly position the industrial heartland as the manufacturing hub for a new generation of products. If there is a critique of federally funded advanced manufacturing efforts, however, it is that they are too focused on technology development and not enough on how to create jobs, connect with local supply chains, and educate the local workforce on the skills needed for high-tech manufacturing.

- ***Recommendation 6: Institute a new race to the top for advanced manufacturing.*** To capitalize on momentum in the region, the federal government should commit \$400 million over four years to encourage states to undertake initiatives to develop their advanced manufacturing sectors—addressing the competitiveness of existing industry and promoting the creation of next-generation products. The race would be modeled

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<sup>22</sup> Department of Labor, “Workforce Innovation and Opportunity Act; Final Rule” Federal Register 81, no. 161, August 19, 2016: 56072 <https://www.gpo.gov/fdsys/pkg/FR-2016-08-19/pdf/2016-15975.pdf>

<sup>23</sup> ArcelorMittal, “Cleveland, Steel Strong in CLE for 100+ Years,” <http://usa.arcelormittal.com/our-operations/steelmaking/cleveland> accessed August 9, 2018.

<sup>24</sup> Mike Shields, “Manufacturing a High Wage Ohio,” The Century Foundation and Policy Matters Ohio, March 12, 2018, <https://tcf.org/content/report/manufacturing-high-wage-ohio/?session=1>.

<sup>25</sup> Mike Shields, “Manufacturing a High Wage Ohio,” The Century Foundation and Policy Matters Ohio, March 12, 2018, <https://tcf.org/content/report/manufacturing-high-wage-ohio/?session=1>.

after the Department of Education’s \$1 billion [Race to the Top for Early Learning Challenge](#) and the \$4.35 billion [Race to the Top Fund](#). Similar to these education programs, the grants would seek to catalyze state-level investments. Along these lines, the National Governors Association’s Making Our Future policy academy supported teams from eight states to participate in a year long strategic planning process that spurred new programs, passed new state legislation, and secured state funding.<sup>26</sup> The goal would be to get states to race to the top around innovation rather than to a race to the bottom of tax cuts and giveaways—and states would be forbidden from giving grant funds to individual factories in the form of incentives. Instead, grant funds would be used for new partnerships between public universities and manufacturers, apprenticeships in skilled manufacturing trades, or expanded work by manufacturing extension agencies to support technology integration among small businesses. States would be encouraged to build on existing federally supported programs such as Manufacturing USA and the Manufacturing Extension Partnership. State matching funds would be required and the Race to the Top would closely align with the distinct priorities of governors.

- ***Recommendation 7: Extend and expand Manufacturing USA and its institutes.*** Modeled on Germany’s highly successful Fraunhofer-Gesellschaft applied research system, [Manufacturing USA](#) was created in 2014, as a network of public–private regional institutes that bring together large manufacturing companies, academic research institutions, small- and medium-sized manufacturers (SMMs), and government agencies to foster innovation, collaboration, and workforce education and training in critical advanced manufacturing areas.<sup>27</sup> This program is America’s leading effort to develop advanced manufacturing innovations and jobs. [Preliminary evaluations](#) show high levels of engagement by leading manufacturers with the institutes and a number of promising product innovations.<sup>28</sup>

Congress should double down on this investment. First, Congress only provided each of the fourteen institutes with five years of funding. Congress should consider making federal core institutional funding for them permanent, with prescribed levels of matching funding from private sector partners and/or state governments to ensure that federal funding is going to where there is private sector buy-in.

Second, the number of Manufacturing USA institutes should be expanded beyond the current fourteen to the [originally planned forty-five institutes](#), targeting new manufacturing technologies, including those that [improve the competitiveness of strong](#)

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<sup>26</sup> Erin Sparks and Mary Jo Waits, “Making Our Future: What States Are Doing to Encourage Growth in Manufacturing through Innovation, Entrepreneurship, and Investment,” National Governors Association, January, 2013.

<sup>27</sup> “The National Network for Manufacturing Innovation,” Congressional Research Service, May 5, 2016, [https://www.everycrsreport.com/files/20160505\\_R44371\\_f9f27674a8cecf2d2f3cf06e47040ead6b55eb4.pdf](https://www.everycrsreport.com/files/20160505_R44371_f9f27674a8cecf2d2f3cf06e47040ead6b55eb4.pdf).

<sup>28</sup> Deloitte, “Manufacturing USA program design and impact,” January, 2017, <https://www2.deloitte.com/us/en/pages/manufacturing/articles/manufacturing-usa-program-assessment.html>.

[legacy industrial sectors](#) (for example, metal fabrication, basic metals production, chemicals, and paper).<sup>29</sup> Manufacturing USA institutes have been funded primarily by the Departments of Defense and Energy; other agencies should join suit as institute sponsors, including the National Institutes of Health, which could invest in medical technologies and equipment, and the Department of Transportation, which could invest in smart highway and high speed rail manufacturing technologies.

Third, Congress should extend and strengthen the workforce initiative of each institute and ensure greater integration of the workforce education and training components of the institutes with their advanced manufacturing innovation activities. Working with the Manufacturing Extension Partnerships (MEPs), the institutes should leverage their connections with manufacturers, both large and small, to expand existing sector partnerships and set up new ones where needed with a focus on high-quality jobs, employment equity, skill development, and other workforce development, in partnership with local workforce agencies.

#### **Priority 4: Enhance Manufacturing Partnerships**

Communities are recognizing that modern manufacturing is a team sport, and are nurturing their regional manufacturing economies. The federal government needs to do more to support and scale them, and foster partnerships across sectors and industries. In Cleveland, Professor Sue Helper from Case Western Reserve University told the audience that two-thirds of the cost of major manufacturers come from supply chains, and only 8 percent come from direct expenses on labor.<sup>30</sup> That means today's manufacturing base consists of ecosystems of dispersed suppliers, which tend to be clustered geographically, such as fabricated metals in Chicago and rubber in Akron. Public investment can play a critical role in the shared needs of clusters in areas such as innovation, workforce training, and technology integration, especially for small and medium enterprises, which make up 70 percent of manufacturing employment.<sup>31</sup> For example, regional agencies are helping small businesses prepare for increasing requirements for cybersecurity by manufacturers among their suppliers. The timing is right to invest in U.S. manufacturing supply chains—small manufacturers told TCF experts that large manufacturers are looking more favorably at the advantages in quality and time efficiency provided by domestic suppliers who can use technology to provide a full array of services, from product design to just-in-time production.

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<sup>29</sup> "The National Network for Manufacturing Innovation," Congressional Research Service, May 5, 2016, [https://www.everycrsreport.com/files/20160505\\_R44371\\_f9f27674a8cecf2d2f3cf06e47040ead6b55eb4.pdf](https://www.everycrsreport.com/files/20160505_R44371_f9f27674a8cecf2d2f3cf06e47040ead6b55eb4.pdf); Sridhar Kota and Thomas C. Mahoney, "Manufacturing Prosperity: A Bold Strategy for National Wealth and Security," Mforesight, June, 2018, <https://medium.com/@MFOresight/manufacturing-prosperity-a-bold-strategy-for-national-wealth-and-security-65d2a97d6d0e>.

<sup>30</sup> Moshe Marvit, "Lessons from Cleveland about the Future of American Manufacturing," The Century Foundation, April 16, 2018, <https://tcf.org/content/commentary/lessons-cleveland-future-american-manufacturing/>.

<sup>31</sup> Authors' analysis of the Bureau of Labor Statistics, Quarterly Census on Employment and Wages. We find that 70 percent of manufacturing workers work in establishments with less than 500 employees.

Regional policies that affect economic demand can shape manufacturing's future—even including decisions that are not thought of as specifically related to the factory sector. For example, philanthropic leaders in Cleveland made early investments in LEEDCO to develop the wind power capacity of Lake Erie, with an eye to [stimulating wind power manufacturing and supply chains regionally](#).<sup>32</sup> But the [state's decision, until recently, to freeze standards](#) that would have required a greater share of the energy to come from renewable power has allowed other states to surpass Ohio in wind generation and related manufacturing.<sup>33</sup> Similarly, government procurement of goods and services represents a [\\$2 trillion annual market](#).<sup>34</sup> Legally, few projects can require regional governments to buy made in America goods; but new federal rules allow regional governments investing in mass transit to give a leg up to bids that would spur regional manufacturing and local hiring. [Jobs to Move America](#) used this tool to turn the Chicago's purchase of new subway cars into a [major new railcar manufacturing facility](#), complete with an aggressive plan to ensure that residents in the heavily African American South Side neighborhood can compete for the facility's 200 unionized jobs.<sup>35</sup>

- **Recommendation 8: Reinstitute and expand the 2012–16 Investing in Manufacturing Communities Partnership.** Under a 2012 Department of Commerce (DOC) pilot program, regions that came together to develop a strategic plan to support competitive manufacturing clusters could apply for a federal designation as part of the Investing in Manufacturing Communities Partnership (IMCP). This program provided technical assistance to recipient communities of the federal grantmaking process, [bringing in new resources for infrastructure and job training and serving as a catalyst for the ongoing collaboration between industry and government](#).<sup>36</sup> This DOC pilot was ended by the Trump administration in 2017. Congress should appropriate \$30 million for the Defense Manufacturing Communities Program—a partial successor for the IMCP program—which was authorized by the FY 2019 National Defense Authorization Act in August and supported by [President Trump](#).<sup>37</sup> The Departments of Defense and Commerce should consult with IMCP communities and take lessons from the pilot in order to re-establish the designation even before specific funds are authorized. Moreover, the program

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<sup>32</sup> Moshe Marvit, “Lessons from Cleveland about the Future of American Manufacturing,” The Century Foundation, April 16, 2018, <https://tcf.org/content/commentary/lessons-cleveland-future-american-manufacturing/>.

<sup>33</sup> Carrie Blackmore Smith, “Kasich breaks with GOP, keeps renewable energy standards,” *USA Today*, December 27, 2016, <https://www.usatoday.com/story/news/politics/2016/12/27/kasich-breaks-gop-keeps-renewable-energy-standards/95896582/>.

<sup>34</sup> Madeline Janis, Roxana Aslan, and Katherine Hoff, “Harnessing Government Spending to Revitalize Good Manufacturing Jobs,” The Century Foundation and Jobs to Move America, October 3, 2017, <https://tcf.org/content/report/harnessing-government-spending-revitalize-good-manufacturing-jobs/>.

<sup>35</sup> Corilyn Shropshire, “First step to new CTA rail cars: Build the factory in Chicago,” *Chicago Tribune*, March 16, 2017, <http://www.chicagotribune.com/business/ct-cta-new-railcar-plant-0316-biz-20170315-story.html>.

<sup>36</sup> Amanda Novello, “Revitalize American Manufacturing by Nurturing the Industrial Commons,” The Century Foundation, April 12, 2018, <https://tcf.org/content/commentary/revitalize-american-manufacturing-nurturing-industrial-commons/>.

<sup>37</sup> Office of Management and Budget, “Follow-on to Statement of Administration Policy-S. 2987 John S. McCain National Defense Authorization Act for Fiscal Year 2019,” June 26, 2018, [https://www.whitehouse.gov/wp-content/uploads/2018/06/saps2987s\\_20180626.pdf](https://www.whitehouse.gov/wp-content/uploads/2018/06/saps2987s_20180626.pdf).

should be strengthened by putting a priority on communities that take action to create more opportunities for minorities and women in manufacturing and involve labor in community planning.

- **Recommendation 9: Strengthen and expand the Manufacturing Extension Partnership.** The Manufacturing Extension Partnership (MEP) program is by far the most important federal program dedicated to assisting and improving the competitiveness of America's small- and medium-sized manufacturers (SMMs; under 500 employees), which account for 99 percent of all U.S. manufacturing firms and 70 percent of U.S. manufacturing jobs.<sup>38</sup> It consists of a network of manufacturing assistance centers, with over 400 service locations, located in all fifty states and Puerto Rico, supported jointly by federal, state, and local government, as well as by private sector funds. Despite strong bipartisan support on the Hill, MEP continues to face uncertainty about its budget—[including a proposal, early on in the Trump administration, to zero out its funding](#).<sup>39</sup> Funding for MEP should be maintained at its historical norm of close to \$200 million annually.

Furthermore, Congress should institutionalize the partnership and bridges now being pilot-tested between SMMs and the Manufacturing USA institutes. This includes [formalizing and supporting the embedding of MEP staff](#) within each institute in order to facilitate the diffusion of technologies and processes developed at the institutes out to America's broader SMM supplier base. It also could include establishing a small business innovation voucher program, redeemable within the institutes, with federal and state matching investments.

## Priority 5: Unlock New Sources of Capital

From the vantage point of community leaders, the region is not getting its fair share of capital investment to rebuild its communities. Most of the country's venture capital is invested in software companies (57.4 percent)—when it comes to hard technologies that require manufacturing, the pattern is now “invent here and manufacture there.”<sup>40</sup> This investment trend has a major geographic impact: industrial states represent [32 percent of all U.S. employment but only 9.3 percent of all venture capital investment](#).<sup>41</sup>

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<sup>38</sup> Fred Block, “A Strategy for Rebuilding the Manufacturing Sector in the United States,” The Century Foundation, September 20, 2017, <https://tcf.org/content/report/strategy-rebuilding-manufacturing-sector-united-states/>.

<sup>39</sup> Brendan Duke, “Trump's Budget Is Breaking His Promises on Manufacturing,” March 27, 2017, <https://www.americanprogress.org/issues/economy/news/2017/03/27/429041/trumps-budget-breaking-promises-manufacturing/>.

<sup>40</sup> Sridhar Kota and Thomas C. Mahoney, “Manufacturing Prosperity: A Bold Strategy for National Wealth and Security,” Mforesight, June, 2018, <https://medium.com/@Mforesight/manufacturing-prosperity-a-bold-strategy-for-national-wealth-and-security-65d2a97d6d0e>.

<sup>41</sup> Andrew Stettner, “How Federal Government Can Foster Stateside Advanced Manufacturing,” The Century Foundation, April 9, 2018, <https://tcf.org/content/report/federal-government-can-foster-stateside-advanced-manufacturing/>.

Pension funds are potentially a key lever for reinvestment. In [Pittsburgh, United Steelworkers president Leo Gerard](#) referred to pension funds as the deferred wages of workers, and declared that, “we should be able to use those pension funds for the kinds of returns we can get by creating good manufacturing jobs, making a product, making it in a community where people can get a job and making it so people can have good wages.” In 2016, U.S. pension assets were valued at \$22.5 trillion, and workers have a voice on trust funds representing \$4.35 trillion.<sup>42</sup> Alongside citizen investors, worker trustees can demand that asset managers invest more robustly in sustainable industries and distressed communities. Speaking in [Chicago](#), Illinois state treasurer Michael Frerichs asserted that pension investors are uniquely positioned to break free from Wall Street’s obsession with short-term profits, and invest in sustainable companies, such as regional manufacturers, that can produce the long-term financial gains that pension fiduciaries are pledged to get. The lack of investment capital is a real everyday problem for manufacturers such as [QuickLoadz](#), a Cleveland summit attendee from Ohio’s section of Appalachia, who’d like to scale up manufacturing of their patented winch-free container trailers in Ohio, but may have to sell their technology to a larger manufacturer elsewhere. While sustainable investing is most popularly associated with environmental issues, organizations such as [Heartland Capital Strategies](#) in Pittsburgh and the [AFL-CIO Housing Investment Trust](#) are successfully arguing that the needs of distressed communities are a vital part of sustainability.

- **Recommendation 10: Create an industrial bank** A federal industrial bank can provide low-cost loans and loan guarantees to manufacturers, lowering the cost of raising capital for critical national priorities. [The European Investment Bank](#), along with numerous national banks in Europe and Canada, has served this function for sixty years on the other side of the Atlantic, as has the U.S. [Export–Import Bank for American industry, at least](#) for a slice of manufacturers. Like [proposals for an infrastructure bank and the recent successful experiment with Build America Bonds \(which needs to be revisited and complemented by Made in America Bonds\)](#), industrial bank funds would require that private lenders provide part of the funding for any supported project.<sup>43</sup> The industrial bank could focus on a set of important national needs including accelerating green manufacturing, the reshoring of manufacturing jobs to the United States, and the restoration of key manufacturing capacities for national security. An interesting source that Congress could use to fund the bank would be revenue from tariffs targeting dumping, threats to national security, and unfair competition; these dollars could be repurposed to the overarching goal of bringing jobs back to the United States. By combining the lower-cost incentives that national bank and bond-capitalized vehicles

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<sup>42</sup> Willis Towers Watson, “Global Pension Assets Study 2017,” January 30, 2017, <https://www.willistowerswatson.com/en/insights/2017/01/global-pensions-asset-study-2017>.

<sup>43</sup> Keith Miller, Kristina Costa, and Donna Cooper, “Creating a National Infrastructure Bank and Infrastructure Planning Council,” Center for American Progress, September 2012 <https://www.americanprogress.org/wp-content/uploads/2012/09/InfrastructureBankReport.pdf>, and Michael Lind and Daniel Mandel, “Made in America Bonds,” New America Foundation, March 2010 <https://www.newamerica.org/economic-growth/policy-papers/made-in-america-bonds/>.

might create with existing tax credit provisions, Congress would dramatically increase investment capital availability for small and medium enterprises.

- **Recommendation 11: Establish a national economically targeted/impact Investment clearinghouse.** According to The Forum for Sustainable and Responsible Investment, the size of the sustainable, responsible, impact investing market has grown from \$4.8 trillion in 2012 to \$8.1 trillion as of the end of 2016 (this includes pension and other institutional funds). This market now accounts for \$1 out of every \$5 invested by asset managers in the United States. An investment clearinghouse would foster co-investments with the private sector and the industrial bank to mobilize and amalgamate pension and impact investments. Utilizing existing public guarantees/incentives in some limited cases, the clearinghouse could encourage greater risk-taking in targeted innovative sectors and projects. Finally, the clearinghouse would work with various stakeholders to encourage investment management firms to develop new, innovative investment products to fill capital gaps.<sup>44</sup>
- **Recommendation 12: Establish a revolving technology loan for small businesses.** The U.S. Small Business Administration should create a revolving loan fund that particularly targets small manufacturers who are struggling to upgrade their technology to effectively meet the demands of supply chains, enabling them to upgrade their production equipment, cybersecurity, and networks, and install smart manufacturing technologies, such as sensors.<sup>45</sup> As supply chains in U.S. manufacturing have become more diffuse, the project of modernizing manufacturing depends on the actions of small companies, and small companies tend to have greater challenges accessing capital. A revolving loan fund, which would be self-sustaining, would be an efficient way for the federal government to help solve the problem.

## Conclusion

Stagnating wages and income inequality are a seminal crisis in America. Revitalizing manufacturing is a critical step to restoring middle class jobs, especially in the industrial heartland. The High Wage America project's scholarly and on-the-ground research in heartland communities found grounds for optimism, with a nascent industrial recovery and promising partnerships between companies, communities and labor. Stepped up investments by the federal government can play a critical role in driving this progress. To be truly effective in revitalizing American manufacturing, the plans in this report for federal-state partnerships must

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<sup>44</sup> Keith Miller, Kristina Costa, and Donna Cooper, "Creating a National Infrastructure Bank and Infrastructure Planning Council," Center for American Progress, September, 2012, <https://www.americanprogress.org/wp-content/uploads/2012/09/InfrastructureBankReport.pdf>.

<sup>45</sup> Sue Helper and Tom Mahoney, "Ensuring American Manufacturing Leadership through Next Generation Supply Chains," Mforesight, June 2017, <https://medium.com/@Mforesight/the-smart-supply-chain-5bb39fabdc1>.



be accompanied by national policies, create a new regime of fair international trade, and harness federal spending (Buy America) to stimulate national demand.

The recommendations in this report would represent an approximately \$2 billion per year increase in support for manufacturing communities—still far less than what other leading industrial nations spend, but representing a major boost to the manufacturing sector in a critical part of the nation. This includes \$700 million per year to fully fund forty-five manufacturing USA institutes, expanding TAA at a cost of approximately \$500 million per year, capitalizing the industrial bank with \$300 million per year, apprenticeship, education, and training programs at a cost of \$300 million million per year, increasing MEP and Manufacturing Communities Partnerships at a cost of \$100 million per year, and a cost of \$100 million per year for a race to the top for advanced manufacturing.

These investments in manufacturing should be seen as a one part of a broader strategy to set the nation on a high wage path. That national strategy—benefiting workers in manufacturing and across the economy—includes revamping labor laws and workforce protections, monetary and fiscal policies that drive wage growth, and an education and training system that facilitate upward mobility. These policies see well-paid workers as the economy’s greatest asset and the driver of a more productive economy and rebuilding of a vibrant middle class.

#### **Priority 1: Communities and Employers Must Increase the Pipeline of Qualified Workers**

- *Recommendation 1: Provide federal grants for career-based K–12 programs targeting manufacturing.*
- *Recommendation 2: Double manufacturing apprenticeships in five years and build the infrastructure for sector based education and training..*
- *Recommendation 3: Use wraparound services to strengthen manufacturing employment programs in communities of color.*

#### **Priority 2: Prevent and Mitigate the Displacement of Manufacturing**

- *Recommendation 4: Expand trade adjustment assistance into trade, technology, and policy adjustment assistance.*
- *Recommendation 5: Improve the implementation of WIOA layoff aversion.*

#### **Priority 3: Foster High-Tech Manufacturing**

- *Recommendation 6: Institute a new race to the top for advanced manufacturing.*
- *Recommendation 7: Extend and expand Manufacturing USA and its institutes.*

#### **Priority 4: Enhance Manufacturing Partnerships**

- ***Recommendation 8: Reinstitute and expand the 2012–16 Investing in Manufacturing Communities Partnership.***
- ***Recommendation 9: Strengthen and expand the Manufacturing Extension Partnership.***
  
- **Priority 5: Unlock New Sources of Capital** ***Recommendation 10: Create an industrial bank.***
- **Recommendation 11: Establish a national economically targeted/impact investment clearinghouse.**
- ***Recommendation 12: Establish a revolving technology loan for small businesses.***