



**MEP • MANUFACTURING
EXTENSION PARTNERSHIP**

MARCH 2016
**MAKE IT IN AMERICA
INTERIM REPORT**





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Introduction

In December 2013, the Hollings Manufacturing Extension Partnership (MEP) awarded \$3.75 million in Make it in America (MiiA) grants to 10 MEP centers in nine states. The 3-year grant awards are in addition to the \$20.5 million in MiiA funding from the Department of Commerce's Economic Development Administration (EDA), the Department of Labor's Employment and Training Administration (ETA) and the Delta Regional Authority (DRA). The overall objective of the MiiA Challenge is to make it more attractive for businesses to build, continue, or expand their operations in the United States.

The 10 winners of the MiiA Challenge pursue projects in nine states. The following MEP centers each receive \$125,000 per year for three years to support their regional MiiA teams:

- Maine: Maine MEP
- Michigan: Michigan Manufacturing Technology Center
- Mississippi: InnovateMEP Mississippi
- Missouri: Missouri Enterprise
- Ohio: State of Ohio, Ohio Development Services Agency - 2 awards
- Oregon: Oregon Manufacturing Extension Partnership
- Pennsylvania: Northeastern Pennsylvania Industrial Resource Center
- South Carolina: South Carolina MEP
- Washington: Impact Washington

This collaboration allowed teams of organizations to submit a single application to receive funding from the four agencies, with each funding stream focused on a different aspect of a regional economic development strategy. EDA's investments will help distressed regions build on existing assets to generate job growth by creating an environment conducive for businesses to establish and grow their operations in the United States. ETA's investments will help to develop a skilled workforce for specific industries. MEP's grants help develop greater connectivity in regional supply chains and assist small and medium-sized enterprises.

As part of the MiiA Challenge, participating MEP Centers have, over the last year and a half of project work, provided a wide range of technical and business assistance to encourage and support reshoring, improve supply chains (see below), and develop the manufacturing workforce. Key programs and services offered among these include:

- Supply Chain Optimization: reduces risk and volatility, increases collaboration with suppliers, reveals the true total cost of the supply chain, and increases capability to develop and distribute products.
- Supplier Scouting: leverages MEP's knowledge of local manufacturing capabilities and capacities to connect U.S. manufacturers with business opportunities tied to specific OEM supply chain needs.
- Technology Acceleration: leverages and adopts technology as a key to long-term business growth and productivity, including connecting small and medium-sized enterprises to the National Network for Manufacturing Innovation (NNMI) and its Institutes.
- Continuous Improvement: allows manufacturers to cut costs, improve existing processes, become more innovative and responsive to new opportunities via application of quality/ISO and industry-specific standards as well as lean manufacturing/lean enterprise products and services.



Partnership Practices

The federal agencies responsible for MiiA awards have used a number of mechanisms to collaborate. These partnership practices are taking place both across MiiA awardees in the nine participating states and among the Federal partners (including DRA, EDA, ETA, and MEP) that issued and manage MiiA awards. Examples of these partnership practices include:

- Federal partners organized and hosted a webinar, “Year One in Review: Partnership Collaboration in Supply Chain Development and Workforce Design and Delivery” in 2015. During this webinar, InnovateMEP Mississippi Director Dr. Jay Tice presented “Reshoring Advanced Manufacturing Jobs in Mississippi: Enhancing Skills and Building Competitiveness,” which highlighted InnovateMEP Mississippi’s MiiA efforts to date. The webinar also featured a presentation by Amy Ames, State Technical College of Missouri, and William H. Miller, Missouri University, regarding Missouri MiiA workforce efforts resulting from their DOL ETA MiiA grant. As “takeaways,” the workforce grantees described their MiiA best practices as: 1) consistent collaborative efforts with all partners lead to opportunities for participants to engage in training that leads directly to employment; 2) utilize information from suppliers and vendors to determine the training needs for the industry; and 3) encourage instructors and other faculty to engage employers to assist in the development of the training curriculum. Federal partners expect to conduct similar subsequent webinars.
- Grantees also participated in the Grantee Regional Collaboration Meeting, held June 26-27, 2014, at NIST in Gaithersburg, Maryland, as a kick-off for their awards. This meeting, planned in collaboration with federal grant partners from the Jobs and Innovation Accelerator Challenge (JIAC), Rural Jobs Accelerator (RJA), Advanced Manufacturing Jobs and Innovation Accelerator Challenge (AMJIAC) and Make it in America (MiiA) initiatives, focused on best practices and managing partnerships. Make it in America team representatives attended from nine of the ten awardee teams.
- Federal partners from these awards also participate in bi-weekly calls with federal grant partners responsible for management of affiliated multi-agency award initiatives, including the JIAC, RJA, and AMJIAC awards, to discuss updates and federal opportunities to offer technical assistance to grantees.

MEP Center Awardee Activities and Success Stories

Maine

Center Name: Maine Manufacturing Extension Partnership

The Maine Manufacturing Extension Partnership (Maine MEP) requested funding as part of the Midcoast Regional Innovation Initiative to deliver training and technical services. These include:

- 1) supply chain scouting and assessments of the manufacturing capabilities of regional SMEs in order to develop a robust inventory of suppliers;
- 2) training and technical assistance for ISO 9001 and ISO 50001 to help SMEs access foreign markets and international supply chains;
- 3) workshops in CE Marking to enable SMEs to export to the EU and meet international OEM requirements; and
- 4) services for manufacturers moving into TechPlace that provide each firm with a strategic technology plan, workplace development plan and ISO 9001 compliant energy management system, thereby reducing the failure risks associated with early stage enterprises.

As a result of these project outputs, foreign manufacturers investing in Maine have greater data about supplier capacities, regional SMEs experience increased opportunities for OEM contracts and Maine exporters have expanded access to the EU market.

Efforts continue to be closely and effectively delivered in partnership between Maine MEP and the Midcoast Regional Redevelopment Authority (MRRA), Coastal Counties Workforce Inc. (CCWI) and Goodwill Industries (Goodwill). A Maine MEP office is now located at Tech Place on Brunswick Landing, a former Navy building that was used as the Aircraft Intermediate Maintenance Department by the P3 Orion maritime surveillance planes. Co-location proved to be a very successful approach to meeting with current and prospective Tech Place tenants and Maine MEP has, as a result of this relationship, been offering those tenants training through the Incumbent Workforce Training (IWT) program and Technical Service projects through MiiA Technical Service funds. Maine MEP is also fully utilizing the Tech Place training facility and recently completed the fourth Root Cause Analysis training session. Demand for the training from the targeted industry sectors has been high, and an upcoming Failure Modes and Effects Analysis (FMEA) course is also full.

One finding thus far is that market demand proved to be soft for ISO 50001, which was originally planned as part of this effort, per above. Demand has instead been found to be much stronger in areas such as AS 9100, ISO 13485, Internal Auditor training, Lab View, Solid Works, Project Management, and the aforementioned Root Cause Analysis. In the case of AS 9100 and ISO 13485, and two offerings are proving quite beneficial in Maine MEP's effort to serve Maine firms in the respective aerospace and biotech/medical device industries.

Maine MEP also reports significant progress on their MiiA database, including the collection of data and final drafts of some web pages. This portion of the project work also includes partners such as the Maine International Trade Center, the Manufacturing Association of Maine, the Maine Advanced Composites Analysis, the Maine Ocean and Wind Energy Initiative, the Environment and Energy Technology Council of Maine, and others. Plans are in progress to integrate the state's economic development agencies to ensure this tool will be available broadly for business expansion and to ensure sustainability for the database after the MiiA grant period concludes. The database includes information on four targeted sectors, including: aerospace, biotechnology, composites, and renewable energy; with information on the services, capacities, equipment, manufacturing processes and certifications of Maine manufacturers within these industries.



Michigan

Center Name: Michigan Manufacturing Technology Center

Michigan's proposal to the Make it in America (MiiA) Initiative was entitled, "Building Capacity and Capability in the Bio-Based Materials Manufacturing Sector". The focus on "bio-based" materials follows from earlier work done by the lead organization on this effort, the Center for Automotive Research (CAR). CAR conducted substantial research on the growing use of bio-based materials by automotive OEMs and Tier 1 suppliers – particularly as feedstocks for soft, textile-like interior materials and non-structural plastics, but also as a source of fibers in structural composites as a replacement for very expensive carbon fibers. The proposal team sees excellent opportunities for SE Michigan firms as producers of components made from these new materials, and also as makers of relevant capital equipment for processing agricultural output into useable feedstocks. CAR took the lead on identifying a set of market-ready materials, and any technical and supply chain barriers that are slowing their implementation.

As the MEP Center representative on the project team, MMTC's focus is on the pressures faced by Michigan's small- and medium-sized manufacturers (SMMs) as they are urged to work with new, unfamiliar materials. These pressures are real and intense. They are driven by the regulatory mandate faced by the auto industry to achieve dramatic fuel efficiency increases, and the industry's relentless drive to reduce vehicle weight. MMTC's clients are confronting major technical and business challenges as a result: stampers and machining shops with huge institutional experience in steel are being asked to work in aluminum; plastic molders are unsure about how to process materials with embedded fibers; tool and die shops are unsure of how new materials will behave.

MMTC's approach to this project is to consider these challenges faced by SMMs quite broadly, and not to limit the project scope to just bio-based materials. Once CAR identifies the most promising bio-based materials, MMTC will indeed push this information out to clients, and identify and assist any who wish to try them out. The center's main focus, however, is on helping SMMs to understand, confront, and adapt to the challenges and opportunities presented by new, lightweighting materials of all kinds.

MMTC, as part of their project work and in an effort to better understand these complicated market dynamics, completed a materials survey of Michigan small manufacturers. Of the 8,962 individuals contacted from 3,743 manufacturers, over 260 responded, including 40 plastic molders and 220 metal converters. Respondents identified the industry drive to lightweight and new materials as a strong concern.

MMTC hosted several successful lightweighting events, including "the Future of Lightweight Materials" at Saginaw Valley State University, with speakers from Dow Chemical, Dow Corning, Nexteer, Ducker International, Saginaw Valley State and Saginaw Future. MMTC speakers explained the Materials programs and MMTC core support programs to the 46 attendees. Other events include a Lightweighting Summit held in November 2014 and SME focus groups at LIFT (Lightweight Innovations for Tomorrow), a partnership MMTC finds provides the center with opportunities to host meaningful industry events covering both technical and strategic topics. LIFT, operated by the American Lightweight Materials Manufacturing Innovation Institute (ALMMII), is a public-private partnership to develop and deploy advanced lightweight materials manufacturing technologies, and implement education and training programs to prepare the workforce. ALMMII is one of the founding institutes in the National Network for Manufacturing Innovation (NNMI), a federal initiative to create regional hubs to accelerate the development and adoption of cutting-edge manufacturing technologies. MMTC finds that this partnership provides the center with opportunities to host meaningful and industry events covering both technical and strategic topics and reports these sessions are also valuable sources of information from manufacturers.

These events, along with SMM interviews and industry conferences, are serving to inform MMTC's decisions regarding the nature of the lightweighting support program, the content to be delivered, and the methods and location of delivery.

Mississippi

Center Name: InnovateMEP Mississippi

InnovateMEP Mississippi, as part of the “Reshoring Advanced Manufacturing Jobs in Mississippi: Enhancing Skills and Building Competitiveness” project team, proposed a comprehensive approach for assisting Mississippi manufacturers in two key ways, including:

- 1) connecting Mississippi and regional supply chains, and
- 2) strengthening the state’s qualified supplier base by assisting targeted SMEs.

This partnership includes selected community colleges, workforce investment boards, the state’s MEP organization, the state’s chief economic development agency, the state’s primary land grant university, and the enthusiastic support and involvement of Harry Moser, the nation’s leading re-shoring advocate and founder of the Re-shoring Initiative. The program places substantial emphasis on creating sourcing opportunities for SMEs within regional supply chains through a series of “listening sessions,” manufacturing technical assistance projects, funded manufacturing internships, and certificate workshops with Mississippi State University (MSU).

One of Mississippi’s early MiiA reshoring success stories features a partnership facilitated by InnovateMEP between clients BattleBells and Long Branch Company. In late 2014, BattleBells and Long Branch were contacted by CCTV America about doing a feature story. CCTV America is the American arm of Chinese Central Television (CCTV), which is the predominant state television broadcaster in mainland China, with an estimated audience of 1.2 billion. InnovateMEP Director Dr. Jay Tice was interviewed on camera for this story and appears in the report, which was broadcast in January, 2015 ([swww.cctv-america.com/2015/01/12/small-business-turns-cowbells-into-football-fans-accessory](http://www.cctv-america.com/2015/01/12/small-business-turns-cowbells-into-football-fans-accessory)). BattleBells was also featured as the “Make it in America” Manufacturer of the Week in the January 23, 2015 edition of the NIST-MEP Make it in America Campaign. This partnership continues to receive excellent press coverage and other publicity, with good visibility for Innovate Mississippi and InnovateMEP Mississippi.

Mississippi Make it in America grantees sponsored a reshoring summit in September 2014, one in a series of continued efforts across the state. The September summit, held at Mississippi State University, asked attendees “Is It Time to Reshore?” and advertised an opportunity for learning to use the Total Cost of Ownership Estimator, developed by the Reshoring Initiative to help determine the true aggregate costs and risk factors of reshoring and intended to aid in strategic decision making. Attendees heard an overview of the Mississippi MiiA (MMIIA) program; a reshoring presentation and one on Total Cost of Ownership from Harry Mosher, founder of The Reshoring Initiative; a keynote address from the President and CEO of the Mississippi Manufacturers Association, Mr. Jay Moon; an OEM panel discussion on becoming a supplier to OEMs, and a success story on Mississippi reshoring.

The Reshoring Initiative and Total Cost of Ownership were the subject of several further summits and workshops, including a summit held April 23, 2015, at the Center for Vehicular System Extension in Canton. The event also included one-on-one supply chain listening sessions designed to identify opportunities to strengthen and optimize a manufacturer’s supply chain, including in-house production. The issues identified and information developed through these sessions is being used by “Tiger Teams,” made up of MMIIA members, to identify and propose solutions to the identified issues.

To date, impacts from InnovateMEP Mississippi have included:

- 19 listening sessions have taken place
- 100 manufacturing technical assistance projects have been completed
- 249 funded manufacturing internships have been completed
- 90 technical/management professionals have been trained through workshops with the Center at Mississippi State University
- 698 jobs have been created or saved



Missouri

Center Name: Missouri Enterprise

Partners initially designed this project to develop the supply chain and infrastructure to build Westinghouse's Small Modular Reactors (SMRs), the next wave of power generation for the nuclear industry. This industry has the potential to add \$25 billion per year to Missouri's economy. However, shortly after issuance of MiiA awards, Westinghouse learned that the U.S. Department of Energy chose against funding their application for assistance developing and licensing their SMR technology, and chose instead to fund an application submitted by NuScale Power LLC focusing on a different SMR technology design. Westinghouse, then, chose to reduce their SMR development effort and focus on sales and support of their full-size AP1000 reactors which have successfully been sold in the U.S. and globally. Given this development, Missouri Enterprise reassessed their MiiA strategy to provide support to help manufacturers become involved in the current nuclear power plant (NPP) supply chain, involving operations and maintenance of existing plants and supplying components to new reactors. By supporting the current reactor supply chain, potential Missouri suppliers will address nuclear qualification issues that will carry over into the SMR supply chain, once it is up and running. This will provide assistance to both current and future nuclear supply chain markets. The first SMR to be produced by a U.S. company is not expected to begin fabrication until 2019 with completion around 2023. To this end, Missouri Enterprise conducted research via multiple mechanisms to find the Missouri manufacturing companies with the best potential to enter the nuclear power plant (NPP) supply chain. Specific activities include:

- Almost 7,000 Missouri manufacturers received an email from Missouri Enterprise briefly explaining the NPP supply chain opportunities and a survey to measure their interest in participating. Of that number, 32 companies provided contact information, with 28 of those appearing to be manufacturers. That small number indicated two things. One, much of the U.S. nuclear supply chain disappeared due to the fact that, until 2013, there had not been a new construction start on a nuclear plant in the U.S. for 30 years. Two, there is much work to do to educate and help Missouri manufacturers get ready for nuclear power plant supply chain opportunities.
- Missouri Enterprise matched NAICS codes for NPP components and subcomponents to companies who fall into these NAICS classifications. They searched their internal Salesforce data base, Thomas Register, and Hoovers.com to find Missouri manufacturers who could possibly make components and subcomponents used in Westinghouse (WEC) nuclear reactors. WEC provided propriety access to their list of component suppliers. To date, 403 Missouri manufacturers have been discovered with the potential to serve this market. Missouri Enterprise research found 360 of these companies. The University of Missouri's Business Development Program identified another 26, and the SMR Research and Education Consortium (SMRREC) added 17. These companies will now be personally contacted with an offer to provide more information on the MiiA program and assistance to pursue the NPP opportunities. Missouri Enterprise is also evaluating manufacturers to determine if they have the interest, resources and capabilities to potentially serve the NPP market. When you consider the 90 companies that were contacted earlier in this program, this brings the total to 493 companies that should be contacted before the end of the MiiA challenge grant-funded project concludes in September, 2016. Approximately 100 of those companies have been contacted.
- Missouri Enterprise has been participating in events with focus on the nuclear power industry. In the most notable example, Missouri Enterprise attended the August 2015 NuScale Power Exposition held in Corvallis, Oregon. The company plans to submit its Design Certification Application to the Nuclear Regulatory Commission (NRC) late in 2016. NuScale has recruited a few tier one manufacturers of some of the major components, most of which are investors, as well. Recruiting for other tier one and tier two suppliers will most likely start in 2017, with actual supply chain partners signed in 2018 and the first completed SMR module delivered in 2023. Therefore, NuScale represents a perfect and unique opportunity for Missouri manufacturers to get involved on the ground floor with a new nuclear reactor company, rather than having to break into an existing supply chain.

- Missouri Enterprise will now contact Westinghouse and other NPP tier one suppliers to see if there are any opportunities for Missouri companies to participate in their supply chains, and provide information to those companies on how to respond where opportunities exist.
- Missouri Enterprise will also contact existing U.S. nuclear power plant operators to research opportunities for Missouri companies and contact Missouri nuclear component manufacturers to research supply chain opportunities for Missouri companies.

Ohio

Center Name: Ohio Manufacturing Extension Partnership subrecipients - Appalachian Partnership for Economic Growth and MAGNET

The Appalachian Partnership for Economic Growth (APEG), as part of their MiiA “Make it in Appalachian Ohio” project work in wood furniture manufacturing supply chain development, completed sixteen formal projects with wood manufacturing firms in their region, and twelve additional projects are contracted.

The center is also developing detailed sawmill/lumber manufacturing MEP course content for seminar presentations. The center’s wood products specialist, hired in quarter one of the MiiA project, identified several supply chain gaps, particularly a lack of kiln drying capacity, and is working with OEMs to possibly fill that gap. The center also reports close collaboration between the wood products specialist and the DOL-funded workforce grant program, and the MEP specialist is also serving as advisor to a separate MEP-funded project with Washington State Community College to establish a skills training and certification program for the wood furniture industry in the region. The curriculum is complete, as are national certification arrangement, and State of Ohio certification is nearly completed.

APEG recently submitted a formal export development plan targeting small and medium-sized wood-based product manufacturers in the region to the State of Ohio and the Appalachian Regional Commission for approval. The concept and the content will be direct connection with foreign clients, related training and ongoing transaction mentoring. In addition, APEG staff continued to work with local economic development professionals, to add additional development sites and collect data to finish incomplete site entries in the database system. During the previous quarter, APEG engaged engineers to conduct assessments of 21 sites identified for potential industrial development along the Ohio River. Information from these reports is being assembled for a website that will provide details about each site, including links to the MiiA GIS map with site attributes, and river resources. The website will be formally unveiled at the Ohio Conference on Freight in September.

APEG staff and staff of cooperating local economic development organizations utilize a site information worksheet developed by APEG that guides them through the process of collecting sufficient information about each development site visited to upload a complete site entry to the Ohio InSite. Forms used to gather this information about properties to be entered into the OhioOne property database system have been updated and distributed to economic development partners within the region and shared with Buckeye Hills Development Site Coordinator. This will help simplify the process for gathering data and ensure a higher quality of data that is being entered into the system. APEG staff and partners continue to gather data utilizing this method.

APEG’s MiiA grant work has also helped the center to build sufficient relationships in and understanding of the industry to attract a SBA Regional Innovation Cluster award under POWER. The award is part of the interagency Partnership for Opportunity and Workforce and Economic Revitalization (POWER) initiative, designed to assist communities impacted by changes in the coal economy. This award will allow the cluster to continue work for up to four additional years after the scheduled end date of MiiA and expand to include the entire wood products industry and new services.



Clusters supported through the program are awarded \$500,000 for the base year of the contract, with four option years to be exercised at the SBA's discretion, for up to a total of \$2.5 million per cluster initiative over five years.

"There is enormous potential for expanding our furniture and wood processing industries," said John Molinaro, president and CEO of APEG in an October 2015 press release regarding the award. "In furniture manufacturing alone we have nearly 24,000 skilled workers whose wages and benefits are over \$1 billion a year. This is an industry that deserves our attention and can create jobs." The sector is one of the state's top five manufacturing sectors for projected employment growth through 2020, and the majority of furniture and wood product manufacturing companies employ fewer than 25 people.

Among the services to be provided by APEG are technical assistance to improve manufacturing productivity; the development of a wood products supply chain database; industry workforce training; export assistance and industry research.

MAGNET, as part of team Advance Northeast Ohio (ANEO), proposed to act as the project manager, assessing strategic partnership companies and developing project plans for the grantees' efforts to work with advanced materials technology in the biomedical, automotive, and advanced energy supply chains to spur growth, job creation, and investment in the Ohio counties of Akron, Canton, Cleveland, Lorain and Youngstown. For participating companies as selected through a specific set of criteria for support in growing global competitiveness, MAGNET planned to: determine gaps in manufacturing value chains for OEMS and large industry partners, in conjunction with EDA; and to scout suppliers and offer services to small firms in need of supply chain expansion.

MAGNET reports that their Assessment Scorecard (see appendix A) remains a great tool for objectively understanding the fit of a company with the ANEO grant, easing information-sharing and objective decision-making, including which companies to work with and which to eliminate. The Scorecard highlights key criteria for each of the 25 companies participating in the ANEO project. An online "Project Statusboard" continues to help with prioritization and monitoring prospective companies from idea state to final project negotiations or implementation. The team finds the guide and score matrix facilitates quick, efficient discussions of candidate companies and makes a good foundation for negotiation with Prospect Companies and determination of priorities and project scope.

The ANEO project intends to track detailed performance measures, including increases in jobs created and retained, incremental revenues, leveraged investments, exports, foreign direct investment, and industry-recognized credentials earned by target populations, including traditionally underserved populations (minorities, females, and veterans).

Oregon

Center Name: Oregon Manufacturing Extension Partnership (OMEP)

The "Make it in the Willamette Valley" project design tasks the Oregon Manufacturing Extension Partnership (OMEP) with undertaking a growth opportunity review with targeted advanced manufacturing companies; working with SMEs to prepare innovation and supply chain business model review; and deploying a growth services delivery system for collaborating on manufacturing innovation. The center proposed to: develop a list of manufacturers in the targeted three counties of Marion, Polk, and Yamhill by size, sector, supply chain connections, identification of opportunities and gaps; identify companies with a strong interest and commitment to transformation efforts; use the Collaboration for Manufacturing Innovation model to introduce business leaders to best practices in company team sessions; and provide 10 SME consulting engagements resulting in new sales, new product launches or cost savings. OMEP will exceed this target goal by the end of the grant period.

OMEP continues to aggressively market services under the Grant in the three counties, including conducting a series (three) of Lean Fundamentals classes (4-half day sessions) to highlight case studies from a wide variety of companies who have adopted world class manufacturing principles. Additionally, OMEP worked closely with Incite (formerly Job Growers) to build enthusiasm within their shared network of companies. A 'Lean as a Growth Strategy' session was well attended and received, leading to a number of invitations to perform on site visits. Partners hope this will be a joint venture bringing SEDCOR, Incite and McMinnville Economic Development together as co-sponsors to highlight the potential of adopting Operational Excellence techniques by utilizing MiiA grant opportunities.

OMEP has worked with companies in wood products, food processing, computer and electronics, machinery, transportation equipment and fabricated metal in this region as a result of this grant program.

Pennsylvania

Center Name: Northeastern Pennsylvania Industrial Resource Center, Inc.

The Northeastern Pennsylvania Industrial Resource Center, Inc. (NEPIRC) spearheads a statewide MiiA initiative to create a Pennsylvania-based supply chain and bring manufacturing jobs back to Pennsylvania. In an effort to help assist manufacturers in their reshoring efforts, make them aware of reshoring opportunities, facilitate buyer/supplier connections and ultimately reshore products, bringing jobs back to Pennsylvania and the U.S., NEPIRC, along with four sister centers located in the CORE PA region, MANTEC, MRC, IMC and NWIRC, conducted 19 reshoring seminars for 123 manufacturers through December 2015, with additional events scheduled. They also offered Total Cost of Ownership (TCO) Analysis and provided supplier scouting assistance to manufacturers, with details below:

- Total Cost of Ownership (TCO) Analysis: The decision of where to locate and source manufacturing is often determined by costing methods that do not accurately capture the true costs of offshore production or sourcing. For example, many product costs such as travel for auditing, inventory carrying costs, obsolete inventory, and those associated with the loss of intellectual property are often overlooked in sourcing decisions which can lead to underestimating product costs by as much as 20%. Companies can make better sourcing decisions by analyzing all product costs with TCO analysis, which helps companies identify, calculate, and compare all of the product costs, risks and strategic impacts of their sourcing decisions. Increasingly, companies that make their sourcing decisions using the Total Cost of Ownership analysis find that —"coming home to Pennsylvania"—is the best choice. As of December 2015, NEPIRC, along with their CORE PA sister centers, conducted TCO analysis with eleven manufacturers on one or more offshored part.

NEPIRC is also providing PA manufacturers with no-cost supplier scouting assistance through the Reshore2PA initiative (www.Reshore2PA.com). Reshore2PA is a platform for connecting manufacturers that want to reshore parts and products to Pennsylvania with suppliers that can manufacture them. Manufacturers post reshoring requests online and Pennsylvania's regional economic development partners scout potential suppliers and help make buyer-supplier connections.



South Carolina

Center Name: South Carolina Manufacturing Extension Partnership (SCMEP)

“Select SC: Improving Manufacturing Competitiveness in the Palmetto State” focuses on encouraging in-sourcing, expansion, and foreign direct investment in 12 South Carolina counties. For this effort, South Carolina MEP (SCMEP) is building upon their extensive experience in the areas of Supply Chain management and Innovation/Growth services.

SCMEP developed and piloted the new product offerings from a recent Supply Chain Optimization (SCO) T-CAR pilot among a five MEP Centers. This SCO program provides a platform to help manufacturers build dynamic supply chains through the use of strategy development and implementation, risk management and total cost of ownership. It offers a comprehensive approach facilitated in a coaching, mentoring and directing model to create supply chains of various stages of complexity, to function at advanced levels. As a result, manufacturers benefit from increased visibility to tiers above and below, alignment between corporate objectives and supply chain strategy, collaboration and communication with partners and suppliers, culminating in the benefit of competitive edge.

As a result of their MiiA efforts thus far, SCMEP has held four executive supply chain strategy sessions, eight risk management workshops, five supply chain workshops for suppliers, ten Total Cost of Ownership (TCO) workshops, and two innovation and growth projects. The risk management workshops were added as a result of findings that many companies do not have a risk management plan and due to difficulty experienced in scheduling supplier workshops. This difficulty has been due to performance and systems issues at the OEM level requiring attention first as well as preexisting trust issues between suppliers and the OEMs.

MiiA funding allowed the enhancement of the risk management workshops initially developed through SCO T-CAR award funding. These risk management workshops now have an added ISO certification component, this work continues to improve the accompanying risk management tool for MEP system use. As a reflection of their successful supply chain optimization efforts, SCMEP was invited to, and subsequently took part in, in the White House’s first White House Supply Chain Roundtable, which was held in July 2015.

SCMEP is also offering an innovation and growth program to South Carolina’s manufacturers as part of their MiiA award. This effort utilizes and methodology to put manufacturers in position to grow their businesses by developing new customers, expanding into new markets, and creating new products.

Washington

Center Name: Impact Washington

The overall objective of the Make It in Washington Project is to identify and take advantage of the underutilized capacity of hundreds of manufacturing subject matter experts (SME) outside the Seattle area in order to recapture domestic production that is currently offshored, or is likely to be offshored. As part of this project, Impact Washington planned to: create a statewide Asset Map of SME’s and their capabilities; develop and disseminate market intelligence, including tech mining/scouting reports; conduct industry-specific trainings; and enroll companies in a Made in Washington program.

Impact Washington reports continued success in populating the Made in Washington directory and detailing the Statewide Asset Map through outreach efforts. Impact Washington developed a detailed asset mapping questionnaire to distribute via SurveyMonkey; engagement in the survey is via email outreach, and partners actively share the link in online newsletters and publications. Fifty-six companies completed the questionnaire and were added to the map in the second quarter of 2015. The questionnaire collects: products manufactured, manufacturing

capabilities, certifications, export percentage, products sourced from overseas, and key employee education levels. The Impact on the CoreValue Assessment, a two-hour meeting with company leadership to discuss business and identify growth opportunities, is also proving successful, with fourteen companies engaged and resulting in six referred leads for project partner Innovate Washington Foundation. Impact Washington also reports 35 referrals to DOL partners for educational opportunities.

Interim Lessons Learned

Given that the NIST MEP MiiA Challenge awards and resulting awardee projects conducted by MEP Centers are roughly midway through the program's three-year lifespan at the time of this report, full analysis of lessons learned cannot yet be completed. These trends and lessons will continue to be observed and analyzed during the remainder of the MiiA Challenge lifespan. However, some interim observations that may be considered, per below:

Focus on Supply Chain activities: The majority of awards feature some degree of focus on supply chain activities, including Supply Chain Optimization (SCO) and/or Supplier Scouting projects. Examples of these activities include:

- Total Cost of Ownership (TCO) – an SCO method for quantifying the costs for every activity along the supply stream, including acquisition, transportation, storage, and selling of goods. TCO allows strategic sourcing decisions to incorporate social costs, which historically have been difficult to assess. The working session also introduces a TCO calculator, which allows a side-by-side comparison of up to four suppliers and the analysis of multiple sourcing scenarios.
- Supplier Scouting - Original Equipment Manufacturers (OEMs) and government agencies often struggle to find suppliers that meet specific criteria. MEP Supplier Scouting effectively identifies domestic manufacturers that meet specifications and connects them with the supply chains of large companies and federal agencies. Through Supplier Scouting, MEP identifies U.S. manufacturers who can make specific products and who have technical capabilities and production capacities that match procurement needs as well as desired or required demographic attributes.

Other supply chain-related activities conducted as part of MiiA Challenge awardee projects include supplier development activity and SCO tools and methods such as Risk Management and Executive Supply Chain Strategy workshops. The conduct of these supply chain activities under the MiiA Challenge offer the MEP System the opportunity to deploy these new services and tools to fulfill the MEP mission to enhance the productivity and technological performance of U.S. Manufacturing.

Reporting requirements: Prior to the issuance of the ten MiiA Challenge awards, NIST MEP leadership made a purposeful decision to balance the burden of reporting requirements with the ability to extract and analyze useful project information. In designing the proposed MiiA Challenge awardee reporting requirements, two guiding objectives were considered. These included:

- 1) Fulfilling an objective to minimize any potential reporting burden placed upon the MEP Centers and their SMEs clients resulting from the conduct of their MiiA Challenge efforts; and,
- 2) Utilization of existing forms, processes, and information technology infrastructure as much as possible so as to minimize disruptions, adjustments and burden in reporting.



Given these two guiding objectives, as well as the award terms and conditions as outlined in the MiiA Challenge Cooperative agreements, MEP leadership decided that MEP Center awardees would only be required to submit progress plans on a quarterly basis to the existing MEP Enterprise Information system (MEIS). These quarterly plans provide primarily qualitative information, in narrative format, about the conduct of activities and progress made toward completing the MEP Center's MiiA Challenge work plan. While these quarterly progress plans often do include information about prospective clients approached, clients served with projects, projects underway or completed, and the identification of staff working on the award, the lack of uniformity of project activity across MiiA Challenge awardees make it difficult to aggregate this information for analysis. Thus, the combination of lack of a dedicated quantitative reporting system and the breadth of program initiatives taking place have made quantitative analysis across all awards difficult. Some teams have also reported challenges in integrating MiiA clients with the standard MEP data collection and survey styles, such as APEG's project work with Amish and Mennonite firms, for reporting purposes.

Implementation: MAGNET compiled a series of five "lessons learned" for MEP affiliates working on similar projects based upon the center's MiiA experiences. MAGNET reports:

- 1) Collaboration with partners is crucial to consistent high-quality service for clients. The MiiA partnership pulls in organizations with different expertise so that the value and work being done for a client can be holistic and high-quality work. This also extends beyond the formal and into other resources of the regions such as universities.
- 2) Show the value of the work, not the monetary value of the grant. Companies should be aware of the results and business impact of the work and projects being done for them, not just the discounted price. The clients who have been thinking of the value opposed to the cost have been more excited during the project and more pleased with the results. At the same time, regularly remind the clients that it is their responsibility to track and report the impact to NIST, as these are American taxpayer dollars at work.
- 3) Keeping partners informed of work with their clients is crucial to effective partnerships. Centers need to establish trust with partner and the way to do that is by keeping partners in the loop because of client relationships. If a partner gets a center access into a company, keep that client aware of the project so they feel secure that someone isn't taking their place with the client. This has allowed the network to serve more clients in more meaningful ways, as they see a network of resources and not vying one-off service providers.
- 4) Partners share access to clients that others might not have history with already. Partners that work exclusively in one area, like workforce development, might have companies that need supply-chain assistance but aren't actively looking for it yet. Because of the relationships that are already formed, MAGNET has had success introducing new subject matter experts that can educate the client on the potential value of new work. This lets the client feel like a trusted and knowledgeable source is available if they want to move forward.
- 5) The client should be as aware of the impact on their business without feeling burdened by it. As an MEP, MAGNET has had more exposure to capturing metric impact from clients through the NIST Survey process. This experience enabled the center to share best practices with partners as projects were completed. Simple project close-out forms and discussions on how impact may carry through their company help to establish the metrics behind the grant but also make the client aware of how much the work helps their business. As a result, MAGNET has had a number of grant recipients pursue new projects even without grant funding because they understand the business impact of the work.

Notable Feedback: Centers report awards such as the Make it in America challenge grants allow them opportunities they otherwise would not have had in the course of normal business, such as conducting large surveys to inform market understanding, that are beneficial to the center’s program offerings and building knowledge base.

According to MMTC, the availability of MiiA funds has allowed MMTC to develop and staff a new Materials practice area, and provided development time for new materials-related client services. Further, these new capabilities have been crucial in establishing ties with ALMMII/LIFT. The partnership has reached the point where MMTC is acknowledged as the primary contact and delivery point for SMMs who seek to work with this Innovation Institute.

APEG reports that MiiA grant work allowed the center to build sufficient relationships in and understanding of the industry to attract a SBA Regional Innovation Cluster award under POWER. As a result, the center’s work will continue for up to four additional years after the scheduled end date of MiiA and will expand the work to include the entire wood products industry as well as new services.

Summary and Next Steps

The MiiA projects operate through calendar year 2016. NIST MEP continues to monitor the projects for lessons learned, as well as tool and assistance service development, applicability, and readiness, and disseminate results widely throughout the nationwide network of MEP Centers and other relevant stakeholder groups.

MiiA project experiences are providing valuable insight for supply chain initiatives at the state and federal levels that are encouraging reshoring as well as the growth of existing domestic manufacturing operations. This includes the expansion, refinement, and continued development of specific supply chain services, such as supply chain optimization and supplier scouting. These MiiA awards also enable the further deployment of continuous improvement and technology acceleration tools and activities that allow small and medium-sized enterprises to operate more effectively within supply chains. The capacity developed and lessons learned from these awards will benefit not only the manufacturing assistance efforts of other MEP Centers, thereby strengthening the MEP Network, but also the manufacturing clients served by the MEP Program, thereby strengthening American manufacturing. Future NIST MEP program decisions also may benefit from MiiA awardee feedback, such as evidence that these MiiA programs allow these participating MEP Centers the opportunity to reach out to new clients and new partners as well as consider new or expanded services.

A final report of the MiiA projects will also be available after the conclusion of these efforts.

Appendix B: Awardee Partners and MiiA Challenge Project Summaries

Project State: Maine

Lead Applicant: Midcoast Regional Development Authority

Project Name: Improve regional infrastructure by renovating a 93,000 ft² former Navy maintenance/repair facility to create an advanced manufacturing accelerator, transforming it from military to civilian re-use.

Applicant Partners: Mid-coast Regional Redevelopment Authority, Maine MEP, Coastal Counties Workforce, Inc.

Project Description: The closure of Naval Air Station Brunswick (NASB) in May 2011 posed an unprecedented economic challenge to the mid-coast Maine region. The loss of 4,800 military and civilian base personnel represented one of the largest single employer downsizings in Maine history. The Mid-coast Regional Innovation Initiative works to accelerate foreign direct investment (FDI), reshore jobs, and expand manufacturing employment by establishing an advanced manufacturing and technology accelerator and providing workforce training and supply chain technical assistance within a 50-mile radius of the former base. The plan is to: (1) improve regional infrastructure by renovating a 93,000 square foot, former Navy maintenance/repair facility to create an advanced manufacturing accelerator, TechPlace, that targets four sectors with growth potential: aerospace/aviation, advanced materials/composites, renewable energy, and biotechnology; (2) strengthen Small and Medium Sized Enterprises (SMEs) in the four targeted sectors by undertaking supply chain initiatives that better position regional manufacturers for growth opportunities; and, (3) institute training programs to build a highly-skilled and diverse workforce capable of meeting employer demand in the four targeted technology sectors.

Project State: Michigan

Lead Applicant: Center for Automotive Research

Project Name: Building Capacity and Capability in the Bio-Based Materials Manufacturing Sector

Applicant Partners: Center for Automotive Research, Michigan Manufacturing Technology Center (MMTC), Macomb St. Clair Workforce Development

Project Description: Opportunities exist to grow the bio-based materials sector significantly in the Southeast Michigan region, but presently, the supply chain does not have the capacity to take full advantage of them. Bio-based materials are industrial products made from renewable agricultural and forestry feedstock. These products offer advantages from both environmental and economic perspectives and are increasingly being deployed in a number of automotive components. The applicant team will work together over three years to bridge gaps between the region's current manufacturing capabilities and the necessary materials, workforce skills, and other resources to build this industrial sector. The "Building Capacity and Capability in the Bio-Based Materials Manufacturing Sector" effort builds and expands on the distinctive combination of assets to support job creation and attraction of domestic and foreign direct investment in the agricultural manufacturing sector, as well as greater development of a supply chain for bio-material products to support the U.S. automotive industry. This initiative targets a 22-county region in Southeast Michigan, which encompasses the major cities of Detroit, Pontiac, Flint and Saginaw, as well as numerous rural townships in Michigan's Thumb.

Project State: Mississippi

Lead Applicant: Mississippi State University

Project Name: Reshoring Advanced Manufacturing Jobs in Mississippi

Applicant Partners: Mississippi State University, Innovate MEP Mississippi, Three Rivers Panning & Development District



Project Description: The goal of this program is for “Make it in Mississippi” to become one of the leading answers to the challenge of re-shoring jobs. This program consists of a tightly woven partnership of key stakeholders, focused strongly on addressing the needs of advanced manufacturing around the state. This partnership includes selected community colleges, workforce investment boards, the state’s MEP organization, the state’s chief economic development agency, the state’s primary land grant university, and the enthusiastic support and involvement of Harry Moser, the nation’s leading re-shoring advocate and founder of the Re-shoring Initiative. The program places substantial emphasis on creating sourcing opportunities for SMEs within regional supply chains through a series of “listening sessions,” manufacturing technical assistance projects, funded manufacturing internships, and certificate workshops with MSU. The targeted tangible impact for this program will be to retain or create 750 jobs and generate an economic impact of \$40 million in leveraged private investment and economic impact including, foreign direct investments, workforce training, and cost savings for example.

Project State: Missouri

Lead Applicant: University of Missouri System

Project Name: Missouri SMR Project

Applicant Partners: The Curators of the University of Missouri, Missouri Enterprise, Missouri Division of Workforce Development

Project Description: This project was initially designed to develop the supply chain and infrastructure to build Westinghouse’s Small Modular Reactors (SMRs), the next wave of power generation for the nuclear industry. This industry has the potential to add \$25 billion per year to Missouri’s economy. However, shortly after issuance of MiiA awards, Westinghouse (WEC) learned that the U.S. Department of Energy chose against funding their application over \$200 million in assistance for developing and licensing their SMR technology and chose to fund an application submitted by NuScale Power LLC focusing on a different SMR technology design. WEC then chose to reduce their SMR development effort and focus on sales and support of their full-size AP1000 reactors. Given this development, Missouri Enterprise reassessed their MiiA strategy to provide support to help manufacturers become involved in the current nuclear power plant (NPP) supply chain, involving operations and maintenance of existing plants and supplying components to new reactors. By supporting the current reactor supply chain, potential Missouri suppliers will address nuclear qualification issues that will carry over into the SMR supply chain, once it is up and running. This will provide assistance to both current and future nuclear supply chain markets.

Project State: Ohio

Lead Applicant: Buckeye Hills Hocking Valley Regional Development District

Project Name: Make it in Appalachian Ohio

Applicant Partners: Buckeye Hills-Hocking Valley Regional Development District, Appalachian Partnership for Economic Growth (APEG), Ohio Valley Employment Resource

Project Description: The Make it In Appalachian Ohio target industries in the 28-county region of Appalachian Ohio are metal fabrication, polymers and chemicals, and wood furniture manufacturing – all of which are strong in the region, growing in the state, and among the sectors in which the U.S. is best positioned for re-shoring. A development site inventory and economic development asset mapping will catalyze the region’s re-shoring assets by removing the region’s single greatest barrier to re-shoring: lack of information about well-positioned development sites and associated assets. Wood furniture manufacturing supply chain development will strengthen a growing industry in the region through a distributed manufacturing model ideally suited to the rural and small-firm nature of the region. An incumbent worker training program augmented by on-the-job training resources will strengthen the region’s workforce in the target sectors. Over 800 workers will be trained and over 900 certifications issued through an approach based on a highly-successful, 14-year program in a rural region of Minnesota.

Project State: Ohio

Lead Applicant: Team NEO

Project Name: Advance Northeast Ohio: Focus on Advanced Materials Manufacturing in the Advanced Energy, Biomedical and Automotive Market Segments

Applicant Partners: Team Northeast Ohio, MAGNET (Ohio MEP), Medina County Workforce Development

Project Description: The Advanced Northeast Ohio (ANEO) project focuses on five Northeast Ohio cities: Akron, Canton, Cleveland, Lorain, and Youngstown, and three industry sectors: biomedical, automotive, and advanced energy. The key objectives include: re-shoring of manufacturing by US firms; fostering foreign direct investment; supporting US companies expansion of their domestic manufacturing; and training local workers. In order to achieve these objectives the ANEO project plans to: (a) assess critical manufacturing needs and capabilities with targeted sector supply chains; (b) determine gaps in manufacturing value chains for OEMS and large industry partners; (c) connect manufacturers to resources and opportunities; (d) scout suppliers and offer services for small firms to expand supply chains, (e) identify workforce needs to then train and recruit workers; (f) provide better career pathways connected to the strong regional concentration and targeted sectors.

Project State: Oregon

Lead Applicant: Mid-Willamette Valley Council of Governments

Project Name: Make it in the Willamette Valley, Oregon

Applicant Partners: Mid-Willamette Valley Council of Governments (MWVCOGS), OMEP, Incite (formerly Job Growers), Strategic Economic Development Corporation (SEDCOR)

Project Description: With EDA, NIST MEP and ETA partners working together Make It in the Willamette Valley hopes to achieve advanced manufacturing research and analysis, identification of regional opportunities, and project implementation. The MWVCOGS contracted with an economic management consulting firm to conduct an in depth industry supply analysis for Marion, Polk and Yamhill counties to assess supply chain leakage and current state of industry clusters in the region. Companies were interviewed and focus groups aided in data collection for the project. The project plan includes building regional capacity, conducting business outreach, strengthening supply chain connections, reviewing growth opportunities, deploying growth services, restructuring of the Mid-Willamette High Performance Consortium, and increasing incumbent workers training and on-the-job training. The plan will lead to a rise in re-shoring activities, regional attraction of foreign direct investment, retention and expansion of existing manufacturing businesses, and the development of a highly-skilled, diverse workforce. OMEP has provided direct services to 11 companies and completed four engagements in the region. OMEP used lessons learned and program design created under the JIAC grant to benefit this region of the state. Incite has completed incumbent worker training in six sigma, project management, quality auditing and HR solutions.

Project State: Pennsylvania

Lead Applicant: SEDA-Council of Governments

Project Name: PA Made Again: Pennsylvania's Reshoring Initiative

Applicant Partners: SEDA-Council of Governments, NEPIRC, Central Pennsylvania Workforce Development Corp

Project Description: PA's Reshoring Initiative is focused on creating and retaining manufacturing jobs in Pennsylvania by spurring direct foreign investment, encouraging firms to relocate jobs to Pennsylvania. Covering a 52-county region of central and northern the Applicant Team and its partners intend to implement a collaborative integrated scope of work targeted at bolstering the region's infrastructure to create jobs in targeted industries including chemicals, fabricated metals, machinery, primary metals, paper, and plastics/rubber. This is being



accomplished by: (1) building well-connected networks of industrial clusters that foster efficiencies, collaboration and innovation between firms along supply chains and value streams; (2) fostering a collaborative environment between manufacturers and colleges and other research institutions that focuses not only on the development of new technologies, but also on product development and process innovation; (3) building a strong pipeline of middle-skilled and highly-skilled manufacturing workers; and (4) enhancing visibility of the region to potential international and domestic investors.

Project State: South Carolina

Lead Applicant: Clemson University

Project Name: Select SC: Accelerating SC Economic Development and Job Creation

Applicant Partners: Clemson University, SC MEP, SC Appalachian Council Gov

Project Description: The Select SC: Improving Manufacturing Competitiveness in the Palmetto State program in a 12 county region is focused on encouraging in-sourcing, expansion, and foreign direct investment. Select SC seeks to improve advanced manufacturing competitiveness through (1) supporting workforce development, economic development and impacting job creation by increasing educational access to industry recognized high-technology programs via state-of-the-art digital, virtual reality, and e-tools; (2) implementing a strategy to increase efficiency in industry supply chain management and Innovation Engineering thereby reducing total cost to manufacture in selected regions and strengthening global competitiveness; (3) impacting human capital capacity through increasing training and educational attainment by creating unique educational choices and pathways with embedded industry recognized credentials for South Carolina workers.

Project State: Washington

Lead Applicant: Innovate Washington Foundation

Project Name: Make it in Washington Project (MIWP)

Applicant Partners: Innovate Washington Foundation, Impact Washington, Washington State Workforce Training & Education Coordinating Board

Project Description: The overall objective of the Make it in Washington Project is to identify and take advantage of the underutilized capacity of hundreds of manufacturing subject matter experts (SME) outside the Seattle area in order to recapture domestic production that is currently offshored, or is likely to be offshored. The project will provide strategic business planning, access to capital, create an asset map of SMEs, provide advanced educational opportunities to incumbent and potential employees and participate in state trade missions to recruit foreign direct investment. These activities will increase investment, manufacturing activity, and high-skill employment during the grant period, and will create infrastructure and opportunities for continued expansion of statewide manufacturing capacity in the future.



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