



## Project Profile: Oklahoma

### Impact Statement

The DoD Office of Economic Adjustment's (OEA's) Industry Resilience (IR) funding had a positive impact on several aspects of Oklahoma's economy related to the defense sector. Projects are contributing directly to: increased awareness about the scope and size of the defense industry in the state; enhanced understanding of realistic options to enhance operations and/or diversify their products and customer base among more than 30 defense suppliers; workers and companies having more accessible technical support through the Industrial and Aviation Technology Training Center, New Product Development Center, and prototype center; and defense suppliers realizing increased awareness of and compliance with NIST and DoD cybersecurity requirements.

### Key Project Takeaways

Collecting, analyzing, and organizing data about defense suppliers in Oklahoma provided a foundation for increasing awareness of the defense industrial base in the state and promoting commercial diversification of defense companies. Engaging partners and delivering a range of valued services enhanced the competitive position of over 30 defense suppliers and enabled them to more effectively address customer demand, including from DoD customers. Technical training and support for incumbent workers, established, and emerging companies builds on and complements the work done in the earlier phases of the award and is likely to lead to notable impacts in the current phase of the initiative.

### Project Overview

#### Rationale

Oklahoma is home to five military installations, two air national guard operations and numerous aerospace assets, including the Oklahoma Air & Spaceport. Over 120,000+ employees and 3600 firms support Oklahoma's aerospace and defense industries, and the industry accounts for more than 7 percent of the state's entire economy. At the same time, defense companies are concerned that they are unable to find workers with the technical skills necessary to sustain and grow their business and meet the ever-intensifying needs of industry. This shortage of skilled manufacturing workers is attributed both to a skills gap in Oklahoma plus a loss of experienced individuals due to retirement. Given the magnitude and importance of the aerospace and defense industry to Oklahoma and the region, it is critical that Oklahoma build the capacity of companies in the defense supply chain, enhance their cybersecurity awareness and compliance, and develop the technical skills of defense workers.

#### Program Activities

The Oklahoma State University Institute of Technology (OSUIT) used OEA funding to support Oklahoma-based defense contractor companies in several ways. In Phase I, OSUIT collected and analyzed data on Oklahoma-based defense-dependent companies to better understand the nature and extent of defense suppliers and economic vulnerability in the state. OEA funding made possible the mapping of Oklahoma's defense supply chain through a first-of-its-kind web-based interactive portal for use by state



agencies, economic development stakeholders, and defense contractors. OSUIT engaged a range of stakeholders to present and share the supply chain mapping portal.

Using that information, in Phase II of the program OSUIT identified and worked with subject matter expert solution providers and defense supplier companies to increase their current and strategic viability by providing a range of services to enhance their competitive position. Services included documenting processes valued by DoD and industry such as AS9100, conducting cybersecurity assessments, supporting strategic and business planning, improving production processes (e.g., lean six sigma, process reengineering), and promoting innovative practices, processes, and products. These services all help defense suppliers improve capabilities, capacity, efficiency, responsiveness, and reduce business risk.

OSUIT used the portal and relationships with partner organizations as primary resources for conducting outreach to companies, and many contacts completed the initial assessments that were a prerequisite for receiving strategic diversification services. In engaging companies, OSUIT targeted companies with at least 5% of overall sales from the DoD and that employed less than 500 workers. Through partners, they provided a wide range of diversification services (process improvement, industry certification, cybersecurity compliance, innovation, and strategy planning, etc.) to 37 Oklahoma defense suppliers.

In the current phase of the award, there are two major projects addressing workforce development and cybersecurity challenges: (1) launching an Industrial and Aviation Technologies Training Center (IATTC), along with a New Product Development Center (NPDC) and a prototype support effort to serve entrepreneurial initiatives; and (2) providing cybersecurity training, consulting, and vulnerability scanning for defense suppliers in the state. The IATTC will offer company-focused and open courses in 12 DoD-priority technology areas to increase individual technical skills and company capabilities. Courses will begin in spring 2020 and the NPDC will launch in the fall. The cybersecurity project is making progress. All training materials for the 1-day class will be ready for delivery by April 30th and the LMS for online delivery of the 1-day class will be ready by May 30th. The 3-day training (consultation) will be available by June 30th, mainly because of the development timeline of the scanning software that will assess compliance. This cybersecurity training and consulting approach will generate a compliance report for each company identifying specific risk areas and remedies to address them across all 110 NIST 800-171 cybersecurity controls

## Resiliency Impacts

### Increasing awareness of the defense industrial base

OSUIT used OEA funding to collect data, interpret the defense economy, and develop responses to aid in statewide diversification efforts. Specifically, OSUIT formed informal partnerships with a range of stakeholders to stimulate action and identify defense suppliers. Key partners include State and Local Chambers of Commerce, the Oklahoma Bid Assistance Network (OBAN), and the Oklahoma Manufacturing Alliance (OMA), Oklahoma's MEP Center affiliate. OSUIT made presentations across the state to promote the project, while OMA—which employs regional representatives in every corner of the state— independently marketed the project to their networks of business clients.



OSUIT also continues to leverage and strengthen existing networks to ensure broad support and alignment with other state economic development goals. Collecting and disseminating data and organizing networks helps OSUIT to achieve its overarching goal—aligning and delivering high impact business diversification and sustainment programs to offer integrated market and innovation support to affected defense and aerospace supply chains.

OSUIT conducted broad outreach for both the data collection for building the web portal and the diversification services – touching 500+ defense suppliers in the state. Moreover, they met with stakeholders across the state to discuss the data and use of the web portal. Both efforts significantly increased awareness of the breadth and depth of the defense sector in Oklahoma.

Commercial Diversification of Defense Companies to Sustain the Industrial Base

OSUIT’s approach to defense diversification is multifaceted. The university used data to educate businesses, economic developers, and other stakeholders to plan and implement actionable diversification plans. While traveling across the state to present the web portal, OSUIT generated substantial positive feedback from communities. For instance, during a visit to southwest Oklahoma showcasing local data on the web portal, economic developers realized that many local business opportunities were lost. These kinds of insights can lead to redirecting economic development activities and to meaningful impacts on the companies and on regional and state economies.

OSUIT reached out to 529 companies identified in the defense supply chain analysis. Eighty-eight contacted companies accessed the business assessment options (Discover and Unlock) provided by CoreValue®, the business assessment software used to better understand a company’s current situation, opportunities, and risks. The Discover assessment identified financial, operational and market factor areas where a business’ value fell short of its full potential. The Unlock assessment provided a more in-depth view into the company, enabling OSUIT to identify a business’ opportunities for diversification or sustainment services. With that information, the assessment created a list of action steps for companies to improve operations and increase value. Eligible companies selected to receive services were provided up to \$20,000 for consulting services, with companies completing a first project eligible to receive a further \$16,000 for consulting services, contingent on a 20% company match.

Measures	Impact
Number of Companies Provided Outreach	529
Number of Companies Completing Discover business assessment	52
Number of Companies Completing Unlock business assessment	36
Number of Companies contracting for diversification services (contract phase)	37



Number of Companies implementing diversification plan (completed project)	24
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Thirty-four Oklahoma defense companies contracted for customized diversification services, with 20 completing their specific projects. Achieving certifications to remain competitive in their industries was a high-demand service, particularly related to federal cybersecurity requirements, AS9100, CMMI, NADCAP, and Six Sigma.<sup>1</sup> Strategic planning and market exploration services were also in demand. Zvirel, a producer of aircraft composites, claimed it would be out of business without the cybersecurity assessment services it received through the grant.

## Readiness Impacts

### Training and People Support

The two major projects underway focusing on workforce development and cybersecurity will generate impacts in training and people support beginning in the spring/summer of 2020. The Industrial and Aviation Technology Training Center (IATTC) has already identified curriculum and academic experts to deliver courses in 12 technology areas identified as DoD priorities and areas for concern for Oklahoma’s manufacturing workforce. Follow-up conversations with the recipients of Phase 2 services influenced the selection of these technology areas, which include CMM Machines, and CNC machining. OSUIT will offer these courses both as company-focused (on-site as needed) and open enrollment, so they will be

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<sup>1</sup> -Aerospace Basic Quality System Standard (AS9100) is the widely adopted and standardized quality management system for the aerospace industry. Major aerospace manufacturers and suppliers worldwide require compliance and/or registration to AS9100 as a condition of doing business with them.

-Capability Maturity Model Integration (CMMI) is a process improvement training and appraisal program and service administered and marketed by Carnegie Mellon University (CMU) and required by many DoD and U.S. Government contracts, especially in software development.

-Federal Information Security Management Act (FISMA) requires commercial organizations in doing business with the U.S. government, or in possession of U.S. government data, to demonstrate NIST 800-171 compliance for protecting the confidentiality of Controlled Unclassified Information (CUI).

-Six Sigma methodology allows an organization to improve the quality of its processes by identifying causes of errors, working to minimize and correct future mistakes.

-National Aerospace and Defense Contractors Accreditation Program (NADCAP) is an industry-managed approach to conformity assessment of 'special processes' that brings together technical experts from prime contractors, suppliers and representatives from government to work together and establish requirements for approval of suppliers using a standardized approach. Unlike traditional third-party programs, NADCAP approval is granted based upon industry consensus.

-Mastercam for SOLIDWORKS combines the world's leading modeling software with the world's most widely used CAM software so you can program parts directly in SOLIDWORKS, using toolpaths and machining strategies preferred by many shops around the world.



accessible to a wide range of incumbent workers in the industry. The IATTC has already provided introductory training sessions to students through its Manufacturing Lab and Non-Destructive Testing Center and contracted with three companies to provide training services. OSUIT recently hired an outreach specialist who will use the data described above, company and partner relationships, and the IATTC Advisory Board to ensure that relevant companies are aware of this opportunity. The program additionally targets veterans: veteran-students can participate in IATTC programs tuition-free, and training for veteran workers at participating companies is offered at a reduced rate.

OSUIT anticipates an ancillary activity outside the scope of but complementary to this award: outreach to high schools through counselors and school “champions” engaged in high school technology clubs. OSUIT plans to offer its cyber vulnerability scan (see Cybersecurity Preparedness) to high schools for free to encourage their development of cybersecurity clubs that teach Linux, the foundation of cybersecurity programming. The curriculum is based on a high school Linux program developed by one of the members of the Oklahoma IR Team. The Team also plans to work with counselors to promote manufacturing career pathways. This can build awareness about opportunities available in manufacturing and the defense industry and the education and skills required to qualify for good jobs.

In addition to the IATTC, this project includes creation of a New Product Development Center (NPDC) to serve entrepreneurial endeavors and provide limited prototype manufacturing support to up to 10 prototypes. The NPDC can result in new technologies that increase the lethality of the DoD. Both components will enhance the training and people support available for entrepreneurs and innovators within companies and generate tangible impacts for the aerospace and defense industry in the state.

### Cybersecurity Preparedness

OSUIT’s second project aims to enhance the cybersecurity capabilities of DoD contractors in the state. This effort includes providing direct training through 1- and 3-day courses convening in summer 2020. The 1-day course provides an overview of cyber requirements and will be widely available for enrollment, with the aim of increasing awareness on a broad scale. The 3-day, for-a-fee course provides more in-depth assistance and direct support, helping companies understand cybersecurity requirements and develop strategic plans to manage risk. These activities are likely to begin generating tangible impacts in the spring/summer of 2020.

The cybersecurity courses and consulting described above will assist DOD by preparing companies to comply with cybersecurity requirements. In addition to these courses, the OSUIT approach includes a unique element. OSUIT is engaging a software developer to build a program that can scan a client environment to identify cybersecurity vulnerabilities and offer improvements in over 40 of the controls specified by NIST 800-171. During the 3-day course, OSUIT will provide consulting and support services, working with defense suppliers in identifying areas of risk, proposing remedies, and defining a framework for action. During this training, companies will review and address all 110 NIST 800-171 cybersecurity controls, including developing a compliant POAM and SSP.



This comprehensive approach increases the probability that the company will invest time and resources to take actions addressing vulnerabilities, thereby increasing cybersecurity compliance with applicable regulations.

### Lessons Learned

As with all new projects, the start-up process requires incredible effort in the beginning to recruit program partners, on-board qualified staff, and recruit eligible grant participants to provide services too. The grantee reported that the most important lesson learned is the importance of being innovative during unprecedented events like dealing with a global pandemic. Grant staff with IATTC and Cybersecurity are implementing innovative suggestions to ensure the successful delivery of program deliverables and activities close to schedule in spite of the challenges encountered.