



Project Profile: Connecticut

Impact Statement

Connecticut's Department of Economic and Community Development developed a network of partners to identify and address regional problems facing defense suppliers. These partners created and distributed a series of tools to help address workforce issues and raise awareness of the defense industrial base and invested in non-destructive testing tools for manufacturers.

Key Project Takeaways

Through its Industry Resilience grant, the Connecticut IR team helped seed the creation of a robust New England defense community informed by data and supported by the dissemination of resources and best practice models. Connecticut began their work by supporting the development of an organizational model, the Regional Aerospace & Defense Exchange (RADE), that formed to facilitate this collaboration among key partners with effective, ongoing communication happening among the various state stakeholders to address shared, regional problems facing defense suppliers. Ultimately, the multi-state advisory group that began as RADE spun off through later OEA-funded collaborations to create a New England wide consortium leveraging public and private partners.

Through RADE, the Connecticut IR team developed shared web tools and invested in equipment to assist businesses and workers, supported adjustment and diversification programs, spread awareness of cybersecurity threats and controls, and aligned regional assets to fortify the sector. The Department of Defense (DoD) benefits from the continuing collaboration of the New England states through RADE (and its subsequent spin-off network) because the region needed to come together to better leverage its sizable and important concentration of defense industry suppliers. Through RADE's efforts (staffed by Connecticut IR), regional stakeholders became more aware of the regional defense industrial base and gained an ability to locate companies that needed assistance after the termination of a DoD program.

Beyond, the seeding of a multi-state regional network, some of OEA's first cybersecurity awareness events and assessments performed by the Connecticut IR Team helped defense suppliers understand the necessary steps to implement cybersecurity controls. The OEA grant enabled Connecticut to help develop a stronger, more self-aware network of defense suppliers and stakeholders to increased DoD's resiliency, readiness, and cybersecurity preparedness.

Project Description

Rationale

The DoD is a major contributor to Connecticut's economy, accounting for nearly 4 percent of state GDP. Hundreds of Connecticut firms and institutions contract with the DoD to provide essential equipment, supplies, and research and technical services in support of the warfighter. Major programs managed by Connecticut defense suppliers include the production of the U.S. Navy's Virginia Class submarine by General Dynamics Electric Boat; Sikorsky Black Hawk helicopters; Pratt & Whitney's F135 engine (used in the Airforce's F-35 Lightning II fighter aircraft, including the F-35A CTOL (Conventional Takeoff and



Landing), F-35B STOVL (Short Takeoff and Vertical Landing) and F-35C CV (Carrier Variant)). This activity requires thousands of highly skilled precision manufacturing workers and sophisticated scientific and technical support.

The aerospace and defense (A&D) industry is a major contributor to the economy of Connecticut and the whole of New England, where defense supply chains are interconnected. With workers in the defense industry often crossing state lines in New England, in addition to other shared threats to industry across the region, the Connecticut Department of Economic and Community Development (DECD) hoped to address the defense industrial base as a multi-state regional issue. To support the defense industrial base in Connecticut and New England, the Connecticut DECD turned to the Pentagon's Office of Economic Adjustment (OEA) to better understand the range and capacity of the A&D industry in all six New England states.

Program Activities

To diversify the economy and support its defense industrial base, Connecticut's DECD established a multi-state RADE consortium using OEA funding to help support a variety of products:

- A web-based, graphical, interactive **Economic Modeling Platform** that enables policymakers to analyze the dependency of the region's supply chain on DoD expenditures.
- A **Workforce Toolkit**, a collection of best practices and model programs in workforce development that respond to sector-driven challenges and changes.
- Facilitation of collaboration and lessons learned from a New England-wide **Regional A&D industry cluster**.
- The **Virtual Industry Commons**, an online forum allowing defense suppliers to share information, discuss challenges, and build a collective voice for the sector in the region.
- **Specialized process innovations and technologies** targeted to prioritized needs of the Connecticut supply chain.
- A **RADE New England Summit**, that convened stakeholders for workshops addressing critical issues, exhibition of new technologies, and demonstrating RADE webtools.
- A **Third-party Evaluation** of the RADE initiative's effectiveness and impact.
- Enhanced **cybersecurity awareness campaign** and **cybersecurity assessments** for Connecticut-based defense manufacturers.

Resiliency Outcomes

Increasing Awareness of the Defense Industrial Base

OEA funding enabled Connecticut to develop the regional infrastructure necessary to catalyze support for the defense industry not only in Connecticut, but in New England as a whole. The grantee's supply chain analysis of the Connecticut's defense industrial base demonstrated the interconnectivity of defense work throughout New England, resulting in the development of the RADE. A&D workers often commute across state-lines for their job, and the region shares similar issues surrounding the decline of its manufacturing base. RADE partners share a similar interest in supporting the regional A&D industry by developing manufacturing talent pipelines, advancing regional competitiveness and facilitating the



sharing of best practices across states. The RADE consortium included eight key public, private, and non-profit organizations from Connecticut, Massachusetts, Rhode Island, Maine, New Hampshire and Vermont working together to develop consensus on the strategic and tactical actions necessary to maintain and grow the aerospace and defense industry in New England. RADE activities were organized with support from a senior point person representing each state.

This “Kitchen Cabinet” provided on-going leadership; identified stakeholders; provided RADE briefings to the network organizations engaged with A&D companies in each state; and coordinated region-wide efforts to build an effective cluster. Connecticut capped these convening activities with implementation of the RADE New England Summit, which brought regional partners together to address critical issues facing the defense industrial base, exhibit new technologies produced in the region, and demonstrate tools developed by RADE.

Key outputs from the RADE partnership were:

- Connections across states to address common issues facing defense suppliers.
- Aggregated data about the region’s A&D strengths and capacity to diversify.
- New pilot programs supporting workforce development, technology commercialization, and regional planning that were shared with partner states.
- A shared network, web platform, and relevant information tools to support on-going collaboration among the New England states.
- An Economic Modeling tool that illustrated the region’s dependency on DoD expenditures.

These achievements generated positive momentum, and regional interest in continuing the RADE effort. OEA continued its support for this unique regional collaboration with a follow-up grant in which Vermont served as the fiscal agent. The follow-up grant built on the lessons learned from the RADE initiatives in developing a suitable governance structure and work plan for on-going collaboration. In addition, continued regional support resulted from RADE for efforts to address two key issues: compliance with the NIST/DFARS cybersecurity controls, and a means of quickly identifying “trusted” regional suppliers. Partnerships formed during Connecticut’s OEA grant helped provide the foundation for continued collaboration across the six states.

[Enhancing Force Multipliers to Support the Defense Industrial Base](#)

Connecticut’s supply chain study allowed the state to improve the strength of its partnership with and among defense suppliers, in addition to other intermediary organizations in the region. The tool enabled the state to capture the economic impact of DoD contracts in terms of jobs and direct and induced expenditures. Supply chain mapping enabled Connecticut to identify and match defense suppliers to specific programs, allowing the state to provide support down a supply chain in the case of a shift in DoD expenditures or the loss of a contract by a supplier.

Connecticut’s activities also facilitated information sharing about solutions to common problems among defense suppliers, elevating discussion of the aerospace and defense supply chain in the region. The Virtual Industry Commons tool served as an online forum for defense suppliers. Suppliers shared



information, facilitated discussions, addressed policy, and built a collective voice for the region's defense industrial base.

Readiness Outcomes

Training and People Support

RADE developed a Workforce Toolkit that included a tool to help New England defense suppliers in recruiting and retaining manufacturing talent. Included in the RADE toolkit was the "Manufacturing Job Match Portal." The Portal helped match jobseekers to open manufacturing positions. The job-match tool collects data on an applicant's knowledge, skills and competencies, and compares them against a manufacturer's customized requirements. The tool then provides a list of pre-screened applicants to employers to fill open positions with the necessary qualifications. With the Portal, Connecticut sought to make more workers available to Connecticut defense suppliers, many of whom struggle to maintain current production levels to meet increasing DoD demand.

Improved Capability and/or Production Adjustments

The OEA funds not only supported the establishment of a new regional collaboration, but also industry readiness for companies involved in the production of the F135 engine. Pratt & Whitney (P&W), a prime DoD contractor headquartered in East Hartford, Connecticut, is a subsidiary of Farmington-based United Technologies Corporation (UTC). DECD used OEA funding to contract with CCAT, the Charles Stark Draper Laboratory (Draper), and Belcan Engineering Services to facilitate consulting and technology support to P&W suppliers. The CCAT-Draper-Belcan team helped area suppliers to improve quality control processes for the F135. Quality control of machine parts to military specifications takes small defense suppliers significant time. Measures of a part's density and strength are particularly difficult to assess with non-destructive testing, which requires special technology.

Critical to this effort, RADE supported CCAT's purchase of two pieces of equipment designed to improve the speed and accuracy in reviewing how well precision parts meet pre-determined engineering tolerances associated with size and durability using non-destructive testing. The first piece of equipment was a non-contact laser measurement device (GOM ATOS Scanbox 5108) which employs structured light scanning (SLS) metrologic technology to reconstruct the exact geometry of a surface shape. The second piece of equipment also makes the quality assurance process more efficient. The 3-D x-ray computed tomography scanner (North Star Imaging X5000) provides real-time imaging to determine internal consistency for most materials.

To host the equipment, CCAT constructed the Innovation Technology Center in East Hartford, a 1,000 square-foot section of space within its International Traffic and Arms Regulations (ITAR)-compliant research laboratory. The ITC operates "Trubiquity," a DoD approved secure communications network. The Trubiquity network allows ITC staff to correspond and collaborate with ITAR-certified defense suppliers. Complementing the equipment housed in the ITC, Draper and Belcan worked with Connecticut-based F135 defense suppliers to make them aware of these technologies, which continued to serve Connecticut A&D manufacturers well beyond the grant's period of performance.



In providing testing services, CCAT, Draper, and Belcan Consulting Team served 26 defense supply chain companies (exceeded its target of 20 companies). CCAT engaged 19 companies with exposure to the new equipment, while Draper engaged 7 companies with on-site walk-throughs. The Consulting Team implemented 13 new equipment and/or improved process projects (exceeded its goal of 10 projects) with several defense supply chain companies. For example, at the recommendation of Draper, one company in the defense supply chain located in New Berlin, CT purchased a variant of the GOM ATOS Scanner to improve its product inspection and process controls.

CCAT established the Innovation Technology Center with support from the OEA project. ITC offers the opportunity for the defense supply chain to test the latest technologies and equipment as they seek to grow and/or diversify their operations. The two new pieces of scanning technology, “blue light” and “X-ray,” add to CCAT’s collection of technology resources available to companies. Additionally, as Connecticut works to raise awareness about its investments through RADE, more companies from all six New England states expressed interest in leveraging the ITC and its equipment as a benefit.

Cybersecurity Preparedness

Small defense suppliers in Connecticut expressed a need for assistance in understanding the NIST 800-171 cybersecurity controls required of defense suppliers, in addition to other information security controls, such as ISO-27001. The DoD requires the entire DoD supply chain (not just OEMs and large tier one suppliers) to comply with the new standards. Using OEA grant funds, Connecticut DECD contracted with CONNSTEP to help small defense suppliers become aware of and understand the NIST controls and provide cybersecurity assessments. Over 61 companies and 276 participants attended CONNSTEP and DECD’s six webinars and six outreach events to spread cybersecurity awareness. CONNSTEP then provided 45 companies with one-on-one cybersecurity assessments. CONNSTEP also developed detailed plans of actions and milestones (POAMs) for 16 of these companies. Connecticut has found these activities to be vital in helping the Connecticut defense industrial base become more familiar with DFARS-mandated cybersecurity controls and begin the change-management process needed to institute cybersecurity controls that protect defense information. The New England cybersecurity awareness effort leveraged CONNSTEP’s work to identify and raise cybersecurity awareness among the defense supply chain.

Lessons Learned

Greatest Challenge

With regards to increasing cybersecurity compliance among defense suppliers, Connecticut faced the difficult decision of going “wide” or “deep.” State officials had no experience in this matter and feared encountering “unknown-unknowns.” Based on conversations with other states hoping to increase cybersecurity compliance among their defense suppliers, Connecticut elected to go “wide” by helping a larger number of defense suppliers understand NIST controls and assess their current level of cybersecurity, rather than helping individual companies implement controls.



Most Important Lessons Learned

Connecticut found that partnerships with other states helped increase the effectiveness of the cybersecurity preparedness activities associated with their grant. Officials from California helped Connecticut structure its cybersecurity preparedness program to promote awareness, rather than providing one-on-one compliance implementation with individual firms. With a more widely spread investment across companies, Connecticut could develop experience and identify issues without wasting a large sum failing to implement controls at a supplier.

Many of the online tools developed by Connecticut failed to produce the impact anticipated by the grantee. The web tools developed by a third-party contractor had a poor user interface and were not easily modified by the Connecticut Team. Additionally, the third-party contractor retained ownership of these web tools, many of which became defunct after the grant period. Connecticut officials lamented these web tools, including the Virtual Industry Commons and the Economic Modeling Platform, could have supplemented the work of the activities of the New England Industry Resilience Grant.

Sustainability

The Connecticut OEA grant is continuing to produce an impact on the state beyond the period of performance. Lessons learned from the RADE partnership served as the foundation for the activities of the current OEA grant in New England, with respect to spreading awareness of cybersecurity preparedness and understanding the interconnectivity of the New England defense industrial base. Second, technologies and capabilities produced as part of the project are still in-use today.