



Project Profile: Texas

Impact Statement

The DIA grant vastly increased the Texas Manufacturing Assistance Center's knowledge and expertise, helping them expand their capacity, business service offerings, and efforts in support of companies in the DOD supply chain. Texas plays a crucial role in the DOD supply chain and efforts in the state are critical to ensuring the continued readiness, resilience, and lethality of the armed forces.

Key Project Takeaways

Through its Defense Industry Adjustment grant, the Texas DIA team has identified and assisted defense businesses, created analyses to aid economic planning, and facilitated high-impact entrepreneurship and technology acceleration activities. Texas enjoys a diversified economy, but still has an over-reliance on defense expenditures (along with oil and gas). The OEA funding presented an opportunity for Texas to leverage capabilities developed within aerospace-defense industries into adjacent economic activities. It also established MassChallenge Texas (MCTX), a business accelerator program which allows entrepreneurs to efficiently access resources to improve their odds of startup and survival. Led by the Texas Manufacturing Assistance Center (TMAC), with support from the Texas Foundation for Innovative Communities, MassChallenge, and CREC, the expectation is for large-scale, long-lasting impacts on jobs, wages, and investment. The OEA grant gave TMAC the financial support to usher a company through all the steps of compliance, greatly increasing the accessibility of the defense industry to existing and fledgling firms.

Project Description

Rationale

Texas boasts a large military presence with 15 active military bases, around a quarter million military and civilian personnel, alongside 15,000 contractors. Texas comes in at number three in the nation in terms of dollars received through defense contracts and the sector is the second largest in the state, behind only petroleum-gas. Among the broad range of defense industry activities in Texas include: Aircraft and component manufacturing; Advanced aerospace research, including military applications; Flight training; Military aircraft development; and Maintenance, repair, and overhaul of aircraft. The effects from defense cuts are borne not only by OEMs and Tier 1 industries, but also by the thousands of supply chain industries throughout the state. Many regions of Texas, particularly communities around the Texas Triangle, also share similar challenges and concerns with changes in defense spending.

Program Activities

In Phase 1 of the grant, using OEA funds, the Texas DIA team performed the following program activities:

- **Supply Chain and Asset Mapping:** The Center for Regional Economic Competitiveness (CREC) created an inventory of defense companies, produced supply chain mapping, and surveyed the Texas defense industry.
- **Business Services** for at least 50 companies in the defense supply chain were provided by a statewide collaboration between TMAC, the Texas affiliate of the NIST Manufacturing Extension Partnership, and the Texas Small Business Development Center (SBDC) Network. A priority for these services were focused on small to medium enterprises with between 20 and 500 employees. TMAC and the SBDC sought to reach a broad group of companies through workshops and outreach efforts.



- Advanced Technology Acceleration, Commercialization and Entrepreneurship, based on the proven and highly impactful MassChallenge model. Like an accelerator, their model attracts applicants with seed funding, along with mentoring and guidance. MassChallenge, a non-profit organization, represents a scalable and sustainable approach for the state. In addition, the University of Texas at Arlington and TMAC assisted in technology commercialization, providing a hub for the evaluation of technologies with spin-in and spin-out potential between the defense industry, Texas research institutions, Federal research labs, and the entrepreneurial community.

Phase 2 saw the continuation of these activities along with the implementation of several key new strategies:

- Company assessments were conducted for an additional 20 companies. Additionally, supply chain optimization was conducted for ten companies statewide.
- Cyber was a prominent component of the second phase, with the primary focus of helping companies secure compliance with DOD requirements. This component was delivered in partnership with local colleges, with TMAC generating company contacts while partner groups delivered the actual training. TMAC site visits and outreach were conducted as part of its supply chain gap analysis for participating companies. In total, between 40 and 60 companies were assisted as part of this effort.
- TMAC implemented a Hub-and-Spoke model for their services. This model was leveraged to expand TMAC's services beyond initial cyber security compliance to other issue areas.

The geographic scope of the activities supported by the grant were statewide, but particular focus was given to the "Texas triangle". This region includes Dallas-Fort Worth, Harris County (Houston), Bexar County (San Antonio) and Travis/Bell County (Austin) and is where the main hubs of the defense industry reside within Texas.

Looking forward, TMAC is hoping to receive OEA or DOD funding to provide a broader, statewide effort across Texas, as well as possible future engagements with Oklahoma, Arkansas, Louisiana, New Mexico, and Colorado. The lack of coordination and communication between these states has led to efficiency loss and duplicative efforts. By coordinating their strategies, TMAC hopes to build a coalition better prepared to increase the resilience and readiness of the region's defense industrial base.

TMAC is actively establishing working relationships with Oklahoma, Arkansas, and Louisiana, and has gotten positive feedback from Colorado. TMAC is proposing a knowledge exchange, working with private sector accreditation boards, who would provide MEPs with pre-accreditation tools. MEPs would use these tools to raise awareness among companies as to what sort of tools and testing techniques the accreditors will be using when assessing their worthiness. This would streamline the accreditation and audit process for young companies; MEP centers would share best practices and challenges amongst one another, increasing awareness about what strategies work best to help companies achieve cyber compliance.

Resiliency Outcomes

[Increasing Awareness of the Defense Industrial Base](#)

The Center for Regional Economic Competitiveness (CREC) mapped and studied Texas' defense supply chain, which included a unique study of high-growth businesses as part of the Texas OEA effort. Texas High-Growers are comprised of two subsets of companies: 35,054 'Fast-Growers' (doubled employment



over 5 years) which added an average of 15.5 net new jobs each, and 'Sustained' Growers (grew twice or more over 5 years) which added an average of 19 new jobs each. CREC found:

- In Texas' defense industry 10 percent of businesses are High-Growers, adding an average of 41.6 jobs each, compared with only 5 percent High-Growers among all other industries that added just above 15 jobs each.
- Defense industry High-Growers expanded employment by 13,264 jobs in total, compared to a net loss of 7,114 jobs among the other 90 percent of defense businesses.
- The average defense Fast-Grower expanded jobs at a rate of 367% and sales by 195% in total over five years, causing sales-per-employee to fall by almost half, whereas Sustained Growers expanded jobs by 200% and sales by 878% causing their sales-per-employee to nearly double.
- Scientific Research and Development Services represents both the largest and the fastest growing defense segment in Texas, with 1,924 establishments that added 11,040 net new jobs over the period.

Additionally, CREC developed and administered a survey of 4,000 Texas manufacturers. The approach used was a purposeful sample of companies with growth ranging from negative to extreme positive. This allowed CREC to statistically identify which variables are the key drivers of growth and their relative weights of importance.

The survey analysis revealed substantial agreement between the growth diagnostic's Alignment Scores for defense-related manufacturers. The Alignment Score (AS) is the top composite score. The correlation between the AS and each company's Sustained Growth over the past five years is 0.64 - that means CREC is able to explain nearly two-thirds of the variation in Sustained Growth for these manufacturers just by using the Alignment Score...despite these manufacturers being fairly heterogeneous (different industry segments, customers, position on the supply chain; all different sizes; various types of locations, etc.). This represents a strong improvement from the previous benchmark diagnostic performance of just over 50 percent.

The team compared the answers provided on the Sustained Growth Questionnaire against all other Founders and C-level executives that have taken the same survey. Based on this extensive data collection effort, the SGDS Diagnostic shows each business how well its answers ranked on a scale of best-to-poor practices, acknowledging the best growth practices the business already follows. The team also offered suggestions for how a company can prioritize areas that may radically boost its growth. While companies differ widely by size, age, and industry, these Growth Practices collectively explain more than 50% of why certain companies enjoy multiple years of growth while others do not. From these findings, CREC developed the Sustained Growth Defense Supplier/Manufacturer Diagnostic for ongoing use by business service organizations like TMAC. The tool focuses on 40 Growth Practices that differentiate companies with sustained growth from all other companies. These are organized into six easy-to-understand Growth Categories containing related growth components. In most cases, the higher or more intense the answer given, the more statistically likely a company will repeat growth.

CREC will be assisting TMAC in the identification of manufacturers with high and sustained growth potential which can benefit from services such as Growth, Gap, and Cyber assessments as well as Supply Chain Optimization. TMAC is looking to complete 65 assessments as part of its OEA DIA grant. CREC will also be gathering business surveys that reflect the issues that matter most to manufacturing defense



suppliers and will make this information available to TMAC for its future use. CREC has provided TMAC with a list of businesses that CREC has determined are potentially "high value targets" for TMAC to provide Texas OEA Phase 2 Company Assessments (Growth, Gap, Cyber, and Supply Chain Optimization). Additionally, CREC produced a data dashboard for TMAC, featuring information relevant to the defense sector as well as overall economic indicators in a convenient, easily accessible format.

CREC's high-growth business study raises important implications for the readiness of the nation's defense industrial base, where much can be learned from the significant economic outcomes being achieved by a very small percentage of defense suppliers.

Commercial Diversification of Defense Companies to Sustain the Industrial Base

TMAC has completed 52 full Supply Chain Services Assessments and Counseling (equates to all phases of the CoreValue® Assessment – CVA). TMAC also completed over 30 additional Discovery Phase analyses of companies throughout Texas. Detailed analysis indicated all companies in the DoD supply chain had five systemic issues related to Sales and Marketing, Growth, Operations, Reoccurring Revenue, and Brand. Most of these issues are consistent with the 11,000 plus companies who have completed CVAs, except for Brand issues which appears unique to Texas. Following the assessment, several Defense Supply Chain Services Growth Service Projects were launched with companies to address immediate needs.

Among the business outcomes, in the first phase of the grant, one company located in Fort Worth had a significant new sales impact reported of over \$20 million after working through the assessment process with TMAC conducted as part of the OEA DIA grant. Business impacts from phase 2 are expected to be much higher due to the focus on cybersecurity compliance during the second phase. The CVA focused on 9 marketing and 9 operational drivers. The assessment and follow on discussions assisted this company to identify and prepare for new sales opportunities and to be more successful at upcoming conferences and trade shows resulting in this massive impact. A second example involves a company located in Dallas where the OEA grant funded a full CVA. From this, the company developed new proprietary technology and is developing a strategic plan to most effectively market this technology. The technology lends itself to many markets. TMAC is assisting the company using a process called TDMI (Technical Driven Market Intelligence) which helps to identify the best market to initially focus on to get the best chance for a successful launch and greatest financial returns.

Lethality Impacts

Innovation through the Development of New Intellectual Property or New Technologies

Non-profit MassChallenge attracts 128 young companies from around the world to compete in Boston each year for non-dilutive funding and to be recognized among the "world's biggest ideas." It is a globally acclaimed model for technology acceleration, with numerous unique attributes: it knits together and develops the resources necessary to create a fully functional innovation system; it is the first to function at a macroeconomic scale; it demonstrates the viability of attracting serial entrepreneurs; and it serves as a unique open platform for developing numerous other commercial and community "apps" supporting innovation, entrepreneurship, and efficient economic growth. In just over five years of operation, MassChallenge companies have created over 6,500 jobs, raised \$1.1B in funding, and those companies are now collectively worth \$3 billion. The model has been successfully replicated in four other countries.

With OEA funds, Texas was able to launch a MassChallenge Texas (MCTX) branch located in Austin. The defense industry is both a voracious consumer and prolific creator of innovation. However, there is little



connection between the range of federally funded research and the needs of industry; little attempt to provide open innovation pathways for defense-developed technologies for broader commercialization; and underdeveloped innovation ecosystems around the Texas Triangle. The state sought to develop a more systematic, sustainable synergy between sources and consumers of innovation, creating a highly productive ecosystem that effectively multiplies the effort for all stakeholders – entrepreneurs, researchers, investors, prime contractors, and supply chain companies, supported by prudent government, education and workforce policies.

Leveraging the proven model of MassChallenge, Texas has begun to build an inherently sustainable mechanism to produce large impacts, while providing a common interface for accessing capital, talent, technology and know-how. Using OEA funds, the model is being used in support of defense industry needs, providing support for tech commercialization, tech acceleration and entrepreneurship, at output levels far more impactful than other models. Because MassChallenge companies are based on market-driven opportunities, differentiated advantages are matched against the market segments based on current conditions, not historic business trends. New defense technologies can be developed, while older defense technologies may find new life in alternate commercial markets worldwide, or by having high-growth companies become valuable strategic partners for companies that have traditionally been defense-focused. MCTX's initial cohort attracted 537 applications from around the world, whittled down to 238 semifinalists and 84 finalists. An awards ceremony was held to recognize 16 prizewinners who received a total of \$500,000 in non-dilutive prize money, provided by corporate partners. The startups from the inaugural MassChallenge Texas cohort represent 5 continents, 11 countries, 12 states, 5 major Texas metropolitan areas, and are 32 percent female founded. They supported five major industries, including high tech, healthcare and life sciences, general consumer, social impact, and energy and clean tech.

In 2019, MCTX expanded their effort from our initial location in Austin to a second location in Houston, cementing their position as a critical player in the Texas innovation ecosystem, expanding their reach through programming and physical office space, growing the community in the process. Their fast achievements in just two years, further prove the MassChallenge model attracts, advances, and accelerates the missions of all players in an innovation ecosystem, and this model thrives in Texas. They have further demonstrated that leveraging a community-first model for entrepreneurship creates impact and competitive advantage to help corporate innovators and startups win.

Austin Program Benefits

- 4-month accelerator program
- \$500,000 in equity-free cash awards
- 6-month complimentary community membership at WeWork in downtown Austin
- Access to > \$250k in curated deals and discounts
- Bespoke mentorship opportunities through mentor teams and office hours programs
- Deep engagement opportunities with the Texas innovation ecosystem
- One-on-one engagement with the MCTX founding and corporate partners
- Unique curriculum in the form of workshops, events, and classroom series



- Virtual access to all MCTX Houston accelerator programming
- Defense Innovation Track: The Defense Innovation Track is an opportunity for startups to connect with the DoD and affiliates, and work toward providing solutions that will advance the military's work in protecting American citizens at home and abroad, including, but not limited to, intelligence, artificial intelligence, aerospace, security, cybersecurity, mobile, communication, data analytics, machine learning, hardware, drones, troop support, surveillance, sensors, and battery industries.

Houston Program Benefits

- 4-month accelerator program
- Up to \$250,00 in equity-free cash prizes
- 6 months of free coworking space Downtown Houston's LaunchPad
- Access to > \$250k in curated deals and discounts
- Focused mentorship and ecosystem connections
- One-on-one engagement with MCTX founding and corporate partners
- Virtual access to the MCTX Austin accelerator workshops and classes
- Deep engagement opportunities with the Texas innovation ecosystem
- Space Commercialization Track: The Space Commercialization track works with startups addressing challenges in commercializing the space industry through solutions including, but not limited to, human health, performance, and recovery, materials science, analytics, advanced manufacturing, robotics and relevant technologies with an application in space
- Sports Tech Track: The Sports Tech track supports startups that are addressing challenges faced by professional and collegiate athletes/teams/leagues through solutions including, but not limited to human health, performance, and recovery, material science, analytics or fan experience and engagement

Through phase 2 of the grant, OEA provided continued support for MCTX, but the funding stream switched to alternate sources with the intent of standing up additional MCTX organizations in the state. Continuation of the grant would likely see the further expansion of MCTX with a shift in focus to cyber security and cyber exchange. This presents a unique challenge, as organizers and participants would need to focus not only the current need of the cyber community, but to anticipate and meet future need. Business communication and operations present potential vulnerabilities for future cyber-attacks and would be prime weakness areas for future focus. With or without continued support by OEA, MCTX has created a burgeoning entrepreneurial ecosystem in Texas, ensuring increased lethality of the Texas defense industrial base for years to come.

Cyber Security

TMAC assisted 39 companies out of a target of 25, with a DFARS 252.204.7012 GAP assessment under this DoD OEA grant. TMAC continues to work with many of these, approximately half of these



companies are on the path to a fully DFARS compliant process in accordance with NIST SP 800-171 standards.

TMAC originally developed basic cyber GAP assessment tools and templates to perform 252.204.7012 DFARS GAP analysis. The OEA grant allowed TMAC to integrate cybersecurity into business development, operational security, physical security, and contingency planning and disaster recovery. TMAC brought a realistic and tempered approach to helping companies achieve, not only cybersecurity compliance, but cybersecurity resilience.

The OEA grant provided TMAC the means to expand and enhance security tools, bringing companies up to DFARS compliance and closer to Level 3 certification.

Lessons Learned

Greatest Challenge

The second phase of funding was delayed by several months, putting TMAC out of sync with MassChallenge's funding schedule. This created some problems when trying to align both action plans for joint implementation. Going forward into a potential phase 3, TMAC is anticipating further delays and will be budgeting for a longer timeline, so as to not fall out of sync with MassChallenge.