2020 TIBBETTS AWARD WINNER

Colorado Engineering, Inc.

Colorado Engineering, Inc. has developed, produced, and commercialized COTS and custom hardware and software for advanced radar applications.

LOCATION

CO
Colorado Springs

PHASE III FUNDING

$13M+

FUNDING AGENCIES

DoD
Department of Defense

Air Force
Department of Defense

Army
Department of Defense

MDA
Department of Defense

Navy
Department of Defense

DOE
Department of Energy

Impact & Achievement

For Navy ships, threats don't just come from the water – Navy vessels must maintain and operate sophisticated air warfare systems to address the complete threat environment. For Colorado Engineering Inc. (CEI), a woman-owned small business headquartered in Colorado Springs, CO, Small Business Innovation Research (SBIR) program funding enabled the company to develop technology breakthroughs in a variety of military and commercial radar applications.

Since the early 2000s, CEI has leveraged SBIR funding to develop and commercialize radio frequency (RF) and high performance computing (HPC) solutions, including a low-cost, flexible, and scalable solution called Digital Receiver/Exciter Plus (DREX+). This innovation targeted the Navy's SPS-49 radar and is transferable to several other DoD programs. With follow-on funding and commercialization of these programs, CEI has developed and refined its extensive product lines with millions of dollars in sales to DoD entities and commercial companies, more than $20 million in contract awards, and transitioned more than 37 products to production for use in DoD and Government systems.

The AN/SPS-49(V) volume air surveillance radar provides long range, two dimensional, air search capabilities to a variety of ships, and serves as an integral component of the Cooperative Engagement Capability (CEC) and Ship Self Defense System (SSDS) Programs. SBIR funding has enabled CEI to develop technology breakthroughs in a variety of military and commercial radar applications. While CEI's DREX+ successful technology transition stands out, CEI has decades of experience building and integrating high-performance computing/digital signal processing technology for diverse, commercial off-the-shelf (COTS) based, applications. This expertise was applied to many SBIR awards across the DoD components to design and develop technology addressing the challenges of modularity, scalability, performance, and system protection within diverse cost, size, weight, and power (C-SWAP) trade- spaces. CEI's participation in SBIR/Small Business Technology Transfer (STTR) programs has enabled the company to team with a variety of external entities, including leading defense and aerospace companies, and nationally recognized research institutions.

In addition to its impressive network of partners and collaborators and product lines, CEI's staff has grown by over 200 percent since the company's inception in 2003. Today, the firm operates out of its 40,000 square foot facility that includes development laboratories for software, RF hardware, and digital hardware; production and environmental test facilities; engineering, management and administrative offices; and multiple conference rooms. In-house test equipment includes environmental test equipment, digital and analog oscilloscopes, multi-meters, function generators, RF signal generators, logic analyzers, RF spectrum analyzers, RSA and vector network analyzers. CEI's state-of-the-art RF equipment supports operation up to 240 GHz. CEI owns Altium tool suite licensees for printed circuit board design, AWR Design Suite (Microwave Office, VSS, AXIEM) for RF design, SolidWorks for mechanical design, Systems Took Kit STK from AGI for 3D system / Electromagnetics (EM) modeling, Altera/Xilinx FPGA development suites, ModelSim FPGA simulator, Labview and MATLAB / Simulink for algorithm development and embedded code generation. CEI's facility meets environmental laws and regulations of federal, the state of Colorado, and local governments. Much like the technology it develops, CEI's proven ability to be focused and flexible is a game-changer when it comes to meeting not only defined and specific needs, but in realizing broader application across agencies and beyond.

www.coloradoengineering.com