

CEG SUPPORTS TRAINING BRIDGE'S STRATEGY FOR MANUFACTURING MEDICAL SIMULATION UNITS

ABOUT TRAINING BRIDGE. Training Bridge, a startup based in Hudson, New York, aims to replace the expensive, petroleum-based silicones used in creating medical simulation models for emergency care training with a more affordable, plant-based alternative. After a decade in the medical simulation industry, Peter Marotta, a former registered nurse and US Navy nuclear engineering officer, founded Training Bridge in 2023.

THE CHALLENGE. Medical simulation models, ranging from small flesh-like wound cells to intravenous Practice Arms and full-body frames, are usually made with silicone-based thermoplastics or thermoplastic elastomers (TPEs). Silicone-based TPEs are often produced at large scales through injection molding, but this method presents challenges for manufacturing smaller quantities of medical simulation units. Besides the high costs that create barriers to market entry, Training Bridge aimed to address other issues with silicone-based TPEs, such as their lack of recyclability and difficulty in repair. Conversely, plant-based TPEs provide benefits in molding, quick customization, repairability, and recyclability.

MEP CENTER'S ROLE. To support the startup's use of plant-based TPEs in a medical simulation project, the Center for Economic Growth (CEG) helped Training Bridge secure a \$20,000 grant from the Advanced Manufacturing Institute (AMI) Advanced Materials Technical Assistance Program. This grant, awarded by FuzeHub, involved CEG collaborating with AMGIO Consulting to provide Training Bridge with a technical solution for safely and cost-effectively dispensing TPE. The consultant also aimed to help Training Bridge improve their quoting process by providing more accurate lead time and cost projections.

AMGIO Consulting in Ballston Lake, New York, offers technical support in project management, planning, and systems engineering for launching manufacturing programs. The firm's CEO is Alexander Giordano, a mechanical engineer and Rensselaer Polytechnic Institute graduate who held several key roles at Precision Valve & Automation related to designing, producing, and selling industrial dispensing equipment.

From September 2024 to March 2025, AMGIO Consulting collaborated with Training Bridge. The consultant provided Training Bridge with concept sketches of the equipment on the production floor, including 2D layout drawings with facility requirements listed and 3D renderings of the equipment configured for use. AMGIO also delivered a supplier selection matrix, covering topics such as technical approach, range of capabilities for different material durometers, cost, lead time, footprint, and facility requirements, pros and cons, and the consultant's recommendations.

With the technical support provided by AMGIO Consulting, Marotta said, "There's a clear path to deploy a couple of solutions." His concerns about adopting the plant-based TPEs were addressed, and he realized that their implementation in medical simulation models might be simpler than he initially thought. Marotta is working with Quinnipiac University researchers to study the biomechanics of medical simulation units, and he is considering relocating the startup to nearby Albany, New York, as it scales up production.

RESULTS



\$7 reduction in material costs per pound, by replacing silicone (\$10/lb) with TPE (\$3/lb).



1 new technical solution for dispensing TPE safely and cost effectively.

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"What CEG did with the grant allowed us to take that first step in how to refine our strategy. The MEP grant helped us learn how to handle the material in a safe way and maximize economic impacts." "

-Peter Marotta, Founder