



FORGE

2023 Impact Report

Table of Contents

<u>Introduction</u>	3
<u>2023 Impact Outcomes</u>	4
<u>FORGE's Mission</u>	5
<u>Innovative Companies</u>	6
<u>Manufacturers & Suppliers</u>	9
<u>FORGE In Action</u>	10
<u>Partners</u>	12
<u>Become a Partner</u>	19
<u>Ecosystem Collaborators</u>	20
<u>The FORGE Team</u>	21
<u>Board of Directors</u>	22
<u>Looking Forward</u>	23



Introduction

If you can invent it here, FORGE empowers you to make it here.

At FORGE, we love seeing local innovation and manufacturing ecosystems thrive. That's why we offer manufacturing readiness education to innovative companies making physical products and connect them to nearby right-fit manufacturers and suppliers.

We're so proud of what our innovators have accomplished, from launching new pilots to establishing their own local factories. Thanks to our partners, ecosystem collaborators, and the local manufacturers, suppliers, design firms, and engineers in our supply chain network, we're building flourishing local manufacturing and innovation communities.

In 2023, we expanded our educational programming and geographic footprint to better serve innovators and suppliers. We:

- Launched FORGE publicly in Connecticut
- Widened our pool of manufacturing experts in residence, with Mark Michalski joining Scott Longley
- Piloted a new FORGE Innovation Advisor program
- Completed a second run of our interactive manufacturing readiness workshops
- Awarded the highest number of FORGE Product Development Grants we've ever deployed in one year

The result? In 2023 we surpassed 750 startups served since 2015. More than 150 of those startups are currently in mature production, an incredible 20 percent in a world where about 90 percent of hardtech startups fail.

To deepen programmatic supports, we added three full-time members to our team: Program Manager Sophie Cestari, Senior Program Manager Aaron Monikowski, and Program Director Trinell Ball. We promoted David Thompson to Senior Program Manager. And, we welcomed two new directors to our board: Ben Downing, Vice President of Public Affairs at The Engine, and Ony Obiocha, Executive Director at CTNext.

In 2023, we saw regional leaders increasingly focus on local innovation and manufacturing. The Massachusetts Manufacturing Innovation Initiative reached \$86 million invested in advanced manufacturing since 2016, and Connecticut's venture capital arm invested \$42.2 million in early-stage companies this year. The federal government's CHIPS, BIL and IRA Acts funded U.S. semiconductor manufacturing, workforce training and energy technology, catalyzing 35,000+ public and private investments since 2021. This July, Biden signed an executive order for federal R&D to support domestic manufacturing.

FORGE is part of this ongoing wave of support for supply chain localization. Of the companies we connected in 2023 to work together to iterate products or scale production, 75 percent were less than 100 miles apart.

Innovators are still seeking private investment, though VC funding in the U.S. decreased by 37 percent in 2023. Despite VCs making smaller investments and funneling funds toward their existing portfolios, they are showing increased interest in hardware. Carta reports that hardware's share of the VC market is its highest in at least six years. FORGE is helping innovators with physical build progression and technical derisking, which opens more doors to pilots, dilutive funding, vested interest partnerships, and next-stage traction.

FORGE continues to respond to these trends and is poised to make a big impact in 2024. We're here to support your reshoring efforts, your resilience, and your sustainable manufacturing and product development. Read on to see the amazing things FORGE and our networks achieved in 2023. I can't wait to see what we'll create together in 2024.



Laura Teicher,
Executive Director

2023 Impact Outcomes

BIG ACHIEVEMENTS & NEWS

Publicly launched in Connecticut with support from CTNext and the CT Department of Economic Community Development

Added three new full-time team members and a **second Manufacturing Expert In Residence**

Piloted Innovation Advisor Program

2023 INNOVATION IMPACT

242

startups supported

682

jobs at startups supported

14

ecosystem collaborators added

75%

of FORGE connections and **65%** of contracts were **within 100 miles**

590

right-fit intros made between FORGE startups & supply chain members

16

product development grants awarded

2023 EVENTS

29

events overall

4

networking events

2

startup showcases

13

educational events*

**educational events include factory tours, workshops, panels and more*

MANUFACTURING IMPACT

185

local manufacturers & suppliers **connected with innovative products**

80%

of manufacturers in the FORGE network said they were willing to engage on a **contract less than \$10,000**

>75%

of manufacturers in the FORGE network indicated interest in working with startups as **an opportunity for workforce development**

>63%

of manufacturers in the FORGE network indicated interest in working with startups as **an opportunity to keep their capabilities current**

>64%

of manufacturers in the FORGE network indicated interest in working with startups as **an opportunity for exposure to new markets**

PARTNERS

42

FORGE partners

10

new partners this year, including Cummings Foundation at the Titanium level, Wolf, Greenfield & Sacks at the Steel Level, and Pearse Bertram at the Iron level

FORGE's Mission

FORGE helps innovators with physical products navigate the journey from prototype through to commercialization and impact at scale.



The Problem

Startups and innovative companies making physical products are solving some of the world's toughest problems, but they face more obstacles to scale. High early production costs and burn rate mean the right choices in design, supply, and manufacturing are crucial for success, yet many innovators struggle to access manufacturing information and connections they need to scale effectively.



The Solution

FORGE is a nonprofit accelerating the path to market for physical innovations through product development, manufacturing, and supply chain-focused education and connections.

We help startups and innovative companies prepare to scale their manufacturing and source their supply chains locally, from initial prototyping and design to full-scale production. FORGE connects innovators with right-fit suppliers to establish mutually beneficial business relationships. Our programming and resources prepare both innovators and suppliers to scale production and work together effectively.



Innovative Companies

BY THE NUMBERS

ALL TIME

751

startups supported

6,143

jobs at startups supported

IN 2023

29

events

242

startups supported

16

Product Development Grants awarded

590

connections to manufacturers and suppliers

SECTORS SERVED



Aerospace & Transportation



Agricultural Water & Waste



Assistive Technology



Building & Energy Efficiency



Chemical & Advanced Materials



Consumer Products



Defense



Energy Generation Storage & Distribution



Materials



IoT



Manufacturing



Medical Device & Diagnostics



Smart Cities



Robotics & Process Efficiency



Telecommunications



Water Technology

Success Stories

FORGE's network of innovative companies is creating physical products to disrupt industries, change lives, and save the planet. Here are a few of the exciting companies and products we supported this year.

CADSPARC

CADSPARC

Founder Jonathan Aguilar knew that lots of companies wanted to bring 3D printing technology in-house but didn't have staff who knew how, so he launched CADSPARC to help companies get started with 3D printing and computer-aided design (CAD). FORGE helped CADSPARC identify its problems, find resources to solve them, and connected it to 3D printing industry experts. Now CADSPARC is a FORGE supplier, paying forward the FORGE network's support by helping other innovative companies.



[READ MORE](#)

floe

Floe

An MIT homework assignment inspired Floe CEO and cofounder David Dellal to create a smart de-icing system. Floe safely, affordably, and sustainably mitigates ice dams. The company won an Audience Choice Award at FORGE's virtual Manufacturing and Innovation Showcase in 2020. It returned to win a cleantech product development grant in 2023. Floe used the grant to finalize key pre-production steps toward working with a contract manufacturer.

[READ MORE](#)



Clean Crop

Constantly losing peanuts to aflatoxin at a shelling operation drove Clean Crop co-founders Dan White and Daniel Cavanaugh to seek a solution. Along with ISU Professor Kevin Keener, they developed Clean Current, a high-voltage cold plasma technology that combines food-grade gasses and electricity to remove contaminants without compromising quality. FORGE's help informed Clean Crop's capital strategy. A FORGE introduction to mechanical product development studio Cofab Design led to the two companies sharing a building in Holyoke, MA. [READ MORE](#)



Success Stories, continued



KLAW Industries

Jack Lamuraglia and Jacob Kumpon founded KLaw Industries to address cement carbon emissions by reclaiming waste glass. The company turns unrecyclable wine bottles into Pantheon™, a concrete additive. KLaw Industries used its \$10,000 cleantech product development grant to buy a storage silo. The silo let the company drastically increase production to meet customer demand.

[READ MORE](#)



ZANEEZ

ZANEEZ founder Dr. Marien Zanyk was surprised to discover there were no physical therapy devices specifically for feet and ankles. Inspired by exercising in the Connecticut State Forest, she invented the WillowWORX® exercise platform and AnkleSTONE® orthopedic



foot and ankle conditioning device. FORGE has been a part of Zanyk's strategy for success from a Manufacturing Readiness webinar to introductions to manufacturers and investors. [READ MORE](#)



**PHOENIX
TAILINGS**

Phoenix Tailings

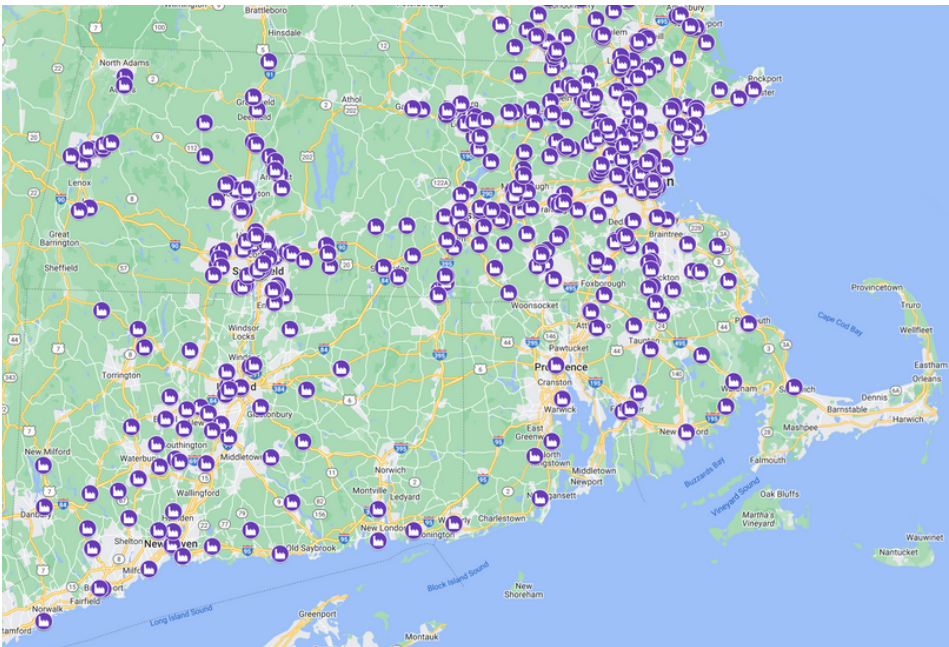
Phoenix Tailings began with a prototype that four friends built in a backyard in Cambridge to extract usable rare earth metal from mine tailings. Armed with their proof-of-concept, the co-founders began the long journey to commercial scale. FORGE put Phoenix Tailings in touch with a supply chain consultant and several manufacturers near the company's Woburn headquarters, which helped Phoenix Tailings find and apply for grants and win a MERT 2.0 MassRobotics Award to automate its refining process. [READ MORE](#)


Manufacturers & Suppliers

The FORGE supply chain network includes manufacturers, design firms, contract engineers and other suppliers, experts and consultants. These companies join our network because they're committed to working with innovators and small businesses to support their physical build and path to deployment. Innovators often struggle to find someone willing to engage in a contract with a small company making a boundary-pushing new product.

Luckily, our supply chain network lets us make right-fit connections between innovative companies and manufacturers/suppliers who are enthusiastic about collaborating with them.

Regions Covered (MA and CT)



 FORGE network manufacturers and suppliers

“The FORGE CT staff's enthusiasm is infectious. We at Presco Engineering appreciate the time they take to fully understand our unique value proposition and match it with the entrepreneur's product design and manufacturing needs.”

Jeff Gates, VP Sales, [PRESCO Engineering](#)



BY THE NUMBERS



75%

of connections are within 100 miles



65%

of contracts are within 100 miles



185

supply chain members connected to startups in 2023



80%

of manufacturers in the FORGE network are willing to engage on a contract less than \$10,000



63%

of manufacturers in the FORGE network are willing to engage at the prototype level

Manufacturer & Supplier Testimonials

If you're interested in joining the FORGE supply chain network, use [our contact form](#) and select your region so the right team member can reach out to you.

“There is no single program (that I know of) that has the ability to effectively pull ideas in from all over our state, and lead them to production. FORGE takes the stakeholders through every step. In my personal experience as a more (senior) engineer, we pride ourselves on the sketch to parts idea. The business of manufacturing has become far more intense than that. Things like finance, coaching, collaboration and outreach are key elements that FORGE provides and gets the idea over the hump. FORGE provides excellent services, and from our side have been great in aligning us with new customers and genuinely just a great group of folks to work with.

Ralph Prisco, President/Chief Engineer, [U.T.R. Engineering Works Ltd.](#)

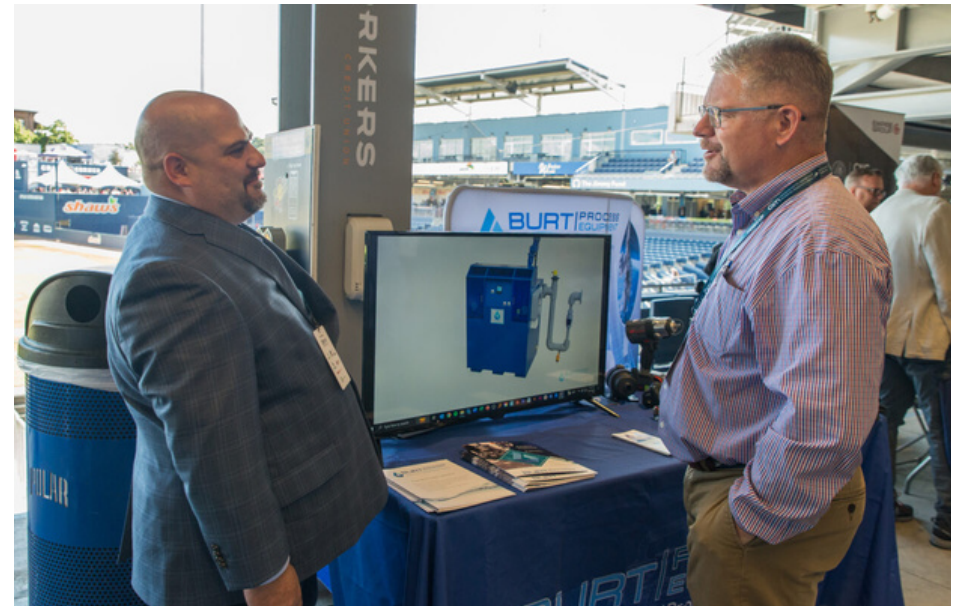
“At Cofab Design, we provide design and engineering services to cutting edge hardware development teams. FORGE has been an essential partner in this work since 2015, providing qualified leads and constant event programming. Beyond that, their role as a facilitator for the growing regional hardware ecosystem has been invaluable, creating both measurable economic impact and immeasurable impact to the health and vitality of the network.

Mike Stone, Partner, [Cofab Design](#)



“At Burt Process, we share a common passion with FORGE to encourage and enable Emerging Technologies companies that require Process Expertise and Equipment. During the time that we have partnered with FORGE, we have been extremely impressed with the vision and the quality personnel at FORGE. We have also greatly appreciated the many networking events and the introductions made.

Kimball T. Putnam, New England Regional Manager, [Burt Process Equipment](#)



FORGE In Action: 2023 Startup Showcases

FORGE produced 29 events this year, two showcases and 13 educational events like meetups, workshops and panels. Education and connection are at the heart of our event programming. These events are a big part of how we support innovative companies on each step of their journey to manufacturing at scale.

Here's a glimpse at our top events of 2023.

Spring Startup Showcase

More than 170 people attended our startup showcase at the Dassault Systemes 3DExperience Lab. We featured FORGE partners and tabletop demos from 21 emerging companies. Startups competed for thousands of dollars in non-dilutive funding. Local suppliers and manufacturers, investors, and startup ecosystem organizations joined the crowd.

The pitch winners were:



- **1st place, concept** (\$5,000): Stronger Trees
- **2nd place, concept** (\$3,000): Obaggo
- **3rd place, concept** (\$2,000): rStream Recycling
- **Best demo** (\$1,000): CADSPARC



FORGE In Action: 2023 Startup Showcases

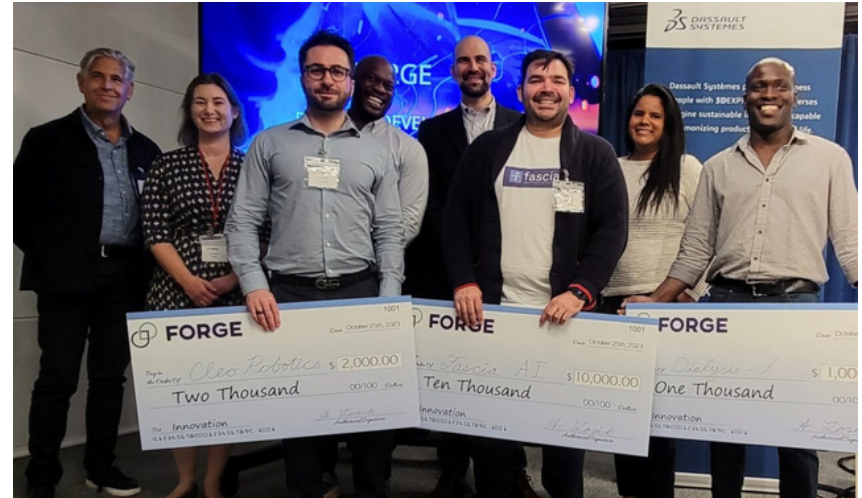
Fall Startup Showcase

We returned to the 3DEXperience Lab for another showcase in the fall! Eighteen startups gave tabletop demos, and 16 FORGE partners attended the event. Six startups pitched for funding.

The pitch winners were:



- **1st place** (\$10,000): Fascia
- **2nd place** (\$2,000): Cleo Robotics
- **Audience Choice** (\$1,000): Dialysis-X



Innovation Advisor Program

This year, we piloted a broader pool of on-call technical experts to support innovative companies with especially complex or deep needs. These technical experts, FORGE Innovation Advisors, use their deep domain knowledge to provide support for additive manufacturing, special manufacturing, and product development.

In 2023, we onboarded three Innovation Advisors. The advisors meet one-on-one with startup founders to support their product development journey.



FORGE In Action: CT Event Highlights

Connecticut Expansion Announcement with Governor Lamont

In 2023, we announced FORGE's expansion of its operations into Connecticut. CTNext and the Department of Community Development (DECD) supported the move. We announced our expansion with Connecticut Governor Ned Lamont at Novo Precision in Bristol, CT.

“We know the critical role manufacturing plays in our economy, and connecting these resources to the startups that are driving innovation will help keep Connecticut a leader through these sectors ... FORGE's presence in Connecticut will set the stage for long-term manufacturing and business innovation.”

Governor Lamont

“It is because of winning the FORGE CT Product Development Grant that an angel investor in attendance decided to invest in our company, allowing us to advance our production readiness... If it were not for FORGE, we would have not closed that funding opportunity.”

Jeremy Bronen, CEO & Founder, **SedMed**, Milford, CT

FORGE Connecticut Launch Party and Startup Pitch Contest

To celebrate our expansion into Connecticut, we brought the state's innovation and manufacturing ecosystem together at the Trinity Innovation Center. FORGE's Connecticut partners funded the event, enabling us to give out \$40,000 in non-dilutive product development grants. Startups, local suppliers and manufacturers, investors, and startup ecosystem organizations joined the celebration. Six ecosystem collaborators set up displays. Ten startups demonstrated their products and five pitched for grants.



- **1st place** (\$20,000): SedMed
- **2nd place** (\$10,000): BRASH Power
- **3rd place** (\$5,000): ReAbility
- **4th place** (\$3,000): Ainara Design
- **5th place** (\$1,000): Mobabbi
- **Audience choice** (\$1,000): Ainara Design



FORGE In Action: MA Event Highlights

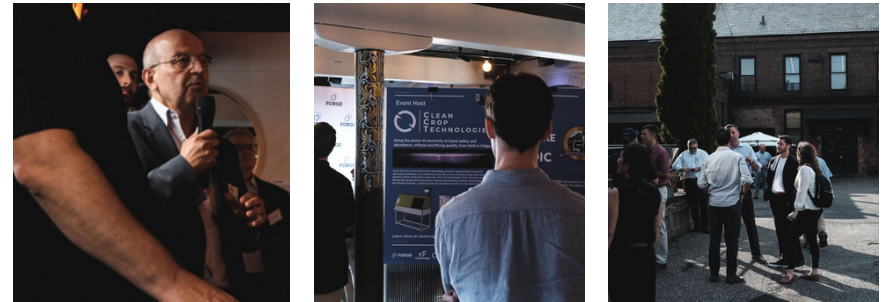
2023 Manufacturing Mash-Up

We returned for the third annual Massachusetts Manufacturing Mash-Up for a fun day of highlighting opportunities and successes in the state, networking, grant announcements and more. At the FORGE Showcase area, our partners and startups deepened their connections in the Massachusetts manufacturing ecosystem and shared their stories, products and services with attendees.



Hardtech Holyoke

This summer Cofab Design, Clean Crop Technologies, the City of Holyoke, and FORGE hosted Hardtech Holyoke to celebrate local hardtech startups, technologists, engineers, researchers, manufacturers, and ecosystem service providers. We featured [Cofab and Clean Crop's mutual success story](#). A crowd from across New England came to Fame Lounge + Eatery for a fun night of networking and discussion. Clean Crop has since announced the buildout of its own facilities in Holyoke.



Economic Development Opportunities for Hardware Startups

The Merrimack Valley innovation ecosystem came together for a networking and panel event to share regional resources and economic development tips for innovators at the UMass Lowell Innovation Hub. Our speakers and panelists shared regional resources and economic development tips for startups and innovative companies in the Merrimack Valley area.



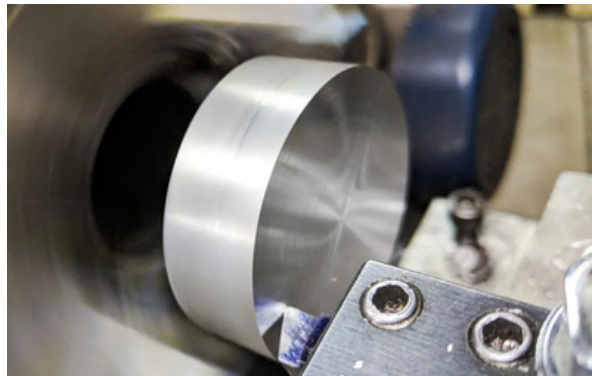
News & Media Coverage



CTNext Executive Director Onyeka Obiocha (L), Laura Teicher (center) and Connecticut Chief Manufacturing Officer Paul Lavoie (R) at the FORGE CT Launch Party



Massachusetts Secretary Yvonne Hao (R) with Anya Losik (L) and Laura Teicher (center) at the FORGE headquarters in Somerville, MA.



TC TechCrunch

You can probably manufacture closer to home than you think

“FORGE is looking to serve everyone that it can for as long as they want, with a philosophy of looking to do it ‘here’ — wherever ‘here’ is for you.”

[READ MORE](#)

BOSTON BUSINESS JOURNAL

40 Under 40: Laura Teicher

“Teicher has built the nonprofit’s team from two people to more than 10 full-time employees and expanded FORGE’s presence from the Boston area to Lowell, Springfield and Connecticut.”

[READ MORE](#)

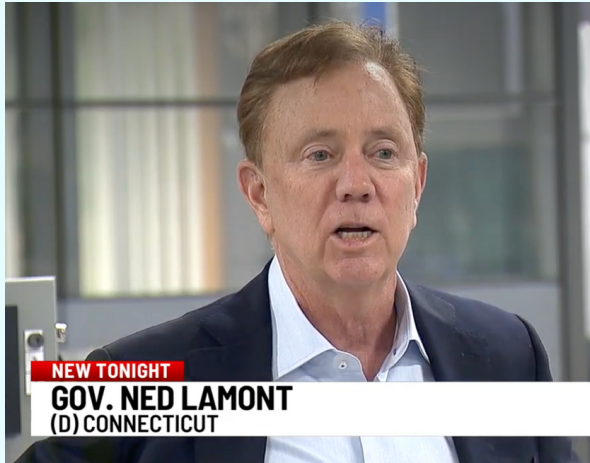
THE SUN

Massachusetts nonprofit supports local startups, ‘innovators’ across industries

“The vast majority of startups — possibly up to 90% — are said to fail. For rising entrepreneurs and creatives, that number may be discouraging. Enter FORGE, a Massachusetts-based nonprofit that helps startups and other innovators succeed.”

[READ MORE](#)

News & Media Coverage



Connecticut partners with nonprofit to boost startups

“Gov. Ned Lamont wants more collaboration in Connecticut when it comes to helping startup companies scale to success. That help is on the way. Lamont announced Wednesday that Connecticut is partnering with FORGE, a nonprofit that connects startups with free resources.”

[READ MORE](#)



A nonprofit aimed at helping local startups to begin services in CT

“Gov. Ned Lamont announced a nonprofit organization, FORGE, will be establishing itself in Connecticut to help local startups. Lamont said FORGE connects startups that create physical products with the product development, manufacturing, and supply chain resources they’ll need to grow and succeed.”

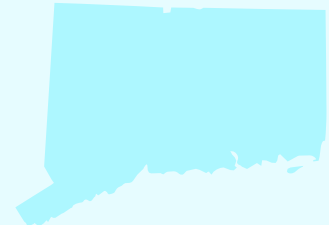
[READ MORE](#)



Hartford contest spotlights startups made in Connecticut

“Hui and four other entrepreneurs gave their elevator pitches to a panel of judges Monday at an event by FORGE Connecticut in Hartford. All had hopes of winning a \$20,000 first prize and making connections to move their products forward. FORGE, a nonprofit startup booster based in Somerville, Mass., hosted the event and funded the prizes as part of its launch in the state.”

[READ MORE](#)



News & Media Coverage: Podcasts



The Product Startup Podcast: Common Gaps: Being Ready for Manufacturing

"Laura is going to share valuable knowledge for inventors, startups, and small manufacturers on how to ensure your product is designed properly and correctly for manufacturing, how to ensure your documentation is complete, and how to best approach contract manufacturers to transition your developed product into a successful first manufacturing run."

[LISTEN NOW](#)



The Manufacturing Culture Podcast: Innovation Unleashed: Laura Teicher on FORGE's Impact-Driven Mission

"As the host of the Manufacturing Culture Podcast, I recently had the pleasure of speaking with Laura Teicher, the Executive Director of FORGE. FORGE is a nonprofit organization that plays a crucial role in the manufacturing industry, particularly in New England. They support over 700 startups and emerging companies, helping them navigate the complex process of product development, manufacturing, and supply chains."

[LISTEN NOW](#)



The Medtech Impact Podcast: Manufacturing Innovation from Prototype to Impact with David Thompson and Mark Michalski of FORGE

"For any startup, it can be daunting knowing which manufacturing process or supplier to adopt. FORGE helps break down these barriers. Tune in to discover how this not-for-profit organization bridges the knowledge, experience, and key connections needed to enable taking innovation from prototype to IMPACT!"

[LISTEN NOW](#)



CBIA BizCast: FORGE-ing Startup Success

"Starting a business and launching a new product can be a daunting prospect. Join Adam Rodrigues, Vice President of FORGE, for a discussion... From creating a prototype to connecting with manufacturers and suppliers, there is a lot for entrepreneurs and startups to navigate. That's where FORGE Connecticut comes in."

[WATCH NOW](#)

Partners

At FORGE, we give forward-thinking innovators the tools they need to succeed, from education and training to connections to local supply chains. To continue advancing our vision, we rely on our committed partners.

Partners contribute to FORGE's thought leadership, education, and funding. Delivering on their dedication to supporting ingenuity through action as well as financial support, FORGE partners connect with and support a vibrant, growing community of innovators and companies. They help our innovative community build a better world through their contributions to exciting markets like cleantech, robotics, and medical technology.

Titanium



Steel



Iron



Friends of FORGE



New Partnerships

Titanium



Steel



Iron



Friends of FORGE



What It Means To Be A FORGE Partner

Supporting innovation in your region. Helping smart, creative people build the future of physical products. Supporting a vibrant and resilient local manufacturing ecosystem. Reducing supply-chain carbon emissions. These are just a few of the benefits of supporting FORGE. Companies partner with FORGE because they understand the importance of supporting their regional innovation community. Additional benefits can include:



Establishing thought leadership and building your brand with our communities of innovative companies and suppliers



Hosting and speaking at public and curated events like factory tours, educational webinar sessions, and panel discussions



The opportunity to place an educational content piece on our website, showing innovative companies your expertise and value



High-visibility opportunities at our Startup Showcase events with innovation and manufacturing ecosystem attendees. Partners can get a table in the showcase, a logo banner, and the opportunity to network with dozens of relevant startups and ecosystem partners



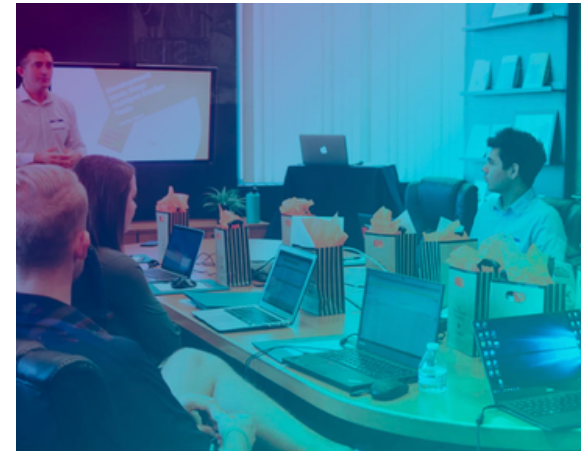
Your logo in the Manufacturing Showcase Room. We display sponsors' logos, products, and print materials in the manufacturing showcase room in our headquarters.



Mentions on social media, including direct posts and retweets



A company feature on the FORGE website with inclusion in our e-newsletter



Ecosystem Collaborators

The FORGE ecosystem is an array of critical and complementary support organizations that support the startup and manufacturing communities. Through collaboration, mutual referrals, and cross-promotion, our ecosystem evolves to serve current needs and seed future innovation.

Download [FORGE's startup resources](#) or [contact us](#) to access manufacturing readiness education programming and right-fit connections for innovative companies.



The FORGE Team

Nothing FORGE does would be possible without the skills, passion, and hard work of our team. Learn more about FORGE's team [here](#) or [contact us](#).



Laura Teicher
Executive Director



Adam Rodrigues
Vice President



Anya Losik
Chief of Staff



Paul Butler
Director of Partnerships



Trinell Ball
Program Director



David Thompson
Senior Program Manager



Aaron Monikowski
Senior Program Manager



Sophie Cestari
Program Manager



Scott Longley
Manufacturing Expert
in Residence



Mark Michalski
Manufacturing Expert
in Residence

Advisory Councils

FORGE's Regional Advisory Councils serve [Eastern Massachusetts](#), [Western Massachusetts](#), and [Connecticut](#). Their experience and advice provide valuable support to innovators in their regions.

Board of Directors

We're so grateful for our distinguished Board of Directors and the value they bring to FORGE.



Nina Birger

Vice President of Carbon Solutions at CHOOOSE



Julie Chen

Chancellor, UMass Lowell



Rodney Dowell

Executive Director, MA Board of Bar Overseers



Ben Downing

Vice President of Public Affairs, The Engine



SJ Maxted

Sustainability, Deloitte



Raj Melville

Former Executive Director, Deshpande Foundation



Onyeka Obiocha

Executive Director, CTNext



Arthur Trapotsis

Entrepreneur / Co-Owner, Consolidated Sterilizer Systems

Looking Forward

In 2023, we pursued our mission with gusto. We expanded to Connecticut, launched our pilot Innovation Advisor program, and awarded 19 product development grants. We helped 242 innovative companies on their journey to manufacturing at scale, making 590 connections to regional manufacturers and suppliers and running more than a dozen educational events.

Ten new partners supported us, and we added three full-time team members.

The current US environment for innovative companies making physical products is complex. In general, despite increased venture engagement with hardware, startups are facing a dearth of dilutive capital from hesitant VCs – and it is only a fraction of VC money that has historically gone to hardtech companies. But, the federal government's investment in local manufacturing and innovation is making a difference.

FORGE is here to support innovative companies and the manufacturers and suppliers they work with. We do this to supercharge the number of successfully deployed hardtech innovations, as well as support a resilient and forward-looking domestic manufacturing ecosystem. The toughness of this ecosystem and its growing commitment to nearshoring inspires us. Remember, if you can invent it here, FORGE is ready to help you make it here.

In 2024, we will continue building out our strategic plan for the next three years, deepen our existing regional operations, and build and roll out joint programming with our ecosystem collaborators. We'll host more Showcases, workshops, and an array of regional events across Massachusetts and Connecticut.

If you've already joined us for the ride in 2024, thank you. And if you haven't, we invite you to come along. It's going to be an amazing year!





 **FORGE**