

Manufacturing Innovation Fund 2017 Annual Report

Submitted by:

Manufacturing Innovation Fund Advisory Board

Department of Economic and Community Development

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Investments in manufacturing are investments in our economic future.

Staying ahead of the competition and being on the leading edge: Connecticut's manufacturing future must continually adopt innovative processes and technologies and invest in workforce. The Manufacturing Innovation Fund (MIF) was specifically designed with this mission in mind. Through the MIF, Connecticut is strengthening the competitiveness of our companies and workforce and solidifying our reputation as a global leader in advanced manufacturing.

As of June 2017, the MIF assisted 897 companies and invested over \$43.7 million to help accelerate growth, cultivate talent and boost investments in innovation. In 2017 over 7,300 full-time employees completed training that resulted in upgraded skills and increased productivity. As the chair of the MIF advisory board, I am proud of the fund's impact to date and look forward to even greater returns on our investment in the future. With strategic guidance from our board of advisors – largely composed of industry representatives, the MIF is helping to ensure we have the vibrant ecosystem that will foster continued expansion of manufacturing --from knowledge to production -- and propel this vital economic sector forward for years to come.

Catherine H. Smith

Commissioner of Department of Economic and Community Development (DECD)

Manufacturing: Critical to the Economy and Growth

Connecticut is home to 4,300 manufacturers, over 159,000 employees with \$13.6 billion in total manufacturing wages. Nearly one of every ten Connecticut employees now works in the manufacturing sector—and demand for skilled manufacturing continues to accelerate.



Manufacturing generates nearly 11% of Connecticut's Gross State Product (GSP)



Every dollar spent in manufacturing adds \$1.89 in total economic activity



Manufacturing directly supports 159,500 Employees with an average salary of \$95,118



In Connecticut, there are a diverse array of 4,500+ manufacturing enterprises – and growing.



Connecticut manufacturers export \$15.5B each year, representing 94% of the states exports



Connecticut manufacturers bring in \$11.8B in defense contracts.

2017 – 2018 Strategy

- Build Connecticut as a center for manufacturing and innovation excellence by helping manufacturers develop innovative processes and technologies.
- Strengthen the connection between academic institutions and manufacturing to ensure the pipeline of talent and R&D supported.
- Help companies build a more diverse product line.

Advancing manufacturing faster by:

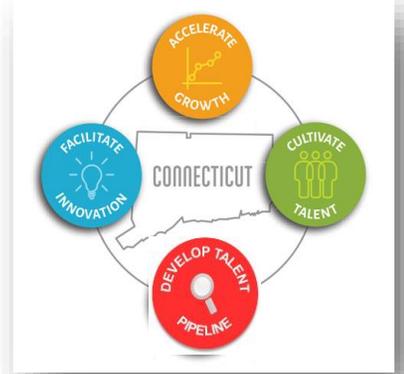
- Assisting smaller manufacturers in making innovative and strategic investments through matching grants.
- Focusing on talent development to meet the growth expectations in advanced manufacturing, aerospace, shipbuilding, and medical devices.

Manufacturing Innovation Fund

Mission & Strategic Objectives

- Building Connecticut as a center for manufacturing innovation excellence
- Strengthening the supply chain network
- Establishing continuous workforce supply

The \$75 million fund has launched many successful initiatives from facilitating technology innovation, accelerating growth through supplier networks and cultivating talent development in order to promote the competitiveness of the Connecticut's manufacturing industry.

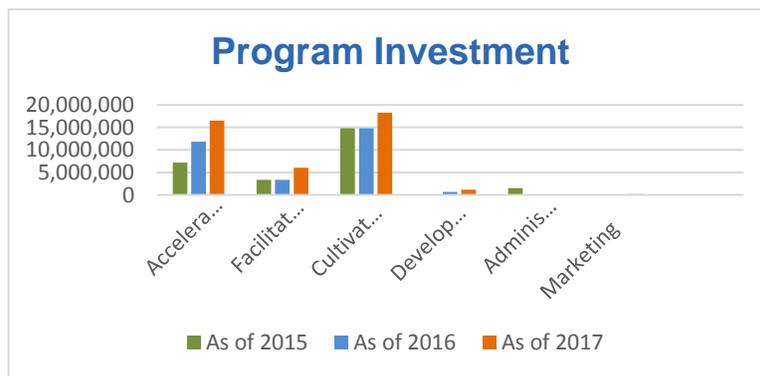


Creating a vibrant ecosystem in manufacturing requires a collaborative effort through key partners in industry, academia, not for profit, labor, state, regional and federal governments. In 2017, the MIF partners included the Department of Labor, Connecticut Green Bank, Connecticut State Colleges & Universities, Connecticut Center for Advanced Technology, The Charles Stark Draper Laboratory, Inc., Belcan Engineering, and Center for Regional Economic Competitiveness and federal Department of Defense and Department of Labor.

Results	2015*	2016*	2017*	Cumulative Totals
Total Funding to Companies	\$4,448,675	\$9,420,193	\$18,056,424	\$31,125,292
Companies	120	299	478	897
Board Approved Program Funds	\$26,829,000	\$5,347,200	\$11,594,865	\$43,771,065
Leveraged	\$26,479,000	\$46,969,084	\$25,771,751	\$99,219,835
Jobs Retained & Created	0	1911	2585	4496
Employees Trained	1400	1360	4554	7314
Apprentices	0	108	134	242
Number of New Programs	3	2	4	9

*New funding and annual metrics

**Leverage includes federal and private industry match





Voucher Program

Connecticut manufacturing is renowned for its innovation, quality and value. To help keep pace with state of the art product development and manufacturing technology, the program provides companies with matching funds to access the expertise they need to become more efficient, productive and profitable.

Matching grants ranging from \$10,000 to \$50,000 are available to eligible companies. The eligible use of funding ranges from technical assistance, prototype development, specialized equipment upgrades, and research and development.

Administered by CCAT

Metrics	As of 2015	As of 2016	As of 2017
Program Funding	\$7,180,000	\$11,037,271	\$15,732,542
Leverage*	\$7,000,000	\$32,769,644	\$50,198,820
Companies Assisted	91	262	353
Jobs Created/Retained	0	381	548

**Leverage includes private industry match*

Voucher Impacts as of 2017:

- 75% Used for equipment
- 13% used for training
- 11% used for software
- 1% used for marketing
- 1.8% increase in gross margin
- 1.3% increase in products exported



CCAT has received 112 responses to their satisfaction survey. Overwhelmingly the response has been very positive and all respondents have indicated that they would refer the program to others. Applicants have stated that they appreciate the straight forward application method and that the program shows that Connecticut is really pro-business.

Energy on the Line Program

Connecticut has the second highest energy costs in the country. To maintain its competitive position, CT manufacturers must reduce the long term cost of energy. The Energy on the Line program works with the Connecticut Green Bank’s successful C-Pace program (Commercial Property Assessed Clean Energy) to provide manufactures an upfront grant up to \$40,000 per project (equivalent to a 1% interest rate reduction over 20 year period) in addition to the full financing of the CPACE program. Companies can also leverage programs such as: Utility Incentive (Energy Efficiency), Utility Incentive (ZREC), Federal Incentive (Investment Tax Credit), Federal Incentive (Accelerated Depreciation). CT Green Bank.

Administered by CT Green Bank

Metrics	As of 2016	As of 2017
MIF Funding	\$800,000	\$800,000
Leverage*	\$10,000,000	\$10,000,000
Jobs	0	9
Companies Assisted	0	4

**Leverage includes other state funding, federal, and private match*

Impacts as of 2017:

- \$2,273,288 Total Energy Cost Savings over of the life improvements (MMBTU)
- 29,169 Total Energy savings for over life of improvements (MMBTU)
- 254.2 Reduction in Total Annual Greenhouse Gas Emissions





Incumbent Worker Training Program

Incumbent Worker Training (IWT) - matching up to \$50,000 per employer to train workers. Projects are awarded up to \$100,000 per company and a dollar to dollar match. The goals are to:

- Support advanced and innovative manufacturing companies' efforts to train incumbent workers with skills upgrades.
- Bring technological innovation to the market and help manufacturing companies lead in productivity and efficiency by enhancing skills of the workforce.
- Improve productivity, maintain sales and grow revenue and profitability.

Administered by DOL

Metrics	As of 2015	As of 2016	As of 2017
MIF Funding	\$7,000,000	\$7,000,000	\$10,500,000
Leverage*	\$0	\$7,000,000	\$10,252,575
Companies Assisted	29	108	251
Jobs Retained/Created	1,530	2,409	3,939
Workers Trained	1400	2652	7,072

**Leverage includes industry private match*

IWT Impacts as of 2017:

- \$1,027 Investment Per Trainee
- 22% of workers received an upgrade in position
- 78% Companies reported an upgrade in skills
- 58% Companies expecting productivity increases



Pre-Apprentice and Apprenticeship Program

The goal is to expand the workforce by providing a demand-driven, registered apprenticeship program that combines a structured work schedule (on-the job training) with related classroom instruction. Apprenticeships in manufacturing usually generally span 2 to 4 years. Each year of Registered Apprenticeship requires a minimum of 2,000 hours of On the Job Learning and 144 hours of classroom related instruction. As a registered pre-apprentice, a student is a part-time paid “intern” while enrolled in relevant classes.



Upon pre-apprenticeship course completion, an individual can become a full-time Registered Apprentice. Having completed education requirements and attained training as a pre-apprentice, the graduated student has earned a certification and can transfer credits applicable towards a full time Registered Apprenticeship completion. This dual format of training sets apprenticeship apart from other types of training.

Upon program completion the apprentice earns "journeyman status" and the Connecticut State Apprenticeship Council, chaired by the Commissioner of Labor, issues a Certificate of Completion which is a nationally recognized and portable credential.

Administered by DOL Office of Apprenticeship Training

Metrics	As of 2015	As of 2016	As of 2017
MIF Funding	\$7,799,000	\$7,799,000	\$7,799,000
Leverage*	\$0	\$7,799,000	~\$12,588,000
Companies Assisted	0	48	87
Apprentices	0	108	242
Pre-apprentices	0	0	21
Schools	0	10	10
Training Providers	0	6	6

**Leverage includes other state funding, federal, and private match*



Connecticut Dream It. Do It.

(CTDIDI) is part of the National Association of Manufacturers (NAM) and the Manufacturing Institute’s nationwide campaign to create a positive image of today’s manufacturing. CTDIDI provides students, parents and families, and educators with a wide variety of resources and programs that dispel misconceptions about the 21st century manufacturing workplace, and introduce the broad range of educational and career opportunities that manufacturing offers. CTDIDI hosts and participates in events throughout the state that include student

expos, conferences, career fairs, school-based workshops, presentations, and industry events. CTDIDI initiative has been recognized by The Manufacturing Institute as a national model, with both its “Young Manufacturers Academy” and “Making It Real: Girls & Manufacturing” programs named as best practices for replication throughout the network and endorsed by the National Association of Manufacturers.

Administered by CCAT

Metrics	As of 2016	As of 2017
MIF Funding	\$266,929	\$516,523
Companies Participating	32	110
Students	1304	3,036
Educators	209	500+

CTDIDI Other Metrics & Impacts as of 2017:

- 17 Goodwin Mobile Manufacturing Lab visits
- 190 events/activities supported
- 2,025 additional collateral distributed
- 10 online/media/podcasts/Facebook Live stories
- 1,830 website sessions
- 21,806 social media impressions
- 977 social media profile visits
- 44 media spots
- 3 national conference presentations

Young Manufacturers Academy

Introduces students entering grades 7 – 9 to the broad range of careers in manufacturing. The program fosters a positive image of the manufacturing workplace through experiential learning, promotes achievement in STEM, and develops an awareness of future career possibilities. Students participate in hands-on workshops and simulation-based activities focused on demonstrating Lean Manufacturing concepts, cellular manufacturing, factory floor design and layout, CNC, engineering design, CADD software, 3D printing/additive manufacturing, and automation/robotics. YMA activities reinforce 21st century skills such as collaboration, communication, problem solving and critical thinking. Students get a first-hand opportunity to interact with manufacturers through specialized tours of local companies. This year we partnered with Goodwin College to bring the Advanced Manufacturing Mobile Lab to the Hartford Promise Zone program. YMA students also receive an introduction to preparing for a career in manufacturing, the various educational and career pathways available, and job seeking skills such as résumé preparation and interview techniques.

Administrated by CCAT

Metrics & Impacts	As of 2016	As of 2017
MIF Funding	\$423,000	\$673,000
Students	142	546
Cities & Towns Represented	29	54
Manufacturers hosting site visits	10	23
Manufacturers/educational partners exhibiting	12	35
parents/families members attending capstones	~160	~410
Two - Week Summer Academies	0	15
Three-day mini-academies	0	2
In-school academies (grade 5-8 students)	0	2





RESEARCH AND INNOVATION \$10.8 Million to date has been invested by the MIF in manufacturing for research and development to technology insertion. Partnerships with the industry, CT Center for Advanced Technology, Draper Labs, and Department of Defense are fostering manufacturing capacity and capabilities in the areas of:

- Advanced Composites
- High Rate Additive Manufacturing
- Non-Destructive Technologies

Program Name	Commitment Amt.	Leverage*
Advanced Composites	\$5,000,000.00	\$200,000
High Rate Additive	\$600,000.00	0
RADE 2 Mfg. Innovation: Non-Destructive Technologies	\$450,000.00	\$4,500,000
Totals	\$6,050,000.00	\$4,700,000

**Leverage includes federal, and private match*

Advanced Composites - The advanced composites initiative is to demonstrate a new approach to dynamic, adaptive, and mistake-proof machining of advanced, high value structural composites using technologies that are applicable to current and future platforms and components. The program will assist manufacturers to increase production speed, lower costs, increase competitiveness and will provide advanced composite material manufacturing proficiency to assure Connecticut manufacturers remain competitive domestically and globally.

Administrated by CCAT

High Rate Additive Manufacturing (HRAM) – The HRAM program will assist companies by validating how the next generation technology can be incorporated into the baseline of their manufacturing. The goal is to complete three company demonstration projects. HRAM is one of three (composite, hybrid, high-rate) next generation manufacturing technologies.

Administrated by CCAT

Regional Aerospace & Defense Exchange (RADE 2) Manufacturing Innovation

RADE 2 Manufacturing Innovation a Department of Defense Office of Economic Adjustment (OEA) initiative established to support a robust New England defense community. Connecticut is working in collaboration with its partners in Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. Connecticut was awarded \$4.5 million to facilitate the coalition and is responsible for the enhancement of an economic modeling tool; a strong regional collaboration in the form of a regional cluster; a creation of an online forum, RADE Commons; creation of Workforce Toolkit; and a Connecticut focused manufacturing innovation initiative.

The MIF *\$450,000 match to acquire equipment is dedicated to the Manufacturing Innovation Initiative. Its goal is to increase Connecticut companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest of the Connecticut supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production. Through partnerships with the Connecticut Center for Advanced Technology and Draper Labs, the results have proven the importance of building capabilities and capacity in the Connecticut supply chain.

**10% match to federal award*

Metrics & Impacts:

- 68 Companies Participated
- 28 Projects implemented
- 1,805 Equipment Hours



Marketing

The MIF marketing goal is to:

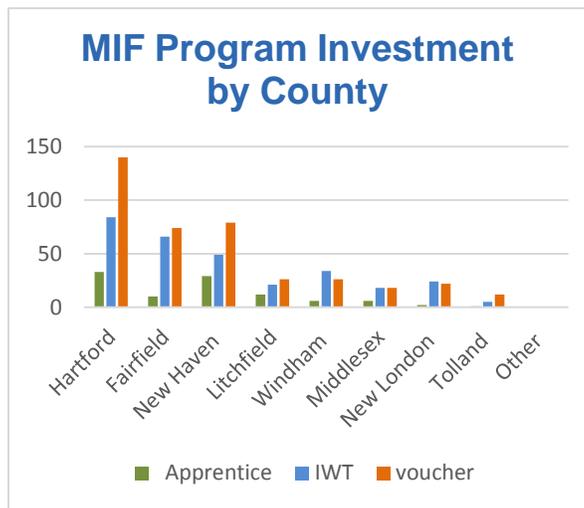
- Build awareness among existing advanced manufacturers, associations, educational partners and other influencers of all the available resources to grow their operations in Connecticut.
- Encourage emerging, as well as experienced talent, to build/advance careers in Connecticut's manufacturing sector to ensure a robust pipeline for industry
- Raise general in state awareness of how critical advanced manufacturing is to Connecticut's future economic vitality.
- Attract other advanced manufacturers to relocate and/or expand their businesses in Connecticut.

Metrics & Impacts as of 2017:

- \$200,000 MIF Funding
- Launched a new website on April 25, 2017: www.AdvancingManufacturingCT.com
 - Highlights hundreds of resources for job seekers and business owners
 - Includes regularly updated industry-related news articles
 - Nearly 7,000 visitors to site since launch
 - 22% of traffic generated by return visitors
- Created 6 videos highlighting young talent taking different career paths into advanced manufacturing
 - Generated 1,108 video views
 - Visitors watched 24 hours of video
- Separately, launched organic and paid social campaigns in June 2017 to raise awareness of manufacturing in the state
 - Generated more than 1.1 million impressions on Twitter
 - Facebook drove 70% of all traffic from social channels

Designated Communities

Recognizing the significant role Connecticut’s historic manufacturing hubs have played in shaping the state. The fund supports ~47% of manufacturers within in these 37 designated communities to spur revitalization, job growth and employment opportunities, and gives special consideration to proposals from a distressed municipality, targeted investment community, public investment community, enterprise zone or manufacturing innovation district. The MIF has supported manufacturers in every county in Connecticut as demonstrated in the graph.

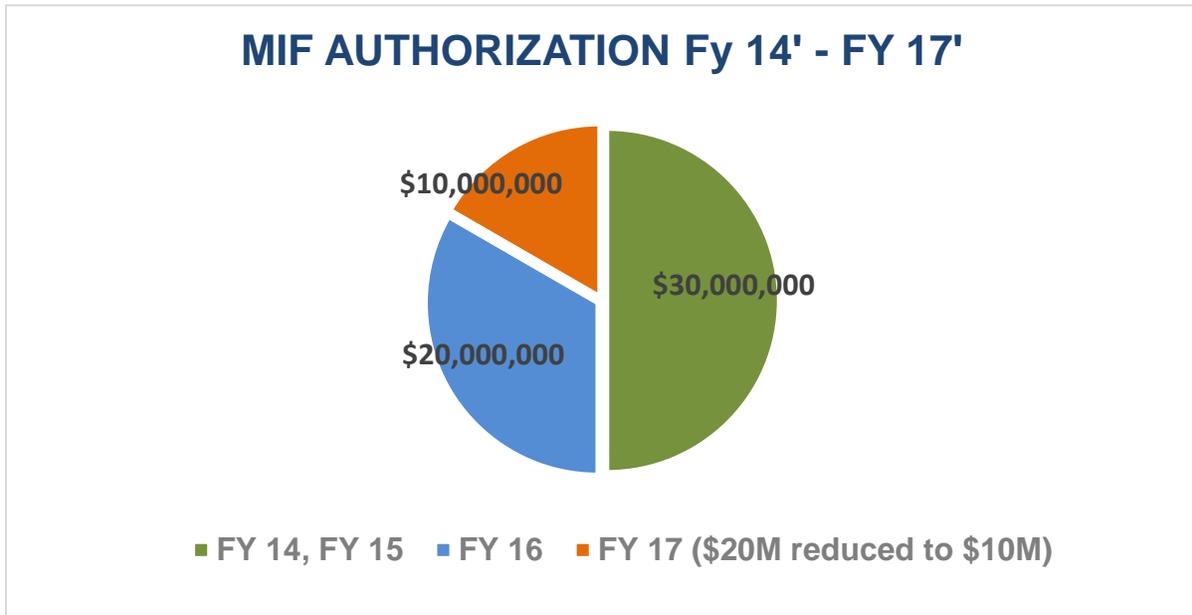
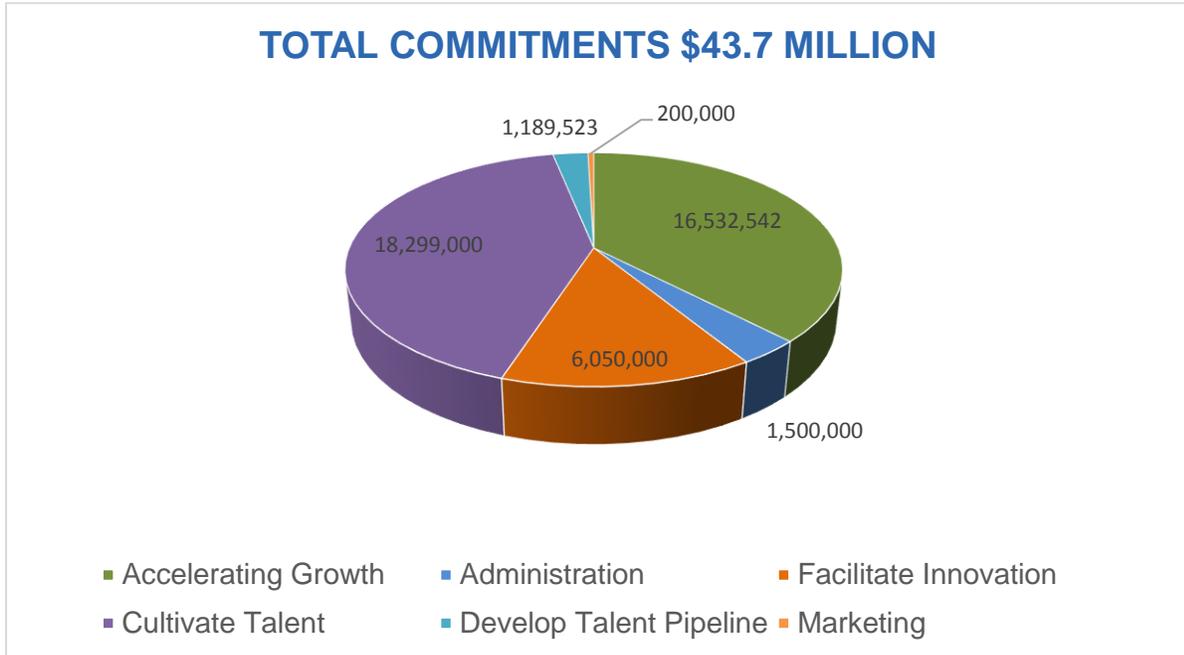


List of Targeted Communities

- | | | | | |
|---------------|------------|-------------|--------------|------------|
| Ansonia | Groton | New Britain | Southington | West Haven |
| Beacon Falls | Hamden | New Haven | Sprague | Windham |
| Bridgeport | Hartford | New London | Stamford | Winchester |
| Bristol | Killingly | Norwalk | Sterling | Wolcott |
| Derby | Lisbon | Norwich | Thompson | |
| East Hartford | Meriden | Plainfield | Torrington | |
| Enfield | Middletown | Plymouth | Waterbury | |
| Griswold | Naugatuck | Seymour | Wethersfield | |

Financial Overview

As of June 30, 2017



2017 Advisory Board Members

Catherine H. Smith, Chairman

Commissioner

Department of Economic and Community Development

Donald Balducci

Director, CT Center for Advanced Technology, Inc.

Colin Cooper

CEO, Whitcraft Group

Beverlee Dacey

President, Amodex Products, Inc.

Board of Director, New Haven Mfg. Assoc.

Chris DiPentima

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A Division of Leggett & Platt Aerospace

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Past President, Aerospace Components Manufacturers, Inc. (ACM)

Shane Eddy

Sr. VP of Operations, Pratt & Whitney

John Harrity

Director, Grow JobsCT

Todd Pihl

Sr. Project Manager, Web Industries, Inc.

Emir Redzic

Managing Director, Budney Aerospace, Inc.

Kelli-Marie Vallieres

President & CEO, Sound Manufacturing Inc.

President, Eastern Advanced Manufacturing Alliance (EAMA)

Board of Directors, Eastern Workforce Investment Board

CT State Apprenticeship Council Member

John Zoldy

Sales Manager, Metallon Inc.

Past President, Small Manufacturers Association (SMA)

