Connecticut

Manufacturing Innovation Fund Advancing Manufacturing Faster



2018 MIF Annual Report Manufacturing Results

Submitted by: Manufacturing Innovation Fund Advisory Board Department of Economic and Community Development

AdvancingManufacturingCT.com

MIF | Manufacturing Results

This Annual Report recaps the initiatives supported by investments from the Manufacturing Innovation Fund — and the impact those investments have had on the economic vitality of Connecticut, the growth of our manufacturing businesses and the development of our advanced manufacturing talent pipeline.

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2018 Manufacturing Innovation Fund Advisory Board



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Past President Small Manufacturers Association (SMA)

Chairman's Message



The Manufacturing Innovation Fund was formed to ensure that manufacturers in the state have access to the tools, training and innovation they need to be competitive in an ever-changing and competitive marketplace.

With the voices of many manufacturers echoing in my thoughts, it was early in 2014 that Governor Malloy and I proposed to the legislature that we create the Manufacturing Innovation Fund. Why? Because it was clear then, from the input of small to mid-sized manufacturers, that the opportunity for growth in advanced manufacturing was about to explode. To get traction for growth in Connecticut, we needed to invest in education, innovation and our workforce pipeline if we expected companies to compete effectively in the global markets.

Thus was born the Manufacturing Innovation Fund. The board, by design, dominated by local manufacturing leaders, has had a strong role in guiding the investments made by the fund. With 47% of the funding going to talent and career development, you can see that filling jobs and ensuring the future of our workforce has been the number one priority. But we also wanted to be sure that companies had the ability to purchase the latest equipment and keep up with innovation in their industries be that in composite usage, additive manufacturing or robotics. With approximately 1,200 companies to date taking advantage of the fund, I think we can rightfully call it a resounding success – and partly responsible for the growth of over 9,400 jobs in the industry.

It has been my honor to serve as the chair of the MIF for these last few years. While I am leaving state service and the board, I will continue to be an advocate for building on the considerable strengths of the manufacturing community in our state. There is tremendous opportunity for us if we continue to invest in our future.

Catherine H. Smith Commissioner of Department of Economic and Community Development (DECD)

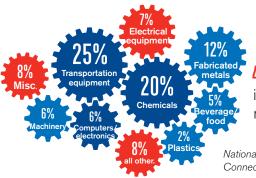
Key Stats | Advanced Manufacturing in Connecticut

Advanced manufacturing continues to be one of the biggest engines of economic growth in Connecticut. This sector now employs more than one out of every ten Connecticut workers and represents nearly 11% of Connecticut's Gross State Product (GSP). Manufacturing is one of the most effective industries for economic development, given the high return it generates in downstream activity. The MIF goal is to help businesses stay ahead of the competition curve so that these metrics improve steadily and rapidly over the coming years. Here are just a few other key stats that illustrate this sector's significant impact on our overall economy.

Jobs/Businesses



U.S. Bureau of Labor Statistics, 2016. CBIA, 2017 Survey Of Connecticut Manufacturing Workforce Needs



4,500+ companies are involved in advanced manufacturing in CT.

National Association of Manufacturing, Connecticut Facts 2018

GSP/Exports



Manufacturing generates nearly **11% of the GSP** (Gross State Product).

National Association of Manufacturing, Connecticut Facts 2018



Connecticut manufacturers export \$15.5 billion each year, representing 94% of the state's exports.

National Association of Manufacturing, Connecticut Facts 2018

Contracts/Leverage



Our manufacturers bring in **\$12 billion** in defense contracts.

U.S. Census Bureau and U.S. Bureau of Economic Analysis, 2012



Every **\$1** spent in manufacturing adds **\$1.89** in total economic activity across Connecticut.

National Association of Manufacturing, Connecticut Facts 2018

Overview | Manufacturing Innovation Fund Impact

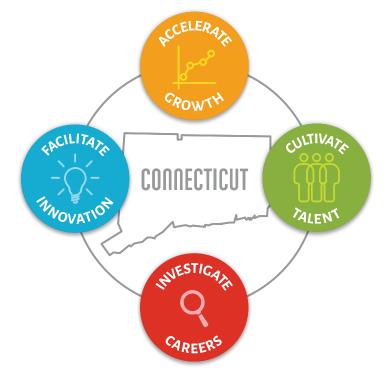
The \$75 million fund has launched many successful initiatives from facilitating technology innovation, accelerating growth through supplier networks and cultivating talent development in order to promote the competitiveness of Connecticut's manufacturing industry. To date, \$58.2 million has been committed to this fund.

Mission and strategic objectives

The Manufacturing Innovation Fund was formed to ensure that manufacturers in the state have access to the tools, training and innovation they need to be competitive in an ever-changing and competitive marketplace.

Key partners

Creating a vibrant ecosystem in manufacturing requires a collaborative effort through key partners in industry, academia, not-for-profit, labor, and state, regional and federal governments.

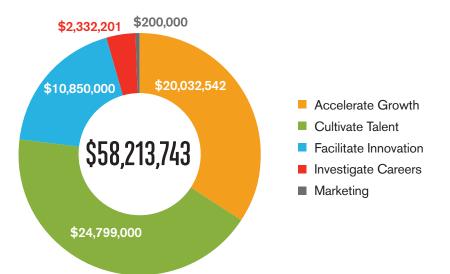


Manufacturing Innovation Fund results

Metrics	2015*	2016*	2017*	2018*	Cumulative Totals
Total Funding for Companies' Projects and Initiatives	\$4,448,675	\$9,420,193	\$18,056,424	\$12,813,099	\$44,738,391
Companies	120	299	478	383	1,280
Board-Approved Program Funds	\$26,829,000	\$5,347,200	\$11,594,865	\$14,442,678	\$58,213,743
Leveraged**	\$26,479,000	\$46,969,084	\$25,771,751	\$25,223,192	\$124,443,027
Jobs Retained/Created	0	1,911	2,585	4,917	9,413
Employees Trained	1,400	1,360	4,554	7,077	14,391
Apprentices	0	108	134	151	393
Pre-Apprentices	0	0	21	54	75
New Programs	3	2	4	2	11

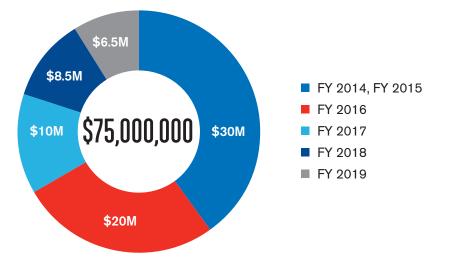
*New funding and annual metrics **Leverage includes private industry, state and federal matches

Financials



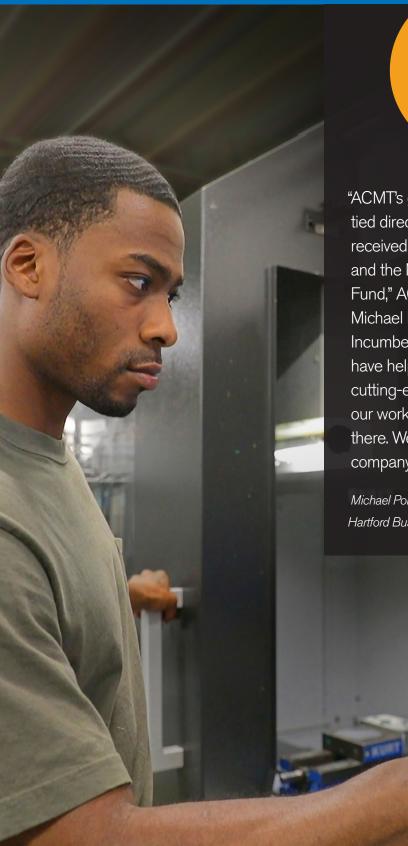
Total committed funds of \$58.2 million* as of June 30, 2018

Manufacturing Innovation Legislative Fund Authorization by year 2014-2019



^{*}Includes the 5% statutory allowance for administration

Program Reports





"ACMT's growth in recent years is tied directly to the support we have received from the State of Connecticut and the Manufacturing Innovation Fund," ACMT Founder-President Michael Polo said. "The Voucher and Incumbent Worker Training programs have helped us purchase and develop cutting-edge equipment and provide our workers with the best training out there. We are a stronger competitive company worldwide as a result."

Michael Polo, ACMT Founder/President Hartford Business Journal, Jan. 17, 2018

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Manufacturing Voucher Program

Administered by CCAT



Funded with an MIF board-approved \$19.2 million, the Manufacturing Voucher Program has helped more than 400 Connecticut manufacturers leverage the latest innovations to update their processes, optimize their efficiencies and maximize their profitability. In fact, as of June 30, 2018, the MVP has provided more than \$16 million in matching grants to support the kinds of new equipment purchases, new skills training and new software integration that will continue to make Connecticut a dynamic hub for advanced manufacturing.

WHY this is critical

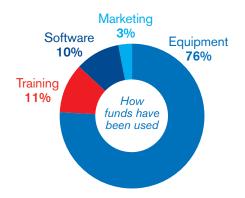
Bringing critical technologies online is an increasingly expensive proposition for today's manufacturers. Not only do they need to invest in sophisticated new equipment and software, but they may also need to test new materials, restructure their processes and upgrade the skills of the workforce to truly maximize their returns on those investments.

"We probably would never have made these investments on our own, just because our margins are that tight," said Tom Lyon, Owner, Lyco Inc. "For a small business, it's like getting a 50-percent-off coupon. It makes it a little easier to take that risk."

Hartford Business Journal, Oct. 8, 2018

HOW this program works

The Manufacturing Voucher Program can help defray the significant cost of investing in state-of-the-art manufacturing advances. Eligible companies can apply for matching grants from \$5,000 up to \$50,000 to fund a wide array of advancements — from specialized equipment and workforce training to R&D and marketing.

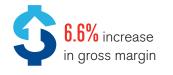


WHAT economic impact/business results this program has delivered

Cumulative Metrics	As of 2015	As of 2016	As of 2017	As of 6/30/18
Funding to Companies	\$3,376,987	\$8,192,411	\$13,206,474	\$16,369,636
Leverage*	\$7,000,000	\$32,769,644	\$50,198,820	\$63,110,525
Companies Assisted	91	262	354	444
Jobs Created/Retained	0	381	548	818

*Includes private industry investment

As of 2018: The Voucher Program has helped recipients generate these business results.**







**Self-reported by company participants

Energy on the Line Program

Administered by the Connecticut Green Bank



Energy on the Line works with the Connecticut Green Bank's C-PACE (Commercial Property Assessed Clean Energy) program to help businesses make energy-saving upgrades to their businesses. With a board-approved funding of \$800,000, the Energy on the Line program has awarded grants totaling nearly \$360,000 to help businesses install solar panels, energy-efficient heating and cooling and other money-saving improvements.

WHY this is critical

Connecticut has some of the highest energy costs in the country. These costs especially impact manufacturers, whose businesses are more dependent on electric power than those in other sectors. Manufacturers and building owners like the idea of cutting their energy bills, but the upfront costs of these improvements stop many companies from making them.

HOW this program works

Through the Energy on the Line program, the Manufacturing Innovation Fund provides upfront grants of up to \$40,000 per project.

The Connecticut Green Bank connects participating companies to C-PACE financing, which helps defray the total upfront cost of energy efficiency, and businesses can also take advantage of incentives and tax credits to further defray the costs.

"We are very excited to be partnering with the Connecticut Green Bank and Eversource. This partnership enables us to continue evolving our "green story"- a responsibility we take very seriously. It also allows us to reset our energy platform for another 20 years, while at the same time, lowering our energy costs. The unforeseen benefit in all this was the positive impact this reinvestment has had on our employees."

Peter Mirabello, CEO, Metal Finishing Technologies

WHAT economic impact/business results this program has delivered

Cumulative Metrics	As of 2016	As of 2017	As of 6/30/18
Funding to Companies	\$25,729	\$68,418	\$359,115
Leverage*	\$359,761	\$888,684	\$6,058,694
Companies Assisted	1	4	17
Jobs Created/Retained	3	4	54

* Includes private industry investment

As of 2018, the Energy on the Line program has generated these business results.





Building owners expect to save \$15.7 million over the useful lives of these improvements

Program Reports



ALENT "Our continued success will be dependent on a highly skilled workforce, world-class manufacturing facilities, and workforce education

programs that enable employees to improve their skills and remain competitive in an increasingly

Gregory J. Hayes, CEO, United Technologies Corp.

Incumbent Worker Training Program

Administered by the Department of Labor

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Capitalized with \$14 million in funds, more than 14,000 workers have now upgraded their skills through Connecticut's Incumbent Worker Training Program. Not only is this skill training focused on new technology, but it also encompasses lean manufacturing and leadership training — enabling companies to promote from within to replace senior personnel as they retire.

WHY this is critical

As technology evolves, manufacturers need to continually invest in new equipment. But to truly optimize these investments, their employees need to learn how to operate this high-tech equipment — and how to integrate it into lean manufacturing processes. However, given today's tight margins, companies don't always have the funds to pay for this essential training.

HOW this program works

The Incumbent Worker Training Program was designed to help defray the costs of training employees on new technology and processes. It provides companies with matching grants of up to \$50,000 to help pay for training that keeps employees' skills up to date and to develop the next generation of leadership.

"We're a manufacturing company, but we're also a technology company, so it's critical that we use cutting-edge equipment in our shop. Training employees on the latest software and equipment can be expensive, but the Incumbent Worker Training Program helps us keep our team's skills up to date."

Nicole Russo, CEO, Microboard Processing Inc., Seymour

Cumulative Metrics	As of 2015	As of 2016	As of 2017	As of 6/30/18
Funding to Companies	\$1,076,807	\$3,475,867	\$7,185,112	\$10,025,493
Leverage*	\$1,076,807	\$3,475,867	\$7,185,112	\$10,025,493
Companies Assisted	29	108	251	345
Jobs Retained/Created	1,530	2,409	3,939	8,536
Workers Trained	1,400	2,652	7,072	14,149

WHAT economic impact/business results this program has delivered

*Includes private industry investment

As of 2018, Incumbent Worker Training has generated these business results.







Apprenticeship/Pre-Apprenticeship Program

Administered by the Department of Labor

Funded at \$10.8 million by the MIF Board, more than 200 employers have now tapped into the support provided by Connecticut's Apprenticeship/Pre-apprenticeship Program to hire and train new workers. Not only do these programs help subsidize the wages for these workers, but they also help train and credential them for new skills.

WHY this is critical

Connecticut's manufacturing sector is growing faster than it has in years, creating demand for more skilled workers. Couple that with the fact that a significant portion of today's workers are nearing retirement age. That means our manufacturers need to train thousands of new workers in occupations like CNC machining — which can be costly and time-intensive.

HOW this program works

The Apprenticeship/Pre-Apprenticeship Program helps defray the costs of training new workers by subsidizing wages and classroom education for registered apprentices. It also helps workers obtain the necessary credentials after completing their apprenticeships. And it supports pre-apprenticeships for high school students who want to pursue manufacturing careers.

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"As our business grows, we need a steady stream of skilled workers. Thanks to EDAC's Next Gen Program and commitment to the apprenticeship and pre-apprenticeship programs, we can take young people who are eager to learn and train them so they're ready to take their places on our shop floor."

Dave Russell, Director-Next Gen Programs, EDAC Technologies

Cumulative Metrics	As of 2016	As of 2017	As of 6/30/18
MIF-Approved Funding	\$7,799,000	\$7,799,000	\$10,799,000
Leverage*	\$7,799,000	\$12,558,000	\$18,749,654
Companies Assisted	48	87	153
Apprentices	108	221	372
Pre-apprentices	0	21	75
Schools/Training Providers	10	11	11

WHAT economic impact/business results this program has delivered

*Includes private industry investment Note: Program launched in 2015.

As of 2018, these programs have helped to train more than 450 individuals.



Program Reports



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More than 150 students have now completed the College Connections program — an initiative that has been significantly expanded with the help of \$600,000 in funding from the Manufacturing Innovation Fund. While the CSCU system has been carefully building this program over the past decade, this additional funding is critical to ensuring its continued growth.

WHY this is critical

One of the most pressing needs for Connecticut's growing manufacturing sector is access to highly skilled professionals. So to continually prime the talent pipeline for our advanced manufacturers, we need to get more students interested in careers in this field at younger ages — particularly at the high school level.

"We need to get to these kids before they decide what to do. Most of them don't consider manufacturing. Their parents don't either."

Frank Gulluni, Director of the Asnuntuck Community College Advanced Manufacturing Technology Center

HOW this program works

This program connects high schools to neighboring CSCU Advanced Manufacturing Technology Centers across the state. Through these connections, high school students get hands-on exposure to the rewarding work and strong earnings potential a career in advanced manufacturing can offer.

Participating high schools include:

Bassick	Enfield	Shelton
Bunnell	Granby	Southington
Cathedral	Hartford	Stratford
Crosby	Kolbe	Suffield
Derby	Cathedral	Windsor
East Granby	Pathways East Hartford	Locks
East Hartford		

WHAT results this program has delivered

Cumulative Metrics	As of 2017	As of 6/30/18
Students Enrolled	95	152

As of 2018, this program has introduced hundreds of students to the field.



Approximately 25% of those students have gone on to enroll in manufacturing-related programs at CSCU colleges



More than 5,000 students have learned about the exciting careers manufacturing offers through the nationally recognized Connecticut. Dream It. Do It. Program, supported by \$766,523 in total approved funds from MIF. Through this program, students in grades 5 though 9 participate in hands-on activities and experiences that introduce them to the diverse array of opportunities in today's advanced manufacturing field.

WHY this is critical

Connecticut's advanced manufacturers will need thousands of new workers in the next several years not only to replace those nearing retirement age, but also to meet the increasing demand for products from Electric Boat, Pratt & Whitney, Sikorsky and their many suppliers. To meet this demand, manufacturers believe they need to get more students interested in the field — as early as middle school.

HOW this program works

This funding makes possible such initiatives as Manufacturing Mania and Making It Real: Girls & Manufacturing. It also sends the Goodwin College Mobile Manufacturing Lab directly to schools — all to introduce students to advanced manufacturing through hands-on experiences. It also gives companies the opportunity to host tours of their facilities, showing young people what it's really like on the shop floor.

"I know that when I was young I wasn't aware of all the opportunities. So I want to make sure these kids know what their opportunities are."

Charles Daniel, Chief Financial Officer, Wepco Plastics, Inc.

Cumulative Metrics	As of 2016	As of 2017	As of 2018
MIF-Approved Funding	\$266,929	\$516,523	\$766,523
Companies Participating	32	110	183
Students Participating	1,304	3,036	5,824
Educators Participating	209	500+	800+

WHAT results this program has delivered

As of 2018, programs supported by this funding have...





Sponsored **OUEF 2UU** events and activities



Hosted **48 UISITS** of the Goodwin College Mobile Manufacturing Lab

Young Manufacturers Academy

Administered by the Connecticut Center for Advanced Technology (CCAT)



More than 2,000 students have now participated in the Young Manufacturers Academy, supported by the MIF with total funding of \$965,678. The Young Manufacturers Academy introduces students entering grades 7 through 9 to exciting career opportunities in manufacturing — with hands-on experiences and activities that help them learn about lean manufacturing, CNC machining, 3D printing, robotics and more.

WHY this is critical

Connecticut manufacturers of all sizes are facing increasing demand – from Electric Boat, Pratt & Whitney and Sikorsky, to small shops that employ a handful of people. At the same time, a significant portion of their workforce is nearing retirement age. Getting young people interested in manufacturing will help ensure a steady flow of new, skilled workers ready to take on those challenges.

HOW this program works

The Young Manufacturers Academy opens the minds of middle-school-aged students across Connecticut to the world of possibilities in manufacturing, from CNC machining to engineering to factory design. They tour local manufacturers and learn other critical skills like communication, resume preparation and interviewing techniques.

"If you've got a curious mind and you like how things are made and built and you want to be a part of developing and creating something, engineering and manufacturing is the place to be."

Jill Bryant Mayer, President, Bead Industries

WHAT results this program has delivered

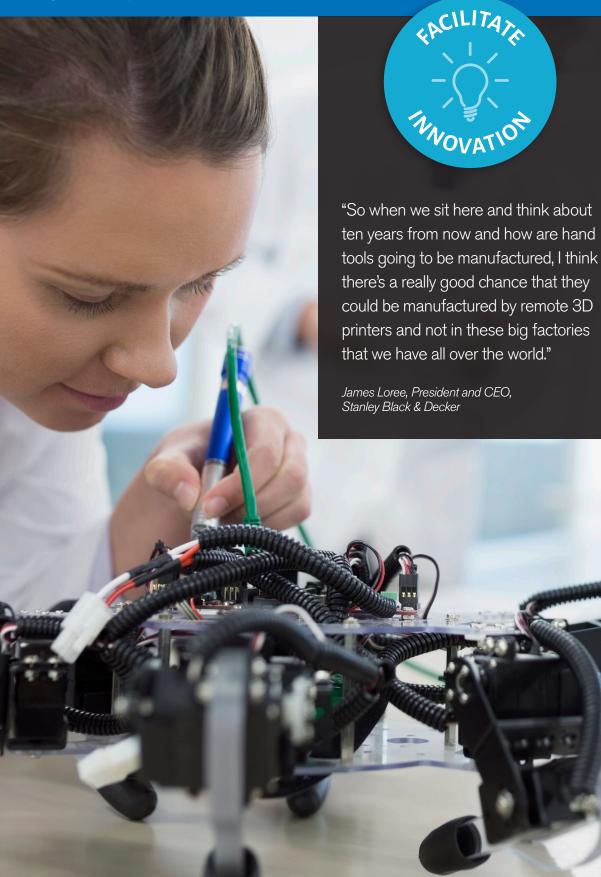
Cumulative Metrics	As of 2016	As of 2017	As of 2018
MIF-Approved Funding	\$423,000	\$673,000	\$965,678
Students Participating	142	546	2,224
Cities and Towns Represented	29	54	92
Manufacturers Hosting Site Visits	10	23	68

As of 2018, this program has engaged students and employers alike.





Program Reports



Research and Innovation Programs



Connecticut has been a leader in innovation for over 200 years. We know it is the lifeblood of manufacturing. The Manufacturing Innovation Fund understands this fact and has invested \$10.85 million in research and development to spark innovation and facilitate the adoption of new technologies, especially in small and mid-sized companies. The fund has focused its investments in three key areas: Advanced Composites, High-Rate Additive Manufacturing and Non-Destructive Testing and Scanning. These investments were made with the key partnerships of industry, non-profits, federal government, and academia to help leverage our investments in these critical areas.

Advanced Composites

This program enables Connecticut manufacturers to use advanced, high-value structural composites to increase production speed, lower costs and ensure quality.

CT Center for Excellence for Composites Manufacturing

The Center is a private/public partnership focused on composite manufacturing technology. The goal is to grow composites capacity in our supply chain companies. The initial focus will be advanced manufacturing and automation, integrated product and process development, and prototyping of carbon fiber composite components.

A critical part of the Center is developing the workforce trained to work with this technology. This will be accomplished by partnership of key academic stakeholders which include: the state university and community college system, Goodwin College, UConn, University of Hartford and CCAT. The partnership will develop a statewide curriculum and certification program in Advanced Composites in order to help Connecticut manufacturers meet their needs for trained personnel in this area.

High-Rate Additive Manufacturing (HRAM)

When fully implemented, the program will make high-rate additive manufacturing technology available to all companies.

Non-Destructive Testing and Scanning

Through a federal grant, Connecticut received \$4.5 million that included the development of a coalition of New England states to form a regional cluster of defense-related manufacturers and investments in non-destructive scanning technology. MIF funded the required 10% match of \$450,000, which was used to acquire specialized equipment that is now increasing our manufacturers' competitiveness by enabling them to integrate innovative processes and scanning technologies into their production.



Marketing Overview

In mid 2017, the Manufacturing Innovation Fund launched a new site — *AdvancingManufacturingCT.com* — to provide a centralized online hub highlighting all the resources Connecticut offers to support the growth of its advanced manufacturers. The fund also supported the development of a video series featuring an array of inspirational manufacturing role models — describing what they found exciting about the field and what path they took to get into the field.

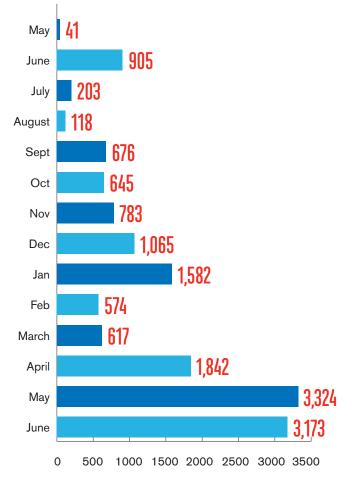
Throughout the first three quarters of 2018, the MIF continued to promote awareness of these resources through a paid search campaign. This paid media was critical in supporting the ongoing awareness and utilization of this site — generating 87% of the site's traffic.

Key facts - January to November 2018

Average monthly site visitors
Total site visitors from January-November 2018 19,193
Average time on site
Return visitors 10%
Video views on site
<pre># of viewers who clicked from our portal to additional info about programs/support1 in 10</pre>
Top visited sections of site Cultivating Talent & Exploring Careers



Growth in site visitors per month



Designated Communities

Connecticut's historic manufacturing hubs have played significant roles in making Connecticut the global hub of advanced manufacturing it is today. In recognition of this contribution, the Manufacturing Innovation Fund has funded programs that support manufactures within these 37 designated communities.

The MIF has given special consideration to proposals from a distressed municipality, targeted investment community, public investment community, enterprise zone or manufacturing innovation district. These funds have been critical to spurring municipal revitalization, job growth and employment opportunities — and has supported manufacturers in every county in Connecticut.

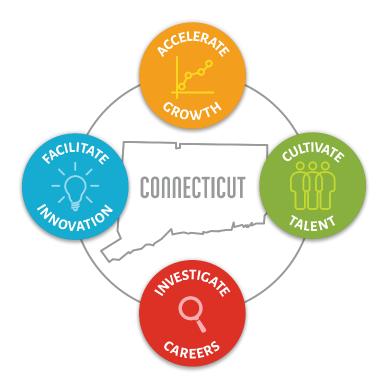
Total investments fiscal year 2018 - \$3.05 million*

Distressed List FY2018 Approved
\$0.00
\$0.00
\$95,473.00
\$166,124.00
\$0.00
\$433,055.00
\$39,419.00
\$0.00
\$101,255.00
\$25,000.00
\$50,934.00
\$50,000.00
\$0.00
\$0.00
\$18,702.00
\$42,400.00
\$463,723.00
\$200,623.00
\$27,135.00

DECD 2018	Distressed List FY2018 Approved
Norwalk	\$20,000.00
Norwich	\$50,000.00
Plainfield	\$41,563.25
Plymouth	\$0.00
Putnam	\$193,025.10
Seymour	\$180,000.00
Southington	\$135,056.00
Sprague	\$0.00
Stamford	\$176,389.00
Sterling	\$50,000.00
Thompson	\$80,700.00
Torrington	\$77,858.00
Waterbury	\$335,957.00
West Haven	\$0.00
Wethersfield	\$0.00
Winchester	\$0.00
Windham	\$0.00
Wolcott	\$0.00
	\$3,054,391.35

*For the period July 1, 2017 – June 30, 2018. Direct funds to companies via the Manufacturing Voucher, Incumbent Worker and Energy on the Line.

More Information



Please visit us at AdvancingManufacturingCT.com for more program information.