

2020 | MIF Annual Report

Connecticut

Manufacturing
Innovation Fund
Advancing Manufacturing Faster

POWERING *momentum*

2,003 **Businesses Assisted**

17,784 **Jobs Created/Maintained**

25,329 **Employees Trained**

17,726 **Students Engaged**

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

CTMIF.com

A LETTER FROM



COLIN COOPER

Chairman, Manufacturing
Innovation Fund Advisory Board

Chief Manufacturing Officer,
Department of Economic and
Community Development,
State of Connecticut

2020 has been a year like no other for Connecticut manufacturers. In response to the pandemic, our manufacturers rapidly implemented new safe workplace policies. Some retooled to use their capacity to address critical shortages of medical equipment and supplies. Others juggled staffing to balance the often competing needs of customers and employees. Many struggled with broken supply chains, rapid shifts in demand, and liquidity challenges. But through it all, Connecticut manufacturers were resilient – continuing to service their customers and keep their workforces safe.

In 2020, the Manufacturing Innovation Fund (MIF) exhibited its own type of resiliency. To begin the year, the MIF funded two new programs to facilitate the adoption of digital technologies. But as the pandemic spread, we shifted \$1.3M to a new program that helped manufacturers pivot to meet critical public health needs. You'll find more on these COVID-19-response initiatives on page 5 of this report.

In this report, you'll also find more about all the ways the MIF has fueled this kind of resiliency and momentum since its inception in 2014. MIF-supported programs have enabled companies to upgrade their equipment and processes, provided technical training for existing workers, funded apprenticeships for early-career employees, helped companies reduce their energy costs, and encouraged young people to consider rewarding career opportunities in manufacturing.

Of course, none of this progress would be possible without the partnership of the many administrators whose programs we support – including the Connecticut Center for Advanced Technology, the Connecticut Department of Labor, the Connecticut Green Bank, and the Connecticut State Colleges and Universities System.

Together, their programs and our MIF support have served as powerful catalysts for other investments. In fact, for every dollar of state-supported MIF funds deployed through these programs, private and third-party investors have invested \$1.70.

It's clear that the support the MIF provides remains essential. We need to continue to prime our manufacturing talent pipeline. We need to redouble efforts to upskill our workforce so we can capitalize on the innovations revolutionizing manufacturing processes. And we need to provide more catalyst capital to incentivize smaller manufacturers to invest in next-generation manufacturing technology.

Not only will these investments keep Connecticut's manufacturing sector globally competitive, they will continue to generate significant returns for our many advanced manufacturers and our state's overall economy.

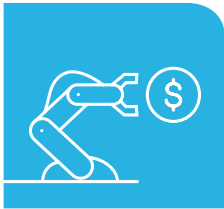
A handwritten signature in black ink, appearing to read 'Colin Cooper', written in a cursive style.

How the MIF Has Generated Significant ROI for This Sector



programs
engaging 17,726
students across
167 towns/cities

AS OF 6/30/20



assistance
for 2,003
manufacturers

AS OF 6/30/20



17,784 jobs created or maintained
in the state's manufacturing sector

AS OF 6/30/20



catalyst capital that turns every
\$1 of MIF funding deployed into \$1.70
invested by private/third parties

AS OF 6/30/20



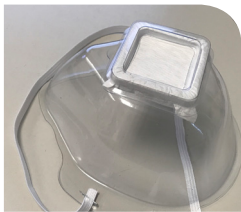
matching
grants providing
587 companies
with \$21.7M
for upgraded
equipment/
processes

AS OF 6/30/20



retraining
for 24,526
current workers

AS OF 6/30/20



\$1.3M in support
for manufacturing
COVID-19 supplies

SINCE 3/01/20

Why Manufacturing Is So Critical to Connecticut's Economy

There is one overarching reason why the Manufacturing Innovation Fund is so essential – and that's because manufacturing itself is so critical to Connecticut's economy. Not only does the advanced manufacturing sector in Connecticut employ hundreds of thousands of workers across the state, it accounts for nearly \$27B of the state's GDP and generates nearly \$470M in tax revenues that can be used to fund other essential statewide initiatives. Yet its growth is challenged by the lack of qualified workers to fill the shortages left by retiring workers – and dependent on the continued investment in innovation to stay competitive.



155,900
in Direct Jobs;
5X in Indirect Jobs

Advanced manufacturing
in Connecticut:

- directly employs nearly 156,000 people
- indirectly creates another 800,000 jobs in other segments of the state's economy



High-Paying Jobs
for Connecticut Residents

Not only does manufacturing employ hundreds of thousands of Connecticut residents, it pays them among the highest wages in the state – averaging \$98,150 per worker.



\$468M Annual Tax
Revenues for the State

Advanced manufacturing companies in Connecticut contribute:

- \$144.5M in state corporate taxes
- \$223.5M in state sales & use taxes

Varied Educational
Backgrounds

Connecticut manufacturers provide career opportunities to individuals from high school graduates to PhDs.



\$26.74B of State's GDP;
\$15B in Exports

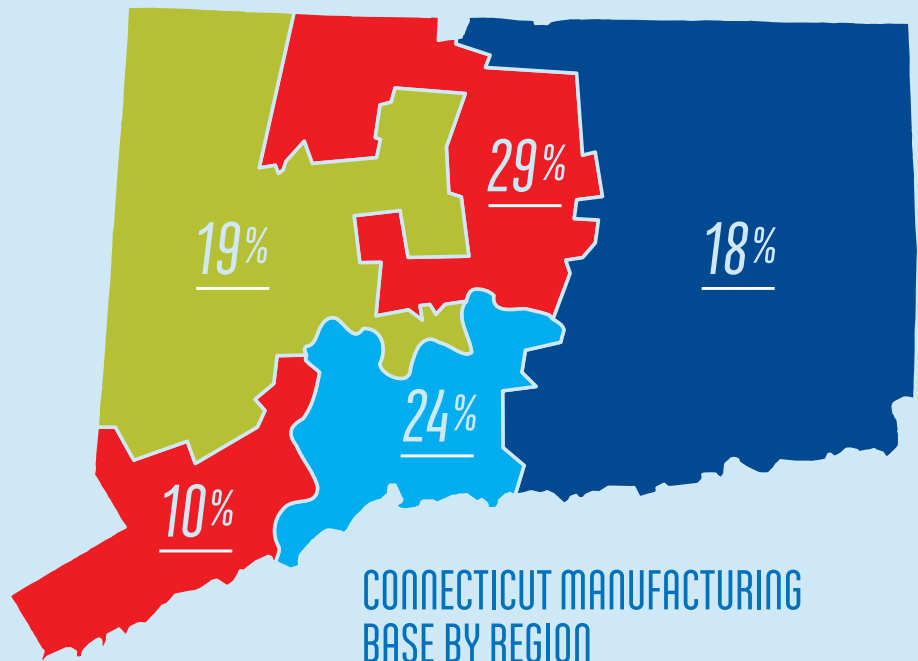
The nearly 4,000 manufacturing companies in Connecticut generate:

- 11% of the state's gross domestic product (GDP), and
- 92% of Connecticut's total exports

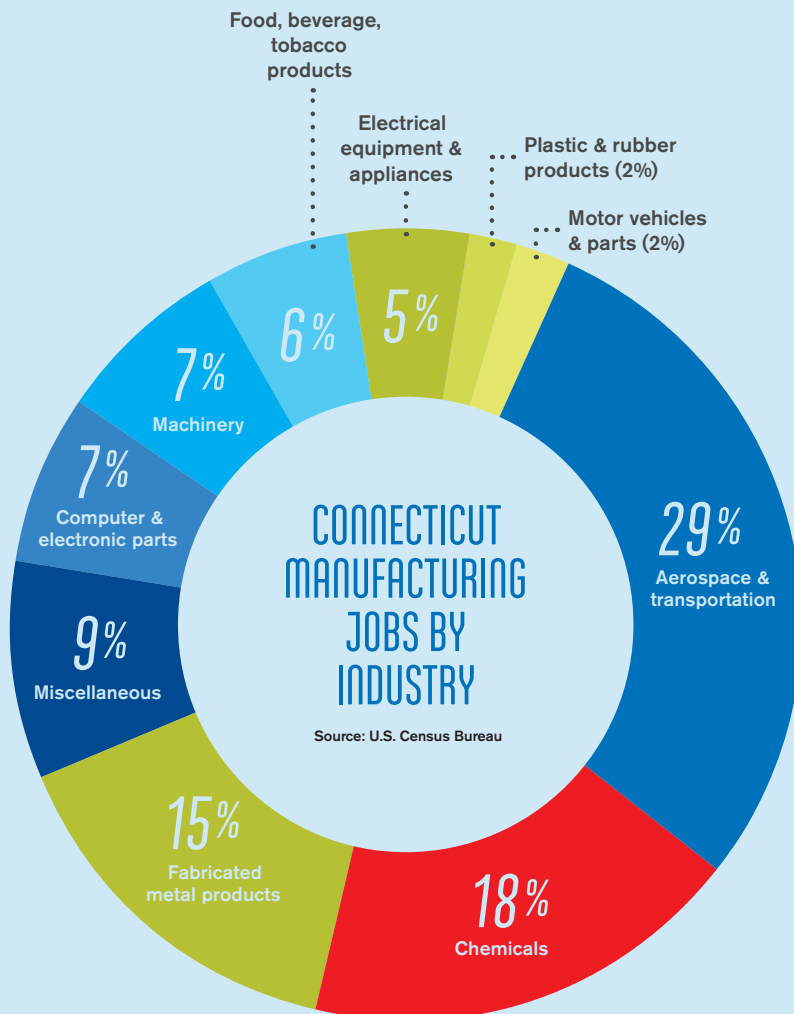
Sources: U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, U.S. Department of Defense, U.S. Census Bureau, National Association of Manufacturers, Connecticut Department of Revenue Services, Connecticut Department of Labor.

Manufacturing Employment in Every Region

Well-paying jobs can be found across the entire state of Connecticut.



Source: U.S. Census Bureau



Source: U.S. Census Bureau

Diverse Array of Jobs by Industry

Connecticut companies manufacture a wide array of products – from airplane components to food products.



POWERING FORWARD

ACCELERATING GROWTH

Since its inception, the MIF has empowered hundreds of companies to move forward with significant upgrades in equipment and processes. But in 2020, the MIF also enabled manufacturers to pivot to meet critical public health needs.

COVID-19-related manufacturing. Over a six-week period, the fund reallocated \$1.3M to grants for 24 Connecticut manufacturers so they could shift production to items needed in the fight against the COVID-19 pandemic – including ventilators, isolation gowns, hand sanitizer, and face shields. Many of these companies were able to maintain or even increase their workforces at a time when their legacy businesses were devastated.

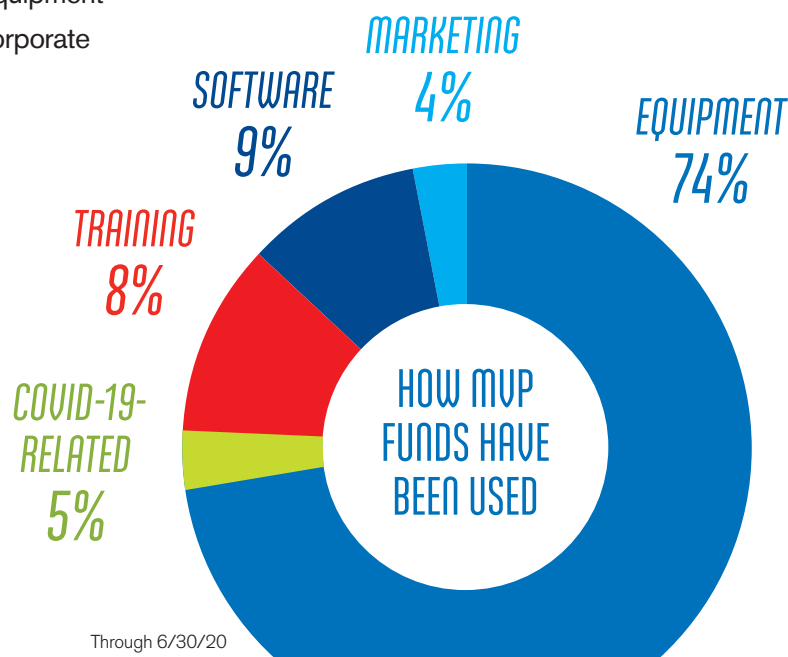
In addition to supporting these immediate needs, the MIF also continued to fund several other programs that foster growth in this sector.

Manufacturing Voucher Program. Over the past six years, one of the most well-utilized initiatives the MIF has funded has been the Manufacturing Voucher Program (MVP). Historically, this program has been structured to offer matching grants from \$5,000 to up to \$50,000 to help eligible companies move forward with a wide array of advancements – from new equipment and workforce training to R&D and marketing. To date, 587 Connecticut companies have leveraged nearly \$22M in grants to upgrade their equipment and processes, train employees, and incorporate the latest software into their IT systems.

3-to-1 leverage

For every \$1 granted through the MVP, recipients invested another \$3:

MIF Funding:	\$21.6M
Funding from Companies:	\$64.9M
Total Investment:	\$86.5M



Energy on the Line. Another factor inhibiting growth for manufacturers is the high cost of energy, since these businesses are more dependent on electric power than those in other sectors. Many manufacturers want to become more energy efficient, but the upfront costs of these improvements stop some companies from making them.

To help Connecticut companies move forward with these improvements, Energy on the Line has awarded grants totaling \$519,240.

- For every \$1 of support from MIF, companies invested another \$17 in these projects.
- Over the life of these improvements, companies will realize 277,700 MMBTU in energy savings.
- Each year, these improvements will also reduce 2,388 tons of total greenhouse gas emissions.

“The MVP program has been a game changer...the equipment we purchased expands our tool-making, spring-making and stamping capabilities....”

John Dellana, President, Rowley Spring & Stamping Corp.

“This grant enabled us to gear up to produce over 20,000 face shields per day in the fight against COVID-19.”

Barbara O'Connor, President, Enhance a Colour

“We expect this new capability to make a significant impact in our production...”

Giri Agrawal, President, R&D Dynamics



ACCELERATING PROGRESS

FACILITATING INNOVATION

A key strength of Connecticut's manufacturing sector is its robust supply chain – composed of more than 4,000 small- to mid-size components manufacturers. To sustain the global competitiveness of this supply chain, the MIF has continually allocated a significant portion of its resources to programs that help smaller companies embrace and integrate new technologies.

The following programs are reflective of the MIF's ongoing focus on supporting innovations in key areas that are truly transforming manufacturing.

Industry 4.0

Funded with \$5 million in fiscal year 2020 to adopt the technology, this focus area helps manufacturers integrate new digital technologies into their processes. For example, some of the MIF support for Industry 4.0 has helped to create workshops and train workers on the “Industrial Internet of Things”, “Model-Based Definition”, and “Applied AI”, just to name a few topic areas. This initiative includes a matching grant component for adoption of Industry 4.0 technologies.

“Wepco Plastics has greatly appreciated working with CCAT to educate our staff about emerging advanced technologies for manufacturers. This year, several of our team members participated in a Data Dashboards and Applied Artificial Intelligence workshop to explore future adoption of Industry 4.0 technologies within our organization.”

*David Parmelee, President
Wepco Plastics, Inc., Middlefield, CT*

High Rate Additive Manufacturing (HRAM)

Support from MIF with \$2.9 million in fiscal year 2020 also helps smaller Connecticut manufacturers learn how to utilize new additive manufacturing (AM) technologies. In addition to workshops, funding has been used to evaluate, purchase, and install large-scale equipment – providing hands-on exploration and training opportunities for our manufacturers. A matching grant program helps facilitate adoption of this technology by manufacturers.



Composites Manufacturing

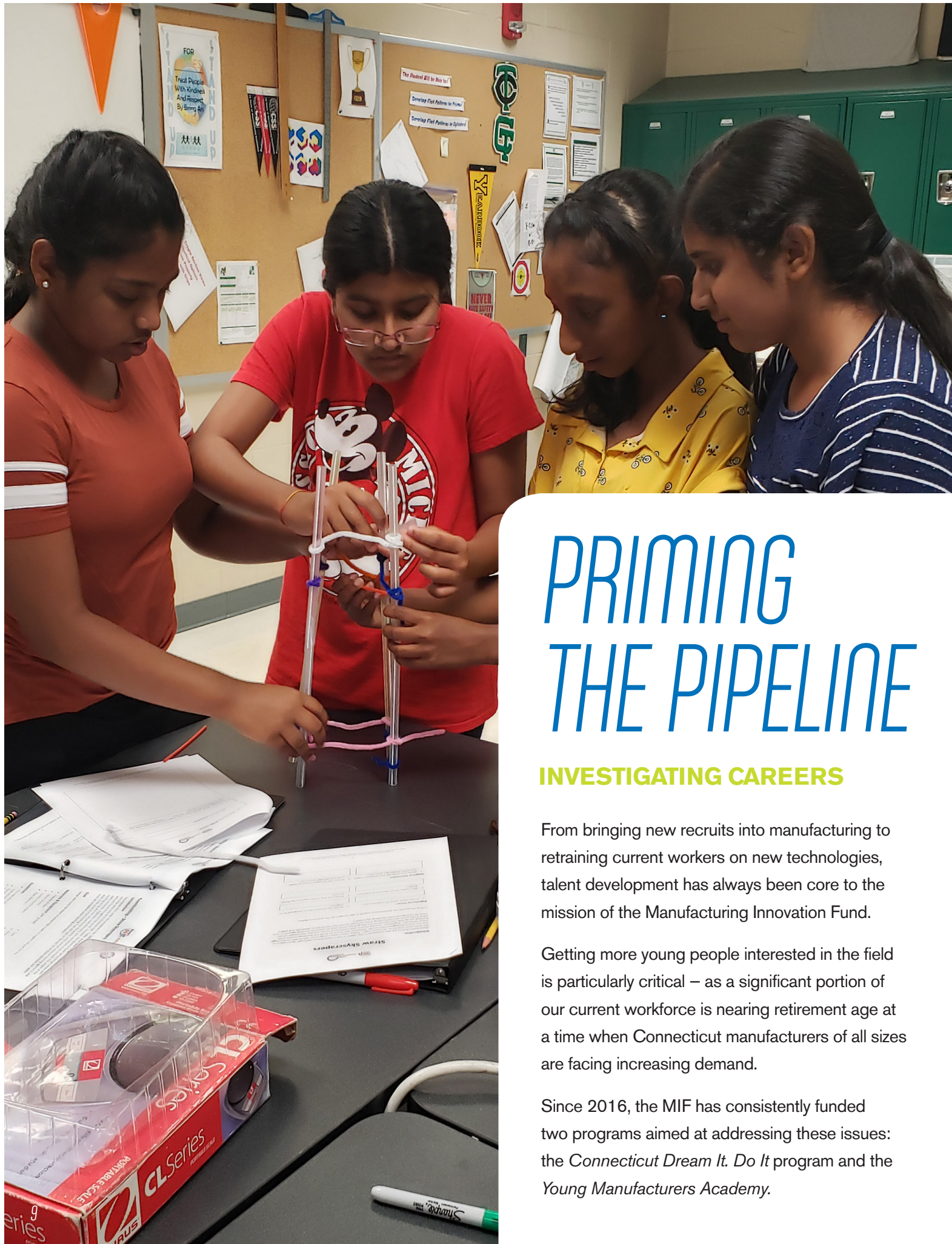
The MIF also supports initiatives focused on both the fabrication and precision machining of composites.

CCECM Center. The Connecticut Center for Excellence for Composites Manufacturing is committed to strengthening and growing the composites supply chain in Connecticut. This center draws on the technological strength of Pratt & Whitney, CCAT and Goodwin University. It gives manufacturers hands-on opportunities to learn more about new technologies and expert guidance in how to integrate them into their own operations.

Advanced Composites Program. MIF funding has also enabled CCAT to develop composites machining capabilities in its Advanced Manufacturing Center. This program makes it possible for manufacturers to better understand the unique inputs and outcomes of manufacturing with composites.

“The Connecticut Center for Composites Manufacturing, established as a public-private-university collaboration, is a significant step towards enabling the development and deployment of novel composite manufacturing technology in the state of Connecticut...”

*Peter Finnigan, Senior Fellow Composites
Pratt & Whitney*



PRIMING THE PIPELINE

INVESTIGATING CAREERS

From bringing new recruits into manufacturing to retraining current workers on new technologies, talent development has always been core to the mission of the Manufacturing Innovation Fund.

Getting more young people interested in the field is particularly critical – as a significant portion of our current workforce is nearing retirement age at a time when Connecticut manufacturers of all sizes are facing increasing demand.

Since 2016, the MIF has consistently funded two programs aimed at addressing these issues: the *Connecticut Dream It. Do It* program and the *Young Manufacturers Academy*.

Cumulative Impact of These Programs Since 2016



\$1.1M invested to date in programs that have engaged 10,883 K-12 students, 1,300+ educators, and 510 Connecticut companies AS OF 6/30/20



300+ activities/events raise awareness about careers in advanced manufacturing



professional development programs for educators that help destigmatize careers in the manufacturing field

funding for a program incenting high school students to create videos titled "What's So Cool About Manufacturing"

AS OF 6/30/20



136 tours and workshops offering hands-on learning opportunities about CNC machining, 3D printing, robotics, and more AS OF 6/30/20



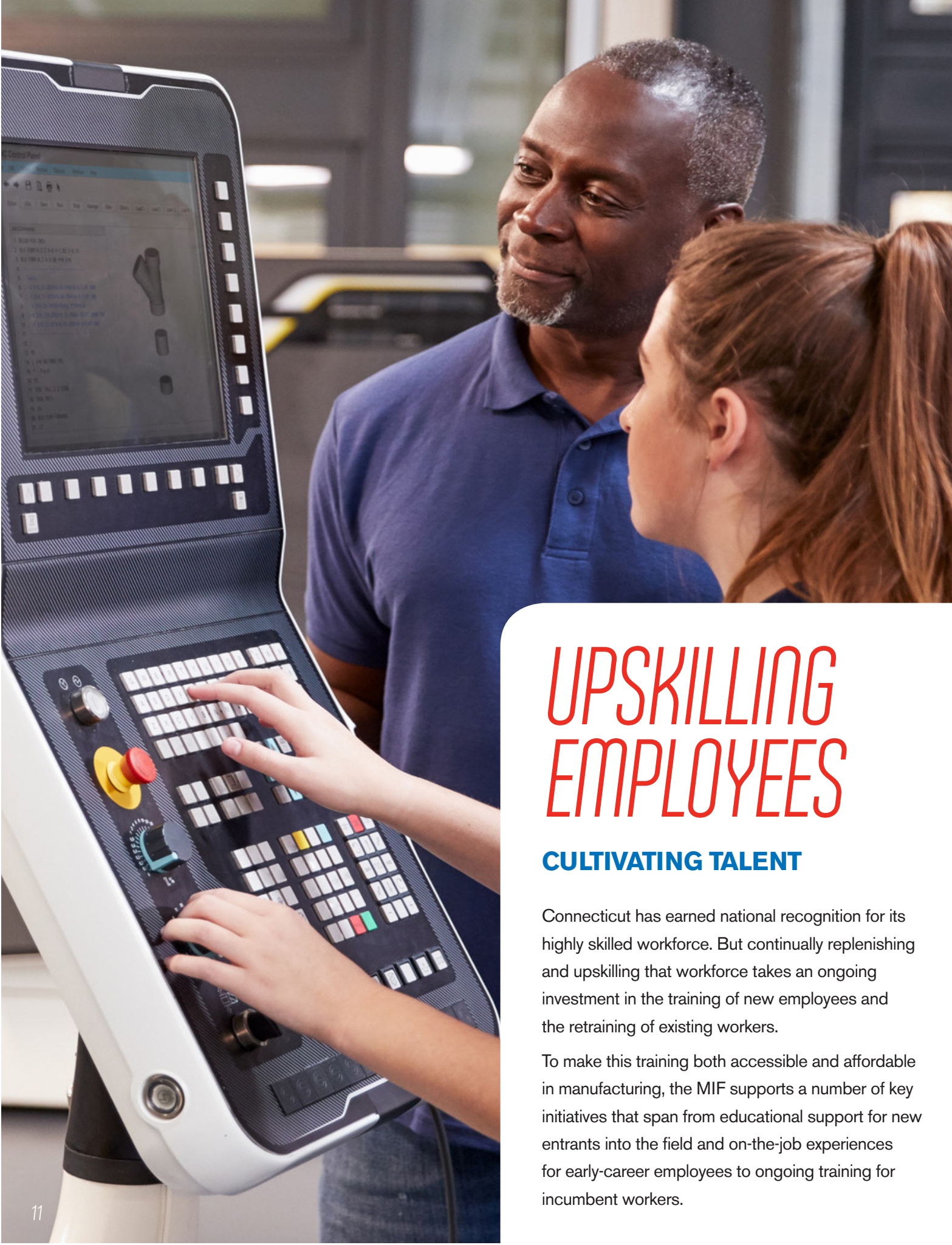
\$1.5M invested to date in programs that have exposed 6,690 students in grades 5-8 to career opportunities in manufacturing

AS OF 6/30/20



student tours of 115 manufacturing sites; programs involving students from 167 towns and cities

AS OF 6/30/20



UPSKILLING EMPLOYEES

CULTIVATING TALENT

Connecticut has earned national recognition for its highly skilled workforce. But continually replenishing and upskilling that workforce takes an ongoing investment in the training of new employees and the retraining of existing workers.

To make this training both accessible and affordable in manufacturing, the MIF supports a number of key initiatives that span from educational support for new entrants into the field and on-the-job experiences for early-career employees to ongoing training for incumbent workers.

College Connections

To get more students interested in manufacturing earlier, the Connecticut State Colleges & Universities' College Connections program offers high school students an opportunity to earn college credits in manufacturing through the state's community colleges. MIF funds make this opportunity more accessible to more students – by providing half the cost of tuition, books, and transportation for these students.

Pre-Apprenticeships and Apprenticeships

On-the-job training is essential to enabling early-career manufacturers to build their credentials. To help fund that training, the MIF supports the Department of Labor's pre-apprenticeship and apprenticeship programs in manufacturing. Not

only has the \$11M in MIF support helped pay for third-party training resources for these apprentices, it subsidized their wages while on the job. That's a win-win for the 232 participating employers – as well as the 604 apprentices and 199 pre-apprentices who have gained experience while earning a salary through this program.

Incumbent Worker Training

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. To date, the MIF has committed over \$15M in the Incumbent Worker Training Program – which provides the support necessary to help defray the costs of training employees on both new technology and updated processes.



*The MIF deployed **\$26.3M** to these programs, which sparked another **\$29.2M** investment by the companies and other third parties for a total investment of over **\$55M**. AS OF 6/30/20*



*Since 2015, **25,329** employees have been trained and/or retrained through these MIF-supported programs.*

AS OF 6/30/20



*Through these programs, a total of **699** companies have benefited from professional training and development for their employees. AS OF 6/30/20*



*Since 2015, a total of **16,500** jobs have been created or retained as a result of these programs.*

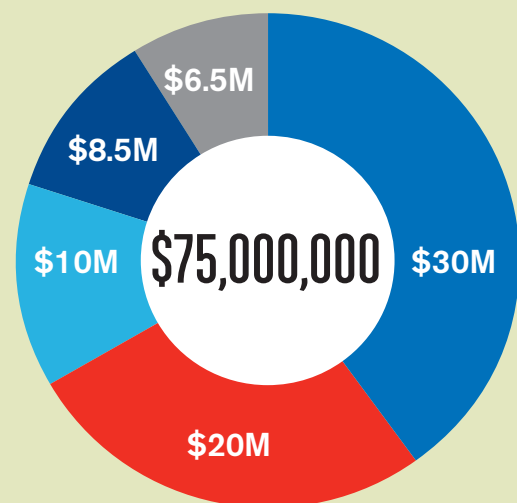
AS OF 6/30/20

MIF Financial Overview

Of the \$75M investment that was originally authorized by the Connecticut State Legislature in 2014 for the MIF, nearly \$72M of those funds has been committed as of June 30, 2020.

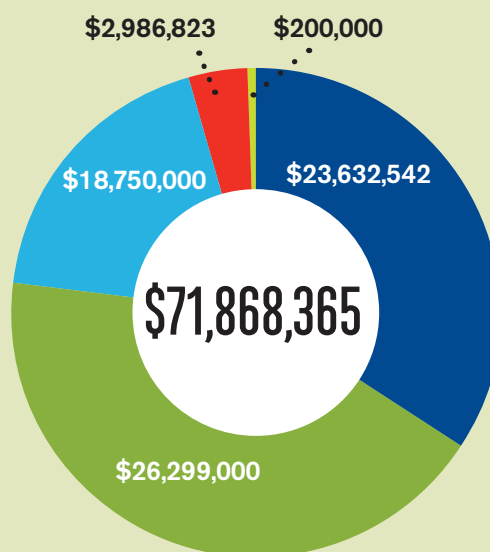
The charts below track when funds have been authorized – and how they’ve been invested across our different objectives of accelerating growth, facilitating innovation, cultivating talent, helping students investigate manufacturing careers and marketing.

Legislative authorization
by year 2014-2019



- FY 2014, FY 2015
- FY 2016
- FY 2017
- FY 2018
- FY 2019

Total committed funds
as of June 30, 2020



- Accelerate Growth
- Cultivate Talent
- Facilitate Innovation
- Investigate Careers
- Marketing

*Includes the 5% statutory allowance
for program administration

On the pages that follow, you'll find more detailed financial data about each of the ongoing programs funded by the Manufacturing Innovation Fund.

MIF Program Financials

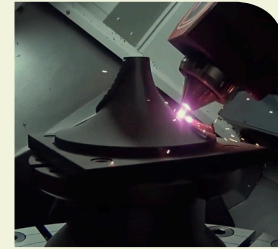
Manufacturing Voucher Program (MVP)

Administered by CCAT

The MVP helps manufacturers defray the significant costs of investing in a wide array of state-of-the-art manufacturing advances from specialized equipment and workforce training to research and development and marketing. By taking advantage of this program, manufacturers can optimize efficiencies and maximize profitability.

FISCAL YEAR	MIF FUNDING	TOTAL INVESTMENT*	COMPANIES ASSISTED	JOBS RETAINED/ CREATED
2015	\$3,376,987	\$7,000,000	91	N/A
2016	\$8,192,411	\$32,769,644	262	381
2017	\$13,206,474	\$50,198,820	354	548
2018	\$16,369,636	\$63,110,525	444	818
2019	\$18,850,078	\$75,856,168	524	984
2020	\$21,654,700	\$86,530,121	587	1,213

*Self-reported by company participants.



For every \$1 in grants through the MVP, recipients invested another \$3 in upgrades to their equipment and processes.

Energy on the Line

Administered by the Connecticut Green Bank

Through a partnership with the Connecticut Green Bank and their C-PACE financing program, Connecticut businesses can upgrade their facilities to more energy- and cost-efficient operations. Upfront grants of up to \$40,000 permit electric-power-reliant manufacturers to install solar panels or more efficient heating and cooling systems and achieve substantial cost savings on their energy bills.

FISCAL YEAR	MIF FUNDING	INDIVIDUALS TRAINED	COMPANIES ASSISTED	JOBS RETAINED/ CREATED
2015	N/A	N/A	N/A	N/A
2016	\$25,729	108	1	3
2017	\$68,418	242	4	4
2018	\$359,115	447	17	54
2019	\$399,449	650	18	58
2020	\$519,240	803	22	71



For every \$1 in MIF support, another \$17 was invested by the companies and other third parties to implement these improvements.

MIF Program Financials (cont.)

Incumbent Worker Training

Administered by the Department of Labor

Designed to help defray the costs of training employees on new technology and processes, this program provides companies with matching grants of up to \$50,000. This funding helps pay for training that keeps employees' skills up to date and helps develop the next generation of leadership.

FISCAL YEAR	MIF FUNDING	INDIVIDUALS TRAINED	COMPANIES ASSISTED	JOBS RETAINED/ CREATED
2015	\$1,076,807	N/A	29	N/A
2016	\$3,475,876	4,420	108	2,409
2017	\$7,185,112	7,072	251	3,939
2018	\$10,025,493	14,149	345	8,536
2019	\$13,300,000	19,538	446	12,114
2020	\$14,689,597	24,526	467	15,697



81% of participating companies reported an upgrade in their trainees' skills and 63% reported a significant boost in productivity.

Apprenticeship/Pre-Apprenticeship

Administered by the Department of Labor

This program helps defray the costs of training new and incumbent workers by subsidizing wages and classroom education for registered apprentices, allowing workers to obtain the necessary credentials after completing their apprenticeships. In addition, it supports pre-apprenticeships for high school and college students who want to pursue manufacturing careers.

FISCAL YEAR	TOTAL INVESTMENT	INDIVIDUALS PARTICIPATING	COMPANIES ASSISTED	TRAINING PROVIDERS
2015	N/A	N/A	N/A	N/A
2016	\$10,391,000	108	48	10
2017	\$13,103,000	242	87	11
2018	\$19,727,000	447	153	11
2019	\$22,799,000	650	198	11
2020	\$25,295,000	803	232	11



To date, the MIF and participating companies have invested more than \$25M in support for the apprenticeship and pre-apprenticeship programs.

MIF Program Financials (cont.)

College Connections

Administered by CSCU

MIF funding helps pay for tuition, books, and transportation for high school students taking courses through the state's community colleges.

STUDENTS	2017	2018	2019	2020
	95	152	188	203

Connecticut. Dream It. Do It.

Administered by CCAT

Through this program, almost 11,000 K-12 students have learned about diverse career opportunities in advanced manufacturing. DIDI funding also makes possible initiatives such as "Manufacturing Mania" and "Making It Real: Girls and Manufacturing."

FISCAL YEAR	MIF FUNDING	STUDENTS PARTICIPATING	COMPANIES ASSISTED	EDUCATORS PARTICIPATING
2015	N/A	N/A	N/A	N/A
2016	\$266,929	1,304	32	209
2017	\$516,523	3,036	110	~500
2018	\$766,523	5,824	183	~800
2019	\$1,129,145	8,283	331	~1,000
2020	\$1,129,145	10,883	510	~1,300

Young Manufacturers Academy

Administered by CCAT

Focusing on grades 5-8, this program opens the minds of middle-grade students across Connecticut to the world of possibilities in manufacturing – from CNC machining to engineering to factory design. Students tour local manufacturers and learn other critical skills like communication, resume preparation, and interviewing techniques.

FISCAL YEAR	TOTAL FUNDING	STUDENTS PARTICIPATING	COMPANIES VISITED	CITIES/TOWNS REPRESENTED
2015	N/A	N/A	N/A	N/A
2016	\$423,000	10	142	29
2017	\$673,000	546	23	54
2018	\$965,678	2,224	68	92
2019	\$1,257,678	4,125	88	129
2020	\$1,457,678	6,690	115	167



Since 2016, the DIDI program has touched the lives of 11,000 Connecticut students and nearly 1,300 educators.



In 2020 alone, more than 2,500 middle-grade students participated in activities sponsored by the Young Manufacturers Academy.

MIF Program Financials (cont.)

Total Investments in Distressed Communities | Fiscal Year 2020 – \$2.0 Million

Across every county in the state, the MIF builds on Connecticut's traditional hubs of manufacturing advancement.

The MIF has given special consideration to proposals from:

- distressed municipalities
- targeted investment communities
- public investment communities
- enterprise zones
- manufacturing innovation districts

These funds have been critical to spurring municipal revitalization, job growth, and employment opportunities.

DISTRESSED LIST	FY 2018 FUNDING	FY 2019 FUNDING	FY 2020 FUNDING	3-YEAR TOTALS
Ansonia	\$0	\$38,260	\$0	\$38,260
Beacon Falls	\$0	\$0	\$0	\$0
Bridgeport	\$95,473	\$0	\$14,397	\$109,870
Bristol	\$166,124	\$440,894	\$121,435	\$728,453
Derby	\$0	\$0	\$0	\$0
East Hartford	\$433,055	\$0	\$97,616	\$530,671
Enfield	\$39,419	\$58,000	\$14,366	\$111,785
Griswold	\$0	\$0	\$0	\$0
Groton	\$101,255	\$6,934	\$56,500	\$164,689
Hamden	\$25,000	\$30,000	\$83,263	\$138,263
Hartford	\$50,934	\$28,029	\$64,554	\$143,517
Killingly	\$50,000	\$0	\$84,497	\$134,497
Lisbon	\$0	\$0	\$0	\$0
Meriden	\$0	\$81,000	\$212,430	\$293,430
Middletown	\$18,702	\$36,100	\$28,000	\$82,802
Naugatuck	\$42,400	\$86,000	\$76,333	\$204,733
New Britain	\$463,723	\$341,169	\$177,411	\$982,303
New Haven	\$200,623	\$0	\$70,000	\$270,623
New London	\$27,135	\$0	\$0	\$27,135
Norwalk	\$20,000	\$0	\$33,979	\$53,979
Norwich	\$50,000	\$6,630	\$45,000	\$101,630
Plainfield	\$41,563	\$65,539	\$48,000	\$155,102
Plymouth	\$0	\$112,080	\$0	\$112,080
Putnam	\$193,025	\$53,476	\$160,279	\$406,780
Seymour	\$180,000	\$212,000	\$83,003	\$475,003
Southington	\$135,056	\$157,581	\$171,088	\$463,725
Sprague	\$0	\$0	\$0	\$0
Stamford	\$176,389	\$102,000	-\$12,419	\$265,970
Sterling	\$50,000	\$0	\$0	\$50,000
Thompson	\$80,700	\$0	\$0	\$80,700
Torrington	\$77,858	\$189,001	\$143,880	\$410,739
Waterbury	\$335,957	\$809,702	\$149,802	\$1,295,461
West Haven	\$0	\$0	\$150,000	\$150,000
Wethersfield	\$0	\$0	\$0	\$0
Winchester	\$0	\$0	\$0	\$0
Windham	\$0	\$28,000	\$0	\$28,000
Wolcott	\$0	\$183,937	-\$82,273	\$101,664
Totals	\$3,054,391	\$3,066,332	\$1,991,141	\$8,111,864

2020 Board of Directors

This report is submitted on behalf of the Manufacturing Innovation Fund Board of Directors, whose members are listed below.



COLIN COOPER

*Chairman
Manufacturing Innovation Fund
Advisory Board

Chief Manufacturing Officer
Department of Economic and
Community Development (DECD)*



SHANE EDDY

*Sr. VP of Operations
Pratt & Whitney*



DONALD BALDUCCI

*President
Balducci Associates, LLC*



EMIR REDZIC

*Chief Operating Officer
Budney Aerospace, Inc.*



BEVERLEE DACEY

*President
Amodex Products, Inc.

Board of Directors, New Haven
Manufacturing Association*



KELLI-MARIE VALLIERES, PHD

*Vice Chair
Governor's Workforce Council

Former President & CEO
Sound Manufacturing Inc.

Executive Director of DECD's
Office of Workforce Strategy*



CHRIS DIPENTIMA

*President, Connecticut
Business & Industry
Association*



JOHN ZOLDY

*Sales Manager
Metallon Inc.

Past President
Small Manufacturers
Association (SMA)*



**Manufacturing
Innovation Fund**
Advancing Manufacturing Faster

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For more information on the Connecticut Manufacturing Innovation Fund, visit www.CTMIF.com or contact Connecticut's Chief Manufacturing Officer, Colin Cooper, at colin.cooper@ct.gov.



Manufacturing
Innovation Fund
Advancing Manufacturing **Faster**