20 MIF Annual Report



A catalyst for WHAT'S NEXT

20,000 Jobs Created/Maintained +

28.000 Employees Trained +

\$110M Private Funds Leveraged +



A LETTER FROM



COLIN COOPER

Chairman, Manufacturing Innovation Fund Advisory Board

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

20 21 Fiscal 2021 was a time of change and renewal for the Manufacturing Innovation Fund (MIF). We began the fiscal year in July 2020 by wrapping up the COVID voucher program which provided matching grants to manufacturers endeavoring to pivot to help address the shortage of critically needed medical equipment and supplies. In all, we helped two dozen

Connecticut manufacturers start or increase production of ventilators, x-ray equipment, surgical masks, isolation gowns and hand sanitizer, to name just a few of the items produced. The outlook amongst Connecticut manufacturers improved markedly as we progressed through fiscal 2021. Our manufacturers shifted focus from managing risk to capitalizing on growth and, with that, companies' priorities shifted to include access to skilled workers, adoption of technology, and investments in machinery and equipment — all areas addressed by MIF programs.

While the MIF utilized virtually all available programmatic monies by the start of fiscal 2021, and no new funds had been allocated in the short (and pandemic dominated) 2020 state budget session, the Connecticut Department of Community and Economic Development provided \$5 million to continue to fund vital legacy programs. In addition, through outreach and support of numerous Connecticut manufacturing stakeholders, most notably the industry-led Connecticut Manufacturing Collaborative, legislators, and the Governor, the biennial budget passed and included \$20 million for the MIF to be allocated in fiscal years 2022 and 2023. This new funding will allow the MIF to continue to sponsor valued programming both legacy and new to address specific issues and opportunities identified by a myriad of Connecticut manufacturers.

While Connecticut is not a low-cost region, our manufacturers successfully compete in global markets in large part due to the knowledge, skills, and abilities of our workforce. Connecticut has one of the most productive workforces in the world, above the U.S. average. And our manufacturers understand the importance of investing to maintain that competitive advantage — in equipment to broaden and expand production capabilities, in technology to improve quality and productivity, and in the workforce to develop the next generation of manufacturing leaders and to ensure that our workers are prepared to take full advantage of the new digital technology coming to the fore. The MIF programs are designed to act as a catalyst, to help our manufacturers understand where to make their investments and leverage those investments to allow our manufacturers to continue to lead the world in their market sectors.

Since inception, MIF programs have helped create or retain over 20,000 jobs, train over 28,000 employees, and connect with over 18,000 students. MIF funds have acted as a catalyst for over \$110 million of private sector and third-party investments in Connecticut manufacturing. Our manufacturers have come through an historically challenging period while continuing to meet the needs of their customers and keeping their workforces healthy and productive. The MIF Advisory Board, with the support of our legislature and Governor, is delighted to be able to continue to develop and support legacy programs and new initiatives, designed *for* Connecticut manufacturers *by* Connecticut manufacturers, to help strengthen the Connecticut manufacturing ecosystem and ensure that our manufacturers successfully compete in regional, national, and global markets.

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How the MIF Has Generated Significant ROI for This Sector



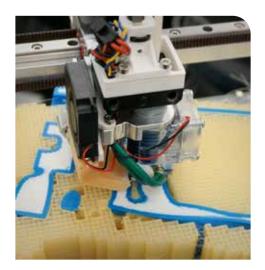
programs engaging **18,226** students across 167 towns/cities

AS OF 6/30/21



assistance for 2,135 manufacturers

AS OF 6/30/21





20,340 jobs created or maintained in the state's manufacturing sector

AS OF 6/30/21



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

AS OF 6/30/21



retraining for 28,013 incumbent workers

AS OF 6/30/21



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

SINCE 3/01/20



matching grants providing 540 companies with \$23.7M for upgraded equipment/ processes

AS OF 6/30/21

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 \$30 billion of the state's GDP and generates nearly \$380 million in state, corporate, sales and use taxes 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.



153,000 in Direct Jobs; 3X in Indirect Jobs

Advanced manufacturing in Connecticut:

- directly employs over 153,000+ people
- indirectly creates another 459,000 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 over \$100,000 per worker.



\$380M Annual Tax Revenues for the State

Advanced manufacturing companies in Connecticut contribute:

- \$144.5M in state corporate taxes
- \$235.5M in state sales & use taxes

Varied Educational Backgrounds

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



\$29.7B of State's GDP; \$13.8B in Exports

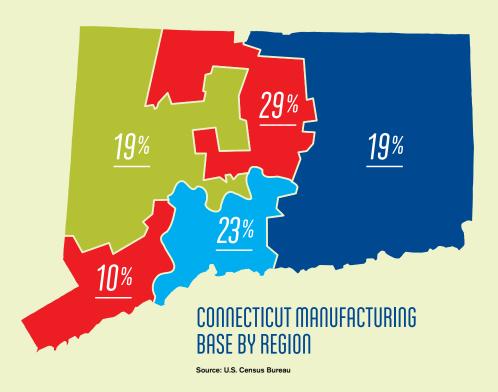
The 4,000 manufacturing companies in Connecticut generate:

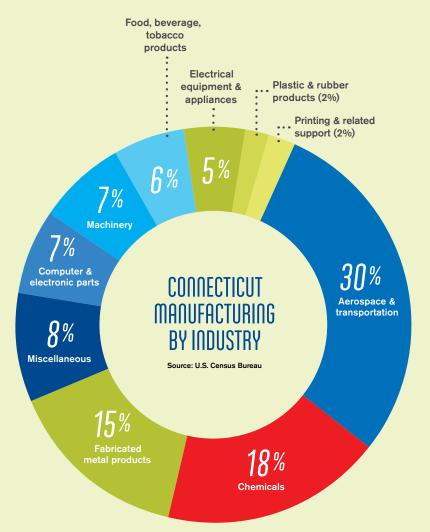
- 10% of the state's gross domestic product (GDP), and
- 92% of Connecticut's total exports

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.





Diverse Array of Industries Served

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. More recently, the MIF also enabled manufacturers to pivot to meet critical public health needs.

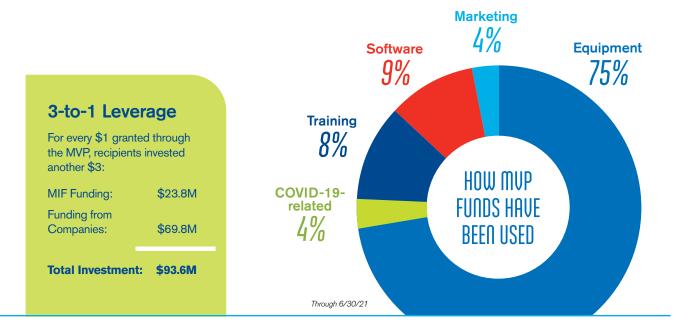
COVID-19-related Manufacturing

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.

Funded and supported by MIF programs, Connecticut manufacturers continue to rise to the challenge and today are more focused on capitalizing on growth opportunities for the future.

Manufacturing Voucher Program

Over the past seven 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 to R&D and marketing. To date, 540 Connecticut companies have leveraged over \$23.8 million in grants to upgrade their equipment and processes, train employees, and incorporate the latest software into their IT systems.



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 \$545,943. These solar and energy efficiency projects will save more than \$22.7 million in energy costs for these manufacturers while also supporting the state in its goals to reduce emissions and create cleaner, healthier communities.

"The high precision turning center is expected to reduce lead time on our grinding process by 50% and reduce yearly grinding expense by more than 70%. This will enable us to compete internationally and bring in more revenue to Connecticut."

Giri Agrawal, President, R&D Dynamics Corporation

"We are pleased to report the success of this project." and because of these funds we estimate more than 200,000 U.S. workers and their families were protected during the pandemic."

Michael Gesick, Plant Manager, Inventec Performance Chemicals USA LLC

"Beyond grateful for your guidance and assistance. For a small company like us, this is a game-changing program!"

Jonathan Marcus, Co-Founder, Rose Sisters Chips



Industry 4.0

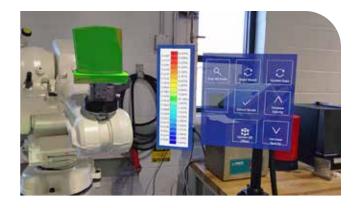
Funded with \$5 million to adopt emerging technology, this focus area helps manufacturers integrate new digital technologies into their processes. For example, some of the MIF support for Industry 4.0 has helped to create workshops and train workers on the "Industrial Internet of Things", "Model-Based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

Digital Model Initiative (DMI)

Funded with a \$1.3 million federal grant from the Department of Defense's Office of Local Defense Community Cooperation, and matched with \$350,000 of Connecticut DECD funding, the Connecticut Defense Manufacturing Community Collaboration (CDMCC) was launched under the supervision of the MIF to accelerate the adoption of digital technology in Connecticut's defense manufacturing supply base. As part of CDMCC's initial undertaking, six supply chain companies were selected to participate in a pilot project. Deliverables of this project include:

- Supplier technology adoption;
- Workforce development curriculum;
- Development of a digital playbook, an account of the best practices and lessons learned, designed to accelerate the adoption of this technology in our approximately 700 defense manufacturing suppliers.





High Rate Additive Manufacturing (HRAM)

Support from MIF with \$2.9 million 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. This program makes it possible for manufacturers to better understand the unique inputs and outcomes of manufacturing with composites.



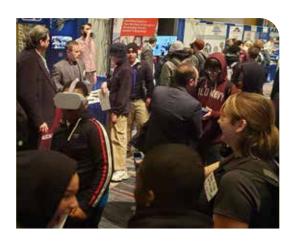
Cumulative Impact of These Programs Since 2016



\$1.1 M invested to date in programs that have engaged 10,883 K-12 students, 1,300+ educators, and 510 Connecticut companies AS OF 6/30/21



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"







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

AS OF 6/30/21



136 tours and workshops offering hands-on learning opportunities about CNC machining, 3D printing, robotics, and more AS OF 6/30/21





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

AS OF 6/30/21



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.

Apprenticeships and Pre-Apprenticeships

On-the-job training is essential to enabling earlycareer 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 \$11 million 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. As of the end of Fiscal 2021, the MIF had committed over \$15 million 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 provided \$26.9M in funding to companies, projects and initiatives for these programs, which sparked another \$29.2M investment by the companies and other third parties for a total investment of over \$56M. As OF 6/30/21



Since 2015, 27,836 employees have been trained and/or retrained through these MIF-supported programs.

AS OF 6/30/21



Through these programs, a total of 744 companies have benefited from professional training and development for their employees. AS OF 6/30/21

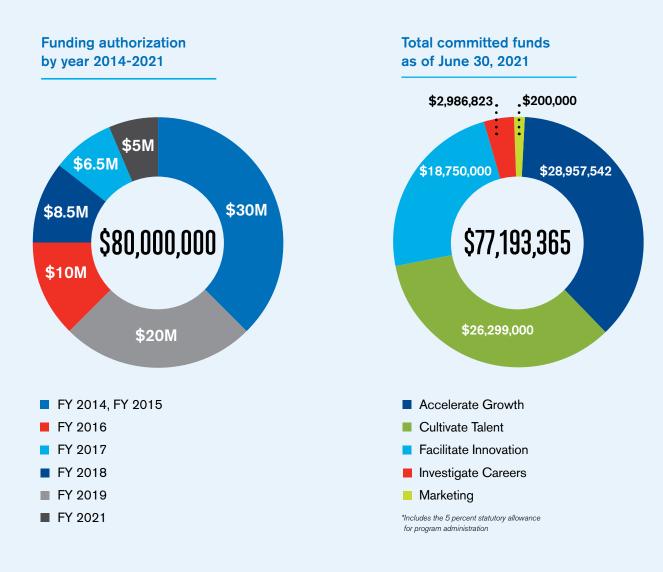


Since 2015, a total of 18,937 jobs have been created or retained as a result of these programs.

AS OF 6/30/21

MIF Financial Overview

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.



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	213	381
2017	\$13,206,474	\$50,198,820	333	548
2018	\$16,369,636	\$63,110,525	400	818
2019	\$18,850,078	\$75,856,168	459	984
2020	\$21,654,700	\$86,530,121	503	1,213
2021	\$23,773,168	\$93,569,589	540	1,329





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	COMPANIES ASSISTED	JOBS RETAINED/ CREATED
2015	N/A	N/A	N/A
2016	\$25,729	1	3
2017	\$68,418	4	4
2018	\$359,115	17	54
2019	\$399,449	18	58
2020	\$519,240	22	71
2021	\$545,543	23	74



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
2021	\$14,725,000	27,033	512	18,134



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
2021	\$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 manufacturing courses through the state's community colleges.

STUDENTS	2017	2018	2019	2020	2021
	95	245	420	616	703



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
2021	\$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
2021	\$1,457,678	6,690	115	167



Since 2016, the DIDI program has touched the lives of almost 11.000 Connecticut students and nearly 1,300 educators.



Nearly 6,700 middle-grade students participated in activities sponsored by the Young Manufacturers Academy.

MIF Program Financials (cont.)

Total Investments in Distressed Communities | Fiscal Year 2021 — \$1.2 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	FY 2018	FY 2019	FY 2020	FY 2021	4-YEAR
LIST	FUNDING	FUNDING	FUNDING	FUNDING	TOTALS
Ansonia	\$0	\$38,260	\$0	\$0	\$38,260
Bridgeport	\$95,473	\$0	\$14,397	\$119,215	\$229,085
Bristol	\$166,124	\$440,894	\$121,435	\$175,432	\$903,885
Dayville	\$0	\$0	\$0	\$6,337	\$6,337
Derby	\$0	\$0	\$0	\$19,700	\$19,700
East Hartford	\$433,055	\$0	\$97,616	\$82,954	\$613,625
Enfield	\$39,419	\$58,000	\$14,366	\$42,698	\$154,483
Groton	\$101,255	\$6,934	\$56,500	\$6,000	\$170,689
Hamden	\$25,000	\$30,000	\$83,263	\$47,500	\$185,763
Hartford	\$50,934	\$28,029	\$64,554	\$0	\$143,517
Killingly	\$50,000	\$0	\$84,497	\$0	\$134,497
Meriden	\$0	\$81,000	\$212,430	\$0	\$293,430
Middletown	\$18,702	\$36,100	\$28,000	\$7,313	\$90,115
Naugatuck	\$42,400	\$86,000	\$76,333	\$43,493	\$248,226
New Britain	\$463,723	\$341,169	\$177,411	\$172,974	\$1,155,277
New Haven	\$200,623	\$0	\$70,000	\$9,303	\$279,926
New London	\$27,135	\$0	\$0	\$0	\$27,135
Norwalk	\$20,000	\$0	\$33,979	\$0	\$53,979
Norwich	\$50,000	\$6,630	\$45,000	\$0	\$101,630
Plainfield	\$41,563	\$65,539	\$48,000	\$15,103	\$170,205
Plymouth	\$0	\$112,080	\$0	\$49,000	\$161,080
Putnam	\$193,025	\$53,476	\$160,279	\$17,521	\$424,301
Seymour	\$180,000	\$212,000	\$83,003	\$14,339	\$489,342
Southington	\$135,056	\$157,581	\$171,088	\$0	\$463,725
Stafford Springs	\$0	\$0	\$0	\$3,675	\$3,675
Stamford	\$176,389	\$102,000	-\$12,419	\$53,347	\$319,317
Sterling	\$50,000	\$0	\$0	\$0	\$50,000
Thompson	\$80,700	\$0	\$0	\$0	\$80,700
Torrington	\$77,858	\$189,001	\$143,880	\$94,562	\$505,301
Waterbury	\$335,957	\$809,702	\$149,802	\$98,000	\$1,393,461
West Haven	\$0	\$0	\$150,000	\$0	\$150,000
Winchester	\$0	\$0	\$0	\$38,692	\$38,692
Windham	\$0	\$28,000	\$0	\$0	\$28,000
Wolcott	\$0	\$183,937	-\$82,273	\$49,000	\$150,664
Totals	\$3,054,391	\$3,066,332	\$1,991,141	\$1,166,158	\$9,278,022

Newly Funded Initiatives for 2022 and Beyond

The biennial budget for Fiscal 2022 and 2023 includes \$20 million for the MIF to fund vital legacy programs as well as to support new initiatives. Subsequent to the end of Fiscal 2021, the MIF Advisory Board voted to approve the release of \$3.7 million in funding to support a series of future technology and workforce initiatives designed to strengthen the long-term competitiveness of the state's manufacturing sector. These programs include:



Support of Engineering Internships for **Connecticut Resident College Students**

Provide grants to help get more of Connecticut's engineering students and manufacturing employers active in internship programs to help retain more engineering students in-state after graduation.

Matching Grants for Digital Readiness and **Cybersecurity Assessments**

Help Connecticut manufacturers start, scale and sustain their digital transformation by identifying specific areas for adoption that maximize return on investment and minimize risk.

Retain an Organization to Facilitate Matches Between CT Innovators and CT Manufacturers

Match Connecticut innovators with Connecticut manufacturers to support our innovation sector and help ensure that what is invented here is manufactured here.

Advertising Campaign Highlighting Career **Opportunities in Manufacturing**

Increase participation in the numerous manufacturing training programs around the state and inform students, educators, administrators and parents that manufacturing provides great career opportunities and that a student beginning their career in manufacturing does not mean that they are ending their educational career.

Comprehensive Manufacturing Website

Match Connecticut manufacturers with the myriad of solution providers in areas including hiring, training, access to capital, sales growth and regulation.

Regional Career Fairs

Work with the manufacturing Regional Sector Partnerships to facilitate regional career fairs around the state to increase awareness of the exciting career opportunities provided by Connecticut manufacturers.



2021 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)



DONALD BALDUCCI President Balducci Associates, LLC



BEVERLEE DACEY President Amodex Products, Inc.



CHRIS DIPENTIMA President and CEO Connecticut Business & Industry Association



SHANE EDDY SVP and Chief Operations Officer Pratt & Whitney



EMIR REDZIC **Chief Operating Officer** Budney Aerospace, Inc.



MICHAEL ROCHELEAU **Executive Vice President** PTA Plastics **Board Member** Employers Association of the Northeast Secretary and Board Member ManufactureCT



KELLI-MARIE VALLIERES, PHD Chief Workforce Officer Office of Workforce Strategy at the Office of the Governor Vice Chair Governor's Workforce Council Former President & CEO Sound Manufacturing Inc.



JOHN ZOLDY Sales Manager Platt Brothers & Company 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.

