



Innovation



Talent



Education



Demand



Supply



Resources

Commission on Economic Competitiveness

Catherine Smith, Commissioner

Connecticut Department of Economic and Community Development

December 1, 2017

Connecticut[®]

Agenda

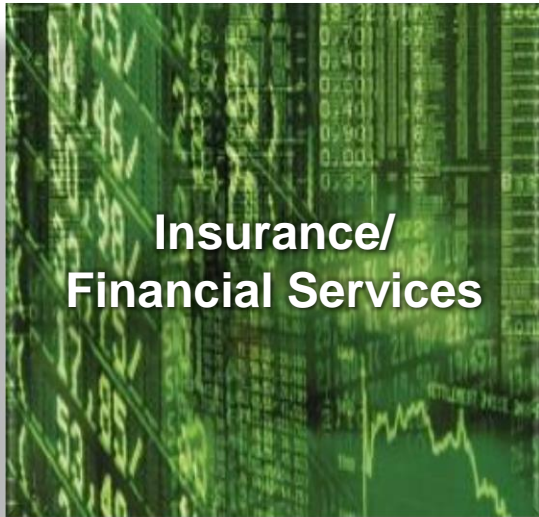
- CT Economic Development Strategy
 - Focus on Advanced Manufacturing
- State of the Industry
- Strengths/Opportunities for Improvement

Economic Development Strategy

- Build on our strengths
(talent, location, quality of life)
- Focus on innovation and key
business sectors to stimulate
biz development
- Focus on talent development
- Streamline governmental
processes/regulation
- Address infrastructure issues
- Collaborate with key partners
to improve business climate



Diverse Industry Sectors will Drive our Economy



Competitive Advantage in Manufacturing: Aerospace, Shipbuilding, Devices

- An industrial ecosystem of thousands of advanced manufacturing companies
- More than 1,000 aerospace manufacturers firms; 450 firms in shipbuilding; 150 in medical devices
- Second highest concentration of aerospace workers in US; 6th largest employer of aerospace workers nationally
- Second highest in manufacturing as a % of exports, largely driven by aerospace
- Total state manufacturing output was \$28 billion in 2016



Strategy for Growing Advanced Manufacturing

- Secure long-term relationships with OEMs
 - UTC agreement of 2014
 - Ongoing support for Electric Boat
 - Lockheed Martin/Sikorsky, 2016
- Ensure a strong and vibrant supply chain
- Build capacity in the universities, colleges and not-for-profits to support robust talent growth and innovation

Support and Strengthen Supply Chain

Keeping innovation close to the OEMs

- **Manufacturing Innovation Fund**
 - Assists smaller manufacturers in making innovative and strategic investments through matching grants
 - Focuses on talent development to meet the growth expectations in aerospace and medical devices
 - Programs: voucher, apprenticeship, incumbent worker training
- **Manufacturing Assistance Act/Small Business Express**
(loans, forgivable loans, grants, tax credits)
- **Investments in Training and Education**

Our Strategy is Working



- EB hiring 4,000 in 15 years
- Pratt & Whitney hiring as many as 8,000 in next decade
- Sikorsky growing jobs to 8,000 and increasing investment in supply chain
- CT designated as an Investing in Manufacturing Communities Partnership (IMCP)
- Cross-New England Aerospace and Defense Cluster underway
- DECD promoting small business globally - since 2006, \$422 million anticipated sales by the sub-exhibitors in our booth (air show)
- Since FY 11-12, DECD has provided over \$1 million in federal STEP grant funding to 404 small businesses (Hannover Messe, Medica, air show, etc.)

Advanced Manufacturing: State of the Industry

Connecticut



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

Connecticut



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

Connecticut



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

Connecticut



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

Connecticut



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

Connecticut



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

CT Workforce is strong today

Connecticut ranks **#3** in the country for the percentage of employees with advanced degrees



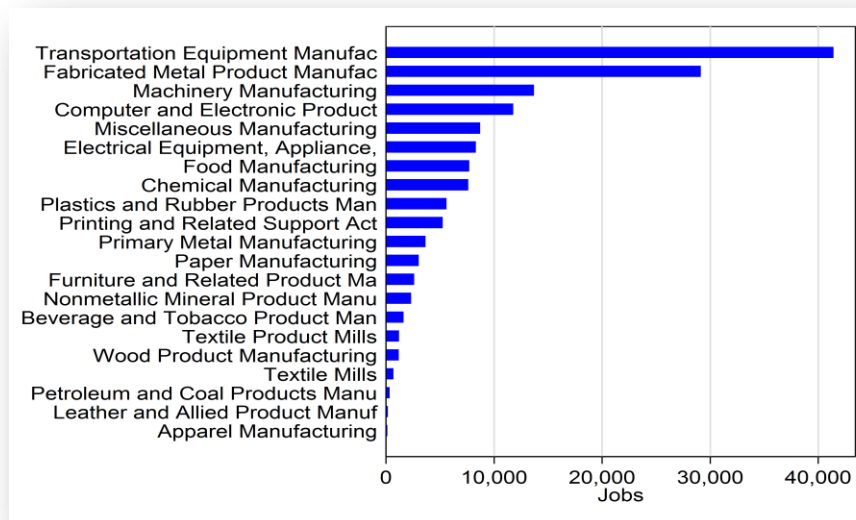
Connecticut is home to almost half a million people holding advanced degrees, ensuring exceptional access to a highly educated workforce.

Not only is our workforce highly educated, it's highly industrious – ranking **#5** in the U.S. for productivity



Productivity is the spirit that drives Connecticut business. In terms of gross domestic product, Connecticut ranks higher than several major countries in productivity.

Manufacturing employment - 2016



Highly Skilled & Productive

- The talent here is both highly skilled — and very productive
- Worker productivity is nearly 20% higher than national average
- 4,040 machinists in Hartford County
- 340 computer hardware engineers in CT making \$103,076 annually
- CT manufacturing workers earn 50% more (\$79,456) compared to the national average of \$52,915



Education Investments Focused on Manufacturing

- Academia, i.e. UCONN, Board of Regents for Higher Education, Connecticut Conference of Independent colleges, CT Technical High School System are critical to building the workforce of the future
- Community Colleges have more than doubled the output of manufacturing graduates in the past 5 years
- Tech schools are producing hundreds of potential manufacturing workers during the day, and training in their facilities at night

Connecticut Technical High School System (CHTSS) *Manufacturing Cluster Programs*

	May-17
Mechanical Design & Engineering Technology students	505
Precision Machining students	803
Welding & Metal Fabrication students	90
Automated Manufacturing students	47
Mechatronics students	89
	1534

Connecticut Community Colleges: *Manufacturing Education Programs*

	2016	2011
Asnuntuck	388	154
Housatonic	116	55
Manchester	15	
Middlesex	82	
Naugatuck	109	57
Quinebaug	36	52
Three Rivers	43	
Totals	789	318

Created the \$75 Million Manufacturing Innovation Fund (MIF) to Support this Industry

- 950 smaller manufacturers assisted in making innovative and strategic investments
- \$47 million has been invested since 2014
- Focusing on:
 - talent development
 - supply chain health/growth
 - innovation & technology
 - energy efficiency
- Other Support:
 - export assistance
 - EXP and MAA



www.advancingmanufacturingct.com

MIF - Talent Development

- Incumbent Worker Training (IWT) - matching up to \$50,000 per employer to train incumbent workers in the appropriate skills to meet current and emerging market needs
 - MIF Investment \$10.5 million
 - Total Commitments to date \$7.3 million
 - #'s of Companies 306
 - Jobs to be created/retained 3,939
 - Workers trained 7,072
 - Workers receiving an upgrade in position 22%
 - Companies reported an upgrade in skills 78%
 - Companies expecting productivity increases 58%

- Pre-Apprentice and Apprentice: provides competency based learning for apprentices for on-the-job learning and related classroom instruction. Maximum funding is \$9,500 per apprentice for year one and \$9,250 for year two for the sponsoring company.
 - MIF Investment \$7.8 million
 - Total Commitments to date \$4 million
 - # of Companies 20
 - # of Registered Apprentices 295
 - # of Registered Pre-Apprentices 36
 - # of Related Instruction Providers 10

MIF – Young Talent Development

- Young Manufacturers Academy - students learn what goes into producing products in workshops using lean manufacturing, engineering design, and high-tech industry software

• Total Commitments 2016	\$250,000
• Industry/Education Partners Engaged (FY 16)	15
• Students Trained	142
• Program Sites	8

- CT Dream It. Do It. initiative - campaign to create a positive image of today's manufacturing to support the future workforce pipeline

• Total Commitments in 2016	\$266,523
• # of Students (FY 16)	1,732
• # of Schools Represented	62
• # of Towns Represented	33
• # of Related Instruction Providers	10

MIF - Supply Chain Health/Growth & Energy Efficiency

- Supply Chain Health/Growth - Voucher Program: Vouchers, ranging from \$5,000 to \$50,000, for the purchase of specialized expertise that will help improve operations (e.g., marketing, LEAN, compliance, equipment purchase)

• MIF Investment	\$15 million
• Total Commitments to date	\$14.4 million
• #'s of Companies	436
• Jobs to be created/retained	749 (643 full time) (106 Part Time)
• Total Value of Projects	\$55 million
• Applicants to Distressed Communities	28%
• Gross Margin improvement	2.2%
• Products Exported	1.2%

- Energy Efficiency – Energy on the Line: Fully finances the upgrading of a manufacturing facility's energy efficiency, through the C-Pace Program

• MIF Investment	\$800,000
• Total Commitments to date	\$248,530
• #'s of Companies	10
• Total Value of Projects Initiated	\$4,086,953

MIF - Innovation & Technology

■ Advanced Composites

- MIF Investment \$5,000,000
- Total Commitments to date \$2,900,000
- #'s of Companies 2



■ High Rate Additive Manufacturing Machining

- MIF Investment \$600,000
- Total Commitments to date \$440,000



■ RADE 2 Manufacturing Innovation

- MIF Investment \$450,000
- # of Companies 68
- Project implemented 28
- Equipment Hours 1,805
- Types of Projects: 3D, xray scans



Connecticut Center for
Advanced Technology, Inc.



DECD Financial Assistance for Business Growth in Manufacturing

Program	# of Companies	DECD \$	Jobs Retained	Jobs Created	Total Jobs C&R
EXP	423	\$80,165,351	8,222	2007	10,229
MAA	81	\$225,004,689	19,636	4,289	23,925
First Five	4	\$109,100,000	2,317	1,008	3,325
TOTAL	508	\$414,270,040	30,175	7,304	37,479

- DECD financial assistance programs have aided over 500 companies as they invest and grow their businesses

Export Support

- Also provide Export assistance through partnership with the federal STEP grant. **404** eligible small CT businesses have participated. STEP may be used for a variety of export activities including trade shows, trade missions, marketing and internationalization, U.S. Department of Commerce services (Gold Key, International Partner Search, International Company Profile), export training opportunities, and export B2B matchmaking.
 - CT has spent \$1.05 million in federal funds for STEP approved export activities.
 - CT companies receiving STEP assistance report anticipated export sales from various events including:
 - Hannover Messe: \$ 5,469,000
 - Medica: \$1,950,000
 - General Assistance Export Fund: \$90,032,146
- The Farnborough and Paris Air Shows - Since 2006, \$422 million is reported as anticipated sales by the sub-exhibitors in our booth

UConn is Training More Students and Investing with Industry

- UConn School of Engineering has increased enrollment by 70%
- Tech Park brings industry together to do R&D as indicated below

Industry Partner	Center	Investment
ThermoFisher Scientific	Thermo Fisher Scientific Center of Excellence	\$25 Million
Eversource Energy	Eversource Energy Center	\$9 Million
General Electric	GE Advanced Technology Initiative	\$7.5 Million
United Technologies	UTC Institute for Advanced Systems Engineering	\$10 Million
Pratt & Whitney	Additive Manufacturing Innovation Center in partnership with Pratt & Whitney	\$7.5 Million
Fraunhofer USA	Fraunhofer Center for Energy Innovation	\$7.2 Million
COMCAST	COMCAST Center for Security Innovation	\$6 Million
Synchrony Financial	Synchrony Financial Center of Excellence in Cybersecurity	\$2.2 Million

Ecosystem: Partners Add Significant Value

- CONNSTEP – helps manufacturers improve efficiencies and increase profitability

AeroCision – Success Story

After Lean training

- Increased sales by \$5,000,000
- 6 jobs created and 2 jobs retained
- Cost savings of \$700,000
- Increased capital investments by \$2,200,000

In the past two years, helped more than 400 companies to achieve:

- Increased sales by \$106 million
- Saved \$20 million in costs
- Created 418 new jobs
- Retained 2,530 jobs

- Connecticut Center for Advanced Technologies (CCAT) – helps manufacturers excel in several ways:
 - Convenes employer-led Advanced Manufacturing Employer Partnership with over 250 manufacturers. Collaborate with educators, workforce development professionals and government agencies to recommend ways to build the manufacturing talent pipeline
 - Advanced Manufacturing Center supported more than 180 projects over the last 18 months in additive manufacturing, precision machining, scanning technology and applied engineering support

Ecosystem: Partners Add Significant Value

- **Aerospace Components Manufacturers (ACM):** ACM is a regional network of **114** CT and southwestern MA-based aerospace companies. Works with regional, national and international experts to ensure continuous improvement of members' products

- **Other Business and Manufacturing Associations:**
 - New Haven Manufacturers Association
 - Smaller Manufacturers Association of CT
 - Connecticut Tooling and Machining Association
 - Eastern Advanced Manufacturing Alliance
 - CBIA
 - Chambers of Commerce Manufacturing Councils
 - Metal Manufacturers' Education and Training Alliance (METAL)



Ecosystem: Partners Add Significant Value

- The Eastern CT Manufacturing Pipeline Initiative providing a no-cost training to address the hiring needs of Electric Boat (EB), members of the Eastern Advanced Manufacturing Alliance (EAMA), and other manufacturers
 - 4,228 Registrants
 - 460 Jobs Placements
 - 94% Job Placement rate achieved 2016

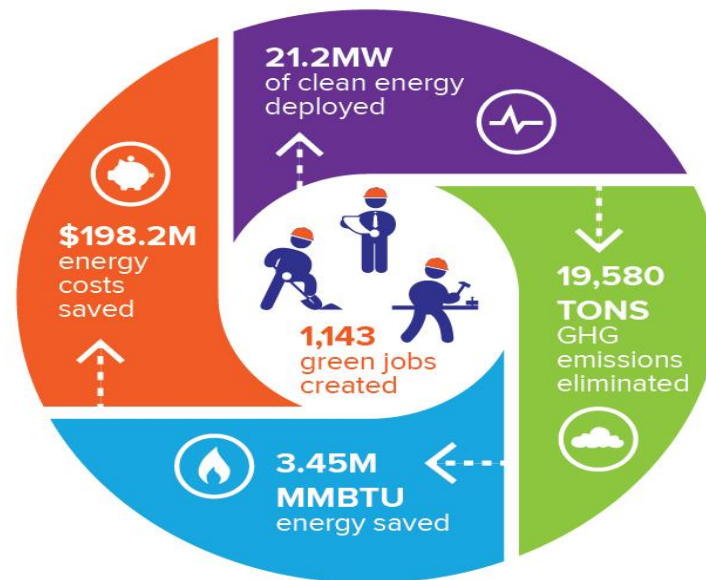


Ecosystem: Partners Add Significant Value

- The Green Bank/C-PACE

- Helps commercial, industrial and multi-family property owners access affordable, long-term financing for smart energy upgrades to their buildings

➤ **The Power of Green Energy***
C-PACE projects are creating jobs, saving businesses millions of dollars, and supporting a cleaner, healthier environment.



*Energy savings based on projections

Strengths/Opportunities

■ Strengths:

- Productive, well-trained workforce
- OEM presence is now locked in, creating a draw for supply chain companies
- University R&D supports the industry
- State programs are focused and effective but may not be enough

■ Opportunities for improvement:

- Need even more talent in the future – by far the greatest challenge
- Cost of doing business is higher than other locations – have to continue to create *value* for those higher costs and reduce other expenses such as the cost of energy

DECD Recommendations

- Stay the course with State Programs such as MIF, ensuring that our companies are investing in emerging manufacturing clusters, such as additive, composites
- Invest even more in our educational systems (community colleges, tech schools, engineering, STEM – including more engagement with private schools) and encourage young people to consider careers in manufacturing such as the “Dream it Do it” program
- Be creative in identifying and connecting to talent (such as inner city, minority populations, immigration, out of state recruitment)
- Fund entities such as the Green Bank and Energy Efficiency Board so they can support our manufacturers
- Invest in manufacturing entrepreneurs in specific areas where CT has a competitive advantage (knowledge to production)

Questions?

CATHERINE SMITH

Commissioner

Connecticut Department of Economic &
Community Development

T: 860.500.2310

C: 860.801.4254

catherine.smith@ct.gov

