

# **The Future of Defense Workforce**

## **How Can Connecticut Promote Growth and Retention?**



**A Report of the Connecticut Institute for the 21<sup>st</sup> Century**

Prepared by: Loren Dealy Mahler, Senior Fellow

# TABLE OF CONTENTS

**1**

**Executive Summary**

**2**

**Today's Workforce and Tomorrow's Expectations**

**4**

**Growing Tomorrow's Workforce Today**

**4**

**Challenges**

**6**

**Solutions**

**12**

**Retaining Tomorrow's Workforce**

**12**

**Challenges**

**14**

**Solutions**

**17**

**Conclusion**

**21**

**Additional Reading**

# EXECUTIVE SUMMARY

The regional defense industry is only as strong as its ability to maintain a competitive edge through technological advances and a workforce that is nimble enough to keep pace with its rapidly evolving needs. When the demand for that workforce increases, the challenge can be two-fold:

- Figuring out how to produce a greater number of individuals skilled in today's needs with the flexibility to rapidly acquire new skills and
- Getting those workers to stay in Connecticut over the long-term.

## What can the state of Connecticut do to meet these challenges?

The answers are not easy. Workforce issues cannot be viewed in a vacuum. The interconnected dependency of technology, workforce and industry demands overlap, and Connecticut itself is a complex backdrop for an industry undergoing complex transformation. There is no simple solution to solving the developing workforce shortage, but there are steps that can be taken to address the need before it becomes a crisis.

While any solution will require effort from the broader regional ecosystem, this policy brief focuses on the actions the state of Connecticut can take to both meet increased need and retain the workforce over the long-term, and identifies the challenges that must be overcome to succeed.

With a workforce that is aging into retirement faster than the current pipeline of workers can fill the gap, existing training programs are being strained to both produce higher numbers of qualified graduates and keep their programs current with the skills industry needs. To solve this multi-faceted challenge, the state of Connecticut should:

- 1. Expand existing training programs and launch new ones**
- 2. Increase industry input into training program development**
- 3. Expand the workforce applicant pool**
- 4. Incentivize the retention of retiring industry expertise**

Connecticut faces challenges from both competing industries and competing lifestyles. When the quality of life varies across towns and the cost of living prevents easy movement within communities, the state has a responsibility to prioritize policies that will improve the economic outlook across the state by encouraging the long-term retention of this future workforce.

To encourage young professionals to settle in Connecticut and mid-career workers to put down roots in the community, the state should:

- 5. Create additional professional growth opportunities**
- 6. Take steps to improve the quality of life - both real and perceived**

# TODAY'S WORKFORCE AND TOMORROW'S EXPECTATIONS

Today, Connecticut boasts a unique combination of a high quality workforce and a strong regional supply chain that feeds into a thriving defense industrial base. The state is home to three major contractors – General Dynamics' Electric Boat, Lockheed Martin's Sikorsky, and United Technologies' Pratt and Whitney – and their ecosystem of more than 1,000 suppliers throughout the state.

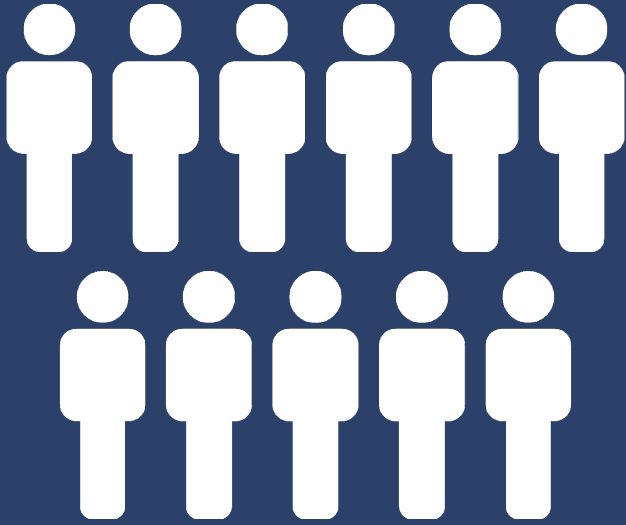
As the demand for production increases, both of these assets will be put to the test. The demand on suppliers will more than double, allowing additional companies the opportunity to enter the supply chain while the growing need for a capable workforce will increasingly strain existing education and training resources.

Electric Boat currently employs 11,000 workers in the state, and intends to grow to 18,000 by 2030. That will require the hire of 14,000 new employees, including 2,000 in Connecticut by the end of the year.<sup>i</sup> The Navy also recently indicated an interest in increasing its number of ships from 272 to 355, including an additional 18 attack submarines. Additionally, discussions are underway about whether current submarine build rates are sufficient. It is possible that additional Virginia-class subs will be ordered, thus further increasing the demand on the workforce and supply chain. Electric Boat currently has approximately 450 suppliers across the state and granted approximately \$485 million in contracts to Connecticut-based suppliers to support submarine programs in the last five years.<sup>ii</sup> The anticipated increase in production rates will double the demand on the supply chain.

Based on projections for deliveries of military and commercial engines, Pratt expects to double production by 2020 and again by 2027. As of last September, the company expected to hire nearly 8,000 new workers in Connecticut over the next decade, including 1,000 engineers and 1,000 manufacturers in the next year.<sup>iii</sup> Pratt operates a business model that also relies heavily on the supply chain, with 85% of its engine parts being manufactured elsewhere.

In addition to the lure of a strong Connecticut-based supply chain and highly-skilled workforce, the state has made agreements over the past few years to keep these companies in Connecticut. In February 2014, the state legislature approved a deal to provide up to \$400 million in state tax offsets to United Technologies in exchange for a commitment to keep its Pratt and Whitney headquarters in the state for 15 years and invest up to \$500 million in capital improvements over five years to upgrade and expand its R&D and manufacturing capabilities.<sup>iv</sup> In October 2014, Connecticut gave Electric Boat a \$10 million loan to support facility expansion in support of increased demand.<sup>v</sup> In September 2016, in exchange for \$220 million in financial incentives, Sikorsky also agreed to keep its headquarters in the state through 2032, build at least 200 of its new line of military helicopters in Connecticut, and spend \$675 million on local suppliers.<sup>vi</sup>

Electric Boat currently employs



**11,000  
Workers**

in the state

And intends to grow to

**18,000  
by  
2030**



That will require the hire of

**14,000 new  
employees**

including

**2,000 in  
Connecticut**

by the end of the year.



These assets and incentives, combined with future industry projections, signal a stable, long-term commitment of resources in the state and are driving the demand for an increased workforce capable of meeting the growing need. As technologies and materials continue to advance and additive manufacturing becomes increasingly operationalized, this new workforce will be increasingly called upon to learn new skills and processes to help these companies maintain their competitive edge.

**What role should the state of Connecticut play in this effort, and what actions can the state take to foster the growth of a workforce with the skills to meet future employer needs while retaining that workforce over the long term?**

## **GROWING TOMORROW'S WORKFORCE**

The workforce of tomorrow will be large enough to meet the need of the industrial base and capable enough to handle an evolving set of skill requirements. It will require changes in both quantity and quality. Expertise and flexibility. More and faster.

There are **CHALLENGES** inherent in this task.

- 1. The current workforce is aging**
- 2. The pool of new workers is limited**
- 3. Existing training programs have limited capacity**
- 4. Skills requirements are evolving faster than training curriculum**

### **The workforce is aging.**

The 2016 Aerospace and Defense Workforce Study conducted by Aviation Week and Space Technology found over a quarter of the nation's A&D workforce is over the age of 55.<sup>vii</sup> To highlight the local impact, 35% of Electric Boat's workforce is within ten years of retirement. Over 7,800 workers have 20 or more years of service, and nearly 950 have 40 or more.<sup>viii</sup>

### **The pool of potential future hires is limited.**

These retirement trends combined with new industry demand create an even larger workforce gap that must be filled. Unfortunately, there just aren't enough people entering these fields to fill it. These industries have historically low representation among minority groups and women, and the common perception of the manufacturing industry is based







on a reality that has long been outdated. All of these factors combine to limit potential industry growth.

### **The existing training programs can't keep up with demand.**

Over the last few years, many successful, innovative programs have been developed from community colleges and technical schools to pipeline partnerships and apprenticeship programs. Manufacturers in the state are becoming increasingly reliant on these programs, as their demand for specific skills outpaces the training they provide themselves. For example, a recent survey of CT manufacturers found that over 85% need additional CNC programming capacity, but only half offer training. In robotics and automation the skills gap is even greater. Eighty percent say they have a need, but only a third offer training.<sup>ix</sup> Even as the existing workforce training programs continue to grow and expand around the state, their impact is not keeping pace. Across the board, there is simply not the capacity to produce sufficient number of applicants to meet increased industry demand.

### **The required skills are evolving faster than the curriculum.**

It used to be that a company would hire for a specific skill at a specific level of experience. You either met the qualifications or you didn't. Today, however, companies are building towards a future of changing technology and uncertainty about which specific sets of skills will be most relevant in a year. The skills most needed today are a basic foundation of general manufacturing knowledge with the ability to learn new skills on the fly. While Connecticut has a range of programs working to address this challenge, the need for flexibility, speed and aptitude are not commonly reflected across most traditional workforce training programs.

The **SOLUTIONS** to this problem fall into four main categories. While any solution will require action from multiple stakeholders, this report focuses on the specific ways the state of Connecticut can leverage its power and resources to make a lasting impact.

- 1. Expand existing training programs and launch new ones**
- 2. Increase industry input into training program development**
- 3. Expand the workforce applicant pool**
- 4. Incentivize the retention of retiring industry expertise**

### **Expand existing training programs and launch new ones.**

In order for training programs to produce a sufficiently sized workforce, they must be able to train a sufficient number of candidates. Successful programs must be scaled up and new programs launched in order to meet the increased demand. The state must provide the resources necessary to increase overall training capacity within the state.



## RECOMMENDED STATE ACTIONS

### ***1. Support and expand programs at community colleges and technical high schools***

The state has established Advanced Manufacturing Technology Centers at seven community colleges around the state. Each site offers training in a select subset of skills, with the opportunity to earn certification in ten months. In the 2014-2015 academic year, these seven community colleges served 478 students.<sup>x</sup> These programs should be expanded to offer training in a full range of skills at each location and efforts should ramp up to further connect students with available scholarships, financial aid and other forms of assistance.

Additionally, research has shown that there is a link between student interest in technical programs and the existence of such programs at the high school level.<sup>xi</sup> The Connecticut Technical High School System (CTHSS) is a proven model of how students can succeed by incorporating Career Technical Education (CTE) into their regular high school curriculum. In the 2015-16 school year, there were 1,559 students enrolled in the CTHSS Manufacturing program.<sup>xii</sup> By expanding these programs, a greater number of students will gain hands-on experience in advanced manufacturing, engineering and design, leading greater numbers to continue pursuing those fields after graduation.

### ***2. Increase the number of available instructors***

A limiting factor in program expansion is often the availability of qualified instructors. The types of skills most in demand for the growing defense workforce are centered around an understanding of – and experience with – the advanced systems and processes used in today's advanced manufacturing industries. Unfortunately, the individuals most often qualified to teach these skills are often not qualified to become instructors under current state regulations. The state should revisit its requirements for qualifying instructors at the collegiate level and allow for experience to translate more easily into the instructor certification process.

### ***3. Focus resources on programs that cover a wide range of solutions***

The state should invest in programs that approach workforce development from different angles. Encircling this challenge from all sides with different program concepts will maximize the impact of taxpayer funds by ensuring that interested job seekers can find a program that meets their individual needs. The past few years have seen a proliferation of workforce development programs launched around the state, and while far from being a comprehensive list, the following programs each offer a unique approach and

could be expanded and/or replicated with additional state support.

### Manufacturing Pipeline Initiative (MPI)

The MPI is a “demand-driven workforce innovation that provides an accelerated, customized labor-preparation process to serve the needs of local manufacturers and underemployed and unemployed job seekers.”<sup>xiii</sup> Run by the Eastern Connecticut Workforce Investment Board (EWIB), in collaboration with a variety of stakeholders, including education and training providers, Electric Boat and other Eastern Advanced Manufacturing Alliance (EAMA) member companies, the pipeline program provides training for skills that reflect the immediate needs of its industry partners. Electric Boat President, Jeffrey Geiger, has expressed his strong support for the program and has declared the company’s intent to rely even more heavily on MPI participants who have completed the program.<sup>xiv</sup> Initial funding from a three-year U.S. Department of Labor Workforce Innovation Fund grant expires in late 2018.

### Connecticut Center for Advanced Technology (CCAT)

CCAT is a “nonprofit corporation leading regional and national partnerships to help manufacturers, academia, government and nonprofit organizations innovate and excel.”<sup>xv</sup> Their approach to helping companies and organizations succeed is a multi-pronged effort to ensure quality workforce development and advanced technology implementation – both seen as necessary to maintaining Connecticut’s competitive edge. CCAT’s workforce training programs focus on increasing awareness of modern manufacturing career opportunities for students, engaging industry partners to identify skills gaps and developing strategies to meet their individual workforce needs, and finding innovative ways to connect job seekers with training and employment opportunities.

### Goodwin College

In addition to its own advanced manufacturing program, Goodwin College supports the Connecticut River Academy, a magnet school on site that provides juniors and seniors in high school with the opportunity to engage with and earn college credit in advanced manufacturing, robotics and engineering.<sup>xvi</sup>



## **Increase industry input into program development.**

As the defense industry and its supply chain continue to transform in the coming decade, a critical component of a successful workforce will be the ability to rapidly acquire new skills. These changing requirements will vary as different regions around the state face different workforce needs. The key to success will be the ability of industry leaders across the spectrum to effectively communicate and shape the direction of coursework to match their changing needs through a close working relationship with the educational institutions who run the training courses. Additionally, the more industry voices that can be incorporated into program design and curriculum development, the more flexibility will be built into the statewide training system, and the more effective the outcomes for both employers and jobseekers.

### **RECOMMENDED STATE ACTIONS**

#### **1. Expand industry input into program and curriculum design**

There are many examples of industry leaders and educators currently working together to successfully develop curriculum and program tracks that meet the actual - not perceived - needs of Connecticut's defense industry. The state should expand the collaboration between community colleges, technical high schools and industry partners, in order to ensure that input is sought from a greater number of companies throughout the supply chain. The collaborative

models currently being implemented by the Advanced Manufacturing Technology Centers, the Manufacturing Pipeline Initiative and the Advanced Manufacturing Employer Partnership have proven successful and could be expanded to allow for greater industry participation.

Additionally, in 2016, the state established the Manufacturing Committee to address a range of issues related to workforce development.<sup>xvii</sup> One component of the mandate is to annually evaluate the effectiveness of existing education programs at meeting workforce needs. The committee should ensure that this review looks beyond an annual snapshot of the skills gap, and takes into account program flexibility to meet changing employer needs, differing workforce demands across regions of the state, and whether the workforce needs of employers throughout the supply chain are being met effectively.

## **2. Leverage Manufacturing Innovation Fund (MIF) to increase participation**

The MIF provides support for a variety of programs and projects designed to support all aspects of the manufacturing base in Connecticut. Assistance should be provided with an eye towards programs that facilitate increased industry engagement in the workforce development process. The state should increase outreach and awareness of the availability of MIF resources to companies of all sizes throughout the supply chain.

### **Expand the workforce applicant pool.**

A general misperception exists about the manufacturing industry, and it impacts the choices that children make when they consider their future careers. Manufacturing, engineering and design have also not traditionally been career fields with proportionate representation from all segments of society. A 2016 workforce study found that minorities comprised just over 21% of the national aerospace and defense workforce, despite representing nearly 38% of the population. Women were only 22 percent.<sup>xviii</sup> In order to meet future workforce demands, both of these have to change, and the state of Connecticut is perfectly positioned to lead the way.

## **RECOMMENDED STATE ACTIONS**

### **1. Support campaigns targeted to students and influencers**

Popular culture often depicts the manufacturing industry as a dark, dirty and dangerous place where your grandfather used to work. This stands in stark contrast with the modern, 21st century manufacturing industry that is high-tech, clean and often resembles the inside of a classroom. The state's newly established Manufacturing Committee, within of the state Department of Education, was tasked with developing outreach efforts to middle and high



school students.<sup>xix</sup> These outreach efforts should focus on setting the industry on equal footing with the popular perception of innovation, excitement and advancement opportunities found in competing industries, like Silicon Valley. Messaging and approach should be targeted to students at all levels, as well as their parents and influencers, including teachers and guidance counselors. Existing statewide campaigns, such as Connecticut. Dream It. Do It. (CTDIDI) can be looked to for successful program models and expanded to increase impact.<sup>xx</sup>

## **2. Encourage partnerships between industry and K-12 schools**

An effective way to disprove stereotypes and spark interest is to introduce students to actual practitioners from the manufacturing industry. This could include additional state support for career fairs to be held throughout the school year, as well as the establishment of a state-wide program that allows students to interact with real-life engineers, skilled workers and military end-users through worksite visits and classroom engagements. When the industry representatives are members of under-represented groups, it sends a strong signal to students from those groups that they could pursue a similar career path. The recently launched Ambassador Program between CTDIDI and Pratt & Whitney provides an innovative concept that could be expanded to include additional industry and educational partners.

## **3. Encourage availability of assistance to under-represented groups**

By ending the path to education, training and experience, the state can help under-represented groups follow through on their interest to pursue careers in critical fields. Through a variety of incentives, the state should increase the availability of aid to these groups. This could include dedicated scholarships, fellowships and loan forgiveness programs for individuals who take jobs in high-demand fields in Connecticut upon program completion. The state can also encourage employers to utilize existing resources, such as the Manufacturing Innovation Fund Apprenticeship Program, for apprenticeship programs targeted towards these groups.

## **Incentivize the retention of retiring industry expertise.**

Faced with a landslide of retirements in the coming years, the defense industry will not only be losing a valuable segment of its workforce, but the institutional knowledge and expertise that comes from decades of hands-on experience. Finding a way to capture that expertise and pass it on to the next generation would help ease the transition and flatten the learning curve for new workers.

## RECOMMENDED STATE ACTIONS

### **1. Enable retirees to more easily teach**

One of the most effective ways to pass along industry knowledge is by encouraging retirees to become teachers. As addressed previously, the state can restructure the requirements for teaching certification to give greater consideration to skills-based experience and provide grants for hiring experienced industry professionals as instructors. Increasing the availability of part-time teaching engagements may also encourage more retirees to teach. Any of these changes would go a long way towards encouraging the transfer of knowledge, and it will be imperative for the state's new task force on recruiting manufacturing instructors to look at the issue of incorporating retirees as it develops its recommendations.

### **2. Encourage programs that utilize retirees**

The flip side of the coin is that companies are best positioned to find innovative ways to incorporate retiring employees into their own development programs. The state can encourage and incentivize companies to create mentoring and/or training programs that utilize retiree input and participation in a way that best suits the individual workplace.

## RETAINING TOMORROW'S WORKFORCE

As significant resources and effort are spent on growing a capable defense workforce across the state of Connecticut, it becomes imperative that steps are taken simultaneously to encourage the retention of that workforce. Without attention to this half of the economic equation, Connecticut will find itself paying to train another state's workforce.

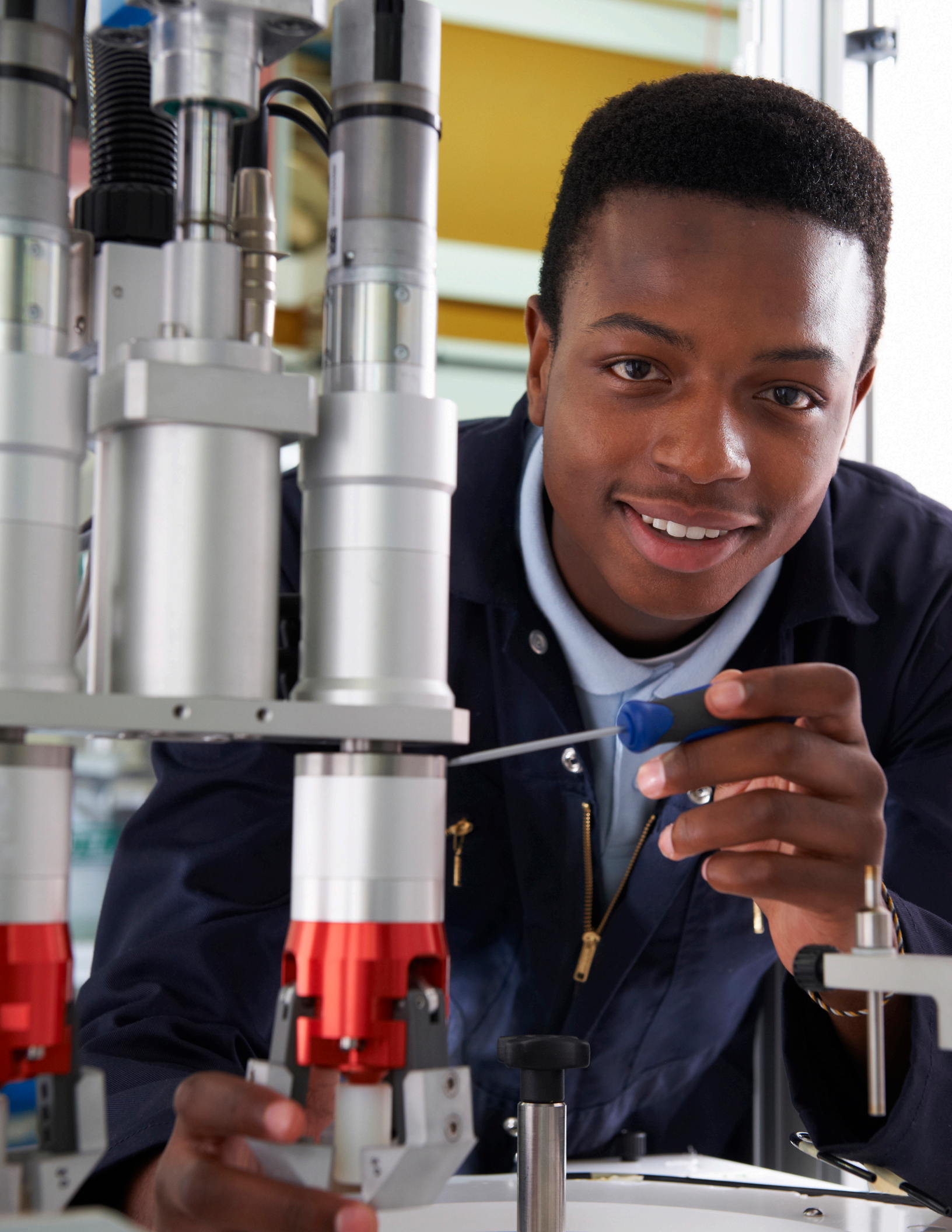
There are **CHALLENGES** to solving this complex issue:

- 1. Increasing competition from other industries**
- 2. Variable quality of life across the state**

### **Increasing competition from other industries**

Highly trained workers, particularly with the skills needed in Connecticut, are increasingly in demand in industries around the country. The allure of other industries, such as Silicon Valley, can be enticing, and as the competition for these workers gets







tighter, the incentive to poach them from Connecticut is only going to get stronger.

## **Quality of life varies across the state**

Quality of life can be defined as all the things that make businesses and their employees want to establish their lives in a specific place. This can be a combination of housing, transportation, education, recreation and cost of living. In Connecticut, all of these variables can differ from one town to the next, and it's no secret that it's expensive to live here. When economic development, particularly for the defense industry, depends on having a reliable, qualified workforce in place, it becomes the state's challenge to find ways to enable these individuals to access a reliable standard of living. Individuals at all stages of life, from young professionals to older workers with families, all want to live where they can afford a good life for themselves and their families. If they can't find that in Connecticut, they will go elsewhere.

To overcome these challenges, the state can pursue two misleadingly simple SOLUTIONS:

- 1. Create additional professional growth opportunities**
- 2. Improve quality of life statewide**

### **Create additional professional growth opportunities.**

People like to know that they are working towards an objective. Whether that is career advancement or to further a mission, there have to be incentives to working hard and making meaningful contributions in the workplace. A dead end job doesn't make anyone want to stick around. The state can take many steps to incentivize and facilitate the sort of industry behavior that will help its workers want to stay.

## **RECOMMENDED STATE ACTIONS**

### **1. Encourage apprenticeship programs**

In a revival of what used to be an industry standard, apprenticeship programs are starting to make a comeback across Connecticut. Electric Boat just restarted its apprenticeship program with 60 new candidates as of January.<sup>xxi</sup> Companies are finding them to be a useful tool for providing young employees with the skills and industry knowledge necessary for long-term success. The employees, in return, get the benefit of a predictable career trajectory, including advancement and regular wage increases.

Apprenticeship programs are not only making a comeback in large companies, but are also being established throughout the supply chain and in partnership with outside training programs. The state should continue to encourage and provide resources to expand successful apprenticeship programs. The Office



of Apprenticeship Training is also well-positioned to expand its outreach to employers throughout the supply chain and raise awareness among these companies of the resources available to them for establishing effective apprenticeship programs.

## **2. Encourage advanced training opportunities**

In order to stay competitive with other industries, Connecticut should encourage workers across the defense workforce to continue their career training. The challenge of staying up-to-date on the latest advancements in technology and process can be a motivating factor for many highly-skilled workers. The state should increase overall awareness of the Manufacturing Innovation Fund Incumbent Worker Program, and encourage companies to invest in programs that allow workers to explore the cutting edge of their industry.

## **3. Establish peer and/or expert groups with cross-industry representation**

Another means of retaining top talent is to encourage involvement in industry groups where individuals from multiple stakeholder organizations come together to share insights and learn from each other. The state should establish a series of expert groups that bring together individuals from all levels of industry, educators, government, end users, etc. to share best practices, professional development and personal experiences working in their specific trade.

## **Improve quality of life statewide**

Workers may come to Connecticut for the jobs, but they stay for the lives they can build – or as the military says “you recruit individuals, you retain families.” When a student graduates and takes a job in Connecticut, he or she should feel confident that they can comfortably remain here for the long-term. The state should promote policies and direct resources toward the types of amenities that encourage young people to live here and mid-career professionals to establish long-term residency.

## **RECOMMENDED STATE ACTIONS**

### **1. Focus on multi-variable development**

While someone young and single might care about different quality of life issues than someone older with a family, everyone agrees that having access to reliable transportation, affordable housing and opportunities for quality education and recreation are the hallmarks of an attractive community.

Connecticut isn't unique in the fact that across the state, small towns and urban areas face significant disparity across most of these variables. This can make it challenging for new workers to readily access the lifestyle they desire in a location near their job.

None of these issues are small, and none have a simple solution. The state is taking steps to address many of these issues, but should concentrate its effort on the areas where the issues are interconnected.

For example, the process of getting to and from a job can be a major quality of life driver. Connecticut has launched a 30-year plan to revamp the state's transportation system with a focus on establishing new transportation hubs. This plan should factor in the housing needs of the new workforce so the system can enable better access to jobs. Similarly, plans for affordable housing options should focus on the locations of planned transportation hubs, so new residents can leverage the proximity of accessible transportation.

Mixed-use developments are also particularly attractive to younger workers looking to combine multiple aspects of the community into one convenient geographical area. This type of development comes with economic risk, however, often requiring tax incentives or public-private partnerships to launch, but the long-term benefit to local communities can outweigh the risk. The town of Groton has been exploring this concept as a result of its 2016 Economic Development study which found that 80% of Groton's workforce commutes from outside the town, and that "a focused effort to attract and support mixed use development could bring new investment and dollars into the community."<sup>xxii</sup> With other communities facing similar challenges to attracting and retaining a new workforce, the state has ample opportunity to invest in the types of partnerships that lead to long-term economic development.

## **2. Launch a targeted PR campaign to promote Connecticut**

The increase in high-quality jobs is a significant factor in drawing new workers to the state, but getting them excited about staying here is a different story. The state should invest in a PR and marketing campaign that promotes the local communities where these new defense jobs will be located. Similar to the statewide "Still Revolutionary" campaign, this would be targeted towards residents in and out of state, but with the stated purpose of influencing the perception of the quality of life these new jobs would afford.

## Conclusion

Connecticut is at an inflection point. The status quo of getting by in a state of perpetual budget crisis is no longer sufficient. Now is the time to make fundamental changes in the way we have been doing business, and the state legislature must start making tough decisions about funding the priorities and policies that will break Connecticut out of this cycle.

The future rests on sparking economic growth, and one of the significant pillars of Connecticut's economy - the defense industry - is projected for tremendous growth over the coming decades. How can we leverage this opportunity for statewide, long-term benefit?

As a convergence of technological advancements, changing military demand and shifting workforce demographics force a major period of transformation across the industry, Connecticut must adjust its approach to workforce development and retention, or risk losing its competitive edge to other regions.

The responsibility to solve this challenge does not solely rest with the state government. The full ecosystem around the defense industry in the state must come together to address these overlapping trends - and many of these collaborative initiatives are producing significant results - but state government still has a unique role to play in bringing the right ideas to the table.

The recommendations outlined here are just the beginning. No single idea is new, but to best position Connecticut for future growth, we have to start viewing each one as an individual part of an overarching solution that moves Connecticut in the direction of economic growth and prosperity.

Each idea is deserving of its own future deep dive into the specifics around pragmatic resourcing and execution, but as a first step, the state legislature should target state resources - both financial and energy - to the areas outlined here. By focusing on these recommendations, we can maximize the overall impact of our state resources and leverage the opportunity before us to truly put Connecticut on a path towards a prosperous future.

---

## **Loren Dealy Mahler Biography**

Loren Dealy Mahler is a seasoned strategic leader with high-level government and private sector experience. Loren has helped clients from the White House to corporate America achieve their objectives through strategic planning, communications and public affairs campaigns.

Loren has advised top government officials in her roles with the National Security Council at the White House, the Department of Defense, and on Capitol Hill; and helped senior executives from Fortune 500 companies and national nonprofits grow and protect their organizations. She has experience navigating complex policy issues and devising pragmatic solutions to advance the interests of multiple stakeholders.

Loren is a graduate of Princeton University and holds a Masters in Public Policy from the McCourt School at Georgetown University. She currently lives with her family in Milford, CT.



- 
- i Jeffery Geiger, President Electric Boat, 2017 Business Outlook, January 9, 2017
- ii "Electric Boat to hire 2,000 to build nuclear subs"  
Bill Cummings, CT Post, January 9, 2017  
<http://www.ctpost.com/local/article/Electric-Boat-to-hire-2-000-to-build-nuclear-subs-10845888.php>
- iii "Pratt & Whitney Will Fill 8,000 Jobs In Next Decade"  
Shawn Beals, Hartford Courant, Sept 16, 2016  
<http://www.courant.com/news/connecticut/hc-middletown-leduc-pratt-and-whitney-0917-20160916-story.html>
- iv "Gov. Malloy Announces Historic Agreement to Secure Long-Term Commitment from United Technologies Corp. to Connecticut"  
Press release, February 26, 2014  
<http://portal.ct.gov/Office-of-the-Governor/Press-Room/Press-Releases/2014/02-2014/Gov-Malloy-Announces-Historic-Agreement-to-Secure-LongTerm-Commitment-from-United-Technologies-Corp>
- v "Gov. Malloy: Electric Boat Expansion Will Further Strengthen State's Reputation as a Leader in the Defense Manufacturing Industry"  
Press release, October 29, 2014  
<http://portal.ct.gov/Office-of-the-Governor/Press-Room/Press-Releases/2014/10-2014/Gov-Malloy-Electric-Boat-Expansion-Will-Further-Strengthen-States-Reputation-as-a-Leader-in-the-Defe>
- vi "Gov. Malloy and Lockheed Martin Reach Deal to Keep Sikorsky Headquarters and Jobs in Connecticut"  
Press Release, September 20, 2016  
<http://portal.ct.gov/Office-of-the-Governor/Press-Room/Press-Releases/2016/09-2016/Gov-Malloy-and-Lockheed-Martin-Reach-Deal-to-Keep-Sikorsky-Headquarters-and-Jobs-in-Connecticut>
- vii "2016 National Aerospace and Defense Workforce Summit: Proceedings Report and Recommendations"  
<http://www.aia-aerospace.org/report/2016-national-aerospace-defense-summit-proceedings-report-and-recommendations/>
- viii Jeffery Geiger, President Electric Boat, 2017 Business Outlook, January 9, 2017
- ix Connecticut Business and Industry Association (CBIA) research
- x Advanced Manufacturing Technology Centers Update, Connecticut State Colleges and Universities, September 2015

<http://www.ct.edu/files/pdfs/report-manufacturing-2015.pdf>

xi Assuring the U.S. Department of Defense a Strong Science, Technology, Engineering and Mathematics (STEM) Workforce  
National Academy of Engineering and National Research Council,  
The National Academies Press, 2012  
<https://www.nap.edu/read/13467/chapter/1>

xii “Working Together. Sharing Success” Connecticut Technical High School System  
Strategic Plan Annual Report, 2015-2016  
<https://www.cttech.org/assets/uploads/files/CTHSS%20Annual%20Report%202015-2016.pdf>

xiii MPI Evaluation Site Visit Summary, Fall 2016  
Public Policy Associates, Inc. September 2016

xiv Jeffery Geiger, President Electric Boat, 2017 Business Outlook, January 9, 2017

xv <https://www.ccat.us>

xvi <http://www.goodwin.edu/magnet-schools/connecticut-river-academy/>

xvii Manufacturing Committee, CT Department of Education  
<http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&Q=336436>

xviii “2016 National Aerospace and Defense Workforce Summit: Proceedings Report and Recommendations”  
<http://www.aia-aerospace.org/report/2016-national-aerospace-defense-summit-proceedings-report-and-recommendations/>

xix Manufacturing Committee, CT Department of Education  
<http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&Q=336436>

xx Connecticut Dream It. Do It. <http://ctdidi.com>

xxi Jeffery Geiger, President Electric Boat, 2017 Business Outlook, January 9, 2017

xxii “Economic and Market Trends Analysis Town of Groton, CT”  
Prepared by Camoin Associates, June 7, 2016  
<http://www.groton-ct.gov/depts/plandev/docs/MarketAnalysis/Economic%20Market%20Trends%20Analysis%20-%20Final%20Report%20-%202016-06-07.pdf>

## ADDITIONAL READING

"Eastern CT Workforce Investment Board 2012-2016 Local Plan"

September 2012

[http://www.ewib.org/Portals/0/PDF/EWIB\\_2012-2016\\_Plan-09-27-12-FINAL.pdf](http://www.ewib.org/Portals/0/PDF/EWIB_2012-2016_Plan-09-27-12-FINAL.pdf)

Advanced Manufacturing Centers Initiative, Connecticut State Colleges and Universities, Annual Report 2013

<https://www.ctdol.state.ct.us/OWC/CETC/Manufacturing%20AR%20Final%20CETC%209-23-14%20Tracy%20Ariel.pdf>

"Gov. Malloy, United Technologies announce deal for new Pratt & Whitney headquarters in Connecticut"

Luther Turmelle, New Haven Register, February 26, 2014

<http://www.nhregister.com/business/20140226/gov-malloy-united-technologies-announce-deal-for-new-pratt-whitney-headquarters-in-connecticut>

"Investments in Connecticut by UTC - Powering the Future of Connecticut Aerospace"  
Background informational document provided by Gov. Malloy's office

February 26, 2014

[http://portal.ct.gov/malloy/lib/malloy/2014.02.26\\_connecticut\\_aerospace.pdf](http://portal.ct.gov/malloy/lib/malloy/2014.02.26_connecticut_aerospace.pdf)

"Electric Boat Says \$10 Million State Loan Guarantees 8,900 Jobs"

Heather Brandon and Harriet Jones, WNPR, October 29, 2014

<http://wnpr.org/post/electric-boat-says-10-million-state-loan-guarantees-8900-jobs>

State of Connecticut 2015 Economic Development Strategy

[http://www.ct.gov/ecd/lib/ecd/2015\\_strategic\\_plan\\_final.pdf](http://www.ct.gov/ecd/lib/ecd/2015_strategic_plan_final.pdf)

State of Connecticut Office of Military Affairs Annual Report 2015

[http://www.ct.gov/oma/lib/oma/oma\\_2015\\_annual\\_report.pdf](http://www.ct.gov/oma/lib/oma/oma_2015_annual_report.pdf)

"Connecticut's Bold Vision for a Transportation Future"

February 2015

[http://www.transformct.info/img/documents/CTDOT%2030%20YR%20Corrected\\_02.17.2015.pdf](http://www.transformct.info/img/documents/CTDOT%2030%20YR%20Corrected_02.17.2015.pdf)

"Electric Boat To Hire Thousands As Military Strategy Shifts Back To Subs"

Stephen Singer, Hartford Courant, April 18, 2016

<http://www.courant.com/business/hc-electric-boat-hiring-20160418-story.html>

"Electric Boat plans major hiring, expansion to tackle sub ramp up"

Ana Radelat, CT Mirror, June 3, 2016

<http://ctmirror.org/2016/06/03/electric-boat-plans-major-hiring-expansion-to-tackle-sub-ramp-up/>

"State Offers Chance for Manufacturing Training, Career to Unemployed"

Kathleen Megan, June 22, 2016, Hartford Courant

<http://www.courant.com/news/connecticut/hc-cscu-labor-partnership-0623-20160622-story.html>

"Connecticut General Assembly approves deal to keep Sikorsky Aircraft in Stratford"

Susan Haigh, Associated Press and WTNH Staff, WTNH.cm, September 28, 2016

<http://wtnh.com/2016/09/28/connecticut-lawmakers-debate-deal-to-keep-sikorsky-aircraft/>

"Gov. Malloy Announces \$6 Million Federal Grant to Create Training Programs for Manufacturing and Aerospace Industries"

Press release, September 29 2015

<http://portal.ct.gov/Office-of-the-Governor/Press-Room/Press-Releases/2015/09-2015/Gov-Malloy-Announces-6-Million-Federal-Grant-to-Create-Training-Programs-for-Manufacturing-and-Aeros>

"Manufacturing training program exceeding expectations, officials say"

Brian Hallenbeck, The Day, October 24, 2016

<http://www.theday.com/article/20161024/NWS01/161029586>

Gioia Report "Big Challenges Yet Hopeful 2017 Outlook"

Pete Gioia, Connecticut Business and Industry Association, December 29, 2016

<https://www.cbia.com/news/gioia-report/ct-big-challenges-hopeful-2017-outlook/>

"Gear Up For Aerospace Boom Beginning In CT"

Colin Cooper, The Hartford Courant, January 2, 2017

<http://www.courant.com/opinion/op-ed/hc-op-cooper-ct-aerospace-worker-training-0101-20171230-story.html>

"Electric Boat poised to invest \$1.5 billion to meet demand for more subs"

Julia Bergman, The Day, January 9, 2017

<http://www.theday.com/military/20170109/electric-boat-poised-to-invest-15-billion-to-meet-demand-for-more-subs>

"Electric Boat: Boost in sub building means boost in CT jobs"

Ana Radelat, CT Mirror, January 9, 2017

<http://ctmirror.org/2017/01/09/electric-boat-boost-in-sub-building-means-boost-in-ct-jobs/>

"Electric Boat poised to hire 1,350 for Groton sub work"

John Penney, The Norwich Bulletin, January 9, 2017

<http://www.norwichbulletin.com/news/20170109/electric-boat-poised-to-hire-1350-for-groton-sub-work>

"Pratt's production surge boosts aerospace supplier's business"

Howard French, Journal Inquirer, January 16, 2017

<http://www.hartfordbusiness.com/article/20170116/NEWS01/170119937/pratts-production-surge-boosts-aerospace-suppliers-business>

Aerospace Components Manufacturers, monthly newsletter

January 27, 2017

[http://www.aerospacecomponents.org/docs/newsletters/ACM\\_January\\_2017\\_Newsletter.pdf](http://www.aerospacecomponents.org/docs/newsletters/ACM_January_2017_Newsletter.pdf)

"State Residents Feeling Good About Connecticut Business Conditions, Accentuating the Positive as Place to Raise Family, Too"

Kristiana Sullivan, Connecticut Economic Resource Center (CERC), February 6, 2017

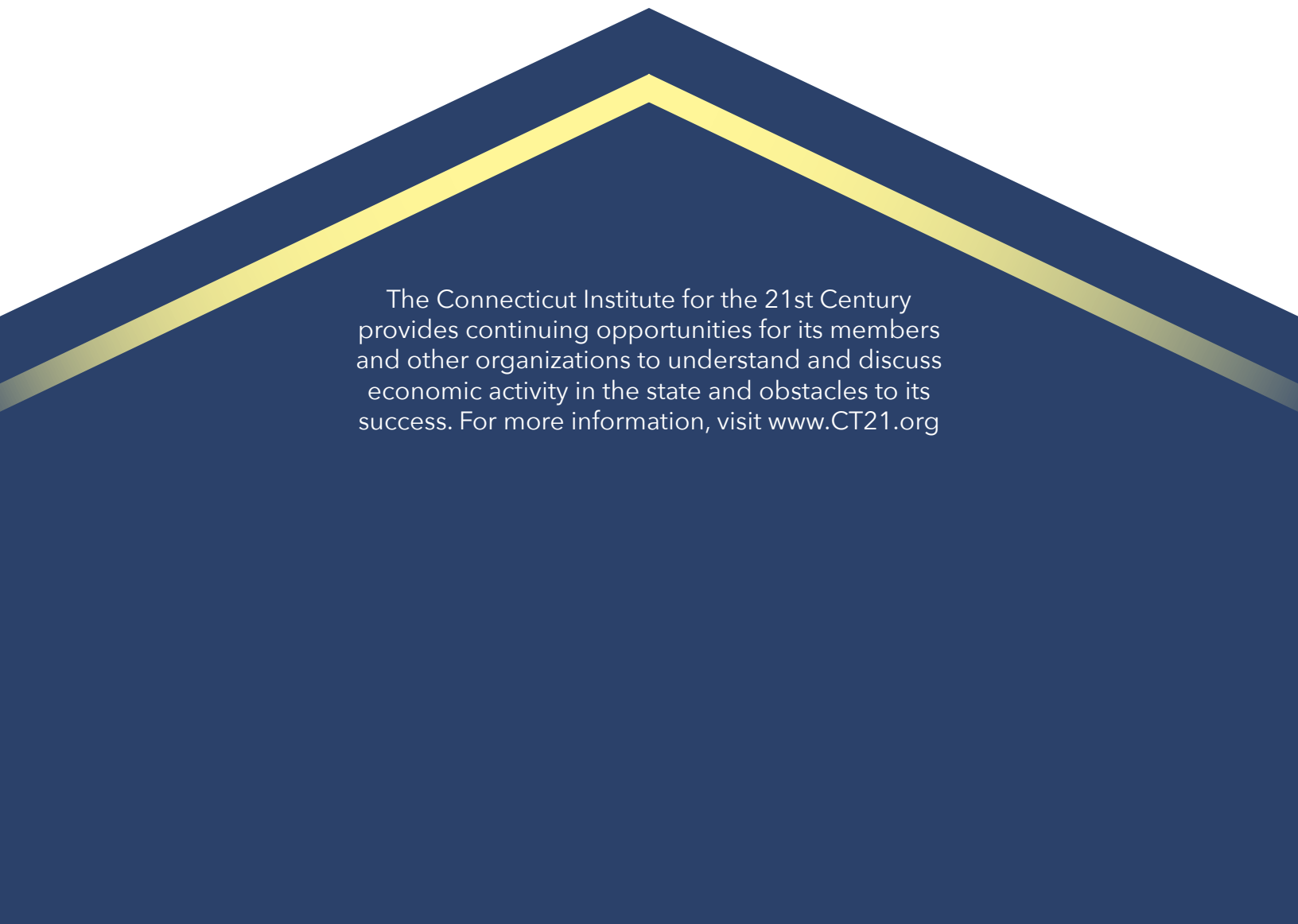
<https://www.cerc.com/press-releases/state-residents-feeling-good-about-connecticut-business-conditions-accentuating/>





CONNECTICUT INSTITUTE FOR THE 21ST CENTURY

INSIGHT. IDEAS. IMPACT.

A large, stylized graphic of a mountain or roofline. It is composed of two dark blue triangular shapes meeting at a peak, with a gold-colored line running along the inner edges of the triangles, creating a V-shape.

The Connecticut Institute for the 21st Century provides continuing opportunities for its members and other organizations to understand and discuss economic activity in the state and obstacles to its success. For more information, visit [www.CT21.org](http://www.CT21.org)