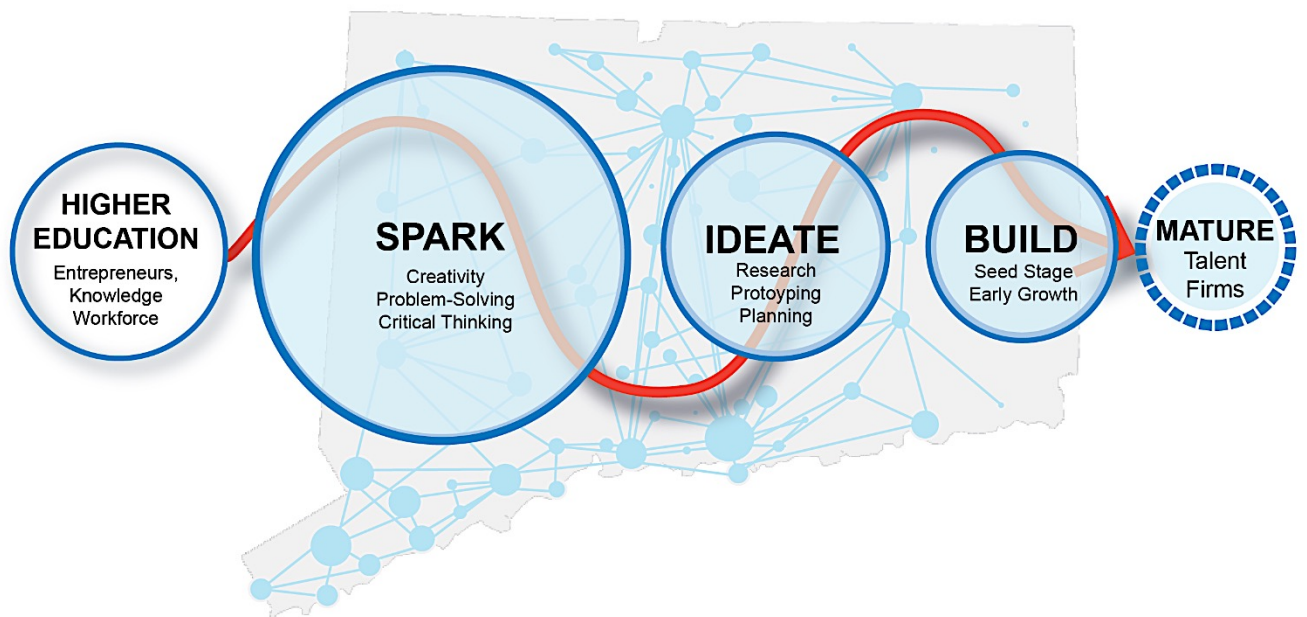


ENTREPRENEURSHIP & INNOVATION IN CONNECTICUT'S HIGHER EDUCATION SYSTEM



5/1/2017

A Catalytic Roadmap for Higher Education
Collaboration

Entrepreneurship & Innovation in Connecticut's Higher Education System

A Catalytic Roadmap for Higher Education Collaboration

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Imagine

Julia grew up in Connecticut. She wants to stay close to her family but still be able to pursue her dreams. She decides to go to community college, and then transfers to Trinity. It is 2019 and Julia is double majoring in neuroscience and biology. A professor urges her to take the idea she had in lab and see where it leads.

It is now the fall of 2020, her senior year, and she signs up to attend the Connecticut Catalyst Conference, the annual entrepreneur conference that was recently written up in Entrepreneur Magazine as the “next South by Southwest (SxSW) for entrepreneurs and innovators”. She is excited! At the conference, she meets a pharmacy student from St. Josephs and a researcher at UConn who was a semi-finalist at Mass Challenge last year with a new start-up specializing in neuro-technologies and social behavior: her new team. In the spring, Julia graduates and decides to stay in the Hartford area because it has all the business and industry connections she craves, and her new partners agree – they have located laboratory incubator space nearby that is an easy train ride for their new potential partner, a bio-polymer researcher at Cornell’s Roosevelt Tech Campus in New York City. She’s also impressed with all the investments the state has put into supporting entrepreneurs; she connects to services and mentors through the Hartford Hub and finds a strong social network and information about events at universities and colleges through CT Start-Up Revolution’s website.

It is now 2022: With the progress made on her company's research, she decides it is time to get her Master’s degree. The 11-college Hartford Consortium has a unique entrepreneur program that she can tailor to address the challenges of the bio-medical industry and fit into her busy schedule. Even better, it is free if she commits to three more years in the Hartford area.

It is 2028 and the company has hit it big: They have 300 employees in the Hartford area, a customer base of 500,000 in North America, and an office in Mumbai run by a graduate of University of Bridgeport they met at a CT Revolution event 3 years ago. Catalyst Conference now attracts 10,000 people from around the world and supports a huge summer festival. Grateful for their start, Julia and her partners are now Conference Platinum partners and to celebrate its tenth anniversary they commit \$1million to Manchester Community College, Trinity, UConn and the Hartford Consortium. They are happy to support the next generation of Connecticut entrepreneurs.

Hundreds of stories like this popping up around the state, due to investments started in 2017.

Executive Summary

Entrepreneurship and innovation (E&I) have become important ingredients for dealing with the economic instabilities of the 21st century. If successfully crafted and implemented E&I policies serve as proactive responses to trends gripping Connecticut and the world at large: ongoing globalization, the rise of disruptive technologies and automation, and demographic shifts. Institutions of higher education, facing related pressures expressed in declining enrollments, rising costs, reduced state government funding, flattening of federal research grants, increasingly integrate economic development goals, especially E&I cultivation, into their missions. In response to these challenges, the Connecticut State Legislature passed Senate Law 502 that offers financial support for institutions of higher education to facilitate E&I. The law called for the establishment of a Working Group on Higher Education to create a roadmap to guide the work. This roadmap is that product, the result of the Working Group's intensive four-month study of how current conditions and national best practices can inform the creation of a series of solid, self-determined strategies and partnerships as envisioned in the legislation.

The Working Group, composed of the presidents of the state's 44 institutions of higher education, views this roadmap as an important step towards understanding and strengthening the role(s) of institutions of higher education in the Connecticut E&I ecosystem. In forging the roadmap, they discovered that taken together, the state's institutions of higher education possess all the elements needed for a strong E&I ecosystem, yet these elements can be isolated and lack cohesion. Thus, they see the roadmap as a guide to consolidate, fortify, and grow the elements and thereby transform the state's culture of innovation.

The Working Group recognizes that strengthening the state's E&I ecosystem is a long-term project. They therefore established four goals to guide the effort. They are: to engage, deeply, with the 21st century economy and its impact on the state of Connecticut; to educate an innovative - and STEM-literate – workforce; to expand the institutional infrastructure that helps turn discoveries and new ideas in new CT-based businesses; and to leverage the power of collaboration and partnerships to intensify the nodes and linkages in the system.

In pursuit of these goals, the Working Group outlined two broad initiatives, each with suggested funding priorities to be supported by the five-year, \$10 million grants-in-aid program adopted in Senate Bill no. 502. The first initiative, **Communication and Building Relationships**, grew out of the collective recognition of that two current issues

Goals

- Engage in the 21st Century Economy
- Education an Innovative Workforce
- Expand Development Infrastructure
- Establish Collaboration & Partnerships

Initiatives

Initiative 1: Communication and Building Relationships

Funding Priorities

- Face-to-Face Convenings
- State-wide 'Portal' for Higher Ed Resources
- Peer Knowledge Sharing

Initiative 2: Building Capacity through Collaboration

Funding Priorities

- Mentor Programs
- Regional Hubs
- Innovation Education
- Shared Commercialization

needed remedying: 1) institutions tend work in relative isolation from each other, and 2) Connecticut's geography and largely suburban structure makes networks difficult to sustain. This initiative offers ideas to support the needed collaboration. The second initiative, **Building Capacity Through Collaboration** evolved through consultations with the institutions of higher education about their work in entrepreneurship and innovation. This initiative identifies priorities that will catalyze inter-collegiate relationships and contribute to strengthening the entire state E&I ecosystem.

The planning process to develop the roadmap produced two unexpected outcomes. Although they extend beyond the Bill's requirements, they are worth noting here. As the first full convening of the leadership of Connecticut's institutions of higher education, the creation of the Working Group on Higher Education was historic and productive. The rich exchanges at its meetings led to the attendees' call for an annual assembly of presidents to discuss strategic issues affecting higher education across the state. The structure of such an assembly is outside the scope of this project.

The second unexpected outcome was the call for a sustainable multi-tier leadership structure that will build a bridge between the five-year grant cycle and a vision of Connecticut in 2050. To quote participants, "everyone has their day job"; long-range collaboration efforts will take resources and time as well as political, administrative, academic and student leadership.

Public Law 502 presents an enormous opportunity to overcome the forces of regionalism and academic silos and forge a new direction in which state's institutions of higher education can work together to build a prosperous future for Connecticut. Cultivating and strengthening innovation ecosystems is a global trend and Connecticut, through these new partnerships and collaborations, has an opportunity to be a leader.

"The pace of technological advancement has given rise to new ways to create and deliver both products and services – from doctor visits conducted through video to the way we shop. The creative disruption that technology has brought puts pressure on businesses and industries to innovate as incremental improvements alone are unlikely to survive in a competitive market. Maintaining the health of the whole innovation ecosystem is crucial to avoiding obsolescence."
Concept to Commercialization: The Best Universities for Technology Transfer (Milken Institute Center for Jobs and Human Capital, April 2017)

Introduction

Entrepreneurship and innovation (E&I) have become important ingredients for dealing with the economic instabilities of the 21st century. If successfully crafted and implemented E&I policies serve as proactive responses to trends gripping Connecticut and the world at large: ongoing globalization, the rise of disruptive technologies and automation, and demographic shifts. Institutions of higher education, facing related pressures expressed in declining enrollments, rising costs, reduced state government funding, flattening of federal research grants, increasingly integrate economic development goals, especially E&I cultivation, into their missions. This study is roadmap for the state of Connecticut to facilitate entrepreneurship and innovation at institutions of higher education as mandated in Public Law No. 63-3. It is the product of the Working Group on Higher Education composed of the presidents of the states' 44 universities and colleges. The Working Group, also mandated in Public Law 63-3 met four times from late 2016 to April to develop the roadmap and the associated materials.

The study has four parts: **Part 1. The E&I Landscape** (the assessment of existing and emergent conditions affecting entrepreneurship and innovation programs at institutions of higher education), **Part 2. The Higher Education E&I Ecosystem in Connecticut** (the assessment of the scope and scale of existing entrepreneurial programs and initiatives at Connecticut institutions in the context of best practices at state and national institutions of higher education that are leaders in innovation and entrepreneurship) **Part 3. Roadmap: Recommended Initiatives and Funding Priorities** (initiatives that facilitate collaboration and cooperation among institutions of higher education on projects that address and strengthen innovation and entrepreneurship at such institution and funding priorities for higher education entrepreneurship grants-in-aid), **Part 4. Measuring Impact** and **Part 5. Unexpected Outcomes**.

Part 1. The E&I Landscape

In the late 20th century, the explosive growth of Silicon Valley exemplifies the power of a vibrant entrepreneurial and innovation ecosystem. Well recognized as the nation's premier technology hub, it is home to 39 Fortune 500 companies, employs a quarter of a million workers in information technology, benefits from the social and intellectual capital of 42 institutions of higher education, and is the recipient of a third of the nation's venture capital. Other smaller but economically powerful systems exist in Boston, Seattle, Denver, New York, and Austin. They have arisen as the software revolution has transformed the E&I landscape, reducing barriers to entry by increasing access to market information, financing, education, and other services.

Despite the success and the phenomenal growth of a few companies ("unicorns") in Silicon Valley and the other centers, other economic data underline some concerns related to the growth of the nation's entrepreneurial and innovation economies. The number of jobs created by establishments less than one year old in the U.S. decreased from 4.1 million in 1994 to 3 million in 2015. According to the U.S. Bureau of Labor Statistics (BLS), the survival rate of new businesses has declined. Moreover, since 1994, the share of private sector employment has decreased for companies with less than 249 employees and has increased for those with 250 or more employees.

Building strong institutional partnerships and collaboration for entrepreneurship and innovation must address many external barriers presented by economic, social, political and geographic forces. The following section

highlights major trends and the associated risks and opportunities that may affect higher education institutions in Connecticut as they expand their engagement in and support of entrepreneurship and innovation.

The Innovation Economy

The 21st century economy is creating complex, interconnected risks and challenges that require new policy approaches such as those represented by federal, state and local government initiatives to support entrepreneurs and innovators. Beyond the multi-billion dollars of federal funding for university-based research and development, the federal government developed targeted projects between 2007 and 2016. For example, President George W. Bush approved the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act of 2007 (America COMPETES), reauthorized in 2010 and in 2016 under President Barack Obama. This legislation carries several provisions to support STEM education; it awaits budget authorization under the current president. Other federal activities include, the first White House-hosted Global Entrepreneurs Summit (2010), the National Network for Manufacturing Innovation (2012), with nine regional hubs created through public-private partnerships in four years, and six more planned for 2017, and the Regional Innovation Strategies Program (2013). In 2014, UConn received funding through the program's i6 Challenge.

State legislatures and regional actors have also adopted new approaches and tools to support entrepreneurship. Examples of state efforts include Massachusetts's [MassTech and Innovation Institute](#), New York's [NYStar Centers](#), California's [Innovation and Entrepreneurship Unit programs](#), and the [Southwest Innovation Corridor](#), a coalition in southwest Colorado started by the Telluride Foundation that covers an area bigger than the state of Massachusetts.

Many cities have encouraged entrepreneurship and innovation through local economic development efforts. They range from New York City's \$100 million international competition to attract university technology partnerships to build a new campus on city-donated announced in 2011 land to St Louis's 200 acre Cortex Innovation Community formed in 2002 by six collaborating institutions (Washington University, BIC Healthcare, University of Missouri-St Louis and the Missouri Botanical Garden).

U.S. companies and foundations are also global leaders in entrepreneurship and innovation. The Kaufmann Foundation's Global Entrepreneurship Network has members in 160 countries, and hosts thirteen global programs ranging from summits to research platforms. The Skoll Foundation, founded by the first president of E-bay, has awarded over \$400Million in impact entrepreneurship globally.

Higher education institutions are already tightly integrated into the global innovation economy. For example, the U.S. attracts students from around the world. In the 2015-6 academic year, international students composed 4.5% of U.S. undergraduate and graduate enrollment. (*Institute of International Education Open Doors Report, 2015*), a 7% increase from the previous year. In 2015-6, 32% came from China (up 8% from the previous year), followed by India at 16% (up 25% from the previous academic year) and South Korea (6%) (*Institute of International Education and Commerce Department*). International collaborations in research are discussed in a later section.

Due to anticipated changes in national immigration policies, STEM post-doc extended visas (up to 3 years), and skilled work (HB-1) visas are now uncertain, leading many to leave the country who might otherwise remain in the U.S. and contribute to innovative research and, later, on their return to their home countries

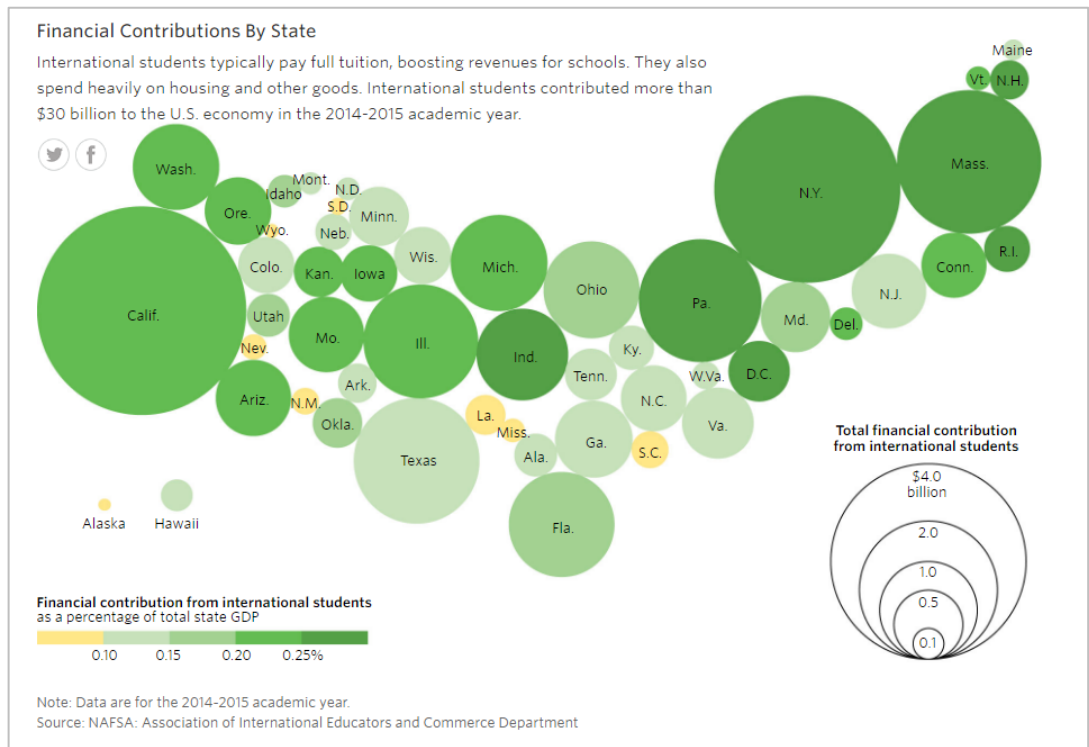


FIGURE 1. FINANCIAL CONTRIBUTIONS OF INT'L STUDENT BY STATE (WSJ)

build bridges to growing economies. A recent example of these growing relationships is Quinnipiac University's "Building International Bridges in the Life Sciences: Hungary, Poland and the BioForum of Central Europe", held January 27, 2017 initiated by the director and international graduate students of the Center for Innovation and Entrepreneurship and co-sponsored by QU's Central European Institute. Connecting to the state at large, the meeting included a presentation from Harry Penner, director of CURE (the state's Bioscience Innovation Network) and entrepreneur-in-residence at Connecticut Innovations.

Connecticut

In many respects, Connecticut is extremely well positioned to support entrepreneurs and innovation. The state has an exceptionally well-educated workforce, numerous institutions of higher education, a strong cadre of advanced technology companies, and a high quality of life ranking. As Figure 3 indicates, Connecticut is also ranked in the top ten states for categories such as healthy residents (1st), advanced degrees per Capita (3rd), and State Innovation (4th). In the latest

Healthy Residents	1 st
Share of Finance & Insurance Jobs	3 rd
Advanced Degrees per Capita	3 rd
State Innovation	4 th
Productivity per Capita	4 th
Business Research & Development per Capita	5 th
Scientists & Engineers per Capita	5 th
Energy Efficiency	6 th
Venture Capital Deals per 1 Million Residents	7 th
Patents per 100,000 workers	7 th

FIGURE 2. 2015 CT ECONOMIC DEVELOPMENT STRATEGY REPORT

State report from the Joint Economic Committee of the U.S. Congress, (March,2017) Connecticut ranked above the U.S. average on indicators such as current quarters growth rate (3.6% versus 3.5%), significantly higher

median household income (\$72,900 versus \$56,500), and college enrollment (44.9% of 18-24 years old, versus 40.0%)

However, the state may suffer from a so-called “goldilocks” syndrome – a little too big, a bit too small, and is located between two powerhouses – Massachusetts with high tech leader Boston, and New York State, with competitor Brooklyn. Connecticut is a suburban state in a rapidly urbanizing world and the Nutmeg State is finding this identity a tough nut to crack when potential entrepreneurs and innovators are attracted to urban centers. While the state is the fourth densest in the country (population by land area), its population is primarily suburban. Its major metropolitan areas lack density -- Buffalo, Cleveland, and Providence are more densely settled than New Haven, Hartford and Stamford. In contrast, innovative hubs in Boston and Brooklyn have numerous amenities – restaurants, open space, housing, transportation, and networks of like-minded companies – appealing to the so-called knowledge workers. Thus, one consequence of Connecticut’s lack of thriving cities is the failure to attract the creative workforce and funders an entrepreneurial economy demands.

Nonetheless, being part of the Northeast Megaregion is good news for Connecticut. The Megaregion supports 20% of the U.S. GDP (\$2.6 Trillion) with 17% of the population (52.3 Million), and 2% of the U.S. land area (60,000 square miles) (NIH, 2016). By 2050, those numbers are expected to grow to \$7 trillion in GDP and 70 million citizens. Having 7% of the population and 9% of the Megaregion’s land, Connecticut’s share of the GDP, 9% (\$253 billion), is disproportionate.

Despite overall losses in manufacturing in general, Connecticut has many advanced manufacturing firms linked to the nation’s growth industries in aerospace and submarine construction. Firms such as United Technologies bring in nearly \$13 billion per year in defense contracts. In total, the state has over 500 manufacturing firms that directly employ over 161,000 workers and provide \$14 billion in wages (2014 *Survey of Connecticut Manufacturing Workforce Needs*, SBIA).

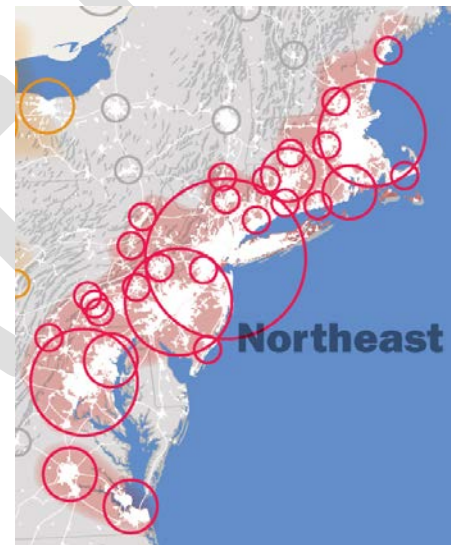


FIGURE 3. AMERICA 2050, REGIONAL PLAN ASSOCIATION

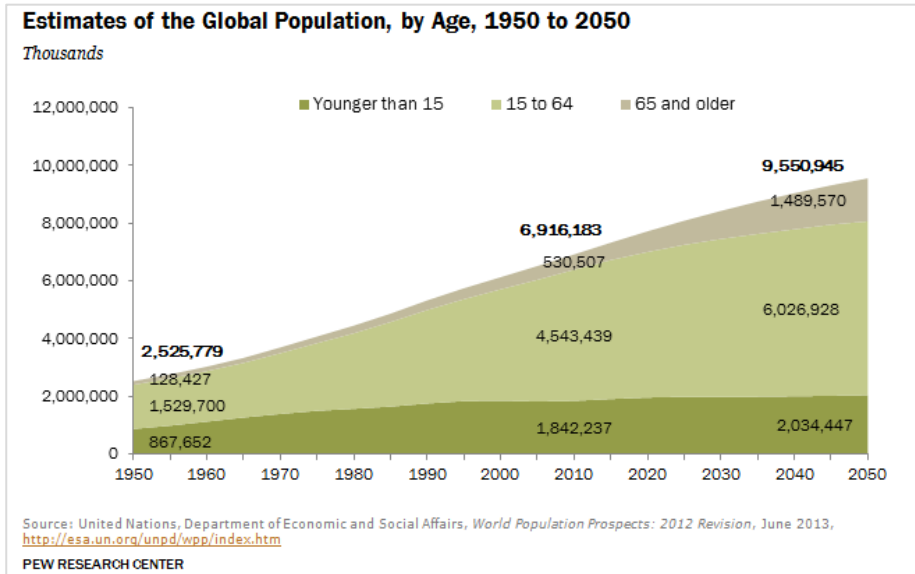
Institutions of higher education contribute significantly to the state and local economies. According to the Connecticut Conference of Independent Colleges (CCIC), private institutions contribute 171,000 jobs, more than \$21.8 billion in spending, and 200,000 alumni, some of whom can be engaged in supporting entrepreneurial efforts. Public institutions are heavy contributors as well: UConn has added \$3.4 billion to the state economy; the state universities, including the community colleges, support nearly 30,000 jobs and enroll more than 90,000 students annually, creating a large alumni base.

Demographic Shifts and Entrepreneurship and Innovation

Demographic shifts affect economic competitiveness innovation, and entrepreneurship in many ways. The Center for Public Education points out that educational institutions are at the vanguard of this issue in fulfilling their responsibilities of preparing students for their workforce participation in a changing world.

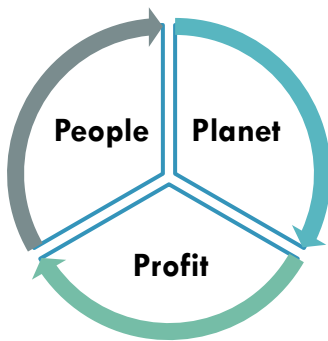
In the next decades, the world will see major demographic shifts that will resonate in the U.S. An anticipated three billion people will be added to the worldwide population primarily in urban areas in sub-Saharan Africa and Asia. At the same time, the European population is expected to shrink while North America will grow slightly.

The U.S. Census projects that the Northeast will see moderate population growth (8%) through 2030, while the South and West will see the most (43%, and 46%, respectively). Connecticut, as is discussed in the next section, is struggling to stabilize its population.



Changes in age cohorts are important to understanding the directions of future economic activity. According to Pew Research, Millennials (born between 1980 and 2000) surpassed the Baby Boomers in overall numbers by 2016 (75.4 million versus 74.9 million). More racially diverse (43% non-white) and slightly more male, they are on track to be the most educated group in the U.S, yet they carry more student debt than previous generations. They are starting to enter their “peak” years for entrepreneurial activity -- currently 17% of the adult population between 35 and 44 years old are entrepreneurs, the highest percentage of any age group. (*Global Entrepreneurship Monitor Global Report, 2016/17*) In Connecticut, Millennials made up 18.6% of the population in 2014 (census, 20-34 year olds), slightly less than the national average of 20.6%.

Among the entrepreneurs, the rate of men’s entrepreneurship is one and a half times greater that of women, despite the fact women make up 52% of the population. A recent national survey revealed that 62% of men believe they have the skills that enable them to start new businesses compared to 50% of women. (*Global Entrepreneurship Monitor Global Report, 2016/17*). This trend is relevant in Connecticut where the latest business degree attainment data shows that of the 10,148 degrees awarded in Connecticut in 2015, only 37% went to women.



Many are using the principles of entrepreneurship and innovation to encourage students to become change-makers and entrepreneurs who consider the triple bottom line – people (social), planet (ecological) and profit (economics) when problem solving. This type of entrepreneurship is called social entrepreneurship and it is on the rise.

Nationally, 8% of Americans are leading a social enterprise, and 7% are trying to start one. The majority are less than three years old. Government funding is the most common funding source.

The global expansion of benefit corporations, known as '[B Corps](#)', reflects a growing movement to make companies purpose driven - not just to be best in the world, but to be best *for* the world. Certification requires verified social and environmental performance, public transparency, and legal accountability. Of more than 500 'B Corps', two reside in Connecticut.

A colleges and universities, the push for embedding social impact into curriculum and education missions parallels efforts to encourage innovation and entrepreneurship, generally, but more specifically in catalyzing cultural change across campuses.

"An educational framework integrated across social change methodologies would offer depth of content and breadth of experience, providing opportunities for students to develop their citizenship skills and hone their entrepreneurial abilities so that they can think and act effectively within systems. To develop such a framework, faculty, staff, and industry professionals will have to become changemakers themselves." Marina Kim and Erin Krampetz, "The Rise of the Sophisticated Changemaker", AACU, 2016

The Skoll World Forum on Social Entrepreneurship seeks to accelerate entrepreneurial approaches and solutions to the world's most pressing problems by uniting social entrepreneurs with essential partners. Delegates represent nearly 65 countries.

Skoll Awards for Social Entrepreneurship Awardees receive a \$1.25 million, three-year core support investment to scale their work and increase their impact.

Foundations such as Ashoka and Skoll also encourage and support the growth of social entrepreneurship to solve national and global problems, offering fellowships, grants and extensive networks to support innovators. However, Michael Zakaras a U.S. Venture Strategist for Ashoka wrote [recently](#) about unconscious biases in the field. An analysis of Fellows from the four largest foundations revealed that 60% come from four cities: Washington D.C., San Francisco, New York City, and Boston. Fellows have also been disproportionately white, male, and highly educated. Zakara's insights into the foundations' often-

unconscious bias prove to be a valuable reminder of the need for diversity and inclusion, generally, in entrepreneurial infrastructure. Bias was noted in funding access for non-white entrepreneurs; toward polished accelerator or design lab referrals over community inclusion; and, against involvement by the social justice community partly because the term 'social entrepreneur' is seen as self-promotional branding by a wealthier elite.

“Entrepreneurs from different races or different regions can raise awareness of social problems that are otherwise invisible, and they can help others to see those problems in a different light.” Zakaras, “U.S. Social Innovation: Let’s Redraw the Map” September, 2016

Connecticut

The state is fighting for population growth, especially among those with higher educational attainment. In 2014, the state net loss of 2,664 people (.07%), was a small percentage, but the third-largest percentage population decrease after West Virginia and Illinois. See Figure 5.

In 2014, the greatest out-migration occurred among young adults ages 18–24: 18,367, or 42% of the total loss. However, census data reveals that Connecticut experienced a .1% increase between 2010 and 2015, likely caused by the state’s high rate of international migration - the nation’s seventh-highest from 2014 to 2015. Notably, when evaluating migration loss by educational attainment, residents with post-secondary education are the largest out-migration segment (86%). See Figure 5 6.

Persistent achievement gaps influence educational attainment in Connecticut. In *A Talent-Based Strategy to keep Connecticut Competitive in the 21st Century*, a report of the Connecticut Office of Workforce Competitiveness (OWC) observes: “Connecticut’s future young workers are expected to be less prepared for the 21st century careers than those they are replacing in large part because nearly half of our future workforce will be coming out of the state’s urban centers where a significant and stubborn achievement gap persists.”

Further, the state is likely to experience the impacts of the so-called “silver tsunami,” a shorthand expression to note the effects of the retiring Baby Boomer generation. Today, more than one-third of CT residents are over 50 years old and by 2025, 25% of residents will be over the age of 65. This latter figure aligns with national averages: the [Census](#) expects that more than 20% of Americans will be over the age of 65 by 2030. However, by 2040, residents in Connecticut over the age of 65 will have grown by 57% while those between 20-64 years old, the portion of the labor force supporting the elderly, is projected to have grown less than 2%. (CT Legislative Commission on Aging). This group, however, can offer new opportunities for institutions. Retired alumni can become a great source of mentors and a professional resource for training and certificate programs. Retirees are also a growing segment of entrepreneurs - “encore entrepreneurs” - with time to turn hobbies or professional expertise into new businesses

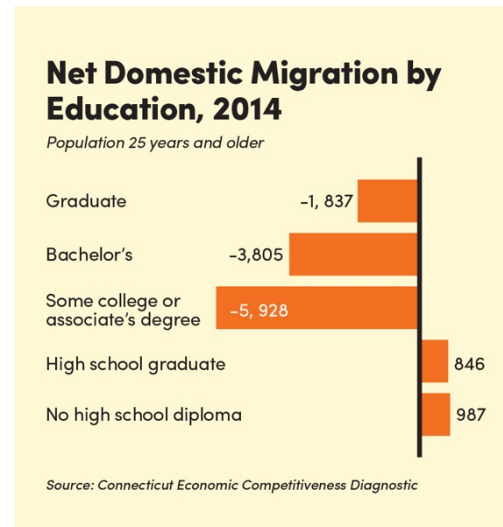


FIGURE 4. CONNECTICUT ECONOMIC COMPETITIVENESS DIAGNOSTIC, 2016

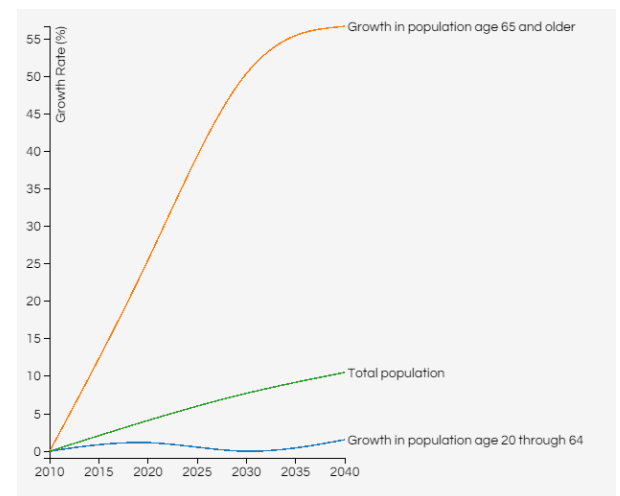


FIGURE 5. CONNECTICUT POPULATION PROJECTIONS

The data on aging puts additional strains on the state's institutions of higher education who will need to educate a workforce that can take over and adapt companies to address 21st century economic changes. The CT institutions interviewed for this study, particularly community colleges and state universities were deeply concerned with this issue. They realize that their students come from and tend to stay in local communities and that small businesses make up 69% of companies (1-50 employees) in the state. They note that existing small business owners need to plan for post-retirement succession and new owners need to know how to adapt business models to the challenges of the 21st century economy.

Research & Development

In the postwar period, U.S. research and development (R&D) funding grew exponentially fueled by the federal government support, especially in health and defense, and by private sector investments in product development. In the six decades for which data has been collected, R&D expenditures in the US rose from 1.3% of the nation's GDP in 1953 to 2.8% in 2015. In the same period, the total expenditures increased twelve-fold from \$34 billion in 1953 to \$455 billion in 2015 (2009 constant dollars); the federal portion shifted from \$7.6 billion (22% of the total) to \$48 billion (11%) as private sector funding increased. Of the federal funding in this period, higher education's share rose from 13% to 66% of the total. For research-intensive universities, this funding has been the primary support for research and lab facility development in schools of health (medicine, nursing etc.) and engineering. These institutions excel in basic research, an area that has increased 20 times in the past 60 years. These data demonstrate how the United States became a powerhouse in R&D, a phenomenon that has contributed to the nation's economic growth.

OECD Data from the past 25 years shows the U.S. R&D expenditures holding steady in terms of global performance metrics – 2.5% of GDP in 1990, 2.8% of GDP in 2015. But many other nations dedicate higher percentages of their GDP to research: Israel and Korea, more than 4%; Japan, Austria and Germany, more than 3%. In terms of dollar expenditures, the U.S. holds the lead at \$454 billion, but this is narrowing in the face of competition from China whose research funding was \$409 billion in 2015, (up from \$13.5 billion in 1991 – a 2,821% increase) (OECD 2017).

However, the OECD reports that worldwide, budgetary pressure on rising expenditures in health, pensions, and social services is contributing to some shifts in government supported R&D. Some are leveling off expenditures. Others, seeking to improve the quality of research or to increase international recognition, are dedicating government dollars to support research excellence initiatives/ centers of excellence approaches, incentivizing the creation of multi-university-business-partnership arrangements.

Although most U.S. academic collaboration is domestic, international research collaborations have been growing recently due to a variety of reasons. The internet with such free features as Skype or Google Docs facilitates global communications; inexpensive air travel eases international scholarly conferences and meetings and international students form ties that continue when they return to their home countries. One indicator of this trend is from the Global Innovation Index (2016) on fund pass-through: R&D funds passing through universities to other universities or to non-academic institutions in the U.S. grew more rapidly than total

academic R&D funding. (Between FY 2000 and FY 2009, pass-through funds grew by 171% while overall academic R&D expenditures grew by 82%)

Between 1990 and 2015, as overall U.S. R&D expenditures increased 100%, spending for basic research grew only 57% and for applied research, 69%. Nonetheless, during this time, institutions of higher education increased their basic research expenditures by 129% and their work in applied research by 162%. While in recent years, research intensive universities have undertaken increasing dollar amounts of applied research, since 1990, they have maintained a relatively constant division of between the two types of research: 65% basic, 26-28% applied (NSF, 2017).

Drilling down to state expenditures, National Science Foundation data for 2014 (the latest available) reveals that some states dominate the top three states in overall research expenditure were California (\$115 billion), Massachusetts (\$28 billion) and Texas (\$20, 820 billion). Connecticut, ranked 14, has total research expenditures of \$10.2 billion. In the top three states, calculating higher education expenditures as a percent of the total results in a different ranking: Texas (higher ed is 22% of the total), Massachusetts (13%), California (7%). In this analysis, Connecticut at 10% compares well. Connecticut also compares well when measuring expenditures per capita: total is \$2,845 per capita and higher education is \$295; only Massachusetts has higher figures at \$4,140 total and \$518 higher education.

The U.S. is experiencing an increase in angel investing and crowdfunding. As the barriers to entry and overall costs of starting a new firm (especially in media and software) lower, fewer firms need VC-level investment but turn to angel funding. The number of angel groups in the US increased by more than 30% from 2009-2013, and individual angel investors increased by 22% over the same period. Although not all angel funding is disclosed, the Center for Venture Research at UNH has reported that the U.S. angel market grew from \$17.6B in 2009 to \$24.1B in 2014. Crowdfunding levels have grown at an annual rate of more than 110% to almost \$70 billion in 2015. Although there are well known crowdfunding sites that use donation, reward, or royalties to attract large numbers of small investors, most of the “crowd” in the marketplace actually consists of institutional investors.

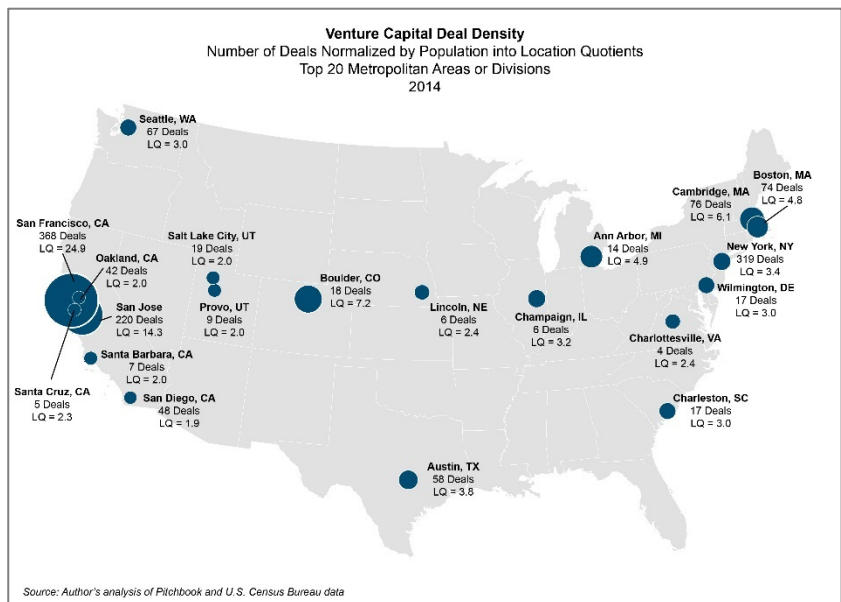


FIGURE 6. EARLY-STAGE VENTURE CAPITAL: MORE REGIONS GET IN ON THE ACTION, BROOKINGS INSTITUTE REPORT, 2015

Connecticut

In 2016 the National Science Foundation ranked Connecticut seventh in R&D expenditures and sixth for science and engineering doctorates in the workforce. The state is also sixth on the Milken Institute's State Technology and Science Index (2016). The State has two top ranked R1 Research Universities: Yale University and University of Connecticut (UConn). According to NSF data, UConn's R&D expenditure were \$259,397,000 in 2015, a 15% increase from 2006 Yale's R&D spending grew 78% to nearly \$803 million during the same period. Nine other institutions (Wesleyan, Fairfield, Southern Connecticut, Connecticut College, Trinity, University of Hartford, Eastern Connecticut, University of Bridgeport and Western Connecticut) add \$26 million in research expenditures, up 22% since 2006.

Characteristic	Connecticut		U. S.
	Value	Rank	
All employed SEH doctorates, 2013	10,800	23	717,600
S&E doctorates awarded, 2014	564	23	40,588
SEH post-doctorates in doctorate-granting institutions, 2014	1,431	13	63,446
SEH graduate students in doctorate-granting institutions, 2014	7,558	23	588,952
Total R&D performance, 2014 (\$millions)	10,219	14	451,631
State R&D expenditures, 2015 (\$thousands)	55,817	7	2,210,820
Business R&D performance, 2014 (\$millions)	9,093	10	331,222
Academic research space, 2015 (thousands sq. ft.)	3,782	19	214,575
Higher education R&D performance, 2014 (\$millions)	1,032	20	63,721
SBIR awards, 2015	65	18	4,534



TABLE 1. NATIONAL SCIENCE FOUNDATION, 2016

In contrast to the four-year trend of declining federal research funding, the state of Connecticut increased its funding, from \$47,405,244 (2014) to \$55,816,52 (2015). In fact, Connecticut was one of five states that accounted for 66% of the \$582 million of intramural R&D performed by state agencies in FY 2015: New York (\$242 million), California (\$55 million), Florida (\$45 million), South Carolina (\$22 million), and Connecticut (\$22 million).

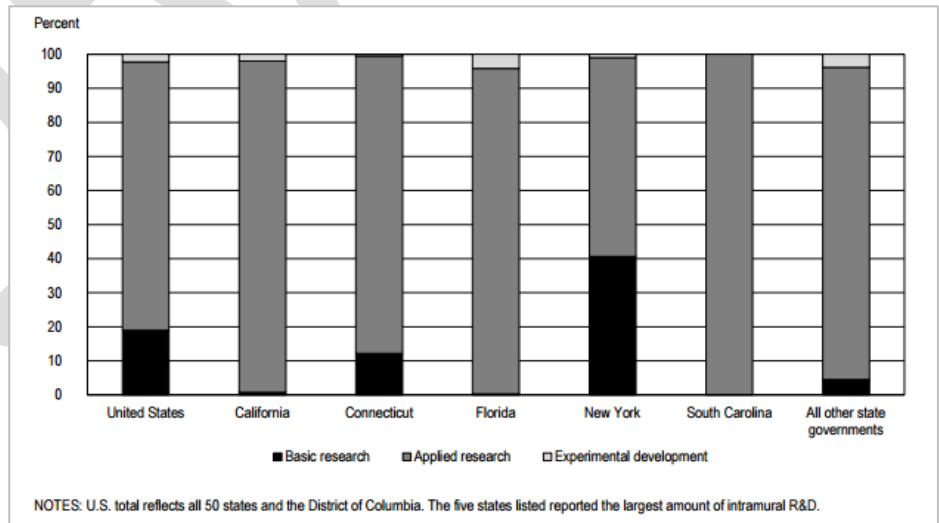


FIGURE 7. STATE GOVT INTRAMURAL R&D FUNDING, BY TYPE. INFOBRIEF, NCSSES, DECEMBER 2016

Changing Nature of Work and Economic Development

Innovation in the form of rapid technological disruption has transformed many industries almost overnight. Job creation and growth industries today are fundamentally different than they were 30 or 40 years ago. The fastest growing industries such as biosciences, software, or engineering require post-secondary education in the STEM fields and U.S. degree production in those fields are not keeping up with demands.

Simple manufacturing jobs, now automated or exported, have nearly disappeared, leaving behind jobs that require skills and training beyond high school, but an education system that is more expensive and often unattainable for many. Although service industry jobs provided the bulk of the post-recession recovery, they do not provide the wages or middle-class stability that STEM-related jobs provide. Technology and global wage competition have also created “gig economies”, upending the “one job for life” baby boomer and replacing them with self-employed ‘consultants’ with multiple jobs and low job security. Large companies, to keep pace with competition and technology and to develop new products, have flattened their structures and increasingly expect their employees to be ‘intrapreneurial’.

In its 2015 Executive Opinion Survey, the World Economic Forum emphasized this trend, noting that “the changing nature of work is among the most important trends influencing economic stability worldwide.” Changing work was followed by the effects of mobile Internet/cloud (34%) and the use of big data (26%). Respondents noted that the affects would be felt almost immediately (1-5 years).

Industries

Knowledge products are now driving today’s markets. In 1980, tangible assets like buildings, equipment and inventory made up 80% of the S&P index. In 2016, intangible assets - patents, trademarks, brands, research and software – represented almost 80% of the S&P 500 Index. This is seen clearly in surveys of global economic competitiveness.

In 2015, the U.S. Council on Competitiveness interviewed hundreds of executives to develop a list of most promising global industry trends. ‘Predictive Analytics,’ ‘Internet-of-Things’ and ‘Advanced Materials’ were considered the most promising in the United States. The Organization for Economic Co-operation and Development (OECD) also released their global science and technology outlook in 2016. Both lists are STEM research and software driven.

U.S. Council of Competitiveness 2015 Trends	OECD Science & Technology Outlook 2016 Trends
Internet of Things	Additive Manufacturing
Energy Efficiency	Advanced Energy Storage Technologies
Materials, Alloys, and Metals	Artificial Intelligence
Ceramics and Composites	Neuro-technologies
Advanced Robotics	Nanomaterials
AI and Machine Learning	Macro and Nano Satellites
3D Printing	Synthetic Biology
Critical Materials (clean energy)	Internet of Things
Bio-Based Polymers	Blockchain (underlies cryptocurrency)
Virtual Design, Prototyping, Augmented Reality	Big Data Analytics

FIGURE 8. INDUSTRY TRENDS

Workforce

Innovation is critical for company competitiveness, but companies cannot innovate without a trained workforce, especially STEM professionals. In 2014, the President’s Council of Advisors on Science and Technology estimated that the U.S. would need approximately a million more STEM professionals over the next decade than are currently projected, to retain competitiveness in science and technology. According to the National Science Foundation, the proportion of Science and Engineering (S&E) degrees compared to the general pool of bachelors, graduate and PhD degrees has remained roughly constant over the last twenty years.

Nevertheless, In ‘*Revisiting the STEM Workforce*’, the National Science Foundation emphasized the critical need for a broad pathways approach to education in the U.S. that can adapt to rapidly evolving workforce needs.

“Innovation is not the sole province of R&D workers. Although companies engaged in R&D activities report a higher incidence of innovation, most of the innovation in the U.S. occurs in firms that are not significantly engaged in R&D.” National Science Foundation.

Creating new pathways that support entrepreneurial students and faculty can be an opportunity for higher education institutions to attract and retain students. According to the Kauffman Foundation, in 1985, there were only 250 courses offered in entrepreneurship in the U.S. In 2008, that number had grown to 5,000. They have become so much of a draw that U.S. News and World Report now ranks business schools entrepreneurship programs. Schools such as [Babson College](#) have turned Entrepreneurship into a flagship program with a global reputation. Teaching Innovation as a mindset university-wide is a growing trend around the country. Preparing students to be innovative and entrepreneurial does not end at the door of the business school anymore. Students ranging from nurses to artists may want to open their own business or patent a new idea.

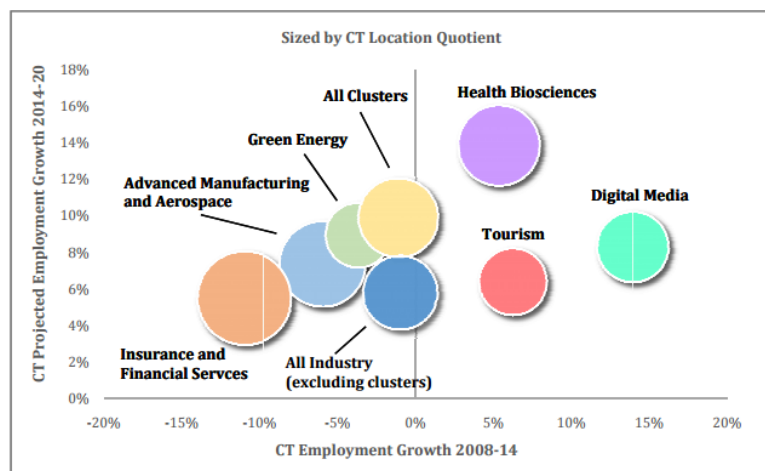
“The teaching of entrepreneurship has moved from the margins of higher education closer to the mainstream, developing rapidly.”

Kauffman Foundation, *Entrepreneurship Education Comes of Age on the Campus* (2013)

Connecticut

The state’s largest economic clusters are primed to take advantage of nearly all of these global industry trends.

Healthcare/BioScience, Advanced Manufacturing, Digital Media, and Green Technology clusters in the State of Connecticut are major drivers of the State’s economic development strategy. Major employers include Aetna, Electric Boat, EMCORE, Eversource, Premcor, Priceline Group, Sikorsky Aircraft, United Technologies, and Xerox.



Source: Connecticut Economic Resource Center, 2015

FIGURE 9. CONNECTICUT ECONOMIC RESOURCE CENTER, 2015

The growth of STEM-related industries means a skilled workforce and the development of related companies are both strong factor in workforce development strategies broadly, and in particular, Connecticut. Talent shortages means companies formed by in-state research efforts may decide to locate to Boston, New York or even California. Despite being the 'insurance capital of the world' the Global Insurance Accelerator - a mentor-driven business accelerator designed to foster startups in the global insurance industry – is in Des Moines, Iowa.

The state supports extensive workforce development efforts, including STEM-related efforts such as OWC's Skills21 STEM curriculum program, the Eastern CT Manufacturing Pipeline Initiative, and CT Innovation's Technology Talent Bridge program. With more than 35,000 Biosciences jobs in the state, groups like CURE help connect companies with talent. The state has also been connecting small businesses to the global market; the DECD has awarded grants for export-related activities allowing small businesses to travel, for example, to Germany to participate in Medica, the leading international medical device trade show, and Hannover Messe, the world's largest industrial technology trade show.

Higher Education Institutions across Connecticut have been focusing on increasing STEM-related degree programs, and increasing STEM-literacy across their campuses.

Supporting entrepreneurship and innovation at higher education institutions is part of the solution. No longer just an attractor for business students, E&I is increasingly integrated across university departments, emphasizing critical thinking and experiential learning. Students outside of business schools learn that they can start a business doing what they love. University-wide entrepreneurship centers and makerspaces, new curriculum initiatives, and events like business plan competitions encourage students to think creatively about career possibilities.

Starting in the 1980s, technology transfer offices were tasked with protecting the IP created by university researchers through patents or copyrights, and licensing these technologies to private sector companies. Today's tech transfer offices retain these responsibilities, with many broadening their roles to include active marketing of university IP to the private sector, more active management of IP once it is licensed, and negotiation of research partnerships with industry players. These offices have evolved from largely reactive, transactional centers to far more proactive entities.

Connecticut's universities have a proven record of successfully supporting companies developed from research discoveries. Faculty entrepreneurship is good for economic development: new companies strengthen business networks and local economic clusters, seed new ones, and attract more students and faculty to the state, creating positive feedback loops.

University of New Haven

Since 2011, the University of New Haven has been an active member of a select group of institutions in the the Kern Entrepreneurial Engineering Network (KEEN), which fosters an entrepreneurial mindset in engineering students. The goal is for KEEN schools to identify, nurture, and develop entrepreneurially minded engineers who will contribute to our national economic prosperity and secure individual fulfillment. Examples of initiatives include:

[KEEN Integrated e-Learning Modules](#)

[Imagination Quest](#)

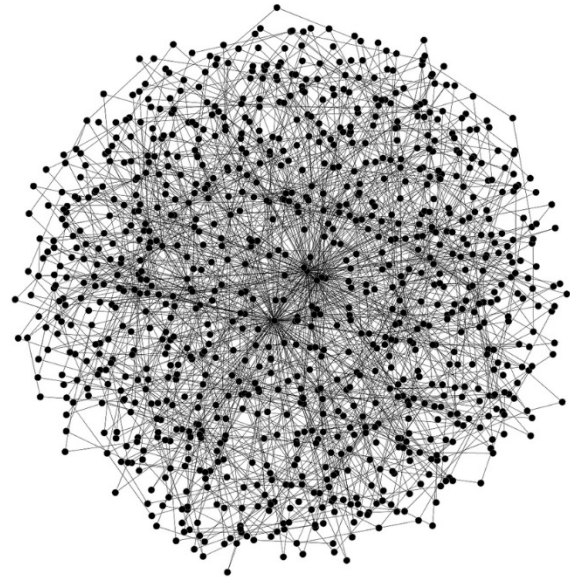
[Engineering Curriculum Model](#)

DRAFT

Part 2. The Higher Education E&I Ecosystem in CT

Introduction

The E&I ecosystem is complex. No two institutions, states, or countries have the exact same framework, goals, or elements, evolving and adapting to their environment. Like the Internet, the system is dynamic: nodes and links shift and grow, formed by professional interests, shared resources, policies, even friendships. The system includes universities, investors, small businesses, foundations, government agencies and industry organizations. Support services can be capital (grants, seed funding, investors), space (co-working, labs, makerspaces), and advisors and mentors (accelerators, tech transfer offices, entrepreneurs-in-residence, peer networks, internships). Nodes and hubs vary in size and collaboration varies too. Sub-networks develop, creating hubs around specific industries or products, company stage, or just geographic location.



Although higher education ecosystems vary, a 2014 benchmarking study out of the MIT/Skoltech Program identified two ecosystem typologies. Research universities support top-down ecosystems, focused on research commercialization and technology transfer. Bottom-up systems are found at all types of universities and focus on education and developing the “spark” of innovation and entrepreneurship in their communities. The study suggests that, despite differing priorities the two models can work together by:

- Expanding university or regional E&I metrics beyond research outputs to measure culture, capacity and connectivity.
- Leveraging the power of strong grassroots and student entrepreneurial movements; they make strong connections with local and international networks.
- Reducing isolation and combine resources; Many universities work in isolation from each other and from the community, each struggling to build capacity and connections on their own.

Bottom-up: Focused on regional capacity, it is usually led by students, alumni and entrepreneurs in the regional economy with a desire to stimulate regional economic growth and create jobs.

Top-down: Focuses on income from university research, driven by a strong technology transfer office. Building on university research strengths, this model focuses on university policies, budgets, incentives, and curriculum.

FIGURE 10. MIT/SKOLTECH ANALYSIS OF ECOSYSTEMS

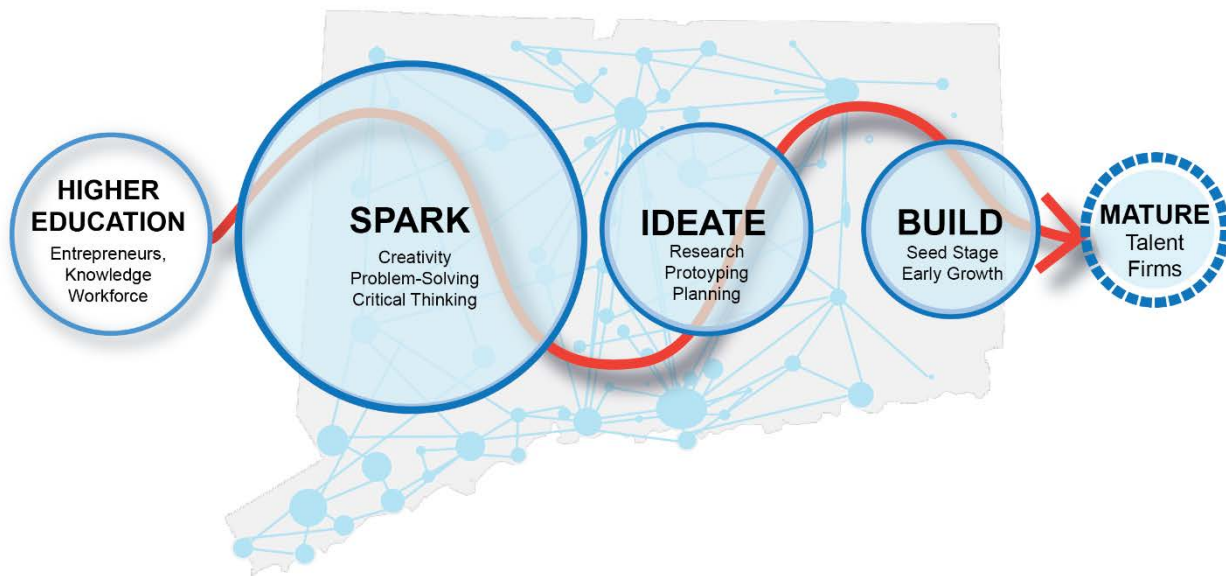
Successfully integrating these models, however, calls for developing common objectives and formal infrastructure that leverages, but does not rely solely on informal networks. The Kauffman Foundation recommends purpose-focused “catalytic events” such as business plan competitions or conferences to strengthen partnerships and involve local alumni networks

Focusing on regional economic development also ties the two models together in a virtuous circle. New companies – whether built from ideas in research labs or student centers, help support the economy. Institutions depend on the existence of healthy local economies to attract students, and communities need healthy anchor institutions to support local businesses and enrich the community. The University Economic Development Association (UEDA) and the Association of Public & Land Grant Universities (APLU) strongly support regional economic development. In 2015, they jointly published a report called “Higher Education Engagement in Economic Development: Foundations for Strategy and Practice” laying out principles and strategies for higher education engagement in economic development. The framework consists of three overlapping elements: Talent, Innovation, and Place. Six of their ten guiding principles focus on innovation and entrepreneurship, explicitly linking them to institutional missions and active economic engagement.

- UEDA and APLU Higher Education Engagement in Economic Development Principles related to E&I:**
- Embed Engagement, Innovation, and Entrepreneurship across Institutional Missions
 - Value and Promote Scholarship across a Continuum of Discovery and Application
 - Engage in Regional Innovation Ecosystems
 - Facilitate 21st century Knowledge Creation at the Intersections, Collusions, and New Fusions of Academic Disciplines
 - Affirm that, In Innovation and Engagement, Humanities, Arts, Social sciences, and STEM Disciplines are Vital
 - Innovate Continuously in Teaching and Learning Practices

Elements of a successful system

Without pathways, navigating the system can be confusing. The system is also inherently messy, involving many variables and risks such as new markets and disruptive technologies, and no pay-off guarantee. Despite the



stories of the 'lone wolf' building a giant firm in a garage, in reality a successful venture requires advice, teams, resources, and human networks. In higher education institutions, students are usually new to the system and research faculty are typically not interested in it. However, as vibrant, supportive, and densely linked communities, higher education institutions are ready-made nodes and entry points into the E&I system. With partnerships and collaboration, higher education institutions also create a sub-network in which students and faculty benefit from the strengths of other nodes and the economies of scale of combined resources and stronger networks provide.

A successful ecosystem creates a dynamic culture of entrepreneurship that includes elements to support multiple pathways from idea to action... and eventually to new companies and a workforce that strengthens Connecticut's economy. Pathways must navigate through:

- **Spark** –Exposure to the values and potential of innovation and entrepreneurship through a campus ecosystem. This can include education, experiential learning, events, and mentors programs;
- **Ideate** – Not every innovative idea turns into a new venture, but when they do people need learn how to plan and test those ideas. Students and faculty can find out how through programs at campus entrepreneurship or small business centers, institutes, and makerspaces. At this stage, they can get the focused attention of faculty, entrepreneurs-in-residence, alumni and other contacts that help them move their ideas towards reality.
- **Build** – Sources, particularly financial, that take allow a company to scale up their proof of concept into a viable business. Once the idea has viability as a business plan, many ventures need the financial and support services found in incubators, accelerators, technology transfer office, and access to national funding networks.
- **Mature** – New firms that stay in Connecticut and find a knowledge workforce who are innovative, critical thinking problem solvers who understand the challenges of the 21st century economy.

Connecticut has examples of all these elements and partnerships found in a successful higher education E&I ecosystem.

The CT Ecosystem

The analysis of working group meetings, interviews, site visits, and the written survey responses (80% response rate) across the state reveal that the CT higher Education E&I Ecosystem is extensive, and growing.

The system consists of 43 institutions, including 13 in the CSCU, 19 private universities, 10 state university campuses and 1 federal academy (Coast Guard). Those 43 institutions have 168,000 students (131,000 undergraduate, 30,000 graduate) and employs 48,000 residents (12,000 faculty, 36,000 staff).

The greatest strength and weakness of Connecticut's Higher Education E&I ecosystem is its variety and diversity. The mix of public and private institutions around the state also support a diverse economy, which in turns means increased stability, resiliency, flexibility, and economic development. Each institution translates innovation and entrepreneurship through lens made out of their unique combinations of resources, students, and faculty. In fact, innovation and entrepreneurship are themselves lens through which to assess the education and service

missions of higher education. From that perspective, every institution has courses and programs that develop critical thinking and problem solving – the mindset of an entrepreneur. During interviews over the last four months, stakeholders revealed that more programs and entrepreneurship center programming are in development, and tours of science and engineering labs revealed exciting research projects and industry partnerships with the potential for break-through products. New and expanded degree and certificate programs prepare students for starting new companies, and career opportunities in STEM employment sectors. Students, faculty and administrators expressed enthusiasm and commitment for the value of entrepreneurial mindsets on their campuses as well as the value of student and faculty retention and new ventures to grow the state economy.

However, surveys and interviews also revealed an uneven, relatively young ecosystem. Although some organizations in the state ecosystem are firmly established, many are new. Some, including most makerspaces and co-working spaces, are still under development. Many of the non-higher education elements are also new. As a result, the overall state ecosystem is diverse and growing.

The system also exists in a largely suburban state structured around small towns and regional identities. This poses a challenge for any group endeavoring to build a statewide entrepreneurial culture and identity. Partnerships and collaboration must cross barriers including traditional institutional insularity, distance and transportation, regional economic disparities, and a simple lack of awareness of each other's strengths.

Many institutions are building their E&I network in relative isolation, relying on the passion of campus leaders to champion campus initiatives with relatively few resources; many observed that the entrepreneurial spirit reveals itself in these champions, who have doggedly pursued new opportunities for their communities. The disadvantage of a bottom-up structure of volunteers with limited top-down infrastructure parallels the plight of entrepreneurs - without access to resources and larger networks expansion is stymied.

At institutions, top-down support from executive administrators competes with education mission imperatives and other fiscal priorities. The kick-off meeting for this planning process was the first time in memory that all the university presidents had gotten together to discuss a statewide topic of common interest. The success of this working group presents an opportunity to launch further discussions on how to incorporate innovation and entrepreneurship into the academic mission. With increased awareness of the E&I ecosystem comes the opportunity to gain greater leadership support to pursue innovative partnerships and commitment for infrastructure investments. Another "top-down" barrier is support from academic departments. Most interviewees highlighted the importance of developing a culture of entrepreneurship and innovation across departments. Successful partnerships will need both academic and administrative infrastructure support to grow programs.

With the state trending towards net losses of prime student-age residents aged 18-24, the real or perceived competition for students or income was an anticipated challenge that did not materialize. Although some schools do compete for the same pools of local students, and every institution has budget constraints, no one interviewed thought they were significant barriers to collaboration. They all recognize that certain types of programs or

initiatives need a critical mass of students or researchers that their campuses cannot provide. No one disagreed that their institutions could benefit from larger networks and strong collaborative partnerships.

Higher Education Partnerships and collaboration that leverage all these resources and create new linkages would help strengthen the entire ecosystem and build new pathways for growing talent and new firms in Connecticut.

The following section breaks down the existing assets of the state's higher education E&I ecosystem via their roles along the E&I pathway. 'Spark' includes education, training, campus events, mentor programs, and student-run organizations. 'Ideate & Build' includes centers, incubators, accelerators, and commercialization infrastructure. Although many of these may overlap programmatically, the pathway reflects the movement down the "funnel" from the wider effort to build a culture of innovation, exploration and entrepreneurship down to the selective and focused programs created for entrepreneurs who launch companies.

Spark Education



Education provides the spark for innovation and entrepreneurship. In addition to coursework that develop entrepreneurial business skills, institutions have been integrating innovation and entrepreneurship across campus.

Higher education in Connecticut has responded to the increased demand for entrepreneurial courses by offering Entrepreneur studies, in the form of certificates, minors, or majors, around the state. The 19 schools of business throughout the state handle the bulk of Entrepreneurship based support services and related coursework and others have new programs under review.

Nearly half (11 of 21) of the state's four-year degree-granting institutions currently offer concentrations, minors and/or majors in entrepreneurial studies. Most institutions offer degrees through their business schools. Examples include [Quinnipiac University School of Business](#), [University of Hartford Barney School of Business](#), and [University of Bridgeport Ernest C. Trefz School of Business](#). A few have started to expand the concentration to all students. UCONN, for example, give all students access to the [minor in creativity, innovation and entrepreneurship](#) at the School of Business.

Nine community colleges, such as [Gateway Community College](#) and [Norwalk Community College](#), have either an Entrepreneur Certificate or Small Business/Entrepreneurship Concentration, generally housed within Business Administration programs.

Endowed faculty positions and funds also reflect the value of entrepreneurship and innovation in education in Connecticut: UConn has the Wolff Family Chair in Strategic Entrepreneurship at the School of Business. At Yale,

there is the Yale School of Management Shanna and Eric Bass '05 Director of Entrepreneurship and the Blavatnik Fund for Innovation. Western Connecticut State University has the Constantine S. Macricostas Entrepreneurial Endowment Fund. In addition, the New England Journal of Entrepreneurship is published twice annually by the Jack Welch College of Business at Sacred Heart University.

Institutions are also incorporating experiential classrooms into their curriculum. Some experimental classrooms and centers include: Trinity's Investment Club, Fairfield's Business Simulator (BEST) Classroom and the Ansell Learning Commons at WCSU. Yale recently opened the Center for Teaching and Learning, to gather students from all disciplines to collaborate. Gateway Community College is the only institution that houses the local SCORE center on its campus and is an example of a private and public collaboration between education and business support services. Other ideas include the incorporation of new technology, such as the '3D Innovation & Entrepreneurship Course' at Central Connecticut State University.

At Fairfield University, engineering students must participate in the Walk on Water Competition. Teams of students put their skills to the test in a kinetic, project-based design challenge that has them build a contraption that must "walk on water" to get them across a pool in record time.

Manufacturing Training

Many of the Community Colleges have sought out collaborations and partnerships with local manufactures, often tied to the Advanced Manufacturing Programs on campus. Manufacturing programs are also seeking out ties to the maker movement, which celebrates the creativity and value of making **things**. When surveyed by SBIA in 2014, manufactures cited the top 6 needed workforce skills: critical thinking and problem solving (98%), engineering (94%), robotics and automation (93%), CNC programming, (93%), CAD/CAM (92%), and technical writing/comprehension (91%).

In addition to offering training certificates, the CSCU's [Advanced Manufacturing Technology Centers](#) offer connects to local technical high schools and has a strong relationship with the Smaller Manufacturers Association. The Eastern Connecticut Advanced Manufacturing Technology Center at Quinebaug Valley Community College is another example of how Community Colleges are leveraging their local assets. The [College of Technology](#) (COT), helps students at 12 community colleges with associates in engineering or technology to transition to bachelor's program at CSCU, Fairfield University, University of Hartford, UConn, and University of New Haven. COT's Next Generation Manufacturing Center is a National Science Foundation Center of Excellence, providing resources for both students and educators. The RCNGM, in partnership with CT Business & Industry Association, has held two [Maker Faires](#) at Tunxis Community College.

Fairfield University Entrepreneur-in-Residence (EIR)

Now in its fifth year, Fairfield University Dolan School of Business hosts an Entrepreneur-in-Residence who mentors students in the Fairfield StartUp Competition, advises investors, guest speaks in entrepreneurship classes and lines up other mentors to engage with students. This year, the EIR is Scott DePetris FU '99, a founding member of Portware, LLC, now part of FactSet, Inc., and a serial entrepreneur.

UConn is also building the new CT Manufacturing Simulation Center (CMSC). CMSC, working on a subscription model, will give small and medium sized manufacturing businesses access to modeling technology for a fraction of the cost of installing their own equipment. The center will provide advanced computational design, modeling and simulation equipment in state-of-the-art facilities.

In addition to coursework and training, institutions in Connecticut are fostering campus-wide innovation and entrepreneurship through mentor programs, campus-wide open events and competitions, student-run programs clubs, university-wide institutes and centers, business incubators, and accelerator programs.

Mentor Programs

Nearly every surveyed school described an established system for connecting interested students with mentors. While some are ad hoc Career Services assistance, others host more formal program tied to other E&I programs across campus. Schools of Business or campus incubator centers offer most of formal mentor programs for curious entrepreneurs. Some programs are implemented campus wide as soon as students enter their first semester, other institutions connect students with mentors through their degree program internship/fellowships, or specifically when they seek out advice on business ideas and planning. Mentors can be faculty members, senior students, alumni, entrepreneurs-in-residence, or local business owners.

Over 15 two-year and four-year institutions have established mentor networks. Yale University, using the licensed MIT Venture Mentoring Service, has a very successful mentor program that has also helped strengthen local alumni ties. UConn and Fairfield have modeled their own programs on Yale and others hope to set up similar programs. University of Bridgeport and Connecticut College are both examples of institutions with intensive four-year programs designed to link students with mentors at the very start of their college career. Albertus Magnus's Practica program and internships network students with over sixty vetted businesses mentors. Asnuntuck, Quinebaug Valley and Northwestern Community Colleges manage networks of local manufacturers who serve as mentors to Advance Manufacturing students.

MIT Venture Mentoring Service uses a team mentoring approach with groups of 3 to 4 mentors sitting with the entrepreneur(s) in sessions that provide practical, professional advice and coaching. VMS mentors are selected and matched to students and faculty based on their experience as well as their enthusiasm. Mentors are required to subscribe, in writing, to a Statement of Principles.

Eight institutions currently have dedicated Entrepreneur-in-Residence Programs. The programs support experts who are given a year or two-term residence to support students and faculty interested in starting businesses.

Student-run Organizations

Twenty-four institutions responded that they have a student run organization focused on business, entrepreneurship or social justice; thirteen organizations are dedicated Entrepreneur Clubs. UCONN hosts a variety of student run organizations such as the UConn Consulting Group (UCG), International Business Society

(IBS), Student Entrepreneurial Organization (SEO), and Women in Business (WIB). Trinity's Investment Club give students access to a real fund and the responsibility to invest in various stocks, bonds and companies.

SCSU hosts the Connecticut branch of Conscious Capitalism, a national organization with state chapters that focuses on developing businesses that are ethical, noble and inspire people to do good. [Conscious Capitalism](#) frequently hosts public events that bring panelists from all sectors of business together to discuss how to improve the state and local area. [KAI Wesleyan](#) is the student run non-profit organization that focuses on promoting social entrepreneurship on campus. KAI supports an internal Fellows program offering additional support services to student social initiatives and projects.

Campus Events

Three-quarters of institutions around Connecticut host campus-wide entrepreneurship related events. Examples of events include lecture series, week long summer intensives, boot camps, and networking series. Six institutions host [Startup Weekends](#), which are collaborative and where participants from all majors have the opportunity to attend lectures, speak with local entrepreneurs, participate in competitions and network with like-minded peers from multiple schools. An example of wide scale collaboration is the ten institutions who participate in the [New Venture Challenge](#). It is organized by members of the Connecticut Consortium of Entrepreneurship Educators (CCEE). The Spring 2016 challenge included 110 students from eight colleges and universities.

Other programs are based on Lean LaunchPad. An example is the Fairfield University StartUp program. The fall events are geared toward recruitment, engagement, and active learning experiences in professional networking, business modeling, and pitch making. The spring calendar prepared students for the StartUp Showcase in early April. Connecticut Innovations (CI) also launched an accelerator program in 2012 led by the Westport-based co-founders of Lean LaunchPad.

Competitions are popular events that bring together students from all different backgrounds to create new ideas, make stuff, pitch business plans, and network. Half of the survey respondents stated that their institution either participate in the statewide business plan competition run by the Entrepreneurship Foundation, the Shipman and Goodwin Elevator Pitch Contest, or the CT Technology Council's CT Skills Challenge. Students also attend national competitions such as [Watson Analytics Global Competition](#) (WAGC) and [MassChallenge](#). Some institutions host internal competitions for their students. Students also attend other competitive events such as hackathons. The Stamford Hackathon hosted by the Stamford Innovation Center in 2016 focused on smart city transportation software and its success led to two more: the first was hosted at the University of Bridgeport and the second at MakeHaven, a maker space in New Haven. [UConn](#) Entrepreneurship and Innovation Society hosted their second HackUConn in 2017. At Sacred Heart, students in their Intro to Business course must team up and work on a

New Venture Challenge

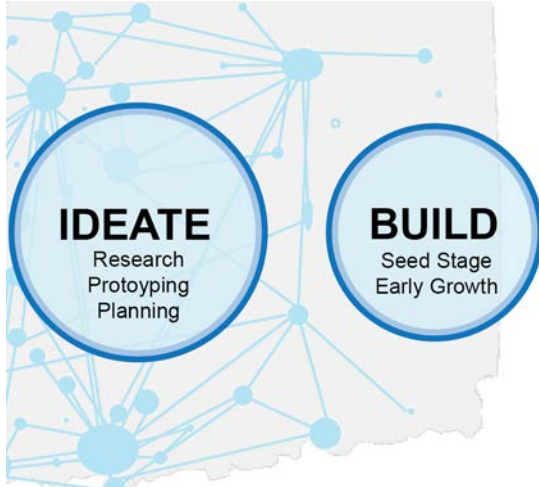
Participating schools:

1. Albertus Magnus College
2. Central Connecticut State University
3. Fairfield University
4. Gateway Community College
5. Housatonic Community College
6. Quinnipiac University
7. Southern Connecticut State University
8. University of Bridgeport
9. University of Hartford
10. Western Connecticut State University

business plans and present in front of a panel of faculty judges. The selected top 9-10 groups go on to present their plan to local entrepreneurs and business leaders.

Students and faculty may also attend events hosted by groups such as Inventors Association of Connecticut (IACT); Crossroads Venture Group - CVG and Angel Investor Forum, CT Technology Council, and CT Next.

Ideate & Build



Centers, Incubators and Accelerators Programs

Many Higher Education institutions in Connecticut have turned entrepreneurship and innovation into a campus-wide initiative, with institutes and centers that serve as hubs for education, business services, events, and mentors, as well as serving as a pathway to incubators and accelerator programs. Incubators are non-profits (on or off campus) that provide work and lab space for early-stage ventures at reduced rents and business support services such as legal advice. According to the National Business Incubator Association, there were over 1,250 incubators in the U.S. in 2012, up from only 12 in 1980. Ventures 'graduate' when

they grow (or fail). Traditional campus incubator centers are generally open to all enrolled students and, in many cases, to the local community. Services offered to the local community can include marketing and branding advice, tax preparation and workshops. Incubators are not co-working spaces, which are designed to build communities for consultants and contractors who want office space outside their home. Accelerator programs are designed to move early stage ventures into the next phase with intensive (weeks or months long) programs that help them build their companies, give them a network of founders, and introduce them to new funding opportunities. Some, like Y Combinator in Silicon Valley, provide seed funds and services for an equity stake. Others, like Yale's YEI Fellowship Program, provides stipends but not equity funding.

University-wide hubs are growing in Connecticut. There are over ten in the state, and three more plan to open in 2017 at SCSU, WCSU and Northwestern Connecticut Community College. Existing campus centers include UCONN's Connecticut Center for Entrepreneurship and Innovation and Connecticut Entrepreneurship and Innovation Consortium, Yale Entrepreneurial Institute, Quinnipiac Center for Innovation and Entrepreneurship, and the Viscogliosi Entrepreneurship Center (VEC) at Manchester Community College. Yale University hosts a number of student-focused innovation centers, including InnovateHealth Yale, Yale Center for Business and the Environment, and the Yale Center for Engineering Innovation & Design. These all provide opportunities for entrepreneurial students from every departments to interact and work together. Some, like

The YEI Fellowship is an 8-week intensive summer bootcamp for incubating ventures. Approximately 10 teams are chosen each year in a highly competitive process.

Each accepted team receives:

- \$15,000 stipend
- Mentors
- Access to Legal, accounting and marketing corporate advice
- Introductions to venture capitalists
- Pitching instruction and opportunities
- Weekly speakers and Community building activities

the Entrepreneurial Center at University of Hartford, the Small Family Business Center at the University of New Haven, and the SCORE center at Gateway Community College are open to community members, as well. Thanks to Google Hangouts, Small Business Development Centers (SBDC) services are available for students, faculty and alumni throughout the state as well, though they are do no specifically target students or early-stage ventures.

Centers like the Patricelli Center at Wesleyan & Holleran Center at Connecticut College focus on social entrepreneurship, supporting 'practical idealism' among students who want to address the world's social and environmental problems. They offer seed grants and fellowships to help get social initiatives off the ground. Other institutions, such as Yale, UConn and ECSU support events or programs on social entrepreneurship.

In Bridgeport, [Comradity](#) is a shared Incubator Space between Sacred Heart and University of Bridgeport. University of Bridgeport also supports the incUBator. Sacred Heart also has a campus incubator center which houses the Welch Experience Program. This university supported initiative hosts 5-6 student run startups per year and provides student run businesses have access to funding, mentoring, concept development, and marketing services. UConn and the University of Hartford as supporters of Innovation Destination: Hartford, a regional consortium. The Viscogliosi Center at Manchester Community College, The GREAT Center at Gateway, and the soon to be open (2017) Entrepreneurial Center of Northwest Connecticut are examples of incubator centers at the community college level. Using the resources at campus centers and mentor programs, students and faculty can also tap into the state-wide [incubator network](#), which has thirteen members including Hubcap in Wallingford, reset (social enterprises) and CTECT, at the Science Park in New Haven.

Proof of Concept Support, Technology Transfer, Commercialization

Proof of Concept Support, Technology Transfer and Commercialization services focus largely on supporting faculty innovation and laboratory discoveries. Five institutions (UConn, SCSU, Yale, UB, Fairfield) offer faculty services for the licensing of intellectual property while three others stated that they have systems in place to provide services via outside consultants or on a case by case basis. The reason is simple – the vast majority of Connecticut's colleges and universities do not support research, or perform enough to warrant dedicated offices of support.

The [Technology Incubation Program](#) (TIP), with 32,000 square feet of wet labs and office space, had a record year in 2016, attracting a record \$39.9 million in debt and equity.

[Frequency Therapeutics](#) \$9.1 million; 2017, \$32 million Series A funding announced

[Diameter Health](#), \$2.3 million

[CaroGen Corp.](#), \$2 million

[Agrivida](#), \$21 million, Series E funding

With 80% of the state's R&D focused on biosciences, support for the sector goes beyond IP and licensing support to incubator and accelerator programs including UConn's Technology Incubation Program (TIP) in Farmington and Avery Point, and the CURE Commons, in Groton. They support new commercial ventures with affordable laboratory space, extensive services and access to programs like the [CURE](#) Program in Innovative Therapeutics for Connecticut's Health (PITCH) and funding sources like Connecticut Bioscience Innovation Fund (CBIF). At Yale, which has twelve institutes in the biosciences, supports extensive bioscience innovation infrastructure, including the Blavatnik Fund for Innovation, which bridges the gap between early-stage life science research and

biomedical product commercialization with competitive grants of up to \$100,000. The Yale Entrepreneurial Institute has a business workshop series just for biotech researchers.

UConn Technology Commercialization Services (TCS) is the university's technology transfer enterprise. As part of the Office of the Vice President for Research, TCS works closely with internal and external stakeholders, and maintains a particularly close affiliation with the UConn School of Business, Center for Entrepreneurship and Innovation (CCEI) to operate Accelerate UConn, and the UConn NSF I-Corps Site. TCS and its network collaborate to support technology transfer and venture development based on student and faculty innovations. TCS currently provides services for entrepreneurial training, intellectual property protection, technology licensing, mentorship, business startup, technology incubation, and connections to the investment community. As one of the State's centers of entrepreneurship, TCS provides these resources to external stakeholders as well. UCONN's SPARK Proof of Concept Program (Supporting Innovative Translational Research and Pathways to Commercialization) is a two-phase proposal process with a \$400,000 fund.

Yale's Office of Cooperative Research (OCR) is responsible for supporting and managing the universities extensive E&I ecosystem, technology transfer services, portfolio of intellectual property, local and industrial relationships,, and other venture development services. Yale supports new ventures with the YEI Fellowship (a bootcamp for startups), the YEI Innovation Fund (pre-seed funding), and prize competitions.

Fairfield University does not take equity stakes in startups developed on campus but does have explicit guidelines for the commercialization of products developed by faculty using campus resources. UHART has an established network of outside consultants brought in ad hoc to help with the licensing of intellectual property.

Examples of products or start-ups

- **Asnuntuck Community College:** AMTC used its Additive Manufacturing technology to provide Senior Aerospace with prototype parts which ultimately led to the campus purchasing additional equipment to further develop parts.
- **Charter Oak State College:** Has launched eTutoring.org and ePortfolio, programs designed, produced, and marketed on campus.
- **The College of Technology** – A collaboration of all twelve Community Colleges and 8 Public and Private Institutions. Examples of concepts in 2016:
 - Embedded Microcontroller Design Project- (University of Hartford, Quinebaug Valley CC, Tunxis CC, Norwalk CC, Central CT State University, University of Connecticut)
 - Traveling Oasis - University of New Haven, Gateway CC, Quinebaug Valley CC
 - Smart Guitar V2 – (Gateway CC, Middlesex CC, Tunxis CC)
- **Fairfield University:** The FUEL Center currently hosts Cometa Works, Crowdflik, and eSolutionsOne and since its inception in 2013 the has supported over a dozen different startups/companies
- **Quinnipiac University:** Treatment for MVID, Check Samples system, Diagnosis system for pancreatic cancer, Cervical Incontinent product, a Game to help young women chose birth control method, etc

- **Sacred Heart University:** The Welsh Experience Program currently supports six student run startups. Current companies are The Peak - Ice Cream shop and student lounge; Nantucket Buckets a Clothing and beach apparel; Twin Tides – Clothing; Sonus - Digital Music Remastering Software; Madely Clean - Residential Cleaning Service; and Agora Bookshelf - Textbook Exchange Service
- **University of Bridgeport:** Patent -Bike Helmut with right and left signal blinkers, My Air Streamer, Cross Cultural Education, Yayci Nail Lacquer, Tuccipolo, Car Wash
- **UCONN:** Holds over 500 patents, more than 75 active technology licenses with industry. Selected patented technology and startups can be found on the [Innovation Portal](#). Current UConn startups include Lambdavisision, Mobile Sense™ Technologies, ActualMeds Corp and Amastan.
- **University of Hartford:** Developed a patented Rehab Walk Assist System currently installed at a Hospital in New York City, is funding three patents from faculty research and has a four year design process in the school of engineering that encourages students to design viable products during their four years of coursework.
- **University of New Haven:** Rapid detection technology for Lyme disease, Tri-sol (three-in-one) solar energy pane, Solar powered traffic lights, Rapid detection of health of HVAC ducts
- **Yale:** A venture list is found on the Office of Cooperative Research [site](#) lists current and previous ventures. Examples from the current cohort from the student Venture Creation program include HemoState, Shopthisfeed, Practice Portal, and Zerit

How CT Stacks Up Against National Practices

Entrepreneurship and innovation can be unleashed anywhere. When asked, most people identify Palo Alto (Silicon Valley), Boston (MIT) and New York City as hot spots for entrepreneurship and innovation– but they are not the only answers anymore. The trend to harness the potential from technological disruption has spread around the globe, a race to capture growth and job creation at local and national levels. The White House hosted the first Global Entrepreneurship Summit in 2010 and this year the Summit was by India. In 2009, The Kauffman Foundation hosted the first Global Entrepreneurship Congress in Kansas; this year representatives from 173 countries were at the ninth Congress, hosted by South Africa. Nationally, every state is trying to tap into entrepreneurship and innovation as the new lodestone for economic development. In Connecticut, CT Innovations runs seven funds for start-up capitalization and CTNext provides guidance, resources, and networks to accelerate their growth.

Underlying this transformation is a workforce that needs to tap into post-secondary education to take advantage of these opportunities. By 2020, 70% of new jobs will require education beyond high school. As a result, higher education has a large role in the growth and success of entrepreneurs and an innovative economy.

Resources and networks for promoting student entrepreneurship and innovation as well as research commercialization has grown exponentially over the last 15 years. Over 2,200 universities offer E&I programs and The Kaufmann Foundation's Campus Initiative, (from 2003 – 2013) leveraged a \$100 million to develop interdisciplinary entrepreneurship education at schools ranging from small liberal arts colleges to large research

universities. Reflecting on the impact of the initiative, the foundation observed that it shifts in campus-wide mindset and culture changes encouraged educators to think of themselves as “change-agents”, catalyzing economic “value” beyond the bottom line to include social and intellectual value.

With so many technology transfer programs and educational offerings across the United States, how does the Higher Education ecosystem in Connecticut stack up? The short answer is – good, but it could be better. There are many examples of best practices in the state ripe for more peer-to-peer knowledge exchange. Some institutions like Yale or UConn have extensive ecosystems of their own, with resources for both students and scientists tied into national networks like the NSF iCorps program. Most institutions in the state have some research activity, but not on a scale that warrants extensive commercialization support services. Other institutions are starting new programs or expanding their offerings on shoestring budgets. Most institutions are in the middle, with small but active campus programs for students. Entrepreneurial centers and makerspaces are expanding campus outreach beyond business schools and tapping into the creative ideas of chefs, engineers, artists and students who might not otherwise think of themselves as entrepreneurial. Institutions are tapping into national resources like the Kaufmann Foundation or MIT's Venture Mentoring Service, going to national conferences, investigating new pedagogical ideas, and adopting and modifying best practices to meet the needs of their students and faculty. There are over twenty-five examples of existing partnerships that all point to a growing higher education network in the State. A couple are statewide, many are collaborations of more than two institutions, and a few reach out to their local communities. But a network with strong nodes and limited connections is more accurately a collection, not a true system. Broadening and deepening the statewide network is critical to address economic development needs.

A flourishing Higher Education E&I system needs the same resources as a start-up company with an idea and a business plan: Access to larger communities of like-minded individuals; a strong network of mentors; and a structured ‘accelerator program’ to help it tap into resources and funding to grow, test, and broaden its market reach.

Promoting Statewide Ecosystems

The [American Jobs Project](#), a national research project from the Berkeley Energy and Climate Institute, developed a database of best practice policies that help strengthen state innovation ecosystems. The following examples are best practices that could be leveraged to support higher education collaboration and partnerships:

Innovation Voucher Programs: State governments provide funding for competitive application process that connects businesses with in-state research scientists. The New Mexico Small Business Assistance Program helped 2,341 businesses gain access to technology at the Sandia or Los Alamos National Labs. In Tennessee, the state's \$2.5-million innovation voucher program connected businesses to Oak Ridge scientists.

Equity Crowdfunding Portals. An alternative to state-financed venture funds or a work-around to address reduced levels of federal research dollars. Examples include Wisconsin's CraftFund, and crowdfunding portals at Penn State and UC Santa Cruz. Sites that researchers can raise funds directly on include Experiment.com and

scifundchallenge.org. These resources do not always have the checks and balances of federal research funds but can fill gaps for young scientists who find it hard to compete for federal funding.

State-matching grants for Federal Funding. These grants match funding by the federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. Kentucky, Virginia and North Carolina are examples of states with these programs. Connecticut Innovations/CTNext from 2012 thru 2016 provided matching funds to SBIR/STTR Federal awardees to help fill the gap and further advance the commercialization of technologies. While the matching program has been paused due to the transition of CTNext as a wholly-owned subsidiary of CT Innovations, CTNext continues to provide comprehensive technical assistance to companies cultivating a strong pipeline of SBIR/STTR companies winning Federal R&D grants. In addition, the state of CT has been awarded the Federal And State Technology Partnership program (FAST) grant consecutively for the last 7 years ensuring access to underserved and under-represented communities within the SBIR/STTR program.

Foundation Liaisons. Foundations award billions of dollars that could be tapped to support strategic E&I ecosystem initiatives. In Michigan, the state legislature created a cabinet-level, non-partisan position to work with elected officials, the business community and foundations to build partnerships and strategic collaborations. The program could be extended to coordinate with higher education institutions to leverage their foundation and corporate relationships and community investment strategies.

Innovation Districts. Encouraging sustainable town-gown relationships and strategic collaborate on innovation district initiatives. CTNext Innovation Places Grant program is currently in the competitive implementation application phase.

Promoting Student and Faculty Entrepreneurship and Education

Connecticut institutions are already using best practices; they are just not all widely adopted yet. Connecticut has an extensive list of education options including entrepreneurship majors, minors, and certificate programs available for business majors and non-business majors. Schools also offer a wide array of programs that promote E&I to students and faculty. Universities already use best practices like **Lean Launchpad (VentureWell)**. Multiple schools and the Connecticut Consortium of Entrepreneurial Educators (CCEE) partner with local companies and foundations like **Kaufmann Foundation** to sponsor non-credit events like **Start-Up Weekends**, Business Plan Competitions and Hackathons modeled after national programs. Over ten schools support Entrepreneurial Centers and more centers are on the drawing board. Start-up Incubators range in size and resources, tapping into local entrepreneurs in addition to university students and researchers. Many institutions have formal mentor programs. The **Yale Entrepreneurial Institute** has many examples of best practices, including their mentor program, based on **MIT Venture Mentor Services**.

Other great examples in CT include:

- [Accelerate UConn](#) (NSF I-Corps Site)
- [CCEI Mentor Program](#)
- [Consortium of Entrepreneurship Educators, New Venture Challenge](#)

- [Norwalk Community College's Entrepreneurship & Workforce Development Initiative](#)
- [Patricelli Center for Social Entrepreneurship](#)
- [Sacred Heart's Lisa Powell Memorial Endowed Scholarship Fund \(female entrepreneurs\)](#)
- [Southern Connecticut State University BioPath](#)
- [UConn Entrepreneurship Bootcamp for Veterans with Disabilities \(EBV\)](#)
- [UConn Minor in Creativity Innovation and Entrepreneurship](#)
- [UConn IQ Competition](#)
- [University of New Haven E-learning Modules Supporting Entrepreneurially Minded Learning](#)
- [University of New Haven Kern Entrepreneurial Engineering Network](#)
- [WCOB Innovation Center's Problem-Based Learning Lab](#)
- [Yale Entrepreneurial Institute](#) (Licensed MIT Venture Mentoring Service)
- [Fairfield University Entrepreneur-in Residence and Investor-in Residence program](#)
- [Quinnipiac Center for Innovation and Entrepreneurship](#)
- [University of Bridgeport Faculty Research Day](#)
- [Gateway GREAT Center](#)
- [Advanced Manufacturing Technology Centers](#)

Promoting Research, Technology Transfer and Commercialization

The state has two R1 Research Universities, Yale University and the University of Connecticut. Five institutions (UConn, SCSU, Yale, UB, Fairfield) explicitly offer their faculty services for the licensing of intellectual property while three others have stated that they have systems in place to seek out these services via outside consultants or on a case-by-case basis. The largest are UConn and Yale. At UConn the Technology Commercialization Services (TCS) has successfully launched over 50 companies. As part of the Office of the Vice President for Research, TCS works closely with internal and external stakeholders, and maintains a particularly close affiliation with the UConn School of Business, Center for Entrepreneurship and Innovation (CEI) to operate Accelerate UConn, the UConn NSF I-Corps Site. TCS currently provides services for entrepreneurial training, intellectual property protection, technology licensing, mentorship, business startup, technology incubation, and connections to the investment community. UCONN's SPARK Proof of Concept Program (Supporting Innovative Translational Research and Pathways to Commercialization) is a two-phase proposal process with \$400,000 of available funding.

At Yale, the Office of Cooperative Research is responsible for managing their portfolio of intellectual property covering over twelve areas including biotechnology, medical devices, medical diagnostics, photonics and microsystems, energy and the environment, information technology, nanotechnology, therapeutics and biological tools like mice models and cell lines. There are currently fifty new bioscience related ventures and 41 products in the pharmaceutical pipeline including six that have gone to market for HIV/AIDS, Hepatitis B, Cancer, Lyme Disease and ADHD. They offer consulting and support for scientific discoveries and inventions, and connects researchers with industry partners such as Johnson & Johnson and GSK. The OCR also manages the Yale

Entrepreneurial Center (YEI) and the Blavatnik Fund for Innovation at Yale, which bridges the gap between “innovative, early-stage life science research and successful development of high-impact biomedical products.”

The smaller scale of research at other institutions makes it more difficult to support commercialization infrastructure. Five other universities have IP Policies, and support discoveries with ad hoc services using outside consultants.

Examples of Multi-University Consortia:

Georgia Research Alliance [GRA](#) is a nonprofit organization that works with the Georgia's Department of Economic Development and universities to seed and shape startup companies that come out of university research. Partners include The University of Georgia, Augusta University, Emory University, Clark Atlanta University, Georgia Institute of Technology, Georgia State University, Mercer University, and Morehouse School of Medicine.

Ohio Research Network. [The Ohio Federal Research Network](#) leverages the strength of ten world-class public and private research universities, industry, and four federal labs to help revitalize the state's economy for the 21st century.

ICorps Nodes. Unlike ICorps Sites, Nodes are multi-university consortia that support regional needs for innovation education, infrastructure, and research. Both sites and nodes are part of the NSF National innovation Network, created in partnership with VentureWell. Regional Nodes are found in Massachusetts (MIT, National Collegiate Inventors and Innovators Alliance), and New York (CUNY, Cornell)

Southern Tier Startup Alliance. [The Southern Tier Startup Alliance](#) is a consortium of university, state and business incubators in southern New York with the purpose to support growing companies in the region. The incubators partners include Cornell University and Binghamton University, Rev in Ithaca, Corning Ceramics Corridor Innovation Centers, Ithaca Start-up Works, and The Center.

Virginia Innovation Partnership. Funded as part of the U.S. Department of Commerce's [i6 Challenge](#) in 2012, the Virginia Innovation Partnership brings together 17 universities and community colleges with corporations, investment capital and other resources. The partnership has a yearly goal of funding 20 projects at the \$40,000–\$80,000 level, or about \$800,000 a year.

Ben Franklin Technology Partners. [Ben Franklin Technology Partners](#) seeds innovation and economic growth in the Greater Philadelphia region. They have invested \$170M and have launched over 1,750 companies and created 3,900 jobs since 2001. Partners include 29 regional university partners.

Part 3. Roadmap: Recommended Initiatives and Funding Priorities

1. Establish Collaboration & Partnerships

Building a robust ecosystem for entrepreneurship and innovation in Connecticut requires cooperation and collaboration among the State's institutions of higher education. Partnerships provide a powerful mechanism for tapping into existing assets and scaling up limited resources. They also empower a shared sense of purpose, and create a stronger community of students, faculty, researchers, and administration.

Criteria

- A minimum of two higher education applicants per proposal, preferably one public and one private;
- Partnering with non-higher education organizations involved in local, regional, or state-wide entrepreneurship and innovation;
- Creating regional or state-wide programs or initiatives that support all institutions of higher education or a significant subset with aligned interests; or
- Expanding leadership and peer networks to promote state-wide cooperation and collaboration

2. Engage in the 21st Century Economy

Higher Education institutions are a major economic force in Connecticut, providing jobs and services as well as serving as the wellspring of the state's workforce. Today, like every economic sector, Higher Education faces disruptions and challenge due to global economic trends, national policies, and technological innovation. By 2020, 70% of jobs in the state will require post-secondary degrees, and those jobs need new skills to compete in the 21st century economy. The states' fastest growing industries such as healthcare/bioscience and digital media, as well as crucial "[Main Street](#)" businesses - our local, established businesses typically with 50 employees or less - need entrepreneurial skills, and the state's economic success depends on their continued growth.

Criteria

- Encourage student and faculty innovation in growth-oriented industry clusters (identified in the 2016 Connecticut Economic Development Strategic Plan): health/bioscience, insurance and financial services, advanced manufacturing; digital media; and green technology;
- Support the vitality of Connecticut's "Main Street" businesses by catalyzing entrepreneurship skills and mindsets at the 'academy' for the benefit of local and regional communities.

3. Educate an Innovative Workforce

Achieving the dream of opportunity and social mobility in 21st century America means adapting to trends like the growth of STEM jobs (6.2% of all U.S. employment in 2015), and the impact of technological innovation on traditional business models. Preparing students to navigate these challenges requires a culture that fosters

entrepreneurial and innovative thinking. The 2015 Strategic Master Plan for Higher Education in Connecticut laid out the essential skills ('educational outcomes') of an innovative workforce: Inquiry and analysis; critical and creative thinking; written and oral communication; quantitative literacy; information literacy; and teamwork and problem solving.

Criteria

- Expand E&I Community of Practice to strengthen knowledge sharing, collective learning, and resources for staff and faculty;
- Increase E&I educational pathways and integrate E&I more broadly across institutions;
- Enhance non-credit learning environments and programs that support budding entrepreneurs;
- Expand local mentor programs that inspire and support the entrepreneurial spirit.

4. Expand 'Development' Infrastructure

Historically, U.S. research universities played a major role in stimulating innovation through basic research while private industry dominated R&D. Applied research development at universities has grown steadily since 1980 (Bayh-Dole Act) and tech transfer is now a major pathway for connecting universities with industry partners. New companies and partnerships that result from university R&D support the local economy and entice students and researchers to live locally. Connecticut, with two R1 universities, 18 of the Fortune 500 companies and a top-five ranked educated workforce in the country, takes advantage of these opportunities. However, capitalizing on the statewide economic potential of research requires additional infrastructure and resources to identify products and promote faculty entrepreneurialism.

Criteria

- Create state-wide faculty/staff resources to encourage knowledge sharing;
- Promote academic cultures of entrepreneurship;
- Expand access to commercialization infrastructure for all academic researchers, including proof of concept support and technology transfer services.

Priorities for Funding

The Working Group prioritized initiatives for funding that build relationships and increase statewide capacity.

Priority 1: Communication & Building Relationships

Working Group members acknowledged that linkages between higher education institutions are uneven and often missing. Inter-institutional relationships must overcome institutions' natural focus on their mission and, despite the small size of the state, entrenched regional cultures and limited public transportation networks. Building stronger peer relationships creates the necessary conditions to encourage new collaborations for capacity building, the second priority of the group.

Face-to-Face Convenings

Members suggested regular, more structured networking and learning platforms for face-to-face peer interactions. These events should capture as many participating institutions as possible to broaden relationships and help build a statewide culture of entrepreneurship. A broader network, in turn, will lead to new ideas for partnerships and opportunities for students and researchers to meet and explore collaborations beyond their respective institutions. Preferred Initiatives include: Formal State Conferences (multi-track); Regional Symposia; and, Thematic Workshops. Examples of best practices include the [Ashoka Foundation Exchange](#), the [Global Entrepreneurial Summit](#), and [SXSW](#).

State-wide 'Portal' for Higher Ed Resources

Although many institutions have created their own institutional portal, there is currently no statewide portal for all higher education E&I assets and programs in the state of Connecticut. The working group agreed that a statewide platform would help foster awareness and collaboration as well as communicate to prospective students, researchers, and companies the breadth of Connecticut's E&I ecosystem. Examples of best practices include the [Yale Entrepreneurial Institute](#), [The Connecticut Center for Entrepreneurship and Innovation at UConn](#), [Harvard's iLab](#), and [NYU Entrepreneurship](#).

Peer Knowledge Sharing

A key driver of capacity development is knowledge sharing. There is incredible diversity and knowledge embedded at institutions across the state, but limited means for sharing best practices or resources to help educators learn how to integrate E&I into their curriculum, their departments, or across their campuses. Opportunities to attend educate-the-educator conferences and training, as well increasing peer-to-peer interactions will help sustain and build upon the new collaborations or partnerships. Educate-the-Educator best practices include: [Babson College Hub for Entrepreneurship](#)

Priority 2: Building Capacity through Collaboration

The E&I ecosystem in Connecticut is a network of networks, with extensive institutional programs found around the state. Building capacity through collaboration allows institutions to take advantage of economies of scale and invest in programs or assets that would otherwise be difficult to support or expand separately. Underserved

populations gain access to services and resources and new pathways open up to support new business ventures and innovative ideas across the state.

Shared Commercialization Infrastructure

The ability to promote technological innovation at higher institutions is highly dependent on the capacity to demonstrate the commercial potential and market value of a discovery. Successful business plans and commercialization strategies require timely identification of IP, an ability to determine patentability and market opportunity, and access to early funding. Preferred initiatives include:

- Proof of Concept funding that fill gaps between demonstrated research potential and commercialization feasibility;
- Expanded state-wide commercialization infrastructure, including technology transfer services: IP policy training; technology transfer services; state-wide business mentoring opportunities for scientists; partnering events to support formation of commercialization teams and training; and incubator support that promotes access to R&D infrastructure (Core research facilities) statewide

Mentor Programs

Recruiting and maintaining strong mentor networks is invaluable for supporting entrepreneurs and innovators. Higher Education Institutions have the unique capability of tapping into deep alumni networks and industry experts locally, nationally, and internationally. The benefits extend from students and scientists to the university at large, which can benefit from drawing their alumni networks back to campus to work with students or new ventures. Programs range from monthly “coffee with an entrepreneur” events, periodic legal, tax and leadership advice, commitments to incubators/accelerator programs, or one-on-one mentoring. Critical to any mentor program is a carefully crafted system to vet, match and manage mentors to ensure alignment of skills and expectations with startup needs. Preferred Initiatives: Licensing and training for Faculty and Staff; Expanding industry mentor programs to more institutions. Best Practice: [MIT Venture Mentor Service](#), [Blackstone Launchpad at NYU](#), and [GRA Ventures](#).

Regional Hubs

Regional hubs can serve as “one-stop” centers and support a regional “feeder” system. One-stop entrepreneurial centers are physical hubs dedicated to building the E&I community through shared equipment, services and programming and the happenstance of opportunity that occurs when you have a dense hub of like-minded people. In addition to leveraging limited funding at separate institutions, shared facilities can help students and researchers engage with the community beyond campus, encouraging them to explore and stay after graduation. Regional Hubs can function as part of a statewide “feeder system”. After students and researchers with business plans grow beyond the services offered at their respective institutions, regional and state hubs offer advanced venture support services and can connect them to other state and national networks.

One-stop center ideas include: Regional or joint makerspaces; joint hubs with non-academic organization partners, Programs that connect the local community to students and services (e.g. high school students); programs that encourage interaction through experiential learning and problem solving. “Feeder” hubs include venture support services such as: fellowship programs, incubators, and accelerators.

Innovation Education to Attract/Retain Students

By being more entrepreneurial in their academic and administrative practices, universities can help students become independent and innovative risk-takers. The more comprehensively students encounter entrepreneurial concepts and behaviors in their college experience, the more likely they are to assimilate them. A more explicit educational focus on innovation and its implementation—in ways that respect the integrity of the varied academic disciplines—would help encourage university faculty and academic departments to adopt, apply, and assess methods of teaching and learning that foster creativity and originality. Best practices include:

- [Baldwin Wallace Center for Innovation and Growth](#) (KCI)
- [Purdue University Burton D. Morgan Entrepreneurship Center](#)
- [Oberlin College Creativity and Leadership](#) (KCI)
- [Lean Launchpad \(VentureWell\)](#)

Part 4. Measuring Impact

Metrics –How can we measure impact

Post-April 24 Planning Committee Meeting

Part 5. Unexpected Outcomes

Developing a Culture of Entrepreneurism

The Working group repeatedly raised the issue of an “entrepreneurial culture”. The consensus was that despite the available resources and services, Connecticut lacks an “culture of entrepreneurship”. The story of innovation is not a core element of the Connecticut ‘identity’ and needs to be strengthened. Wrok Group members identified a couple of next steps that would contribute to a stronger state-wide culture of entrepreneurship and innovation.

- Communications Strategy: The story of innovation and entrepreneurship in the state needs to be told more loudly. Great storytelling also helps to create a shared sense of purpose and identity. A communications strategy can raises Connecticut’s profile as an entrepreneurial and innovative state with its citizens, as well as nationally and globally.
- State leadership. Expanding Ct Innovation and CT Next collaboration with, and support for, higher education institutions. This could take the form of dedicated initiatives, staff, and/or support for a sustainable higher education-led coalition.

Presidential Leadership

The first meeting of the Working Group was an historic moment: the first remembered meeting of Connecticut’s Higher Education Presidents all in one room. By the end of the meeting the presidents has agreed on the value of the face-to-face convening. By the forth session attendees all agree that sustained regular leadership convenings would be invaluable for issues beyond entrepreneurship and innovation. Although beyond the scope of the

roadmap, the attendees agree to continue discussions around creating some type of annual 'Presidents Council' to discuss strategic issues impacting higher education across the state.

E&I Leadership Infrastructure

During meetings, the Working group also uncovered the need for a long-term sustainable leadership structure to sustain the roadmap's vision beyond the 5year funding cycle and catalyze a statewide culture of innovation and a more robust E&I ecosystem. The group discussed, but did not decide on, ways to shape a multi-tier leadership framework. Ideas included: political support to develop a state culture of innovation and entrepreneurship, a state convener or convening body, a standing administrative working group and/or network to champion E&I on campus; expanded faculty and staff networks to create and sustain new partnerships and collaborations, and finally, more ways to engage students at state leaders. Working Group and Planning Committee members agreed to continue discussions and formulate a preferred framework this year.

Conclusion

Post-April 24 Planning Committee Meeting

DRAFT

Appendix

State Inventory by Institution

Albertus Magnus College New Haven

Interested students at Albertus Magnus College can find support services at the [Center for Teaching and Learning Excellence](#) as well as a variety of mentor and internship opportunities through their [Career Services Department](#). [Wayne Gineo](#) currently serves as their Entrepreneur in residence. Recent campus events included an [Experimental Learning Day](#) where students were able to network with alumni and faculty as well show off their different projects. Albertus Magnus College offers a bachelor's Degree in [Management with an Entrepreneurship Concentration](#). They have various [course](#) offerings that focus on the management and the development of small business. Students also have the opportunity to join the student run [Business Club](#).



Asnuntuck Community College Enfield



ACC's Business Administration department has established a partnership with the Connecticut Small Business Association to offer no cost seminars and a [few credit free classes](#) for local small business owners. Through the [Advanced Manufacturing Program](#) ACC is able to collaborate with local manufacturers and provide students up with on the job training. ACC hosts an event series called [Career Chats with Cat](#) where students can network and hear about ways to improve their business skills. In the past, the Advanced Manufacturing department has worked with local businesses to create aerospace parts which eventually led to the department purchasing additional equipment that generates revenue for the institution. Students will have access to a variety of equipment at the Advanced Manufacturing Technology Center which is currently under construction and slated for a spring 2017 opening. Internships can be obtained through the [Career Services Center](#). ACC offers an Entrepreneur [Certificate](#) and a Business Administration Associate Degree.

Capital Community College Hartford

Students at CCC have the opportunity to get involved with the [Hartford Heritage Project](#) which partners with local businesses and projects in the surrounding Hartford area. CCC has a partnership with Guardian Insurance and opened the Financial Independence to Reach Success and Transformation (FIRST) Center that provides the community financial education, coaching, information and referral services, as well internships for low and moderate income individuals. Students receive hands on experience and can seek



mentors through this project and at the [Advising](#) or [Career Services](#) offices. Students at CCC can pursue an associate degree in [Management](#) with an Entrepreneurship Concentration.

Central Connecticut State University New Britain



CCSU's [Institute for Technology and Business Development](#), located in downtown New Britain, serves as the institution's incubator center. The Center provides a variety of support services to both the local community and students. Faculty in the Entrepreneur-in-Residence program, specifically [Mike Nicastro](#) (EIR), can also provide guidance and connections to resources, both internally and externally for all curious students. Students at CCSU have the opportunity to participate in the annual Shipman & Goodwin Elevator Pitch [Contest](#). This event challenges students to come up with a pitch for a business and deliver it in a short period of time with no visual aids to a panel of judges. CCSU recently offered an intensive for-credit [Entrepreneurship Program](#) course during the summer of 2016. CCSU provides cash prizes and in-kind services to students starting businesses through an internal business plan competition but students also have the opportunity to participate in the statewide [Connecticut Collegiate Business Plan Competition](#), offered in partnership with the [Connecticut Consortium of Entrepreneurial Educators](#). Students also have the option to join the [Entrepreneur Club](#).

CCSU offers a [Management – Entrepreneurship](#) Concentration Bachelor's Degree through the [School of Business](#). Students complete specific Entrepreneurship [courses](#) that focus on the management of small business. Resources to develop business plans are available through the School of Business [Service Center](#) and all students can seek internships as well as mentors through the institution's [Leadership Development Program](#).

Charter Oak State College New Britain

Charter Oak State College offers an online Bachelor's Degree in [Business Administration](#) with a Small Business Concentration. Being an online college, students have the opportunity to be instructed by a variety of [professors](#) with real world business experience. Charter Oak has launched products such as eTutoring.org and ePortfolio that were designed, produced, and marketed by the school. They have also created and sold both versions of the [eTutoring](#) software and versions of a Learning Management system for an online K-12 high school. Career advancement services are managed through the [College Unbound Program](#) as well the [Career Services](#). Students can network at the various fundraising [events](#) hosted throughout the year or join the [Student Association](#).



Connecticut College New London



CONNECTICUT
COLLEGE

Connecticut College offers extensive opportunities and resources for students interested in starting their own businesses. At the institution's [Holleran Center for Community Action and Public Policy](#) students can find a variety of resources to develop their social entrepreneurship ideas as well as attend hosted events. The campus also has [LaunchPad](#), a daylong event about entrepreneurship, innovation, and socially impactful design. Students can join the [Launch Club Organization](#) if they are interested in meeting with likeminded entrepreneurs. Conn. College has a [fully funded summer internship program](#) where students can get hands on job experience with a variety of different organizations and businesses. Conn. College manages an extensive network of [Alumni Entrepreneurs](#) and provides opportunities for students to interact with these former students. Obtaining an [Economics Degree](#) will give students the skill set to analyze how markets function.

Eastern Connecticut State University Willimantic

ESCU partners with various state entrepreneurial organizations and has a campus [Entrepreneur Club](#). ECSU has the [Center for Community Engagement](#) where students can connect with their local community through volunteer services as well as meet local business owners. The institution also provides key faculty in various disciplines to serve as mentors both inside and outside of the business school to help develop entrepreneurial concepts. [The Business department](#) and Career Services Department has a program that connects students and business mentors together on and off campus as well as hosts various lectures and events throughout the year.



[ECSU](#) has an active collaboration with the [Northeast CT Economic Alliance](#) and houses their offices on campus. The institution collaborates with the Alliance in many different ways and with the local chamber of commerce and business as well. [The Northeast CT Economic Alliance](#), Inc. is a regional non-profit 501(c)3 economic development corporation that uniquely serves small businesses in northeast Connecticut by providing loans to new and existing businesses primarily unable to obtain funding from traditional lending sources. ECSU also provides loans and business development resources to both start-up and exiting businesses in the 21-town region of Northeast Connecticut. Eastern hosts a campus work hub of a major insurance company that provides their students with paid jobs and valuable business experience. [The Business department](#) hosts various lectures and events throughout the year that students can also attend. These lectures can help students develop their skills and the opportunity to learn from the local business community.

ECSU is grounded in a liberal arts experience and seeks to offer students a variety of learning experiences in the hopes that they think independently. They believe their approach to education fosters entrepreneurial spirit. They created the [Liberal Arts Work](#) program which further provides students with work experiences. ECSU's [Center for Internships and Career Development](#) also offers students the opportunity to complete internships as well as a chance to work with the established Co-ops and campus partners. ECSU offers a Bachelor's Degree in [Business Administration](#) and students in their third and fourth years can take advanced courses such as [Business Concepts and Entrepreneurial Applications](#).

Fairfield University Fairfield



Fairfield
UNIVERSITY

Fairfield University's annual [Startup Program](#) is a year long program of [events and lectures](#) designed to foster young entrepreneurial talent at the University through engagement with mentors and investors drawn from alumni and local business communities. [Fairfield's Startup Program](#) offers support services for up to 5-6 student run ventures per year. The program culminates each year with the StartUp Showcase where students negotiate live with investors for seed money to start their businesses. Various events include a pitch contest, a business plan competition and the opportunity for students to meet and network. Fairfield also has a [Business Education Simulation and Trading Classroom](#) that gives students the opportunity to interact with the business world through a variety of software programs.

[Fairfield University Entrepreneurship Laboratories](#) (FUEL), housed on campus, is a co-working and accelerator program serving Fairfield University and Town of Fairfield communities. Since its founding in 2013, [FUEL](#) has been home to over a dozen small companies. Current companies in residence are Cometa Works, Crowdflik, and eSolutionsOne. FUEL also offers office space and mentoring to Fairfield StartUp companies in the FUEL Summer Fellows program. FUEL has generated 10 full-time jobs, \$500K in investment, 14 partnerships, and over 20 student internships to date. Fairfield has heavily developed Technology Transfer systems that has helped faculty to further patent and develop their concepts. Fairfield has deeply engrained themselves into their local community by working with the local police department, bookstore and local chamber of commerce creating a symbiotic relationship with their host town. FUEL's openness to serve both the local community and the campus community has been critical to its success. Fairfield U also has a serial Entrepreneur in Residence as well as an Investor in Residence (both alumni) to help further the institution's efforts to foster entrepreneurship in their community.

Students can obtain internships through the [Professional Development Program](#) as well as seek out mentors at the School of Business. Students can interact with their like-minded peers in the [Entrepreneurship Club](#). The Dolan School also helps provide [internships](#) for students and encourages each student to complete at least one during their undergraduate studies. Curious future entrepreneurs can pursue a [Management Bachelor's Degree](#) with a Minor/Concentration in Entrepreneurship at the [Charles F. Dolan School of Business](#). A variety of management courses are offered including [Managing a Family Business](#) and Technology Ventures.

Gateway Community College New Haven

Gateway Community College works in collaboration with the [New Haven SCORE](#) network. SCORE provides a variety of resources to get individual concepts off the ground. Through this collaboration students can also be assigned mentors in the local business community as well attend a variety of different [events](#). The [GREAT Center](#), Gateway Community College's Resource, Education and Training Center, offers fast-paced training in high-growth occupations and builds customized programs to suit the scheduling, budget and professional development needs of local business. This center streamlines certain training services that are essential to running a business and Gateway's Small Business Center Workshops are offered all year long through New Haven SCORE. Examples of workshops include Business Planning, CT Tax Regulations, Insurance, Legal Considerations, Financing, Marketing, Bookkeeping and Websites. Both the SCORE program and Gateway's [Leadership Development Program](#) offer students opportunities to develop their concepts. Students can also attend SCORE [Pre-Business](#) Workshops as well as leverage their many existing partnerships including Veteran Association Vet Biz, SBA, Women Entrepreneurs, the City of New Haven and Yale University Computer Science Department.



Both the SCORE program and Gateway's [Leadership Development Program](#) offer students opportunities to develop their concepts. Students can also attend SCORE [Pre-Business](#) Workshops as well as join the [Students in Free Enterprise](#) organization on campus. They can also utilize the [Small Business Center](#) where they can network and find resources for developing their various concepts. Gateway offers an [Associate's Degree](#) in Entrepreneurial Studies. Students can expect to take a variety of business and management [courses](#) intended to provide the skills needed to run a small business.

Goodwin College East Hartford



Goodwin College houses the bulk of their Entrepreneurial programming within the Business and Manufacturing Center which opened in [2015](#). This 60,000 square foot facility currently houses classrooms, technology space, specialized labs, CNC and Quality training labs and collaboration space for students. A hallmark of the center is the [Advanced Manufacturing Mobile Training Lab](#) which has partnered with the State of CT DECD, CCAT and Pratt & Whitney as well as visited the many of the state's technical middle and high schools. Future plans for the Training Center include creating a Maker Space and a formal incubator center.

Recently Goodwin hosted the [CT Invention Convention](#) event as well as a [Startup Weekend: Education](#). In addition to these events, they are currently sponsoring the [Vital Voices: The T. Boone Pickens Endowed Lecture Series](#) in Education, Innovation, and Entrepreneurship which featured CT Startup Onyx Moonshine's co-founders. Goodwin is also involved with the CT [Manufacturing Advisory Council](#). Students can find a variety of resources as well as

seek out an internships and mentors at the [Career Services Office](#). Goodwin has a unique student run Women Achieving Voices of Empowerment ([WAVE](#)) Club that is specifically dedicated to helping women with finding mentors and networking opportunities.

Goodwin College offers a robust [Entrepreneurship Program](#) through their Business Administration office where students can pursue an Associate's Degree, Bachelor's Degree or a Certificate. They offer specific entrepreneurship [courses](#) that focus on management, communication, people skills, critical thinking, problem-solving, and perseverance.

Housatonic Community College Bridgeport

Housatonic offers two programs which include a Business Administration - Small Business Management/Entrepreneurship Option (Certificate also available) and an Accounting - [Small Business Option Associates Degree](#). Students can join the student run [Business Club](#) as well as participate in the annual [Elevator Pitch Contest](#). Students looking to develop their skills can access internship opportunities at [Career Services](#) or participate in the Experimental Learning Program.



Manchester Community College Manchester



Students can access a variety of networking events and workshops managed by the [Viscogliosi Entrepreneurship Center](#). The [Viscogliosi Entrepreneurship Center](#) provides entrepreneurs and small business owners with opportunities to explore and develop their passion and vision, and hopes to create responsible leadership and viable businesses through innovative and informative educational and networking programs. Students can also participate in the [Voluntary Action Program](#) where they can connect with the local community as well as community organizers and businesses. Students at MCC have access a variety of networking events and workshops at available at the [Academic Support Center](#). MCC also participates in the [CONNTAC](#) program which can offer students additional career planning and mentorship opportunities. MCC offers a Business [Administration](#) Entrepreneurship Option A.S. as well as an Entrepreneurship/Small Business [Certificate](#). Internships are managed by [Career Services](#).

Middlesex Community College Middletown

Students at Middlesex can pursue an Entrepreneurship [Certificate](#) Program or a Business Administration A.S. Degree at Middlesex Community College. Their certificate program has been sanctioned by the United States Small Business Association and offers a combination of liberal arts skills and practical business management skills. MXCC lead marketing professor engages her classes in several marketing/fundraising events each semester, giving them the opportunity to learn about acquiring startup funding and resource gathering. MXCC is also currently involved with the Innovation Places program and has representation on both the Middlesex and MidState Chambers of Commerce. Resources are available for career development through the [Self-Paced Career and Education Planning Tool](#) program. Students also have the opportunity to get hands on experience at the [Center for Civic Engagement](#). The center will provide the opportunity to work closely with the local community. MXCC also participates in the [CT Make a Difference Week](#) which offers students further chances to connect with their community. Internships can be obtained through the [Career Development](#) and Counseling Center.



Mitchell College New London



Mitchell offers a [Business Administration Entrepreneurship Concentration](#) Bachelor's degree. Student will take a variety of business specific [courses](#) geared towards managing and operating a small business. Mitchell offers students various resources through the [Integrative Career Development Office](#) which partners with leading Southeastern Connecticut organizations to enhance its academic programs and increase pathways to professional employment for students. Students can become members of [The National Society of Leadership and Success](#) where further networking can occur.

Naugatuck Valley Community College Waterbury

NVCC has recently outlined a new [strategic plan for the next 10 years](#) that aims to further develop innovation focused programming on campus. NVCC plans to expand seed funding for staff/faculty initiatives as well as other programming that supports innovation on campus.



NVCC is also working closely with area partners on a variety of initiatives. President De Filippis is currently serving as an advisor to the city of Waterbury on their ["Waterbury Innovates Now"](#) Innovation Places Grant from CT Next. President De Filippis is also a member of the Connecticut Technical High School System Board and works closely

with Superintendent Nivea Torres and the technical high schools in the region to share space and ideas about partnerships. As is the case with many other Community Colleges in the state NVCC has a robust manufacturing program that is deeply connected to the local business community. Through these partnerships many students have received the opportunity to get involved with their local business community. The school is also helping to create a pipeline of workers to support these local ventures.

NVCC currently hosts a lecture series called [Campus Conversations](#) where students can connect with a variety of people. Students can join the Accounting, Legal, and Finance Club where they can meet likeminded peers. Job placement and internship services are handled by [The Center for Job Placement](#) and College Opportunities. NVCC offers an Associate's Degree and a Certificate in [Business Management](#). Students can join the [Alpha Beta Gamma Business](#) Honors Association where networking and additional services can be accessed. Additional support services can be found at the [Center for Academic Planning & Student Success](#). Job placement and internship services are handled by [The Center for Job Placement](#) and College Opportunities.

Northwestern Connecticut Community College Winsted



In the fall of 2017 NCCC intends to start a new Entrepreneurial Studies program. Students will be able seek out resources at their new Entrepreneurial Center of Northwest Connecticut and at the NCCC [Center for Workforce Development](#) which is slated to open in

Spring 2017. Programing at the center will include a summer boot camp as well as support services for students who choose to participate in various state competitions such as the [New Venture Challenge](#). The NCCC advisory board for the Entrepreneurial Center of Northwest Connecticut has been meeting since the summer of 2016 to develop vibrant and connected network of entrepreneurs throughout Northwest CT. The strategic goal is to connect established and new entrepreneurs to the [NCCC Center for Workforce Development](#) and provide business development support, education and training to students and the community. Advisers include entrepreneurs, municipal governments, financial institutions, SCORE and the NWCT Chamber of Commerce. NCCC supports the ongoing efforts of the [Northwest Connecticut Manufacturers' Coalition](#) as well as other organizations and individuals that are considered to be key stakeholders in the area. Northwestern offers a [Business & Management Associate's Degree](#) and the courses are taught by [professors](#) with real world small business experience. Students can seek out resources at [The Center for Student Development](#). Career [Services](#) handles the bulk of internship placement as well as any additional services a student may need to help get their concept moving forward.

Norwalk Community College Norwalk



Norwalk has made a commitment to infusing the entrepreneurial mindset on campus through a variety of programming. It starts with their joint membership with the [National Association of Community College Entrepreneurship](#) (NACEE) and the [Entrepreneurship Task Force of the Norwalk Community College Foundation](#). The task force consists of a mix of NCC faculty and board members from the [Norwalk Community College Foundation](#). This task force meets monthly to discuss programming on campus. Currently the NCC Foundation is in their third year of sponsoring a [pitch contest](#) as well as scholarships for entrepreneurial minded students. Screening for the scholarship was based on the student's ambition to open a business within 12 to 24 months. The 15 recipients are awarded [a full year scholarship](#) and 6 coaching sessions with an assigned mentor tasked with aiding in development of their concepts.

Chip Weismiller, former owner of **Ultra Pure** a bulk distillery located in Connecticut, has volunteered 20 hours a week for the purpose of helping to evaluate as well as mentor student entrepreneurs at NCC. He has established 5 phases of concept development that offers a framework for students to develop their business ideas around. Additional programming at NCC comes in the form of an intensive **Summer Entrepreneurship Institute** offered to current students and alumni of NCC. Students that attend receive instruction on how to turn ideas into real businesses while also earning a 30 hour certificate. Scholarships for this intensive are available for up to 15 students. A new The Fab Lab is also in development. It will be managed by the new head of the engineering department and will serve as an incubator space on campus. Plans are in place for it to be open to the community and ultimately function as an Innovation Hub for the Fairfield County Community.

Norwalk also has a Business Administration Degree that is geared towards a student who intends to transfer to a four year institution as well as an **Entrepreneurial Studies Certificate**. Norwalk hosts a variety of **alumni-student networking** events which provides opportunities to make connections with business owners and the local community. They offer every student the **Start2Finish** program which can match students with mentors as well as provide training for skills needed to pursue future career plans. Interested students can join the **Accounting Club** and find internship opportunities through the **Department of Counseling**.

Quinebaug Valley Community College Danielson



Many QVCC faculty members participate in a "Makers' Space" event at Woodstock Academy each year. As is the case with many other Connecticut Community Colleges, QVCC has stated that they believe the [Advanced Manufacturing Technology Program](#) will be the most logical way for their students to hatch entrepreneurial ideas. They have established The [Eastern Connecticut Advanced Manufacturing Technology Center](#) as a central hub for innovation and design. The Center includes a machine lab, mechatronics and metrology lab, classroom, conference space and offices and offers training to both the students and local manufactures. Students at QVCC can pursue an Associate of Science in [Business Administration: Management](#). They will take a variety of business courses such as BUS 218

Entrepreneurship which is intended to help teach the skills needed to open a small business. All internships and mentor services are managed by [Career Services](#).

Quinnipiac University Hamden



Quinnipiac University offers students an on campus incubator, [Quinnipiac Center for Innovation and Entrepreneurship](#). Through several resources and programs for students, faculty, and alumni, the center aims to help turn ideas into viable business solutions. Quinnipiac offers curious future entrepreneurs multiple opportunities to compete both on campus and in national [entrepreneurial competitions](#). QU's entrepreneurial culture embraces multiple disciplines as the university has supported ventures outside the business school including viable products created in both the Engineering and Medical schools. Examples of concepts and products supported include a diagnosis system for pancreatic cancer, cervical incontinent product, a Cryogenic cell prep device and a Game to help young women chose birth control methods. An undergrad at QU even recently won the [EO: Connecticut Business Competition](#) and will represent the state at the nationals in Kansas City later this year.

Students at Quinnipiac University can pursue a [Bachelor's Degree in Entrepreneurship](#) and Small Business Management at the [Lender School of Business](#). QU offers specific Entrepreneurship [courses](#) such as Business Plan Competition and Business Plan Creation. The university employs a number of staff who either currently or [formally](#) ran their own businesses. Quinnipiac also has a variety of student run clubs and [organizations](#) and a dedicated [Career Services](#) Department in the School Of Business.

Sacred Heart University Fairfield

SHU's [Jack Welch Business School](#) offers a variety of hands-on learning opportunities for students including the [WCOB Innovation Center's Problem-Based Learning Lab](#). The Innovation Center was created to help establish connections between the local business community and give students an opportunity to network within these collaborations. SHU also offers students the opportunity to help manage the on-campus [SHU Creamery](#), an ice cream bar and dairy. Recently SHU acquired the [former headquarters](#) of GE and has plans to create an innovation campus that will focus on developing new technology, expanding STEM field studies, and partnering with local health care providers.



Sacred Heart
UNIVERSITY

The bulk of entrepreneurial focused activity and events are managed at the [Jack Welch Business School](#). SHU also funds [student-run businesses](#) through the [Welch Experience Program](#), where support is offered to students through the business creation process. Currently they have six businesses under their umbrella, with applications in review for two more. The Peak - Ice Cream shop and student lounge, Nantucket Buckets - Clothing and beach

apparel Twin Tides, Clothing Sonus, Digital Music Remastering Software, Madely Clean - Residential Cleaning Service, and Agora Bookshelf are examples of ventures supported by the institution.

An example of programing that introduces students to entrepreneurship early is the [BU 121 Intro to Business](#) course offered each semester. During the semester 9 -10 sections of the course that run at once and each section has five teams that must compete with each other to be chosen as the finalist for that section. The 9 - 10 finalists compete in a business plan presentation where they get to present their concepts to local investors/entrepreneurs. The remaining 36-40 teams all create posters and compete in a poster session competition, where winners are chosen. SHU has multiple outlets that serve as incubator centers that offer students the opportunity to develop ideas. Along with the Welsh Experience they even recently got involved the Chrome Cherry an international business incubator with a local office where students can intern and work with real world business owners. SHU even recently became involved in a media promotion [collaborative](#) with the town of Fairfield to help attract businesses to the Fairfield area.

Students also have the option to join the [Entrepreneurship Club](#) and must complete an [internship](#) as a core requirement for graduating from this program. SHU manages a [network of alumni](#) entrepreneurs that students can interact with and network. SHU offers a [Small Business Management and Entrepreneurship](#) Minor for declared Business major students.

Southern Connecticut State University New Haven



[The Business Success Center](#) as well as a new center in development through School of Graduate Studies are examples of where students can seek out support services to develop entrepreneurial concepts. SCSU also offers a [Professional Development Series](#) specifically designed for business students. The series can help students find mentors and partner with local businesses. Students are also encouraged utilize the [Business Advisory Council](#) for additional resources on concept development. SCSU has an established close relationship with Mike Roer of the [Entrepreneurship Foundation](#) who has helped consult on the development of some of their entrepreneurship initiatives. The Business School regularly hosts [events](#) including networking and lectures. Students at SCSU have the opportunity to also participate in the [Connecticut Venture Capital Investment Competition](#) and there are a variety of student run [organizations](#) including the Accounting Society, American Marketing Association, Business School Student Ambassadors, Delta Mu Delta, and Finance Trading Team to join. Students can seek out internships with local businesses at the Internship Job Board located at [Career Services](#) in the School of Business. SCSU offers a B.S. in [Business Administration](#) at the [School of Business](#). Students can choose from a variety of concentrations including courses specifically geared towards the management of small business.

St. Vincent's College Bridgeport

SVC is a nursing school and offers programing for those students who may want to pursue the business end of the medical profession with its [Healthcare Management \(online\) Certificate](#). Course work focuses on the management of various health care services and offices. Students also have access to a [skills laboratory](#) as well as a [Career Service Department](#) that can help students obtain internships in this field. SVC offers a variety of [Career Development Workshops](#) as well as an extensive network of [internship](#) sites for undergraduates.



Three Rivers Community College Norwich



Three Rivers offers a Certificate and an [Associate's Degree](#) in Business Administration with a Small Business and Entrepreneurial Studies concentration. Students can access various resources at the school's [Advising and Counseling Services Center](#). The school's [Service Learning Center](#) gives students the opportunity to interact with the community through a variety non-traditional academic assignments and independent studies. Students also can join the student run [Business Club](#) where they can participate in campus [events](#). Internships and mentors can be sought out at the school's dedicated [Career Services Center](#).

Trinity College Hartford

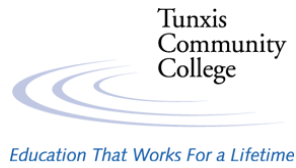
Trinity has many resources to connect students with the Hartford community including a new downtown space in Hartford that will accommodate entrepreneurship programing. The space will be co-located within [Trinity's planned new Liberal Arts Action Lab](#). The [Community Learning Initiative](#) and the [Center for Global and Urban Studies](#) are further examples of how students have the opportunity to work both inside and outside the classroom with active projects in the surrounding area Hartford area. [The Investment Club](#) at Trinity College offers students the opportunity to work with a real investment fund and experience the impact of investing in various real world companies. Trinity has also hosted a campus wide [Entrepreneurship Contest](#) (2014) facilitated by the Career Services Department. Students had the opportunity to submit their ideas and compete for a cash prize during this competition. Recently [Trinity](#) got involved with Hartford's [Innovation Places](#), a program that seeks to create hubs where people can seek out the resources and space to open their own businesses. Trinity



hasan established minor in [Formal Organizations](#) with a track in Entrepreneurship. Trinity's Career [Services](#) department can help students obtain internships as well as help connect with mentors.

Tunxis Community College

Farmington



Students at Tunxis have access to a variety of resources through the [Business Administration Department Advisory Committee](#), a group of professors assigned to provide resources for student growth. TXCC also has a mandatory Eportfolio Program and a [Center](#) where students can create the online portfolio. The portfolio program can also be used to pitch ideas to potential employers and investors. The student run [Business Club](#) serves as an incubator center for students to interact with the local business community. The Club manages a variety of [events](#) throughout the year both on and off campus. TXCC also offers a [Job Shadowing/Mentorship Program](#) so students can get real world experience before graduating. Internships are available through the [Business Administration Office](#). TXCC offers a [Business Associates Degree](#) for students looking for the skills to manage a small business.

University of Bridgeport

Bridgeport

The University of Bridgeport's [Student Entrepreneur Center \(SEC\)](#) at [The Ernest C. Trefz School of Business](#) is open to all matriculated University of Bridgeport students and aims to accelerate the successful development of start-ups. The same center also houses the [CTech IncUBator](#) which functions as one of Fairfield County's only university run high-tech incubator center. The SEC helps students accelerate their vision and connects them with mentors and local business owners. The Mission of the Center is to produce successful businesses by providing student entrepreneurs with an array of targeted resources and services. UB also hosts the [Ubusiness Plan](#) event which has a variety of events that help student entrepreneurs develop their ideas. UB has also been actively participating in the [New Venture Challenge](#) since its inception. Students can join the [Business Club](#) and internships and mentors can be found while completing [Bridgeport's 4-Year Career Development Plan](#). UB offers two different undergraduate degrees; [Management & Industrial Relations](#) (B.S.) (Manufacturing Entrepreneur), [Business Administration](#) (A.A. & B.S.). UB offers a variety of advanced degrees with Entrepreneurship concentrations through their robust graduate school. Options include an MBA, the School of Engineering's MS and PhD in Technology Management with concentrations in technology development and new venture creation. The PhD track offers a concentration in new venture creation plus commercialization in a tech/engineering/STEM field.



University of Connecticut Storrs



The University of Connecticut offers students a wide array of Entrepreneurial Programs and Innovation Services. For example:

- [Technology Commercialization Services](#) is the University of Connecticut's technology transfer enterprise and has successfully launched over 50 companies. As part of the Office of the Vice President for Research, TCS works closely with internal and external stakeholders, and maintains a particularly close affiliation with the UConn School of Business, Center for Entrepreneurship and Innovation (CCEI) to jointly operate Accelerate UConn, the UConn NSF I-Corps Site. TCS and its network collaborate to support technology transfer and venture development based on student and faculty innovations. TCS currently provides services for entrepreneurial training, intellectual property protection, technology licensing, mentorship, business startup, technology incubation, and connections to the investment community. As one of the State's centers of entrepreneurship, TCS provides these resources to external stakeholders as well.
- [Technology Incubation Program](#) (TIP) is a part of TCS, and offers incubator facilities at three locations across the State: Storrs, Farmington, and Avery Point. TIP offers technically-based start-up companies access to a unique range of unparalleled resources, including: Incubator facilities featuring wet labs and access to instrumentation; the opportunity to collaborate with scientific experts; Technically trained student interns, employees, and graduates; the University of Connecticut's world-class library resources; Customized business education events, planning assistance, and mentoring.
- [Connecticut Center for Entrepreneurship and Innovation](#) (CCEI) helps students and faculty become successful entrepreneurs. CCEI has a number of programs aimed at achieving this purpose:
 - [Accelerate UCONN](#) is UConn's National Science Foundation Innovation Corps (I-Corps) Site, with a \$300,000, 3-year grant awarded in February 2015 to help catalyze entrepreneurial teams whose technology concepts are likely candidates for commercialization. Educational programs share the principles of the I-Corps Curriculum on Lean Launchpad methodology. With the support of Accelerate UConn, teams will learn first-hand about entrepreneurship and explore the transition of their ideas, devices, processes, or other intellectual activities to the marketplace. This is a partnership between Technology Commercialization Services within the Office of the Vice President for Research and the Connecticut Center for Entrepreneurship and Innovation.
 - Biomedical Entrepreneurship Initiative allows for graduate students from medicine, engineering, bioscience, nursing, pharmacy, and management take a class to develop entrepreneurial skills, forming teams to launch biomedical companies. This was founded by CCEI Faculty Director, Professor Tim Folta, who was also Founding Director of BIOMEDSHIP, a partnership with Purdue's Weldon School of Biomedical Engineering and Indiana University's School of Medicine to train graduate students around "BIOMEDical entrepreneurship."
 - Summer Fellowship Program awards \$15,000 summer grants for teams to move their businesses forward, along with providing access to professional services and Lean Launchpad training.
 - Innovation Accelerator: Students from different disciplines are placed in teams and assigned a real problem to tackle for a local start-up.

- VERGE Consulting Program: Graduate students work within CCEI to help UConn related start-ups overcome the hurdles of entrepreneurship. This is a partnership with the Small Business Development Center
- Other UConn programs include:
 - [The Entrepreneurship Bootcamp for Veterans with Disabilities](#)
 - [Family Business Program](#)
 - [Project Mentors](#)
 - [SPARK Proof of Concept Program](#) (Supporting Innovative Translational Research and Pathways to Commercialization) A two phase proposal process and \$400,000 of available funding
 - [University Prototype Fund](#) which it will use to fund the commercially viable technology developed by student and faculty.
- UCONN also hosted events that foster entrepreneurial spirit such as the [Connecticut's Conference for Women in Innovation, Technology and Entrepreneurship](#) and the [Wolff New Venture Competition](#). Students have the ability to join various student organizations including International Business Society, Student Entrepreneurial Organization and [Women in Business](#).

UCONN offers a [Bachelor's Degree in Management](#) with an Entrepreneurship Concentration at the dedicated [School of Business](#). Students completing the Entrepreneurship Concentration have the opportunity to enroll in specific [courses](#) that focus on the unique skills needed to manage a small business. UCONN has a full staff of dedicated [professors](#) with a variety of backgrounds in many aspects of business.

University of Hartford Hartford



UNIVERSITY OF HARTFORD

Students at the University of Hartford have access to a variety of resources including the [Entrepreneurial Center](#) that has been in operation for over 30 years. The Student Resource Center and [The Women's Business Center](#) are two more locations where students can seek out support services. UHART has hosted the [Successful Creative Entrepreneur Program](#) and [InnovateHER](#) Business Challenge. Both events offer students opportunities to [compete for various prizes](#) and interact with nationally recognized entrepreneurs. UHART's [Career Ready Program](#) hosts various networking and campus events dedicated towards developing small businesses as well. Recently UHART committed to serving as an anchor partner in the Innovation Places Program along with Trinity, Goodwin and UCONN showing its commitment to collaboration in the city of Hartford.

UHART has successfully funded startups and products. In the last year they funded three patents in as well as set up a patented Rehab Walk Assist System at the [Rehab Department at Montefiore Hospital](#) in Bronx, NY. This system was designed on campus by faculty and students and is considered commercially viable. UHART encourages all disciplines, not just business school students, to think like entrepreneurs. An example of programming outside the traditional business school is the four year [design sequence in the engineering college](#).

The program challenges students to develop a concept fit for commercialization during their undergraduate studies.

Internships are managed through a dedicated [Career Services](#) at the School of Business and students can join many [clubs](#) and organizations including The Young Entrepreneurs Society and The Innovators Group. Students at UHART can complete an [Entrepreneurial Studies](#) Bachelor's Degree at the [Barney School of Business](#). UHART staffs a diverse faculty who specialize in [Management](#). Some unique entrepreneurship focused [courses](#) include Small Business Finance, Seminar in Entrepreneurship, and their mandatory [Internship](#).

University of New Haven West Haven

The University of New Haven's newly created [Entrepreneurship & Innovation Program](#), a university-wide collaborative program for undergraduate and graduate students, offers a cross-disciplinary ecosystem that unleashes student passions through curricular and co-curricular activities, e.g., competitive challenges and events, workshops, courses, a student entrepreneurial organization, that nurtures the entrepreneurial mindset.



University of
New Haven

In the fall, the University hosts an annual [Charger Startup Weekend](#) where students from all its colleges and students from other institutions participate in a weekend of workshops on ideation and customer discovery culminating in a pitch competition. Similarly, in the spring, the University conducts and hosts a [New Venture Pitch Competition](#) that entails a series of weekly workshops with entrepreneurial mentors and faculty members culminating in a pitch competition with financial awards for the top teams to jump-start the commercialization process. Both events, along with the program's workshops, provide students with engagement opportunities with faculty and successful community and regionally based recognized entrepreneurial mentors. The University through the [Tagliatela College of Engineering](#) also participates in the [Kern Entrepreneurial Engineering Network \(KEEN\)](#), which supports innovation and entrepreneurship through a series of programs initially designed for engineering students, but extended, consistent with the University's mission of a multi-disciplinary approach to identifying and solving real-world problems, to students in all university disciplines. The Entrepreneurship & Innovation Program also offers students an opportunity to network and engage with as interns and advise as consultants local enterprises, in addition to engagement through the [Center for Family Business](#) and the recently created [Non-Profit Institute](#), where students are encouraged to put their heart into business. Career development services are available through the [Professional Enrichment Program in Career Services](#). Students also serve as business academic mentors to the local magnet school, The Engineering and Science University Magnet School in West Haven.

While the University currently offers an Entrepreneurship Minor through the [College of Business](#), the [Department of Entrepreneurship and Innovation](#) expects to offer a Minor for academic year 2017 – 2018 by incorporating courses from faculty across the University, all of which are designed to foster the entrepreneurial and intrapreneurial mindset followed, soon thereafter, with a Major consistent with its cross-disciplinary mission. The

University of New Haven is expanding on its commitment to provide facilities to support this entrepreneurship and innovation mission. In particular, students have access to a recently created makerspace in the [Tagliatela College of Engineering](#). In addition, the University recently announced a 2020 campaign celebrating the University's 100th anniversary to, among other things, create a new cutting-edge academic building specifically to foster inspiration, imagination, and innovation, for multidisciplinary student and faculty collaboration.

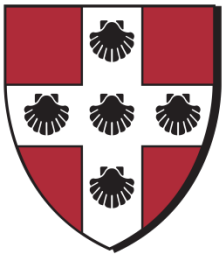
University of Saint Joseph West Hartford



UNIVERSITY OF
SAINT JOSEPH
CONNECTICUT

At USJ students can pursue a Bachelor's Degree in [Business Management](#). Students will take a variety of Management classes along with the core curriculum. All senior management students are required to complete an internship that is facilitated through the [Career Services](#) department. USJ also has an [Accounting and Business Society](#) student run organization. Every year the school also awards one alumni of the program with [The Business and Entrepreneurial Award](#). The event allows students the opportunity to network with entrepreneurs and business owners.

Wesleyan University Middletown



Wesleyan's [Patricelli Center for Social Entrepreneurship](#) supports Wesleyan student [entrepreneurs, intrapreneurs, and changemakers in](#) a variety of ways. Students may participate in the [Seed Grant Challenge](#) which awards \$5,000 Seed Grants to fund the launch or early-stage growth of a Wesleyan-connected project, program, or venture as well as other various [grants](#). The Patricelli Center also has a competitive Fellowship Program where students will develop a variety of business plans and ventures in teams with other fellows. Students can also find ways to connect with mentors at the Patricelli Center and the [Kai Entrepreneurship Club](#). Students can access various resources through the [Kai Wesleyan](#) Entrepreneurship Program. The for-credit program places students together to solve problems and [develop plans](#) over the course of four weeks. Wesleyan manages student internships through the office of [Career Services](#). Wesleyan offers an [Economics Bachelor's Degree](#) for students seeking employment in the business.

Western Connecticut State University Danbury

WCSU hosts an annual [Startup Weekend](#) where students compete amongst each other and have the opportunity to attend lectures and [events](#) geared towards fostering entrepreneurship. Many resources to develop their business ideas are available through the [Ansell Learning Commons](#). WCSU is also in the development phase of a new space on campus that will house the Center for Entrepreneurship, Research, Innovation and Creativity (ERIC). ERIC intends to provide services to support new ventures and help student business get off the ground. Faculty member Dr. Pauline Assenza, Co-Vice Chair of the CT Consortium of Entrepreneurship Educators (CCEE), is involved with integrating the CT Business Plan competition on campus and helped with the creation MGT298 Creating New Ventures course. This programming is a result of the collaboration between the institution and CCEE and shows WCSU's commitment to an expanded focus on E&I programming.

WCSU collaborates with community partners such as [Danbury Hackerspace](#), [Danbury SCORE](#), Danbury region SBDC, Danbury area WBDC and the Danbury Chamber of Commerce. Local businesses periodically ask for assistance with business planning, marketing, or other programmatic help from various faculty members. For instance the Ansell School of Business currently has a Center for Business Research, and the Marketing Club has a group [Agency@Ansell](#) which offers branding assistance for local businesses. Students have the opportunity to connect with mentors through the [Alumni Mentor Program](#) managed at the Business School. WCSU offers a [Bachelor's Degree](#) in Business Management with a Small Business and Entrepreneurial Concentration at the [Ansell School of Business](#). Students can expect to take a variety of [courses](#) specifically focused on the unique set of skills required to manage a small business. Internships and career development are available through the office of [Career Services](#). Students can join several of the available [student organizations](#) at WCSU.



Yale University New Haven

Yale

Yale University offers students a wide array of Entrepreneurial Programs and Innovation Services. For example:

- [The Yale Entrepreneurial Institute \(YEI\)](#) : YEI is a university department that helps entrepreneurs and innovators at Yale start scalable new ventures. YEI offers three dedicated programs for accelerating ventures at Yale from early-stage conception to investable startup: the [Venture Creation Program](#), the [YEI Fellowship](#) and the [YEI Innovation Fund](#), which provides \$100,000 in pre-seed funding. YEI is dedicated to fostering entrepreneurship across all schools at Yale and providing opportunities for students and faculty to test their ideas, develop them with expert guidance and launch companies that can make an impact in their respective industries. YEI resources

include a 150+ Mentor Network; resident entrepreneurs; access to in-kind services from corporate partners in legal, accounting, financial, IP, communications and branding; connections to the angel and venture community; and connections to campus and community entrepreneurship partners. YEI serves as one of Yale's incubator centers and hosts numerous [events](#) throughout the year that foster entrepreneurial spirit.

- [Center for Engineering Innovation and Design](#): serves as the hub for collaborative design and interdisciplinary activity at Yale University. Its goal is to enable the design, development, and actualization of ideas, from the whiteboard to the real world. Students, staff, and faculty from across Yale have access to CEID resources, participate in courses and events, and collaborate with CEID staff on a wide range of projects. See the [one pager](#) for more details about the program.
- [Yale Office of Cooperative Research](#) (OCR)'s mission is to facilitate the translation of research from Yale's labs into products and services that benefit society. Since its founding in 1982 it has built a significant portfolio of inventions and patents and has grown into an engine of regional economic development. OCR is recognized as a leading force for catalyzing economic growth by identifying, counseling and nurturing early-stage technologies and guiding the transition into robust companies.
- Yale offers a graduate degree in [Entrepreneurship](#) through the [School of Management](#). This program more specifically teaches students skills to work on developing and understanding the complexities of managing small business while also supporting a growing network of student entrepreneurs.
- Internships are accessible in a variety of ways including directly through [YEI](#) and also at Career Services.

Additional Collaborations in the State

Innovation Destination: Hartford

ID:H is a coalition of entrepreneurs and service professions dedicated to enhancing the Hartford region's ability to support startups and second-stage entrepreneurs. ID:H has a [Partner with a Professor](#) program that connects entrepreneurs with professors for purpose of technology transfer. Currently ID:H lists UCONN, CCSU and University of Hartford as partner schools. ID:H provides support services in accounting, case studies, exiting, funding, growing, human resources, legal, marketing and public relations.

Entrepreneurs' Organization Connecticut

[The Entrepreneurs' Organization](#) (EO) is a Global business network of 12,000+ leading entrepreneurs in 160 chapters and 50 countries. The Connecticut Chapter recently hosted [The Global Student Entrepreneur Awards](#) (GSEA) where students competed for a cash prize and the opportunity to represent the state at the national competition in Kansas.

Connecticut New Venture Challenge

This [accelerated course](#) open to all students offers the opportunity to solve problems and develop business plans with students from various institutions. The challenge allows students the chance to present business plans and concepts for analysis. Students from different disciplines work together to breakdown complex problems facing the concepts that are presented. Participating schools include CCSU, Fairfield University, Gateway Community

College, Housatonic Community College, Quinnipiac University, Sacred Heart University, Southern Connecticut State University, University of Bridgeport, University of Hartford and WCSU.

Connecticut Bioscience Innovation Fund

[The Connecticut Bioscience Innovation Fund](#) (CBIF) seeks to drive innovation in the biosciences throughout Connecticut by providing focused financial assistance to startups, early stage businesses, non-profits and accredited colleges and universities.

CT Manufacturing Simulation Center

UCONN recently won federal grant money to help [open the Simulation Center](#). Business owners and students will have the opportunity to interact and collectively solve problems. The center will work closely with tech businesses and the School of Engineering when construction is complete.

Connecticut Technology Council

CTC hosts the [Connecticut Skills Challenge](#) with various stages of held throughout the year. It is a coding challenge that connects talented, tech-savvy students to cutting-edge technology companies in Connecticut. The challenge can help connect the institutions and their students with organizations looking to develop new technologies. Last year Central Connecticut State University, Eastern Connecticut State University, Fairfield University, Norwalk Community College, Quinnipiac University, Sacred Heart University, Southern Connecticut State University, University of Bridgeport, University of Connecticut, University of New Haven and Western Connecticut State University were all schools who participated in the event.

Regenerative Medicine Research Fund

Formerly the [Connecticut Stem Cell Program](#), the Regenerative Medicine Research Fund provides millions of dollars in grants each year to scientists and companies who are conducting biomedical, embryonic or human adult stem cell research that shows clinical promise—treatments that will make a real, significant impact on human health.