



Higher Education Innovation and Entrepreneurship Working Group Meeting
Quinnipiac University
Center for Innovation and Entrepreneurship | The Lender School of Business
275 Mount Carmel Avenue, Hamden, CT
Monday, March 27, 2017
2:00 – 3:30 PM

Agenda

1:00 – 1:50 PM Pre-Meeting Tour of QU Center for Innovation and Entrepreneurship

2:00 p.m. Review Objectives for this Meeting:

- Identify strategic priorities for a master plan that expand and enhance innovation and entrepreneurship activities by offering connectivity of current resources, collaboration among multiple institutions and distribution of funds at levels to enable meaningful impact, and
- Recommend initiatives within priority areas that facilitate collaboration and cooperation among higher education institutions on projects that address and strengthen innovation and entrepreneurship.

2:10 p.m. Discuss Strategic Priorities Outlined in Pre-Read:

1. Establish Higher Education Partnerships
2. Engage in the 21st Century Economy
3. Educate an Innovative Workforce
4. Expand 'Development' Infrastructure

2:45 p.m. Facilitated Small-Group Discussions Regarding Potential Initiatives that Align with Strategic Priorities

3:15 p.m. Report out Recommended Initiatives to Group

SAVE THE DATE | Next Meeting:

April 11, 2017 | 2:00 – 3:30 PM: Southern CT State University, New Haven, CT

HIGHER EDUCATION E&I STRATEGIC PLAN

PRIORITIES & INITIATIVES

PRIORITIES

1. Establish Higher Education 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 by creating a learning community of students, faculty, researchers, and administration built around common goals, sharing best practices, and creating new opportunities for entrepreneurship and innovation in Connecticut.

Proposals are encouraged that establish sustainable higher education partnerships through:

- A minimum of two higher education applicants per proposal, preferably one public and one private.

And additionally, through:

- 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
- Establishing regular state-wide communication and networks to promote cooperation and collaboration among institutions to advance the development of this statewide ecosystem at a broader level.

2. Engage in the 21st Century Economy

Every economic sector, including Higher Education, faces new disruptions and the challenge of re-invention due to combinations of global economic trends, national policies, and technological innovation. As a major economic force in Connecticut, higher education institutions not only provide jobs and services, but also serve as the wellspring of the state's workforce. 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. There is a strategic imperative for supporting stronger engagement between higher education institutions with 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 employers or less.

Proposals are encouraged to address Connecticut's 21st century economic challenges by:

- Connecting higher education institutions to the 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; or
- Encouraging the revitalization of Connecticut's "Main Street" businesses by catalyzing entrepreneurship and innovation at the 'academy' for the benefit of local and regional communities.

3. Educate an Innovative Workforce

Access to education is a critical path towards achieving the dream of opportunity and social mobility in America. Today, trends like growth of STEM jobs (6.2% of all U.S. employment in 2015), and the pressure of technological innovation on business models requires higher levels of entrepreneurial and innovative thinking by all Americans. Higher education institutions have responded with new pedagogy and curricula and new ways of engaging with their communities. 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.

Proposals are encouraged that envision support for the education of an innovative workforce by:

- Expanding existing collaborations into a state-wide E&I Community of Practice that allows for strengthening knowledge sharing, collective learning, and sharing resources for staff and faculty;
- Increasing support for E&I educational offerings and pedagogical integration of E&I concepts across institutions; or
- Increasing access to, or improving upon, non-credit learning environments and mentor programs that inspire and support the entrepreneurial spirit.

4. Expand 'Development' Infrastructure

Historically, U.S. research universities have played a major role in stimulating innovation through basic research. However, in Connecticut the lead driver of innovation has been corporate R&D. While the conditions to support the transition from basic research to R&D for commercialization at universities have grown steadily

since 1980 (Bayh-Dole Act), expanded capacity is necessary in Connecticut for university and industry interests to coalesce in support of state economic needs. New companies and partnerships that result from university R&D based on emerging technologies can sustain new and existing industry and entice students and researchers to stay and grow companies locally. With two R1 Research universities, 18 of the Fortune 500 companies, a workforce ranked as one of the top educated populations in the country, and industry strengths tied to the global innovation trends in medical sciences, biological sciences, and engineering the state is well positioned to capitalize on these trends. In addition, twelve other institutions support research in many areas including engineering and bioscience. However, capitalizing on the state-wide potential of basic research requires additional infrastructure and resources to identify products and promote faculty entrepreneurialism.

Proposals are encouraged that support the applied development of research in Connecticut by:

- Creating state-wide learning community resources for higher education faculty/staff to encourage knowledge sharing and promote academic cultures of entrepreneurship; or
- Developing state-wide initiatives that expand access to commercialization infrastructure for all academic researchers, including proof of concept support and technology transfer services.

INITIATIVES

Like any complex system, the higher education E&I ecosystem has many inflows and outflows and a complex set of competitive and collaborative interactions, including access to resources from institutions as they balance mission, vision, and strategy. Like the entrepreneurial spirit this effort is intended to support, stakeholders must identify ways to deliver maximum impact on a small seed budget and identify partnership and collaboration 'prototypes' that build a sustainable framework and community for state-wide collaboration. During this planning process, stakeholders have met this challenge by identifying four types of initiatives that can serve as levers at critical points within the ecosystem:

1. Curriculum Integration
2. Mentor Networks
3. Entrepreneur Centers
4. Commercialization Infrastructure

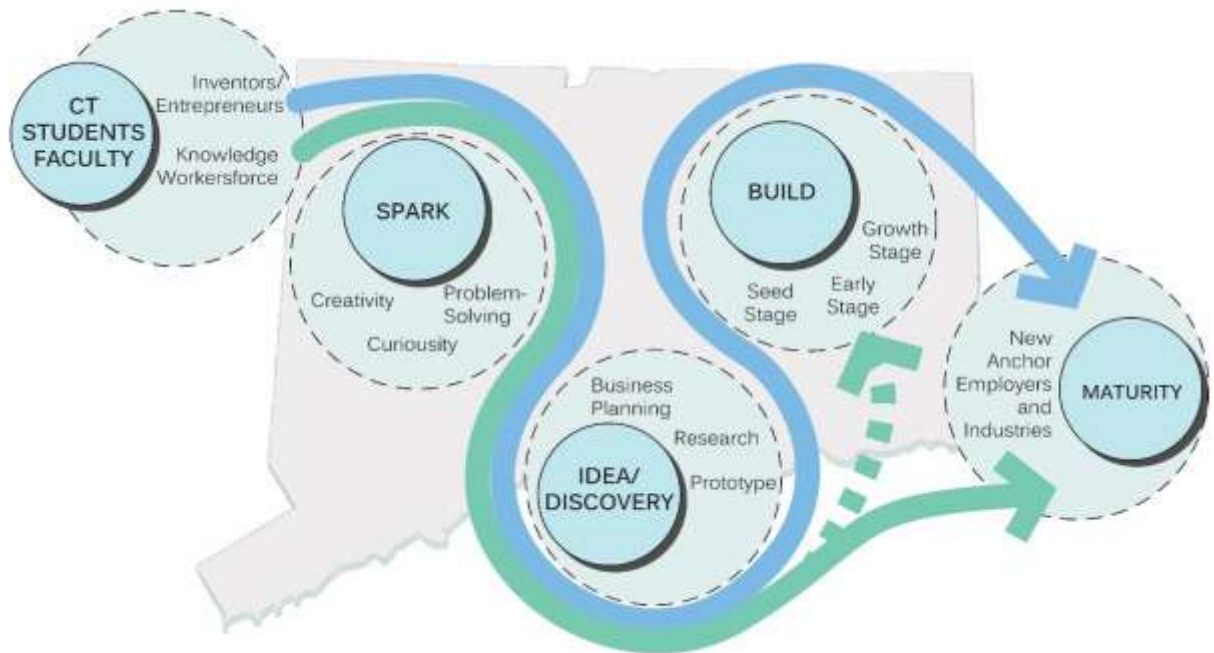


Figure 1. Connecticut E&I Ecosystem

Each type of initiative takes advantage of the state’s E&I ecosystem largest strength (and weakness): its diversity. The state’s higher education institutions support a large diversity of students and researchers, all of whom have the potential to be (or already are) innovative professionals or entrepreneurs. The current assortment of E&I programs across the state vary widely, with institutional support, coursework, resources, and general capacity that range from nascent to entrenched.

The value of diversity is increased stability, resiliency, flexibility, and higher production (it spurs economic development). However, that same diversity, without coordinating frameworks and communities, lacks robustness and may lead to missed opportunities for a stronger innovative and entrepreneurial economy. To capture the strengths of a diverse state-wide E&I ecosystem, initiatives need to:

- Increase Information Flow
 - Knowledge sharing is cheaper than reinventing the wheel
- Build on Recommended Practices
 - Seek out best practices, but acknowledge one-size-does-NOT-fit all
- Be Willing To Take Risks
 - With limited multi-institutional or state-wide examples, be willing to lead
- Encourage a Robust Community
 - A patchwork of programs and initiatives is not sustainable

Curriculum Integration (Innovative Workforce)

Students learn best when they can live what they learn. 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. In a progressively technological, scientific, and interconnected world, the quality of innovation in large measure increasingly relies on advanced learning. 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 continually to adopt, apply, and assess methods of teaching and learning that foster creativity and originality.

Connecticut Examples: (In addition to majors, minors, and certificates in entrepreneurship)

- [Norwalk Community College's Entrepreneurship & Workforce Development Initiative](#)
- [University of New Haven E-learning Modules Supporting Entrepreneurially Minded Learning](#)
- [Southern Connecticut State University BioPath](#)
- [WCOB Innovation Center's Problem-Based Learning Lab](#)
- [UConn Entrepreneurship Bootcamp for Veterans with Disabilities \(EBV\)](#)
- [Minor in Creativity Innovation and Entrepreneurship](#) (collaboration; the Neag School, the School of Fine Arts, the School of Business, and the School of Engineering)

Recommended Practices:

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

Collaboration Ideas

- Consortium-managed regional Master's programs that commit students to staying in the area to grow their ideas.
- Integrated E&I modules into various academic disciplines
- Summer Accelerators

Mentor Networks

The direct value of growing mentor networks extends from students to faculty who benefit from their expertise, and indirectly to the university at large, which benefits from extended networks of regional alumni and industry contacts.

Students: Students need mentors who can help them develop ideas and build businesses, as well as learn how entrepreneurship can fit into their career path. Mentor networks for students are found throughout the State of Connecticut, with other students, faculty, alumni, accomplished entrepreneurs and subject matter experts all providing advice and support. Programs currently being offered range from monthly "coffee with an entrepreneur" events to exclusive incubator/accelerator resources such as legal and tax advice or access to national networks and funding. Critical to any mentor program is a careful crafted system to vet, match and manage mentors to ensure alignment of skills and expectations with startup needs.

Research Faculty: Scientists and researchers engaged in basic research are not typically oriented towards entrepreneurship, nor focused on their research as applied research or commercialized products. Working with experienced Scientist/ Entrepreneurs and industry mentors with subject matter expertise, scientists can learn to more quickly recognize commercial opportunities impact and identify the best pathways for successfully capturing that potential. A key role of such network is the opportunity for the formation of cross disciplinary teams with the diverse skill sets necessary to build a successful venture.

Faculty and Staff: The E&I infrastructure to support students, alumni, scientists and researchers is extensive and complex. Institutional programs currently offered include 1) Academic coursework (majors, minors, integrated); 2) Non-credit events (hack-a-thons, business plan competitions); 3) Investments in centers of excellence (student entrepreneurship centers, incubators); and 4) Administration (commercialization, industrial relations, alumni development). Mentorship, in the form of communities of practice that provide support and knowledge from other professionals from industry and academia in a variety of fields, build collective competence across the state.

Connecticut Examples:

- [Yale Entrepreneurial Institute](#) (Licensed MIT Venture Mentoring Service)
- UConn – variety of programs
 - [IQ Competition.](#)
 - [CCEI Mentor Program](#)
 - [Accelerate UConn](#) (NSF I-Corps Site)
- [Consortium of Entrepreneurship Educators](#)
- [Fairfield University](#)

Recommended Practices:

- [MIT Venture Mentoring Service](#)
- [Babson College Education for Educators](#)
- [Kauffman Doctoral and Early Career Training Programs in Entrepreneurship](#)
- [Stanford Internship and Learning \(Industry Program Recruitment\)](#)
- [Georgia Research Alliance \(GRA\) Ventures](#)

Collaboration Ideas:

The dominant mentor idea that came out of discussions is the licensing of the MIT Venture Mentoring Service (VMS) for institutions across the state. VMS has an extensive global list of alumni universities who have taken the faculty training course and licensed the program, including Yale University. Other universities who have talked with Yale about their own mentor networks have also benefited from the program.

Other ideas include:

- Funding statewide cohorts to attend nationally respected ‘educate the educator’ programs;
- Create a community of practice, or professional network, that focuses on entrepreneurship center development practices (administrative and program management);
- Multi-partner or regional approach to industry mentor programs (including start-ups as an ‘industry’) that support students seeking advice or internships
- Expanding commercialization infrastructure to support institutions with research potential but

limited resources

- IP Policy training and network
- State-wide business mentoring opportunities for scientists, regardless of institution
- Multi-university non-profit venture support organization
- Collaborating with non-academic partners who have built up industry mentors and networks in the state (particularly in areas without a strong research university presence)

Entrepreneur Centers

Entrepreneur Centers provide hubs for students (and faculty) in a “one-stop” format. Although many were originally situated within business schools and cater to business students, a growing number of these Centers are cross-disciplinary and cross-university, with services for all students and sometimes, alumni. Entrepreneur Centers provide a critical hub for anyone with an interest in entrepreneurship to find the resources they need or connect with other students, mentors, and faculty. As an umbrella concept, services can vary widely but often include physical space for students to meet, makerspaces that include equipment for prototyping and developing new ideas, staff that serve advisors for business planning, mentor programs or entrepreneurs-in-residence, access to competitive fellowship or incubator services, and coordination of non-credit events and programs that support entrepreneurs.

Connecticut Examples:

- [Connecticut Center for Entrepreneurship and Innovation](#)
- [Quinnipiac Center for Innovation and Entrepreneurship](#)
- [University of Bridgeport Student Entrepreneur Center](#)
- [Fairfield University – Innovation Focus](#)
- [Yale Entrepreneurial Institute](#)
- [Patricelli Center for Social Entrepreneurship](#)
- [Accelerate UConn](#)
- [University of Hartford Entrepreneurship Center](#)

Recommended Practices

- [Harvard i-Lab](#)
- [Center for MIT Entrepreneurship](#)
- [Northeastern Center for Entrepreneurship Education](#)
- [NYU Entrepreneurial Center and Leslie E-Labs](#)
- [Stanford Center for Social Innovation](#)

Collaboration Ideas:

- Regional centers that can support students from multiple universities, such as makerspaces
- Regional centers that connect students to the local community, encourage interaction through experiential learning and problem solving;
- Staffing/center that can support state-wide advanced experiential learning opportunities or venture incubation services such as Summer Fellowships, Incubators, Competitions, or State-wide Workshops;
- Collaboration with non-academic regional partners with established hubs and networks;
- State-wide data portal/hub specifically for higher education institution ecosystem – networks,

- services, programs for all Connecticut students;
- Expanding access to mentors and other services to high school students – youth academy, workshops, bridge programs, etc.

Technology Commercialization

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. When faculty and students generate an idea their efforts to develop and deliver a competitive product to the marketplace faces many early hurdles. Successful business plans and commercialization strategies require timely identification of IP, an ability to determine patentability and market opportunity and access to early funding to develop the preliminary data necessary to attract venture or industry support. National models indicate that the combination of small grants and multidisciplinary teams that combine the talents of students, faculty and industry expert/mentors present a successful model for commercialization of research.

Connecticut Examples

- [UConn SPARK](#)
- [Yale's Office of Cooperative Research](#)
- [CI – Yale-UConn- Quinnipiac BioPipeline](#)
- [PITCH](#)

Recommended Practices

- [MIT Deshpande Center, Ignition Grants](#)
- [von Liebig Entrepreneurism Center, Technology Acceleration Programs](#)
- [GRA Ventures, seed grants](#)

Collaboration Ideas

- Proof of Concept Funds that combine potential commercially viable innovations with targeted financial and commercialization support in order to create investible startups and attract industry partnerships.
- Expanding commercialization infrastructure, including technology transfer services, to support institutions with research potential but limited resources
 - IP identification training and network
 - State-wide business mentoring opportunities for scientists, regardless of institution
 - Partnering events to support formation of commercialization teams and training.
 - Incubator support that promotes access to R&D infrastructure (Core research facilities) at statewide institutions