ADVANCED MANUFACTURING EDUCATION WORKING GROUP

FINDINGS & RECOMMENDATIONS

Presented to the
Commerce Committee
February 15, 2024

Background: Transformational Change in Manufacturing

- Machine learning has ushered in a fourth Industrial Revolution (I4.0)
- Transformational Change:
  - How manufacturing is conducted - smart factories, AI, robotics
  - Technical Education - workforce skill needed to support new technologies
- States (and countries) are in a competitive race to claim leadership in I4.0
- Lack of skilled workers is biggest barrier to manufacturing growth in CT
- McKinsey: “manufacturers’ demand for traditional skills . . . will decline by 30% over the next decade while their demand for technical skills will increase by 50%”

WORKING GROUP MEMBERS

- **Tracy Ariel**, Program Director, CT Office of Workforce Strategy
- **Mark Auletta**, COO, Bauer Inc.
- **Mary Bidwell**, Assoc. Dean of Advanced Manufacturing, CT State Community College-Asnuntuck and Tunxis Campuses
- **Eric Brown**, Government Affairs Representative
- **Mark Burzynski**, Technical Talent Development Advisor, The Arthur G. Russell Company
- **Dan Coccchiola**, Director of Career Pathways and Workforce Development, EdAdvance
- **Jessica Chavez-Gutierrez**, Training Manager, TRUMPF
- **Richard DuPont**, Dir. Campus and Community Relations, CT State-Housatonic AMTC
- **Marty Guay**, Vice President, Business Development
- **Jason Howey**, President and CEO, AVNA, Inc.
- **Darryl Reome**, Campus CEO CT State CC Tunxis
- **Ravindra Thamma**, Professor, Robotics & Mechatronics, CCSU
- **Karen Wosczyna-Birch**, Executive Director and Principal Investigator; NSF National Center for Next Generation Manufacturing

LEGISLATIVE DIRECTIVES

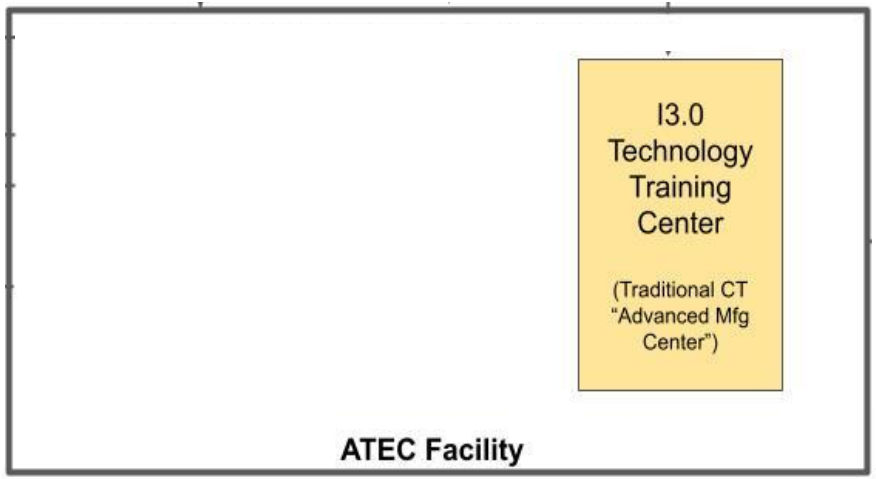
- Establish an Industry 4.0 career training model that may be duplicated throughout the state; and

- Facilitate its implementation at an existing advanced manufacturing technology center at a regional community-technical college

- Establish an Industry 4.0 career training model that may be duplicated throughout the state

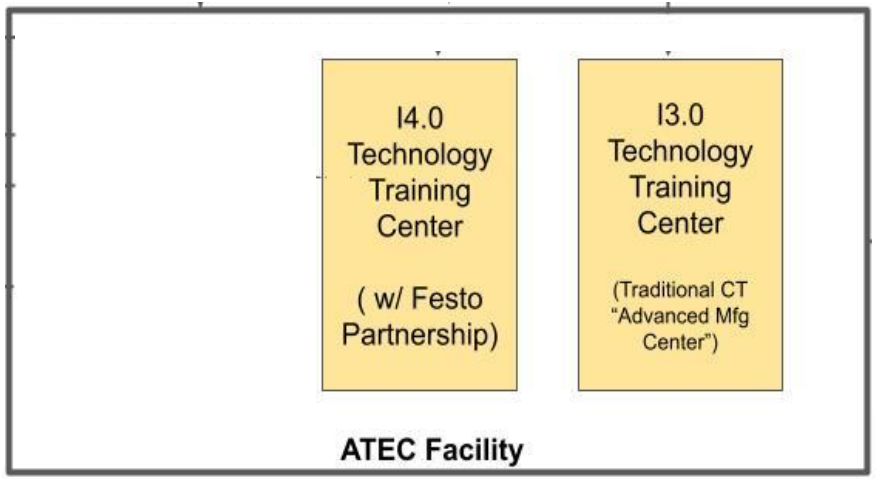
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



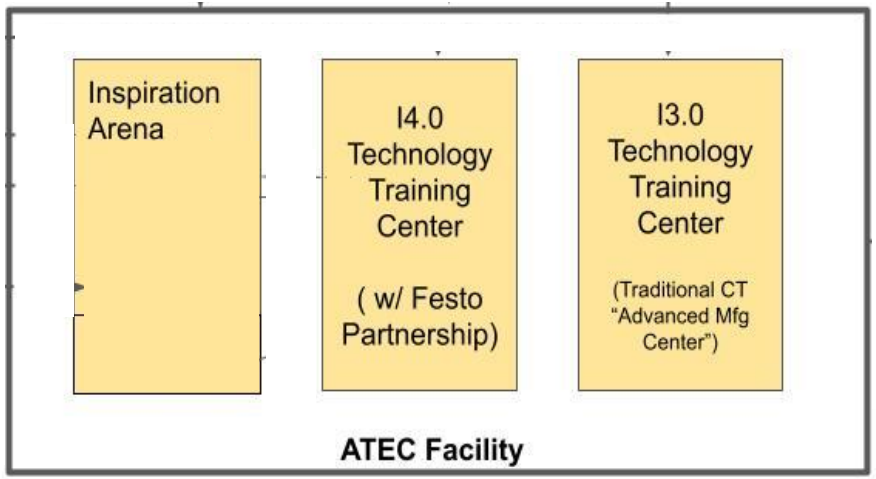
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



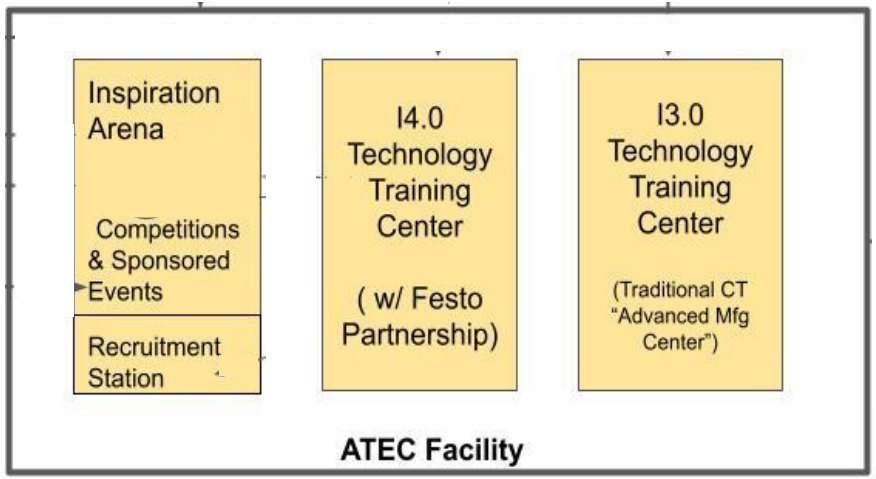
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



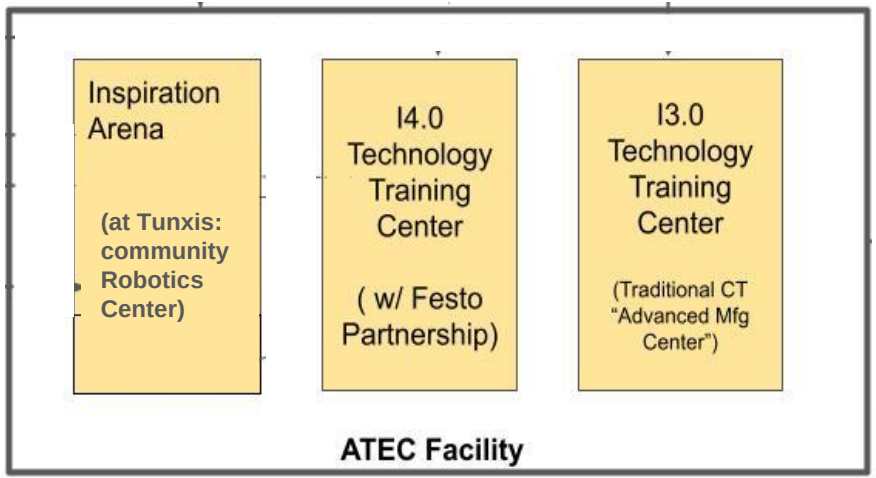
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



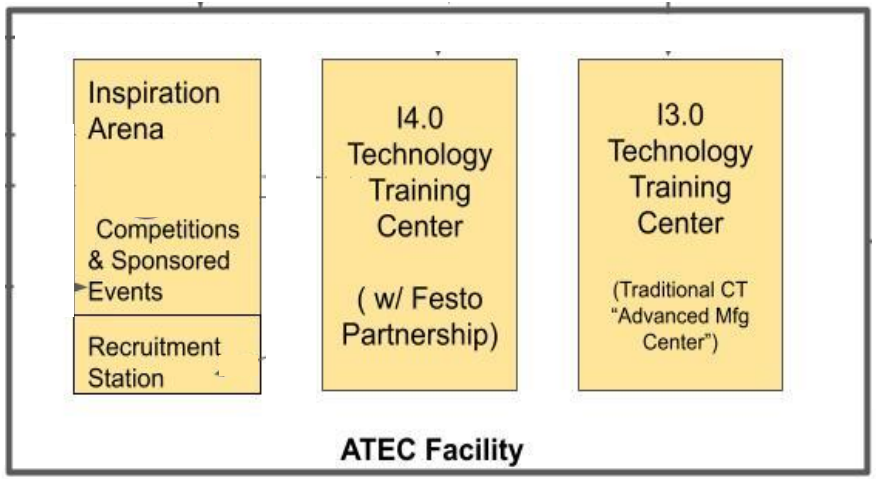
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



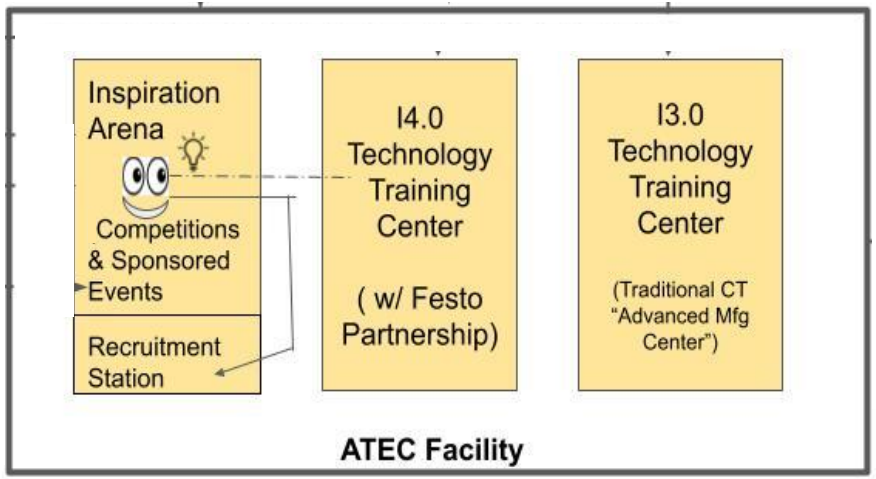
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



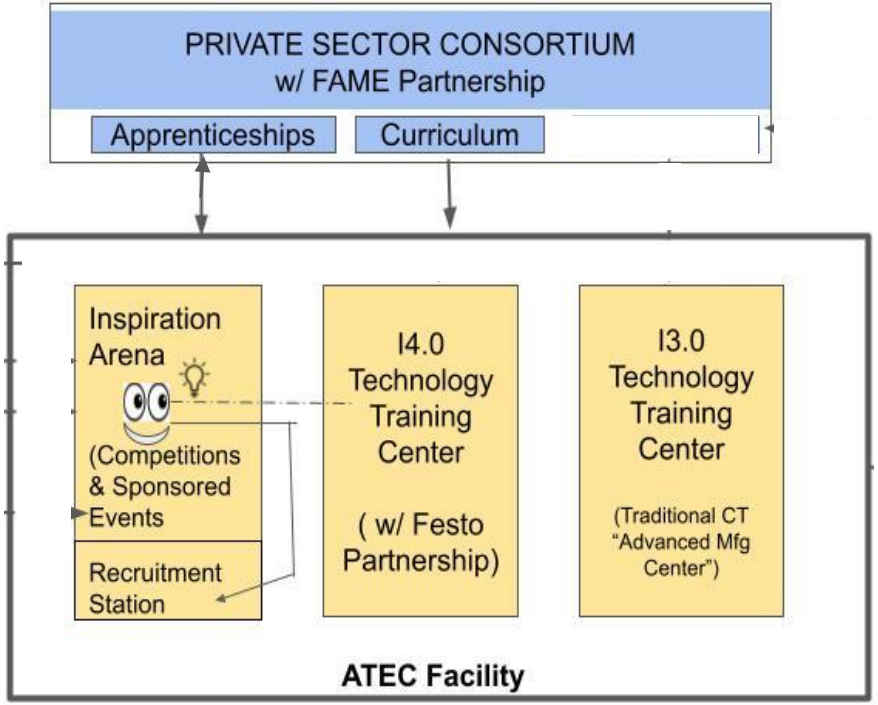
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



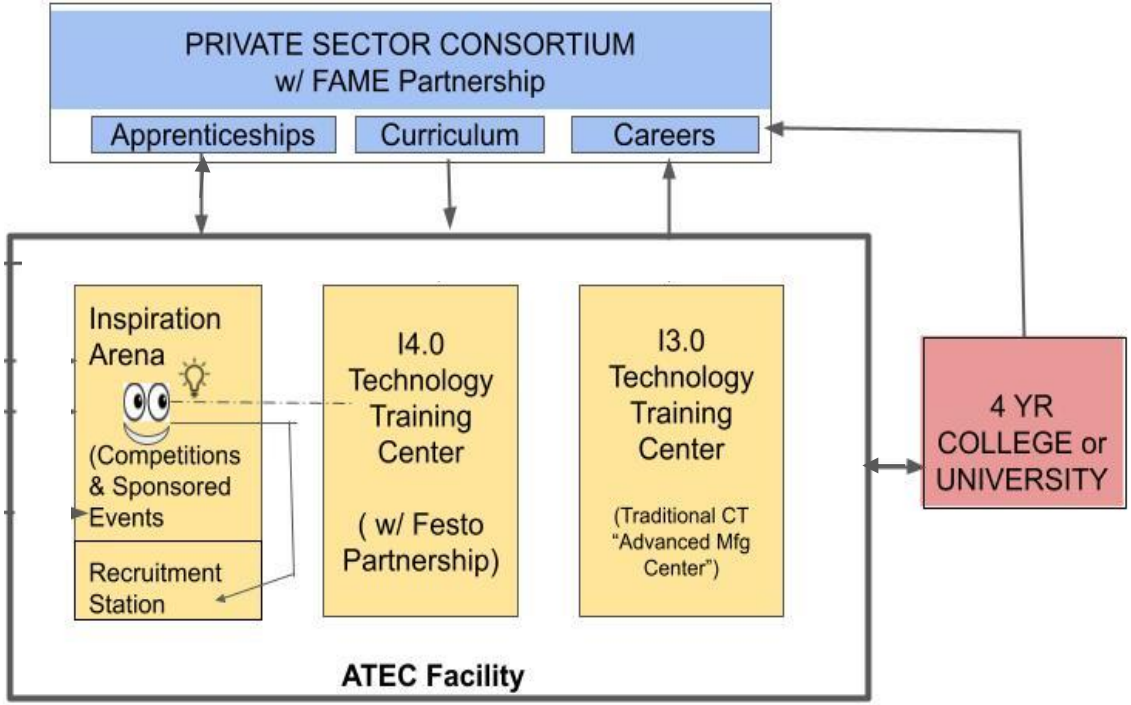
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



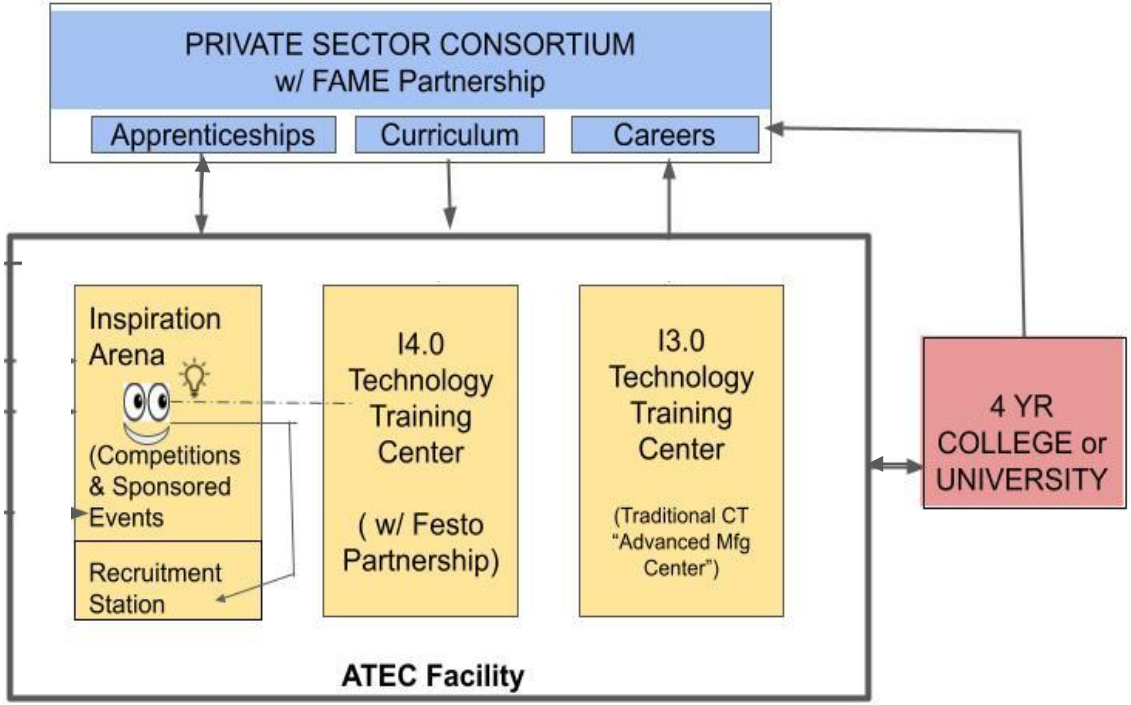
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



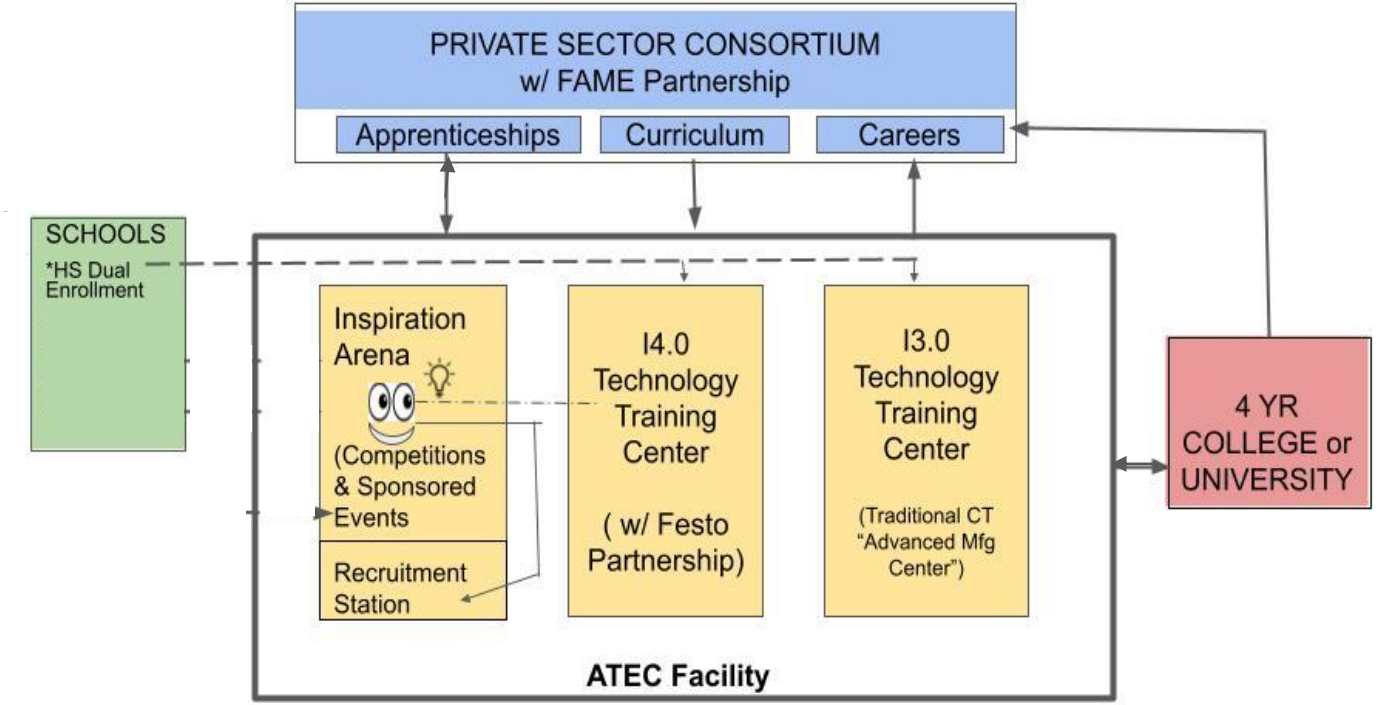
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



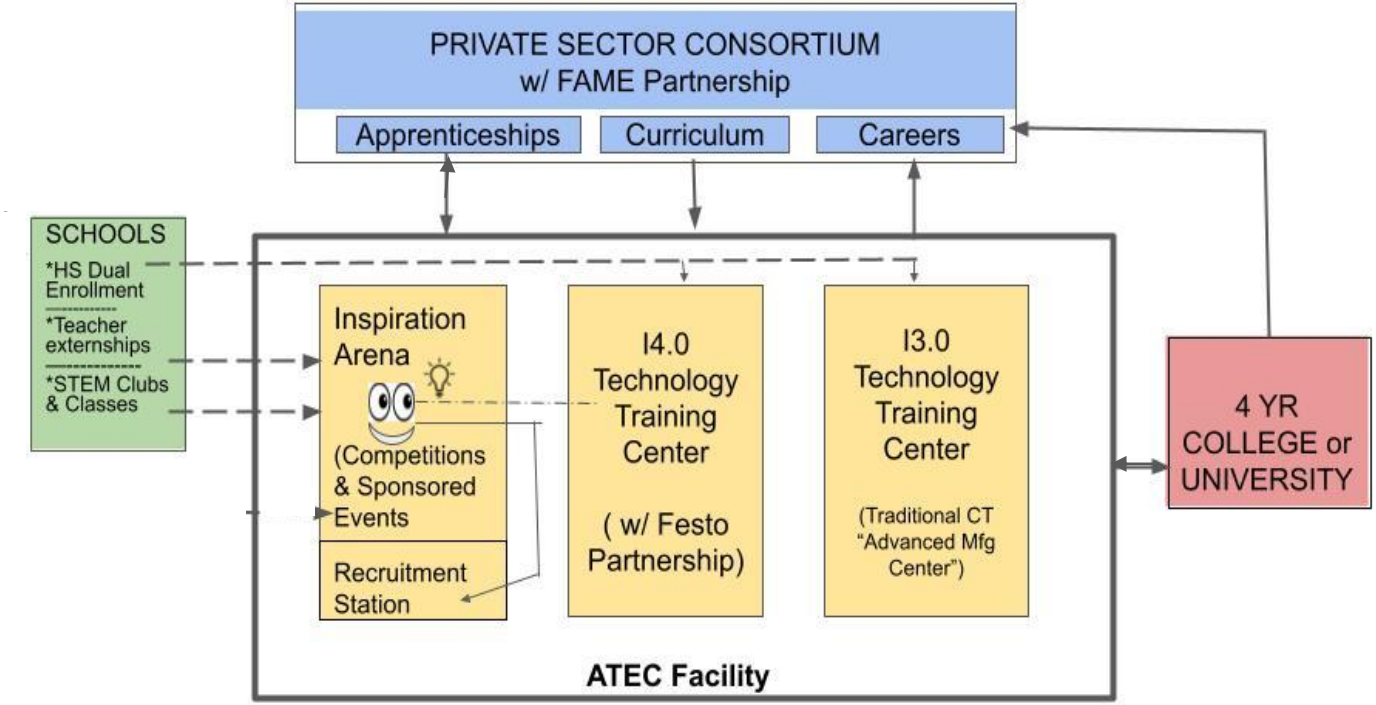
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



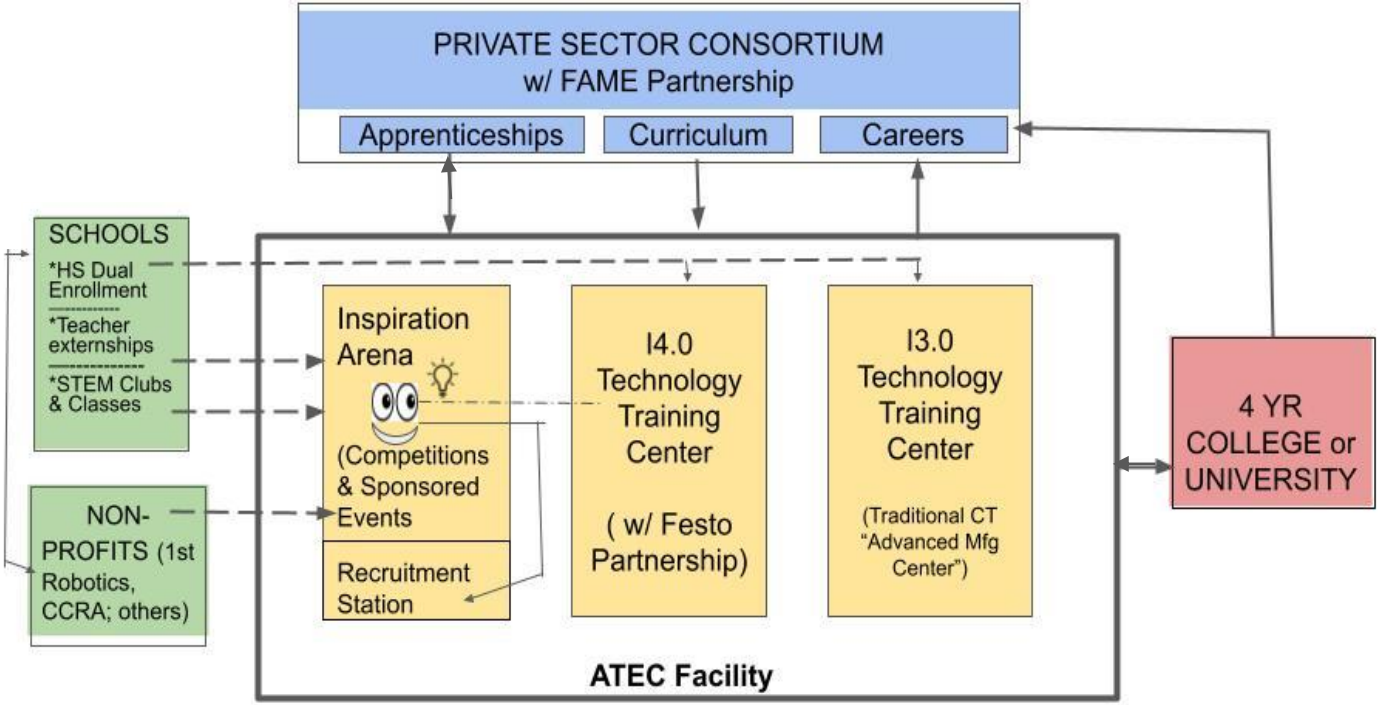
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



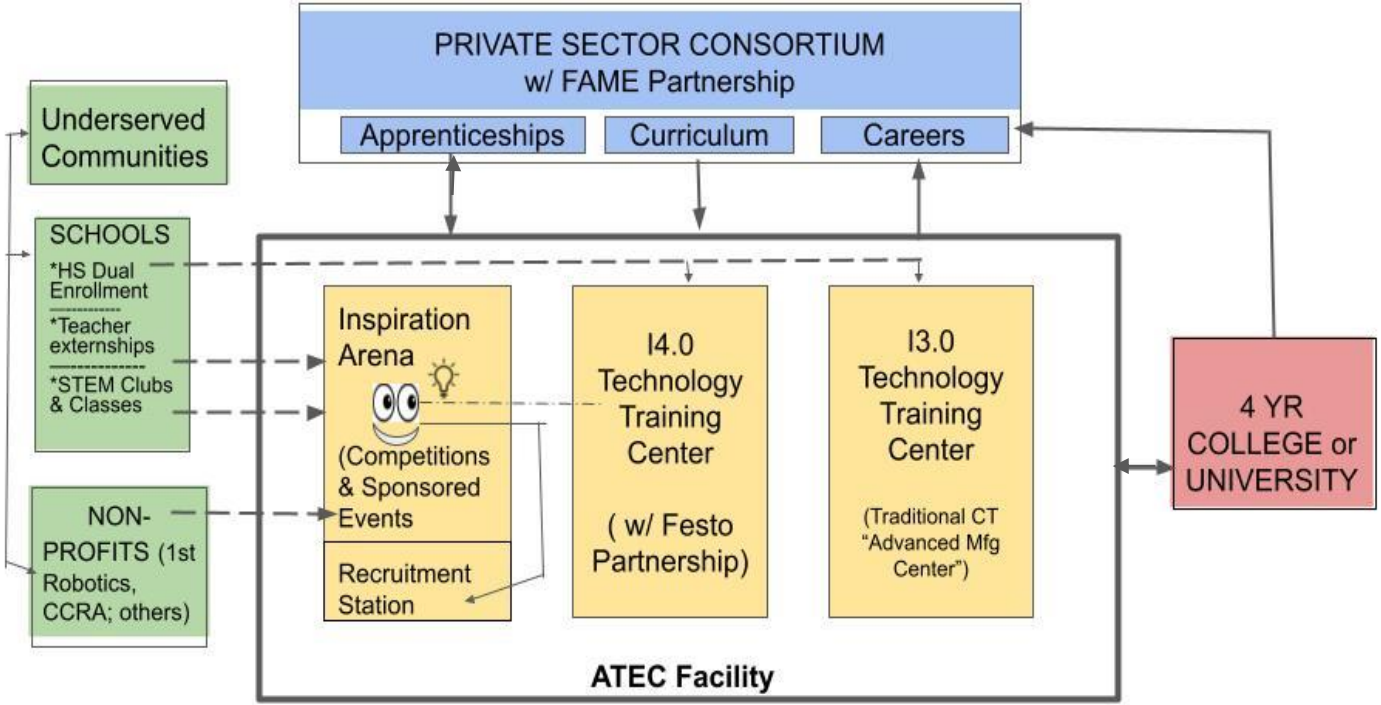
ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution

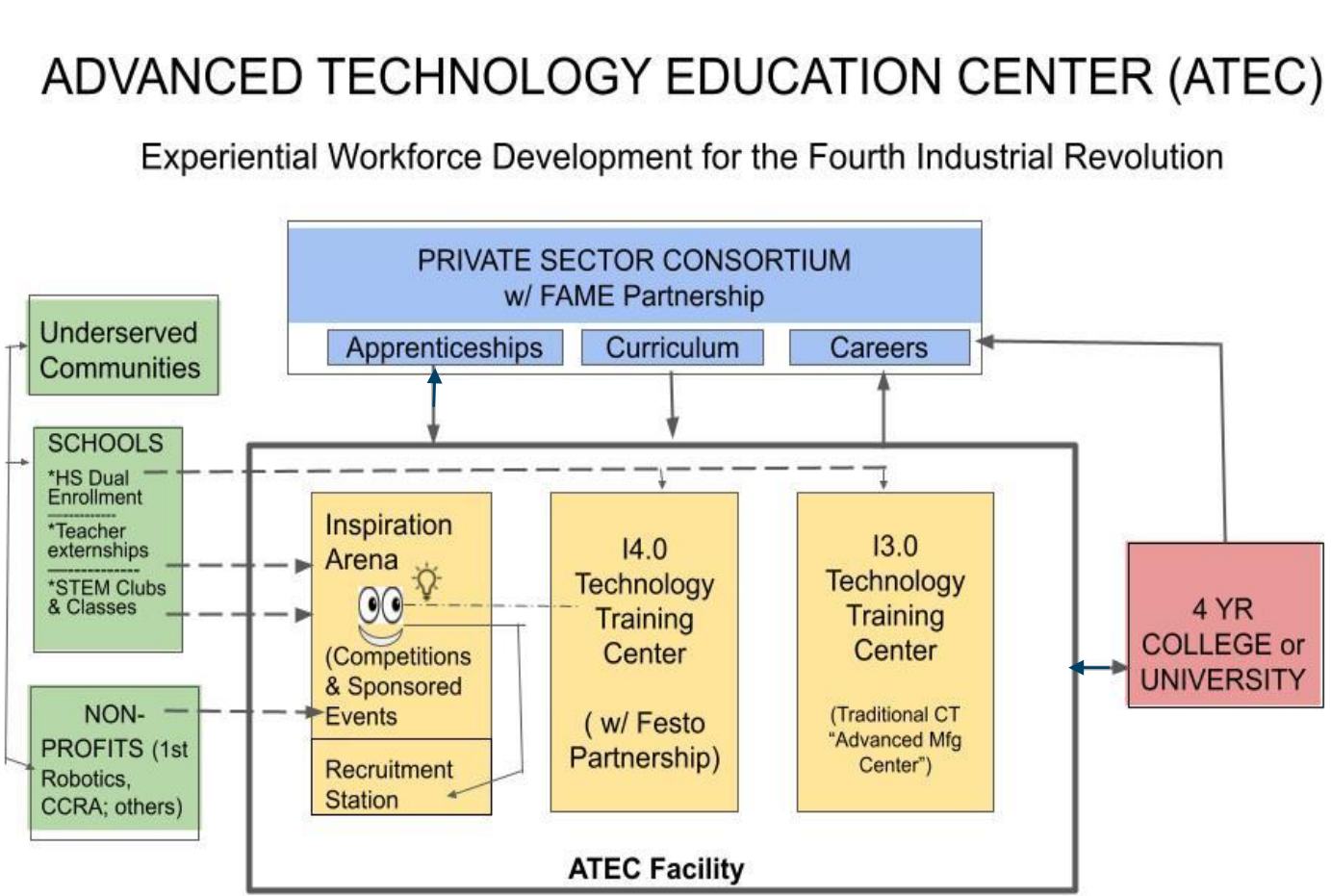


ADVANCED TECHNOLOGY EDUCATION CENTER (ATEC)

Experiential Workforce Development for the Fourth Industrial Revolution



Industry 4.0 career training model



Facilitate implementation at an existing advanced manufacturing technology center at a regional community-technical college

Facilitate implementation at an existing advanced manufacturing technology center at a regional community-technical college

WHY TUNXIS?

Existing, State-Owned Building at 21 Spring Lane

- CT State-Tunxis acquired a 44,500 square foot vacated building adjacent to campus in 2018
- $8M invested in purchase & renovations including offices, classrooms and I3.0 lab equipment
- Located diagonally adjacent to the CT State-Tunxis main campus
- includes over 200 parking spaces

HOME OF THE NSF CENTER FOR NEXT GEN. MFG AND A FUTURE COMMUNITY ROBOTICS CENTER

National Center for NEXT GEN MANUFACTURING

A National Science Foundation CENTER OF EXCELLENCE

www.nextgenmfg.org

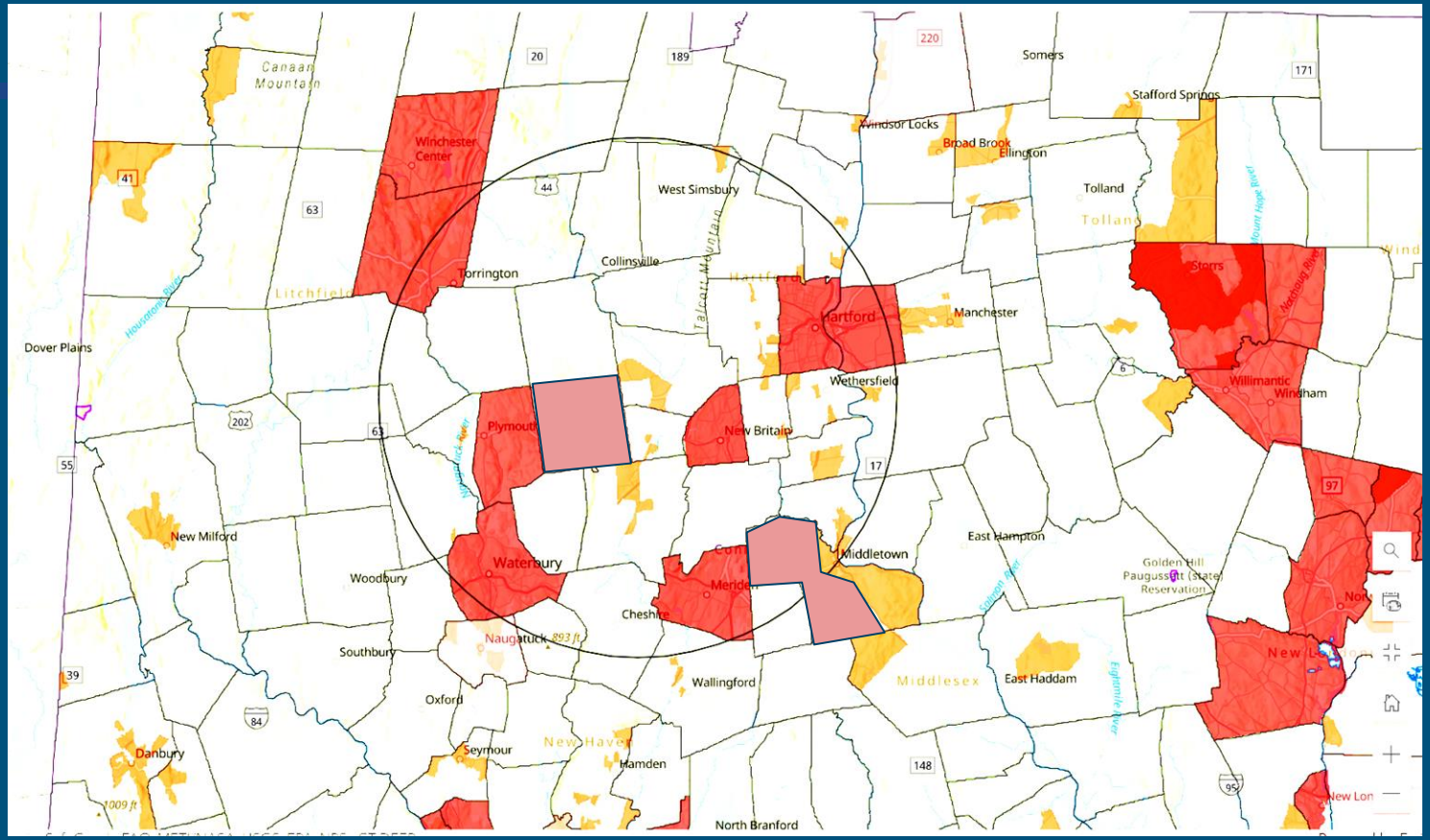
NSF

ATE CENTERS

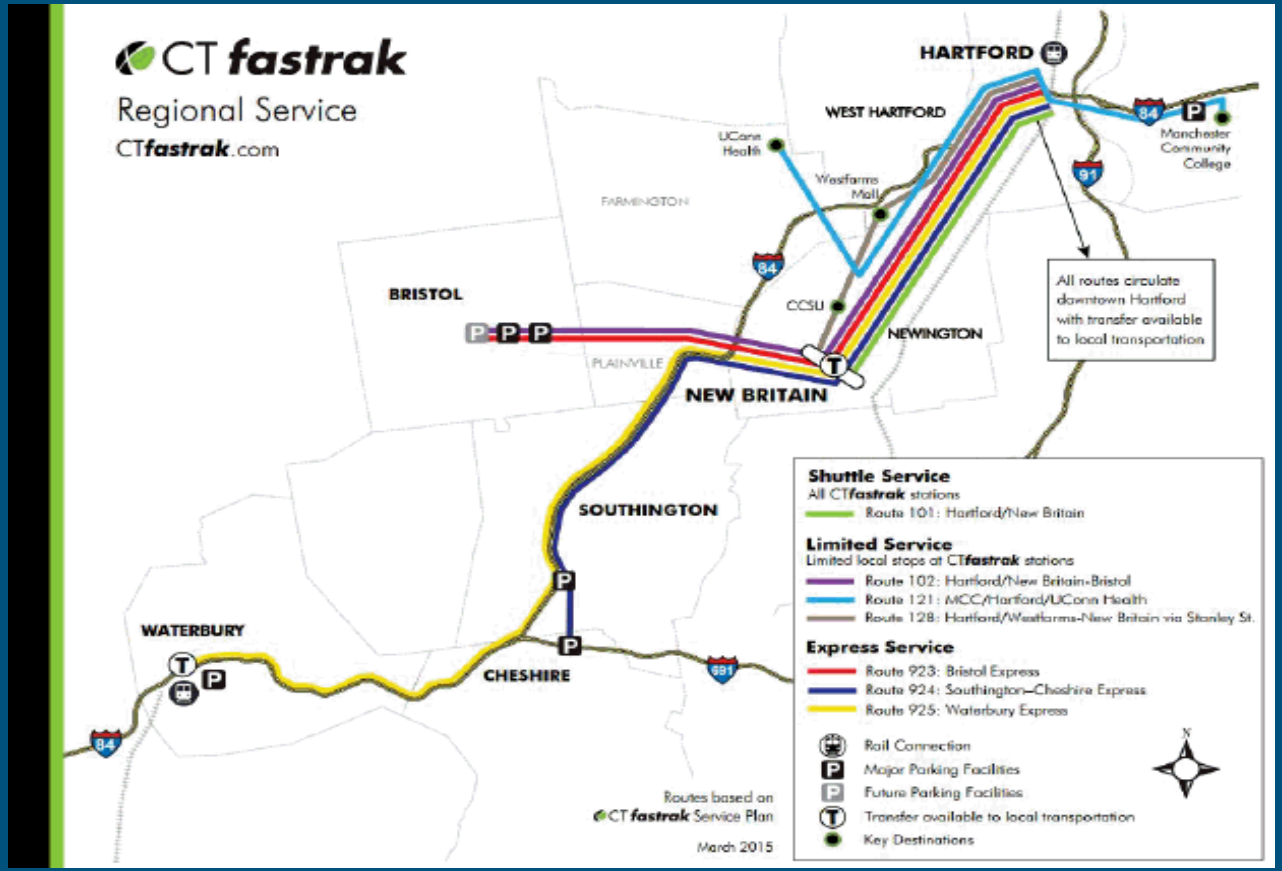
CENTRAL CONNECTICUT COMMUNITY ROBOTICS CENTER

Strong Nucleus for Regional Private Sector Consortium

Distressed municipalities within 15 miles of the Tunxis campus



MASS TRANSIT ACCESSIBILITY



Key elements as directed by the legislature

- **Establishing sustainable public-private partnerships**
  - provide the latest equipment, training and apprenticeship opportunities for students & instructors
- **Establishing a community robotics center**
  - to support program awareness, enrollment and community involvement
- **Maximize opportunities in underserved communities**
  - by establishing, robotics programs, events and competitions to engage students in grades K-12
- **Select the college**
  - to locate the center and establishing a budget and timeline for completing the necessary infrastructure

IMPLEMENTATION ELEMENTS

(Final report discusses in detail)

A. **Complete the necessary infrastructure at the center**

B. **Implement strategies to increase enrollment**

C. **Provide dual-credit entry points**

D. **Coordinate the HS, AS and BS curriculum**

E. **Establish an industry-lead apprenticeship consortium**

BUDGET

Rough, preliminary estimates: $4M to complete the Spring Lane Building

Further analyses, including $35k master plan and $125k pre-construction services studies needed

Annual operating costs for both the Machine Technology and Robotics & Mechatronics programs are estimated at $1M

Revenue generated by ATEC student enrollment, summer teacher workshops and hosting events will partially offset operating expenses.

Administration and staffing of the Community Robotics Center will be provided by the non-profit CCRA

TIMELINE

To = Time at which plans and budgets are finalized; funding is secured and allocated for completion of Spring Lane facility at Tunxis in accordance with the budget

To + 6 months: architectural and engineering services completed

To + 12 months: building structurally completed and outfitted

To + 18 months: staff hired, curriculum finalized, student enrollment ongoing

To + 24 months: academic programs commence

FINDINGS

- Manufacturing is transforming = need for more skilled workers
- Lack of skilled workers = biggest barrier to manufacturing growth in CT
- Current training = inadequate and not accessible to many communities
- ATEC = new comprehensive training model for I4.0 economy

  = flexible and transferable to other community colleges
- Tunxis = unique opportunity to launch CT's first ATEC addressing workforce needs of area employers and highly accessible to the traditionally underserved
- Priority = fund completion of the Spring Lane facility at Tunxis and launch the I4.0 training program

RECOMMENDATIONS - What manufacturers need from State of CT

1. The Governor, Legislature, CSCU, CT State Community College, Industry Reps urgently collaborate to identify and secure funding for establishing the first ATEC in CT at Tunxis

2. CT State Community College commence discussions with the consortium of private sector companies to establish a partnership formalizing agreements regarding apprenticeships, curriculum development and career opportunities for students and graduates of the Tunxis ATEC

3. The Central CT Robotics Alliance, in conjunction with CT State Community College -Tunxis Campus, commence planning and hosting STEM related events at the ATEC Community Robotics Center

4. Adopt statewide standards for dual / concurrent enrollment programs

5. Local, regional and state transportation officials establish plans for expanding transportation opportunities for students in traditionally underserved communities to access the Tunxis ATEC

QUESTIONS?