STEM-Tech

Career Academy

October 20, 2022

Agenda

- **Welcome**
- **Overview of MBAE**
- **STEM Workforce**
  - Mass Bio: Kendalle Burlin O'Connell: President / COO
  - Mass High Technology Council: Chris Anderson - President
- **Overview of STEM TECH Career Academy**
  - Secretary of Education James Peyser
- **Industry Reflections**
- **Question and Answers**

MBAE Overview

MBAE and the employers we represent believe that an excellent public education system is the essential foundation of a sound and equitable economy.

We promote and support continuous improvement in our schools to ensure that **EVERY student receives a high quality education that prepares them for success in college, career and citizenship.**

MBAE Affiliates

1Berkshire

Blackstone Valley Chamber of Commerce

Cape Cod Canal Region Chamber of Commerce

Cape Cod Chamber of Commerce

Concord Chamber of Commerce

Cranberry Country Chamber of Commerce

Greater Boston Chamber of Commerce

Greater Holyoke Chamber of Commerce

Greater Lynn Chamber of Commerce

Greater Westfield Chamber of Commerce

Mass Biotech Council (MassBio)

Massachusetts Competitive Partnership

Massachusetts High Technology Council

Mass. Technology Leadership Council

Massachusetts Society of CPAs

Metro South Chamber of Commerce

MetroWest Chamber of Commerce

NAIOP-MA

Nashoba Valley Chamber of Commerce

Neponset River Regional Chamber

Newton-Needham Regional Chamber

North Central Mass. Chamber of Commerce

One SouthCoast Chamber

Orleans Chamber of Commerce

Plymouth Area Chamber of Commerce

Quincy Chamber of Commerce

Retailers Association of Massachusetts

Salem Chamber of Commerce

South Shore Chamber of Commerce

Springfield Business Leaders for Education

Springfield Regional Chamber

Stoneham Chamber of Commerce

Taunton Area Chamber of Commerce

TechNet

United Regional Chamber of Commerce

Western Mass Economic Development Council

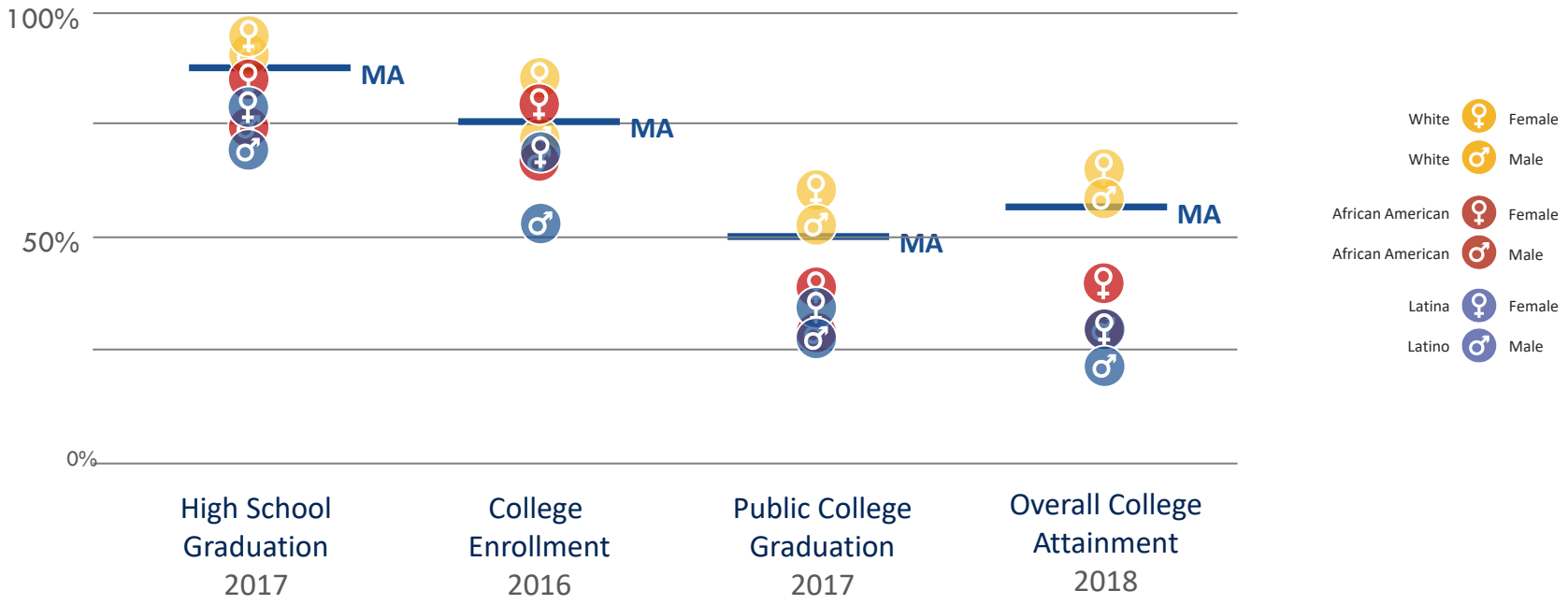
Worcester Regional Chamber of Commerce

MBAE Members

Workforce Challenges are Growing

- MassINC projects the state's working-age, college-educated labor force will fall by about 192,000 by 2030.
- Demand for graduates in computing and mathematical occupations far outstrips supply with 26 job openings per bachelor level graduate, seven job openings per associate degree graduate, and three per master's level graduate.
- The state's life sciences industry forecasts growth of about 106,000 jobs by 2024 and warns that the number of graduates in key life science-related fields is not keeping pace.

MA Key Education Milestones

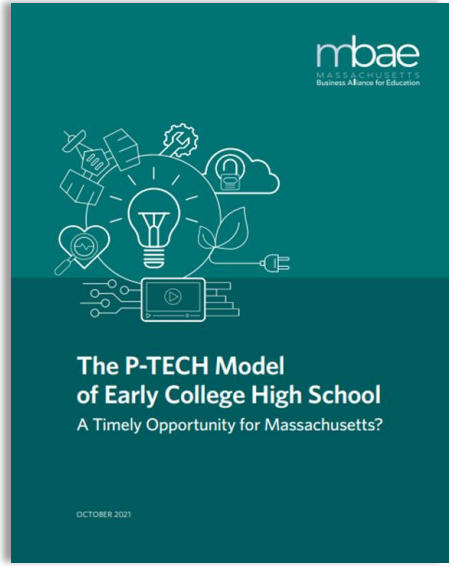


Closing the STEM Skill Gap

- **Credential Attainment Gaps:** Only 44% of ninth graders in Massachusetts go on to earn the post-secondary degree or credential that the vast majority of jobs in our state require, and the odds are even worse for students who have been historically under-represented in higher education and the workforce: only 26% of Black students, 18% of Latino students, and 23% of low-income students complete a post-secondary degree within six years of graduating high school. The rates are far lower in many of our Gateway cities that together with Boston educate nearly half of all low-income students in Massachusetts.

- **Wage and Diversity Gaps**: STEM jobs pay family-sustaining wages and offer career ladders for growth and advancement. Creating pathways to these opportunities for all students, but particularly for Black and Latino students who are under-represented in these fields, is essential to closing wage and wealth gaps that plague our society.

- **Income Gaps:** Rates of income inequality in Massachusetts, which have their roots in educational opportunity gaps, are also persistent and pervasive. Recent data show approximately a 2-1 gap between median income for whites in contrast to Black and Latino or Hispanic families.



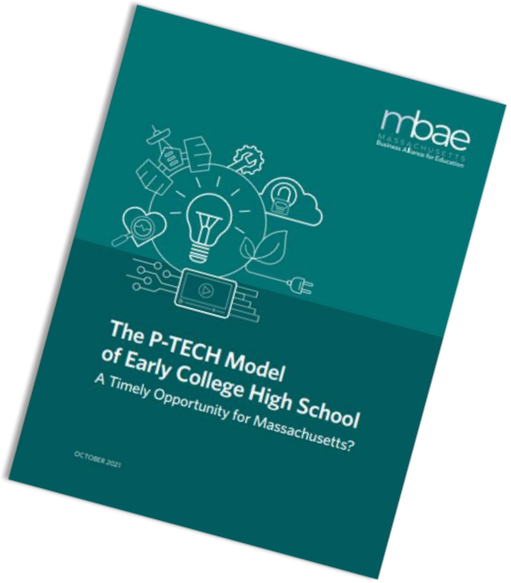
P-TECH Model

An Integrated Six-Year Progression

The P-TECH 9-14 model starts in the ninth grade and integrates work-based learning opportunities and up to 60 college credits at no cost to the student.

YEAR 1 → YEAR 6

HIGH SCHOOL	Accelerated high school course work Regents exams Career and technical education (CTE)			College/career transition support
COLLEGE	College visits/prep	First college course	Non-major-specific college courses	Courses for major
CAREER	Exposure and awareness: • Site visits • Speakers • Professional mentoring	Exploration and training: • Job shadowing • Paid internships		



206 High Schools in 10 States (including NY, CT, RI), since 2011

Introduction

- STEM skills gaps continue to be a major short-term and long-term challenge to economic growth
- Even though voc-tech enrollment is growing, capacity is relatively limited (and expensive)
- Community college enrollment is shrinking, reducing the number of occupational degrees and certificates awarded
- Initial growth of Early College and Innovation Pathways is promising, but needs to be sustained and accelerated (more programs, larger scale)
- Employer engagement in STEM education is improving, but remains a challenge

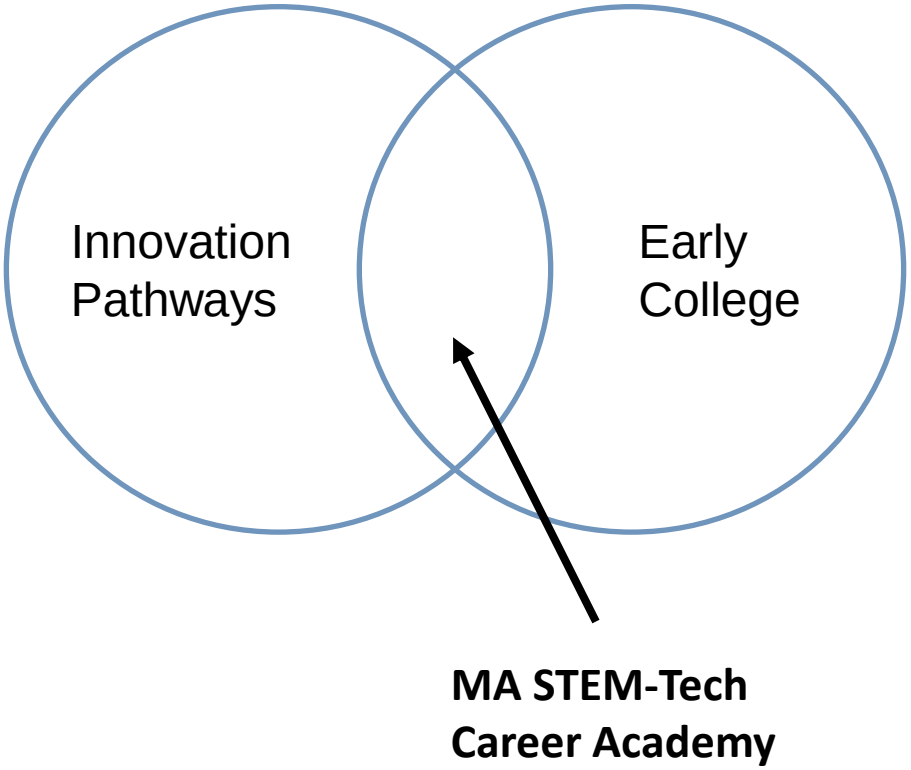
Commit multi-year resources, institutionalize internal systems and structures, broaden the portfolio of early college/career pathway models

Five Program Guiding Principals

The Boards of Elementary and Secondary Education and Higher Education jointly approved five Guiding Principles for Early College and Innovation pathways that are also required for a STEM Career Academy to demonstrate in program design and implementation;

- Equitable Access
- Guided Academic Pathways
- Enhanced Student Support
- Connection to Career
- Effective Partnerships

MA STEM-Tech Career Academy: Hybrid Pathway



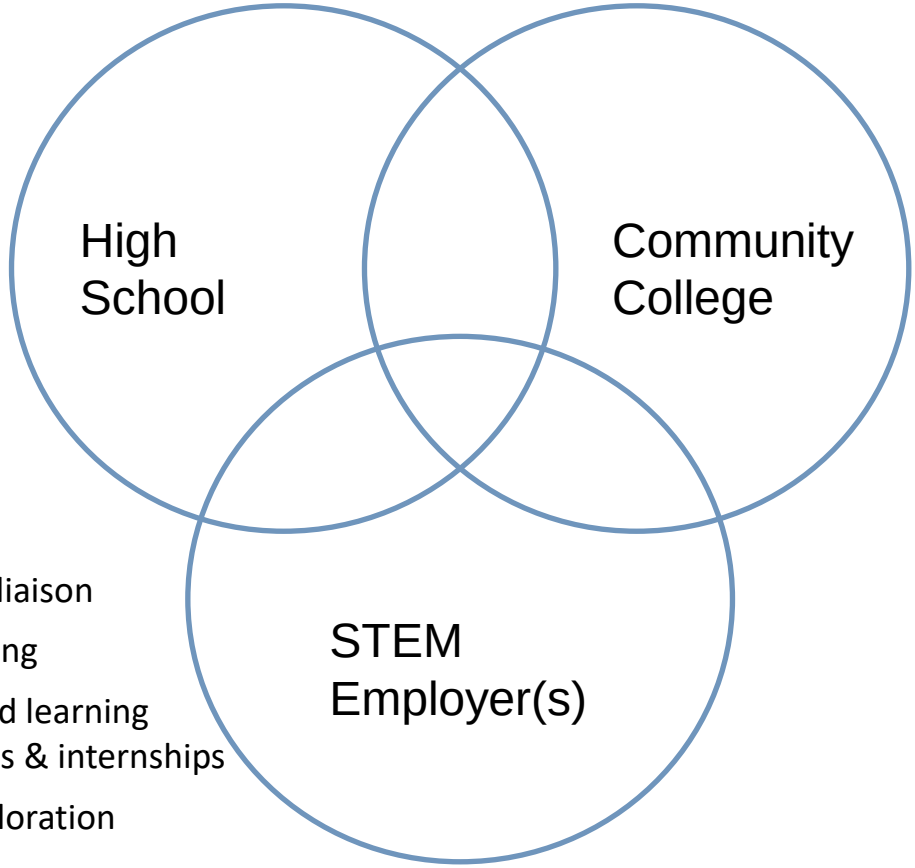
- **Partnership** between school district, community college, and STEM employer(s).
- **Open equitable acess to enrollment** with focus on under-represented students.
- **Six-year student experience (**9-12th grade Diploma bridging to an Associate Degree (College Year 1 and Year 2)
- **Implementation** integrating high school and college coursework, linked to industry-developed skills map, leading to an industry-recognized associates degree or occupational certificate for all students.
- **Cost-free** postsecondary credential.
- **Meaningful scale**: ≥70+ students per graduating class
- **Workplace learning**, including mentoring, worksite visits, speakers, project days, and paid internships.

STEM-Tech Career Academy: Leveraging Existing Programs & Resources

- Joint DESE/DHE approval and oversight, based on Early College and Innovation Pathways process
- MyCap college and career advising
- Work-based learning collaboration through Connecting Activities, Youthworks, MA STEM@Work
- High school support through Dual Enrollment, Perkins, Early College, Innovation Pathways resources. College funding support from MassGrant/MassGrant Plus (and possibly Pell Grants) or other state or federals resources.
- Alignment with STEM Starter Academies, SUCCESS, MassHire, and Apprenticeships
- Collaboration with MassHire system for employer outreach
- Technology and equipment funding through Skills Capital Grants

MA STEM-Tech Career Academy: 3-Way Partnership

- Dedicated leader & staff
- Open enrollment, with recruitment of under-represented students
- Integrated applied learning curriculum, aligned to college & industry standards
- Academic supports
- College/career counseling



- Dedicated program director/ High School liaison
- Faculty engagement with HS teachers
- No cost degree/certificate
- Degree/certificate programs aligned to industry pathways
- College readiness, wraparound and academic supports
- Academic/career counseling case management
- Potential alignment to 2-4 Year Baccalaureate pathways

- Dedicated liaison
- Skill-mapping
- Work-based learning experiences & internships
- Career exploration activities
- Mentors & volunteers
- Job placement support

MA STEM-Tech Career Academy: Example Credentials

Information Technology Pathway	Integrated Media Design	Associate in Science
	Visual Design	Associate in Science
	Gaming/Computer Artist Track	Associate in Science
	Computer Information Systems	Associate in Arts
	Computer Science	Associate in Arts
	Cybersecurity	Associate in Science
	Gaming/Computer Programming	Associate in Science
	Web Development	Associate in Science
	Android Mobile App	Technical Certificate
	Data Analytics	Technical Certificate
	Data Management	Technical Certificate
	Excel Applications Support Specialist	Technical Certificate
	Health IT Systems Support	Technical Certificate
	IT Support Certificate	Technical Certificate
	Microsoft Applications Support Specialist	Technical Certificate
	Mobile App Starter	Technical Certificate
	Mobile App Starter Certificate: Apple Devices	Technical Certificate
	Networking and Security Certificate	Technical Certificate
	Object Oriented Computer Programming and Design	Technical Certificate
	Web Development	Technical Certificate

Environmental & Life Sciences Pathway	Chemistry	Associate in Arts
	Biomedical Engineering	Associate in Science
	Biological Sciences: Biotechnology	Associate in Science
	Environmental Science	Associate in Science
	Energy and Sustainability Management	Technical Certificate

Start-Up/Scale-Up Grant Funding Model

Commitment of $6.5M for 4-6 schools

Source of Funds: CTI earmark in 12/21 ARPA Bill (1599-2037) & Skills Capital Grants

Exploration Grant FY23

Year 1

- Planning
  - $50K

Launch "Start Up" FY24 Student Recruitment

Year 2

- Operation Resources
  - $250K
- Technology/Equipment
  - $450K

Student Enrollment Implementation FY25-FY26

Year 3 and 4

- Operation Resources
  - $250K FY25 & $250K FY26 for a total $500K

Exploration Grant Applicant Commitment

Lead Applicant: Public High School, Community College or accredited 2-year college that is a minority-serving institution as defined by the United States Department of Education.

Eligibility Requirement: Exploration grant application requires a partnership of a Community College, High School (s) and Industry Partners. Priority will be given to applicants that are building on existing Early College and/or Innovation Pathway program partnerships.

Exploration Grant Implementation will include:

- Participation a community of practices (January to June) that includes attending informational sessions reviewing similar programs from RI, CT and NY other states
- Confirmation and description of strategies for the adoption of the five program guiding principles
- Material to support a submission of a program applications in June for FY24 (Yr. 2) for start up funding that would require joint approval by DESE, DHE and the Workforce Skills Cabinet. Item such as the:
  - Implementation model and schedule
  - Industry and Education Partnership MOU
  - High School course sequence map and Post Secondary and industry Credential (s)
  - Student awareness, recruitment, and support plan
  - Industry and community engagement and partnering plan
  - Career advising and work-based learning plan
  - Resource and staffing plan

Exploration Grant Timeline

Request for Proposals Released	On or about October 24, 2022
Informational Webinar for Applicant Guidance	October 28, 2022 - 9:30AM-11:00 AM Register in advance for this webinar: https://us02web.zoom.us/webinar/register/WN_sq-5uISyTc60rllfTEwiMA
Letter of Interest submitted by the lead applicant identifying the high school partner (s)	November 9, 2022
Proposals submitted through the online application system.	December 1, 2022 Link to be posted by EOE on November 15th .
Grant Awards Announcement	On or about December 21, 2022
Contract Start Date	December 30, 2022
Funding Disbursement	On a rolling basis, upon verification of approved submitted budgets/purchases
Contract End Date (assuming extensions based on meeting benchmarks)	June 2026

Question and Answers

Follow Up Contact:

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