

Building & Sustaining a Middle Skill Jobs Supply Chain Through Engaged Community Colleges

Presentation to the National Academy of Sciences



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Quinsigamond Community College
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DISRUPTION & OPPORTUNITY

THE LANDSCAPE HAS CHANGED



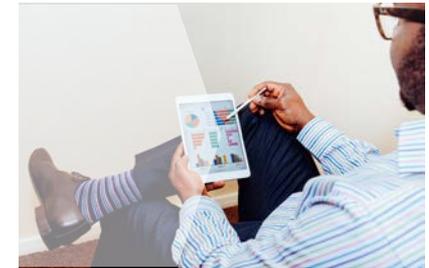
TECHNOLOGICAL GROWTH

Unprecedented, exponential growth of emerging technologies has created a challenging environment for both industry and education/training providers



CLIMATE OF INNOVATION

Discovery of new ways to be more responsive and deliver superior value to students and the workforce



OPPORTUNITY

Opportunity to envision a modern model of training and education

THE CHALLENGE

THE WORK-PREPARATION PARADOX



Sources:
Lumina Foundation/Gallup Poll 2013
The 2013 Inside Higher Ed Survey of College & University Chief Academic Officers report

QUINSIGAMOND

COMMUNITY COLLEGE



- Established in 1963
- Central Massachusetts
- Over 13,000 full and part-time students
- More than 70 degree and certificate career options
- 56% growth since 2007
- 85% increase in completion
- Robust partnerships with K-16 partners, other community organizations, workforce development system and industry.



AstraZeneca

INDUSTRY PARTNERS & SHARED INTERESTS



MASSACHUSETTS
Department of
Higher Education



Bright Ideas in Fiberoptics



Massachusetts
Institute of
Technology



Learning with Purpose



FITCHBURG STATE
UNIVERSITY

SHARED GOALS

COMMUNITY COLLEGES & INDUSTRY



Aligning interests to further
shared success



Reducing length of supply chain
without reducing competency
and within our delivery structure

DRAMATIC EVOLUTION

IN THE PAST 50 YEARS



- Jobs have changed
- Technology has changed
- The way we deliver training has changed
- *Can we create a framework to foster nimble responsiveness from higher education that meets the needs 5 years – 10 years from now?*

SCALING INNOVATIONS

FROM REGION TO STATE



- Career Focus Across College Programs
- College/Career Center collaboration and co-location
- Education, economic and workforce development integration
- From QCC region to state

Massachusetts Community Colleges Awarded
\$20 Million U.S. Department of Labor Grant

It's all about one word:

TRANSFORMATION.



A BIT OF BACKGROUND

WITH A COMMON PURPOSE



A SUCCESS STORY

ON MANY LEVELS

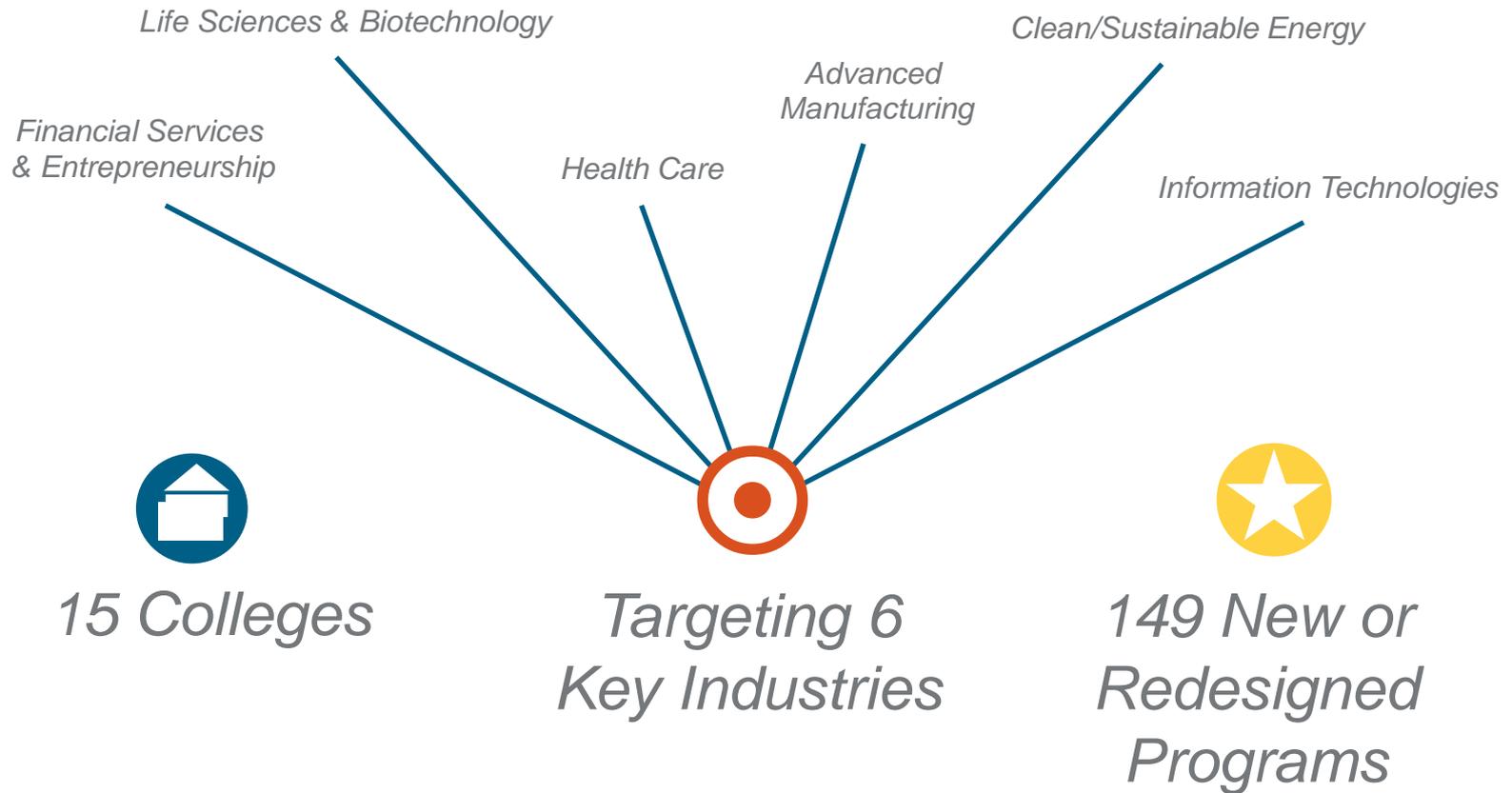
MASSACHUSETTS COMMUNITY COLLEGES



KEY PARTNERS

- + Massachusetts Executive Office of Labor & Workforce Development
- + Massachusetts Executive Office of Housing & Economic Development
- + Massachusetts Department of Career Services
- + Massachusetts Department of Elementary & Secondary Education
- + Massachusetts Department of Higher Education
- + One-Stop Career Centers
- + Massachusetts Workforce Investment Board Association
- + Industry Representatives

TRANSFORMATION AGENDA



OUR MISSION

SUPPORT STUDENTS ALONG EFFICIENT CAREER
PATHWAYS INTO HIGH-DEMAND CAREERS



STUDENT SUPPORT

- Navigators at OSCCs
- Achievement coaches
- Intrusive advising



ACCELERATED CAREER PATHWAYS

- Modularized programs
- Accelerated developmental education
- Stackable credentials



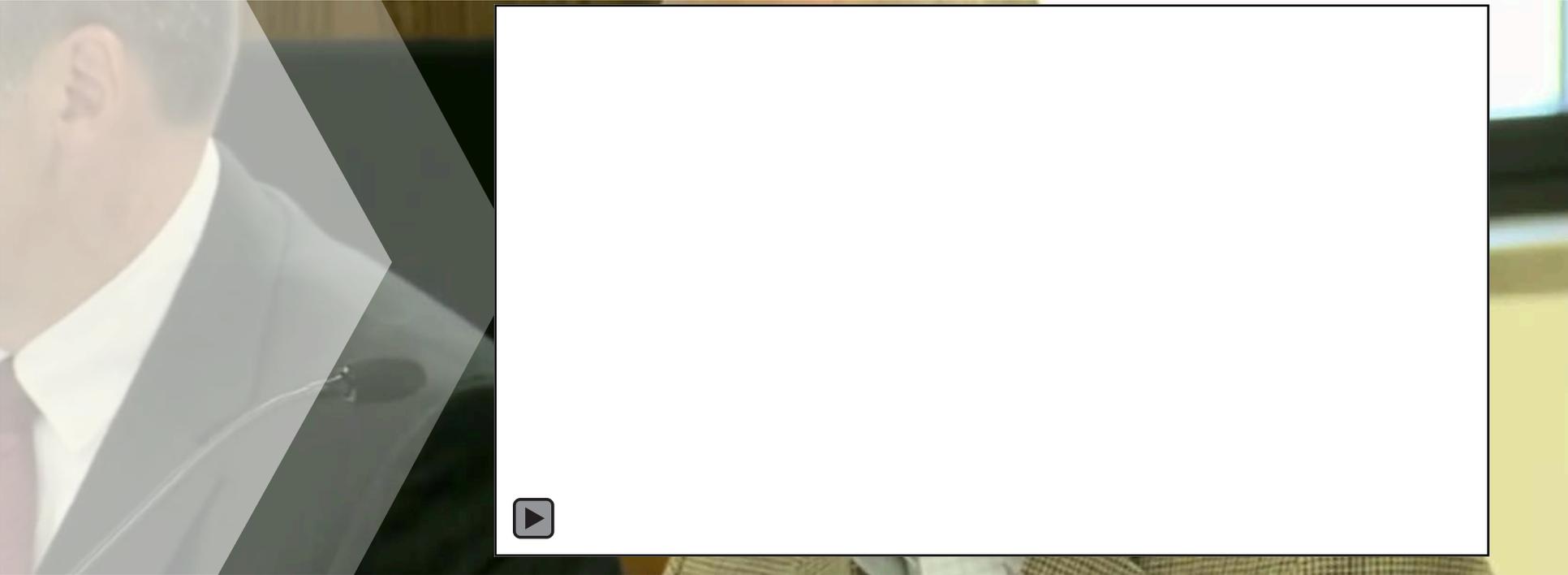
HIGH-DEMAND CAREERS

- Employer partnerships
- Regional career paths



THE EMPLOYER PARADOX

VIDEO



STRATEGIES FOR CREATING SYSTEMIC CHANGE



**FOUNDATION OF
COLLABORATION**



**REDESIGN
EDUCATION &
TRAINING
DELIVERY**
(e.g. accelerated,
stackable credentials)



**LEVERAGE
TECHNOLOGY**

FOUNDATION OF COLLABORATION

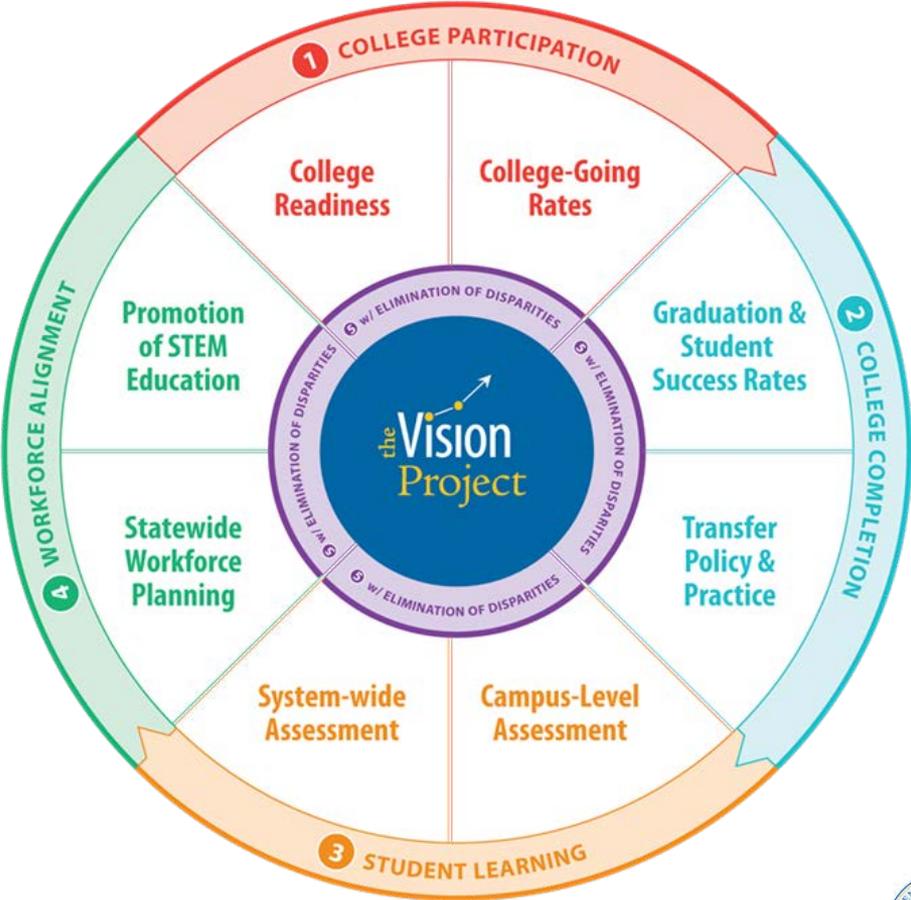
SHARED GOALS & INVESTMENTS



- Driven by regional economic development and aligned by self-interests
- Industry engagement in program design and customized incumbent worker training
- Shared efforts to address industry labor market demand through TA statewide industry teams
- Articulate substantive technical training for college credit
- Design curriculum to address emerging technologies and build STEM workforce
- Expanded partnerships leverage additional resources

INTENTIONAL INTEGRATION

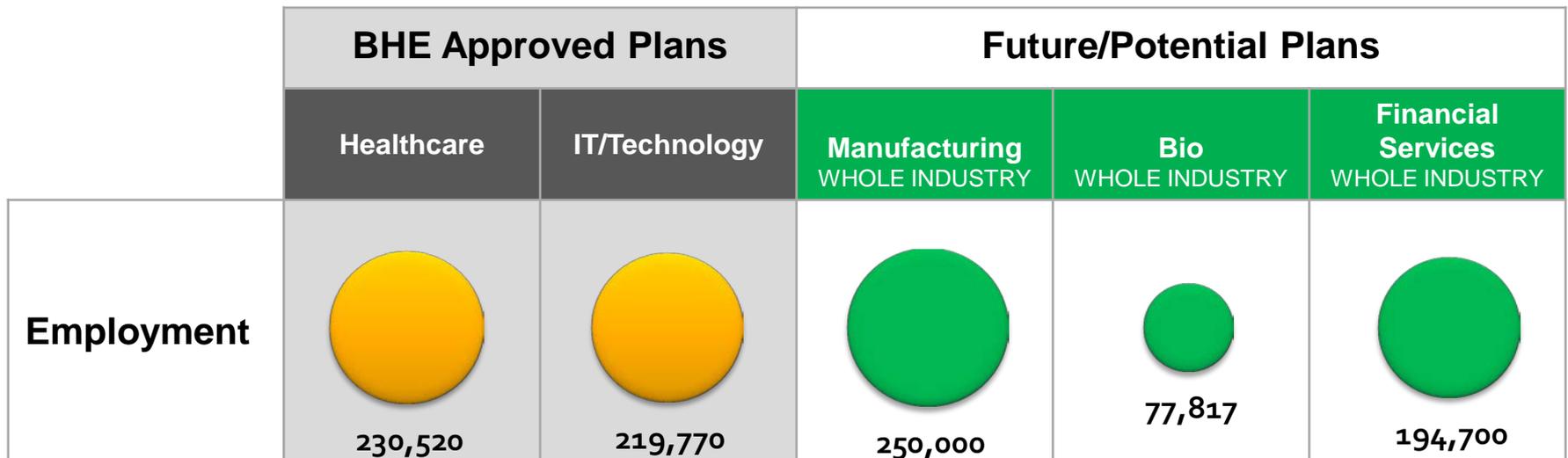
MA DEPT. OF HIGHER EDUCATION



MASSACHUSETTS
Department of
Higher Education

SYSTEMS BASED APPROACH

TO MEET EMPLOYER DEMAND



Sources: BLS QCEW and OES 2013; Wanted Analytics. 120 Days, November 2014.

- MA Department of Higher Education Workforce Development Plans (HC, IT, AM, Life Sciences)
- Workforce Development Systems – state and local

CREDENTIALS

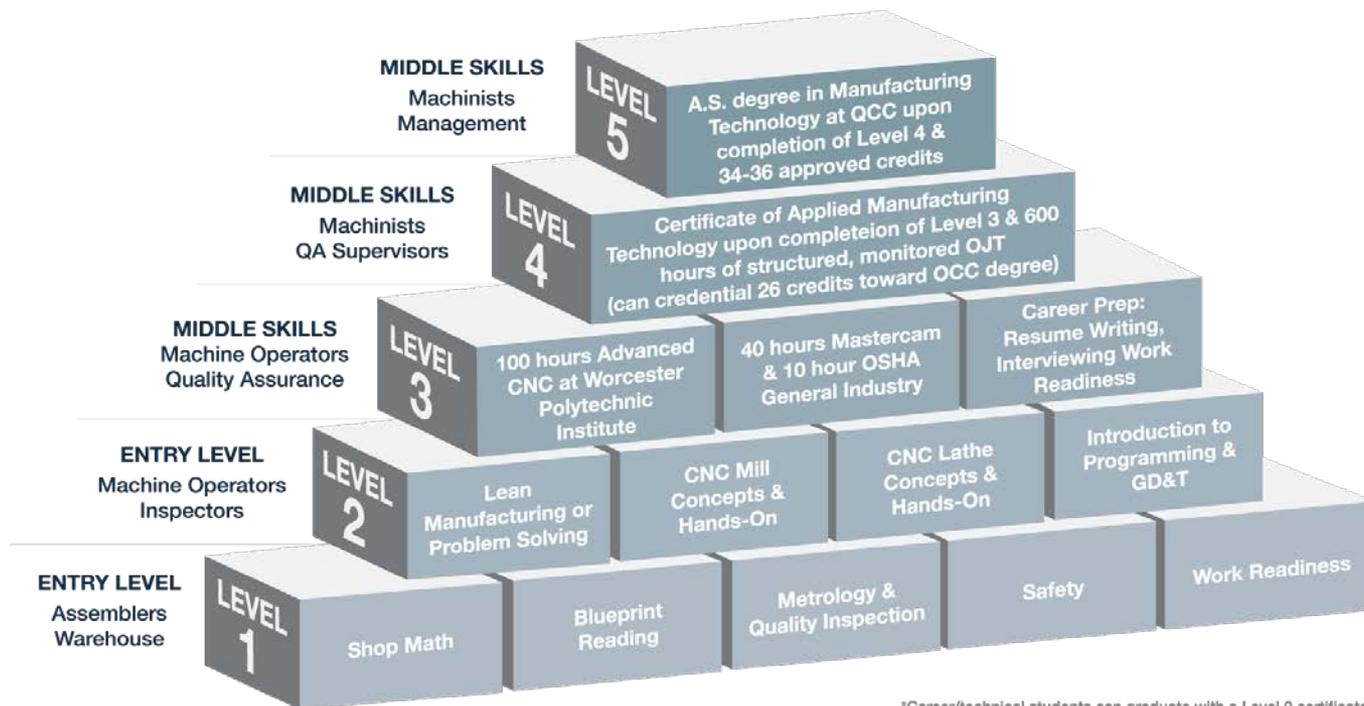
ACCELERATED & STACKABLE

Creating better outcomes for students & economy

- Support completion by building momentum
- Remove barriers
- Designed with industry input to meet industry demand
- Provide a steady stream of skilled workers
- Seamless transition from classroom to career

INDUSTRY-ALIGNED CURRICULUM

MACWIC CREDENTIALING PYRAMID



*Career/technical students can graduate with a Level 2 certificate

LEVERAGING TECHNOLOGY & SHARED SYSTEMS

- Real-Time Labor Market Information
- ACT's National Career Readiness System
- Online Learning Modules & OER
- SIEMENS NX

REAL-TIME DATA

COOPERATIVE PURCHASE RTLMI



New Search | Summary | Talent REQ | Candidates | **Labor Market** | World | Employers | Jobs | Counts | My Jobs

Job criteria

Keyword

Location All locations
 New York-Northern New Jersey-Long Island MSA, NY
 Boston-Cambridge-Quincy MSA, MA
 Hartford-West Hartford-East Hartford MSA, CT
 Albany-Schenectady-Troy MSA, NY
 Providence-New Bedford-Fall River MSA, RI
 Worcester MSA, MA

Show more...

Search Definition: [Clear] [Save] [PDF]
Computer User Support Specialists in Worcester MSA, MA [Generate Report](#)

Hiring Scale View the difficulty-to-fill indicator based on market conditions.

Potential Candidates in the workforce: **700**
Direct Employers currently competing: **62**
Open Jobs posted by Direct Employers: **100**

Selected Position in my Market

Easy **70** **84** Difficult
Worcester, MA

Demand Pressure Find the number of candidates per job opening.

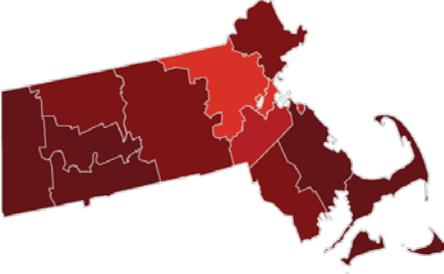
Nationally **10** candidates / job opening Locally **6** candidates / job opening

Maps
Heat map showing Hiring Scale, Job Volume, Candidate Supply, Market Salary and Posting Period.

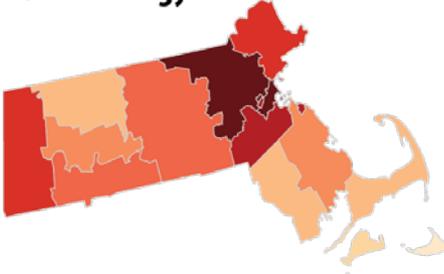
LABOR MARKET DEMAND

REAL TIME DATA

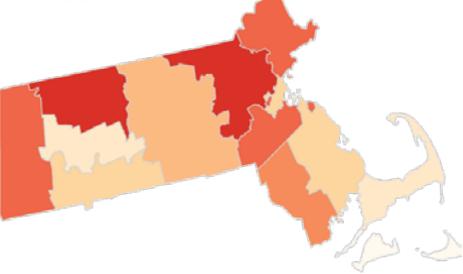
Healthcare



IT/Technology



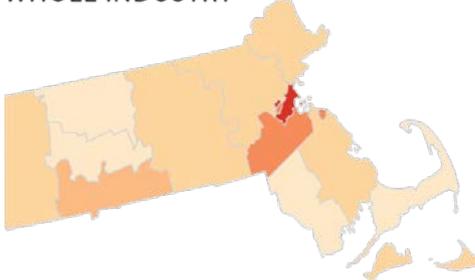
Manufacturing
WHOLE INDUSTRY



Bio
WHOLE INDUSTRY



Financial Services
WHOLE INDUSTRY



ASSESSMENT & RESOURCES

ACT COOPERATIVE PURCHASE



Resources for foundational workplace skills assessment and skills certification provided to all community colleges and American Job Centers

ACT[®] **NCRC**[™]
Plus

ACT[®] **Career**
Ready 101[™]

ACT[®] **KeyTrain**[®]

ONLINE REPOSITORY

CONTEXTUALIZED CURRICULUM



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Contextualized Curriculum

for Adult Learners in Math and Literacy

Curriculum Modules

[Literacy Forum](#)

[Math Forum](#)

[General Forum](#)

[Resources](#)

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Literacy and Math Curriculum Modules

These modules target two Content Areas—**Literacy** and **Mathematics**—and are contextualized to three key **Industry Sectors**—healthcare, advanced manufacturing and information technology. In **Literacy**, the modules focus on oral communication, written communication, reading technical information, and integrating/presenting information using different formats. In **Mathematics**, the modules focus on data analysis; fractions, decimals and percents; ratios, rates and proportions; and measurement and estimation. Topics can be selected across content areas or industry sectors for use individually or as a group.

You can download a pdf summary of all of the modules [here](#).

Core Topic

- All -
- All -
- Literacy (All)
- Oral communication
- Integrating and presenting information
- Oral and Written Communication
- Reading Comprehension
- Reading technical information
- Written communication
- Math (All)
- Conversions
- Data analysis
- Decimals, fractions and percents
- General Numeracy
- Measurement and estimation
- Order of Operations and Percentages
- Ratios, rates and proportions

Industry Sector

Advanced Manufacturing

Mathematics

[Getting Customer Quotes](#)

[Does It Make the Grade?](#)

[How Fast Should it Spin?](#)

[The Mix](#)

[Select for Accuracy and Precision](#)

[Getting Sense of the Data](#)

[Elements of the Parts](#)

Our collaborative effort is dramatically affecting individuals and strengthening our economy.

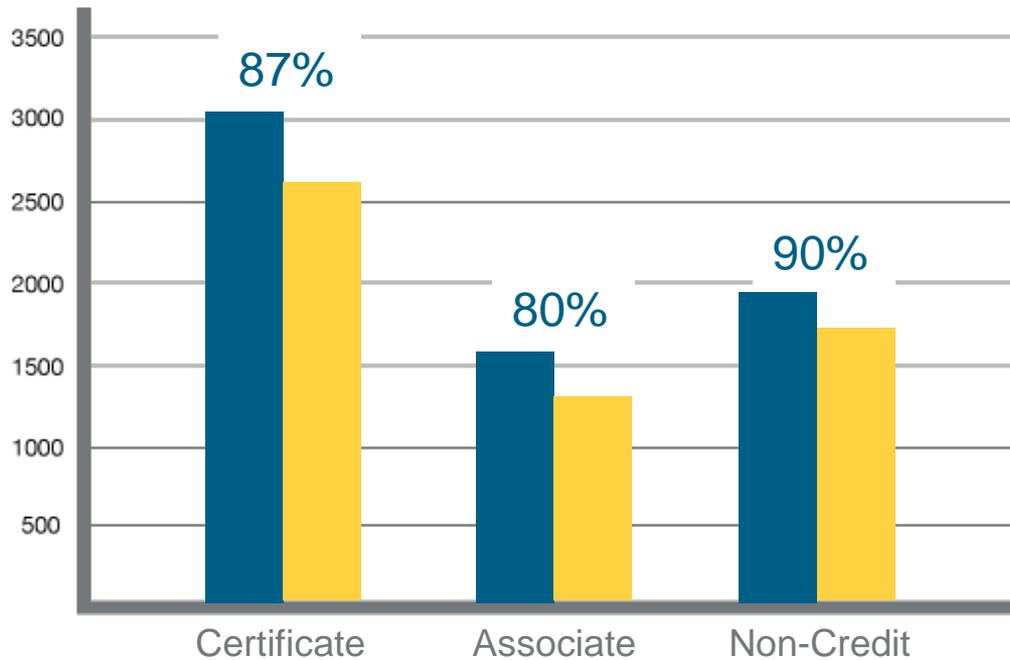
Leading to

**TRANSFORMATIONAL
RESULTS...**

RESULTS

IN RETENTION & COMPLETION

*Driven by intensive student supports,
rates far exceed average.*



■ Students enrolled through June 2014

■ Students completing or retained

Over
- 70% -
of all students
(6,615) have received
innovative supports

RESULTS

TECH-ENABLED LEARNING

2,100

Transformation Agenda participants completed programs with technology supported instruction

7,700

Online credit hours completed out of 9,000 attempted

85%

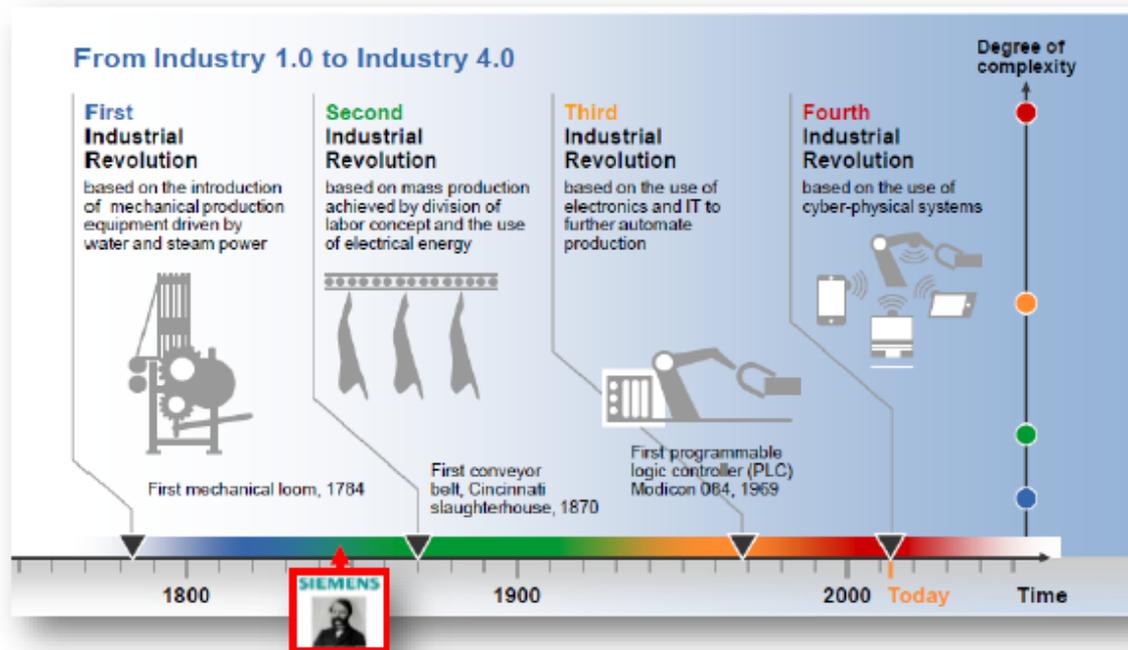
Completion rate of online credit hours

SIEMENS

Advanced Manufacturing

As complexity increases, we must educate and train differently

SIEMENS



More STEM Skills and Knowledge Required

SIEMENS



- MMEP and QCC secured
- \$660 million contribution to technical schools, 2-year and 4-year institutions
- QCC regional training provider
- Seeking integration across all public institutions
- Regional partnerships being explored (Thomas Nelson Community College, VA)

COMPLETE COLLEGE AMERICA

WWW.COMPLETECOLLEGE.ORG

HOME

GAME CHANGERS

ALLIANCE

STATE DATA

RESOURCES

BLOG

ABOUT

**COMPLETE
COLLEGE
AMERICA**

SEARCH:

Follow us on:



THE GAME CHANGERS

Systemic reforms. Significant results. More college graduates.

PERFORMANCE
FUNDING

COREQUISITE
REMEDICATION

FULL-TIME
IS FIFTEEN

STRUCTURED
SCHEDULES

GUIDED PATHWAYS
TO SUCCESS



**STRUCTURED
SCHEDULES**

"In structured schedules, not only do I see the light at the end of the tunnel year by year; I see it class by class. There is a clear path to graduation day."

Seamus Manley
Student, University of Montana Western



GPS in STEM

COMPLETE COLLEGE AMERICA



Meta-Majors



**Aligned
Mathematics**



**Default
Academic
Degree Maps**



**Milestone
Courses**



**Structured
Schedules**



**Proactive
Advising**

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**COMPLETE
COLLEGE
AMERICA**

TECHNOLOGY ENABLED SUCCESS

WHAT'S NEXT...

DIGITAL INTEGRATION

THE CHALLENGE IN MA



15 Community Colleges



4 Student Information Systems



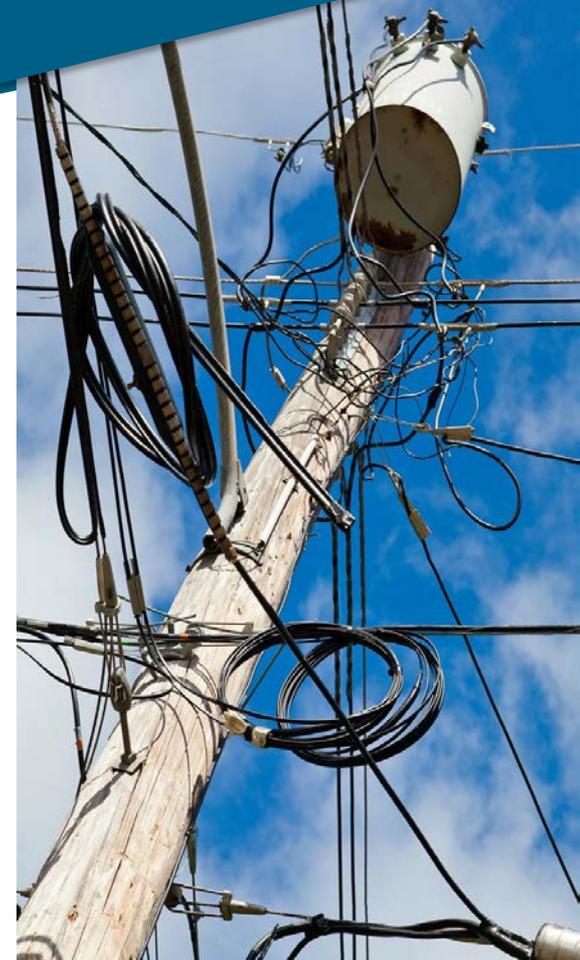
15 Learning Management Systems



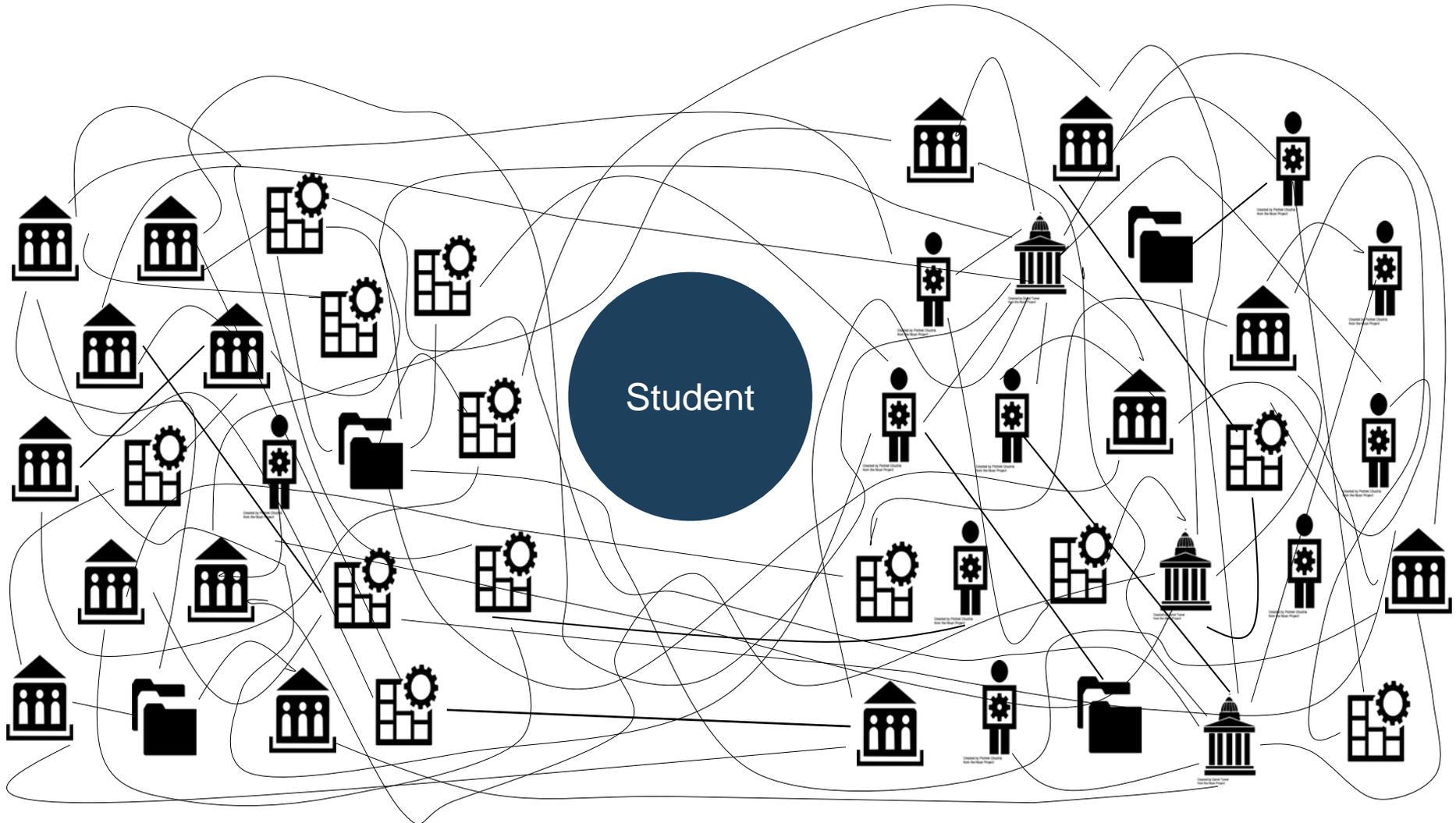
33 Career Centers



2 State Agencies

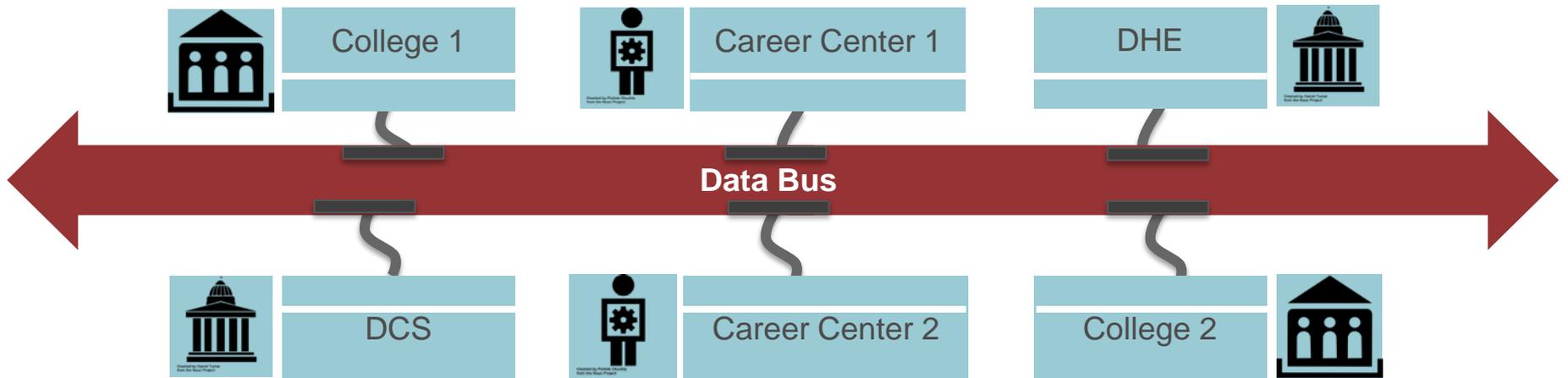


RETHINKING STATUS QUO



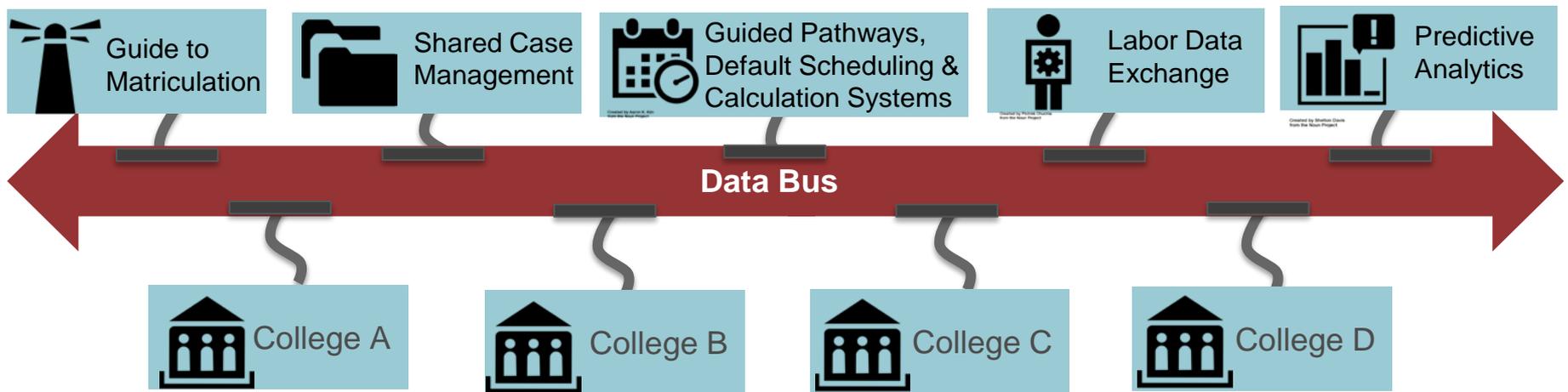
DIGITAL INTEGRATION

EFFICIENCY THROUGH TECHNOLOGY



NEXT PHASE OF TESTING

PLAN-FULLY EXPANDING



NMMI

COLLABORATION WITH SUPPLY CHAIN IMPACT

the WHITE HOUSE PRESIDENT BARACK OBAMA

Contact Us ▶

G



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Signed Legislation

Vetoed Legislation

The White House

Office of the Vice President

For Immediate Release

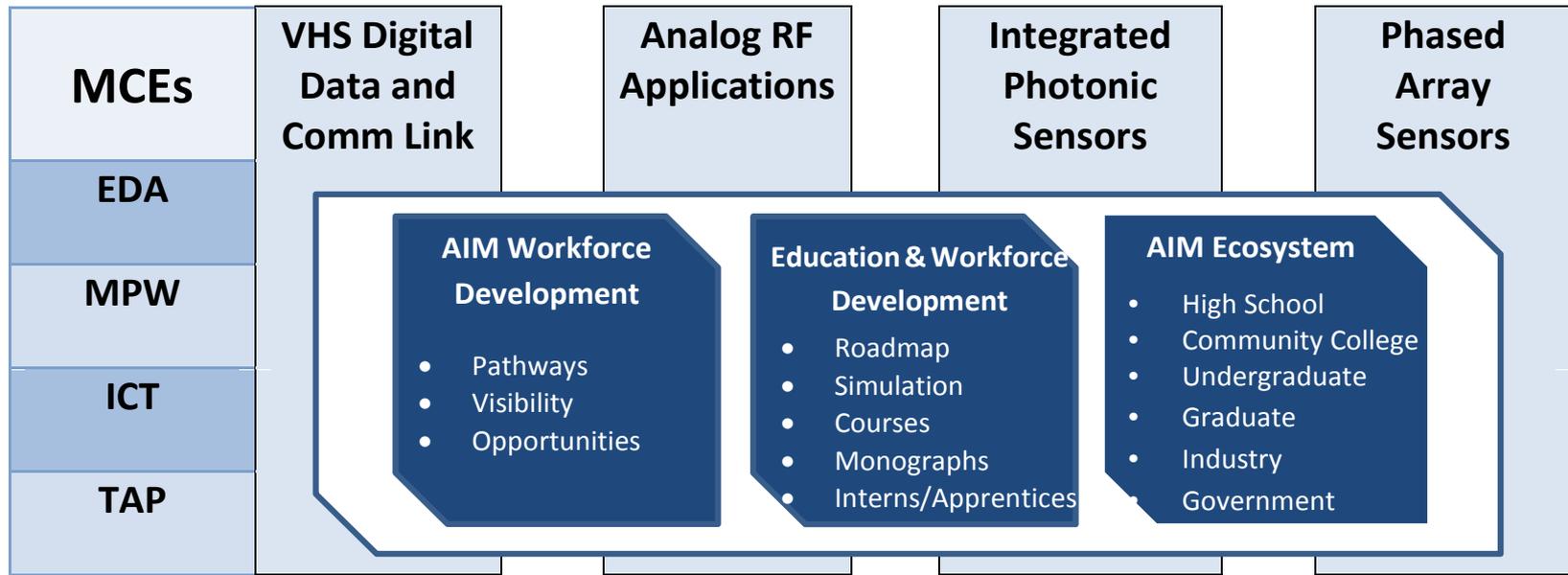
July 27, 2015

FACT SHEET: Vice President Biden Announces New Integrated Photonics Manufacturing Innovation Hub in Rochester, New York

The sixth of nine new manufacturing institutes brings \$610 million in public-private investment to next-generation photonics manufacturing, fostering American manufacturing innovation to transform digital communications and high-performance computing

- National technical assistance led by Quinsigamond CC (Worcester, MA)
 - Partner with regional MEPs, Workforce Investment Boards (WIBs), cluster associations, business incubators, and NSF ATEs to identify workforce development needs
 - Professional development and curriculum development during semi-annual cross-Institute meetings
- Provide national models for programs by building upon existing Photonics-related programs at Monroe CC (Rochester, NY), Quinsigamond CC
 - Leverage NSF ATE's (NACK, OPTEC, NEATEC)
 - Leverage Dept. of Labor TAACCCT (Transformation Agenda) approaches pioneered by QCC that serve as the national model for Round 4 projects
 - Integrate advanced curriculum from university partners in blended courses for CC network
 - Bridge courses with internships, apprenticeships and job training **to meet regional labor market demands**
- Extend the network over the life of the academy, starting with partner community colleges , **to 30+ regions nationwide, to scale best practices**

Key Technology Manufacturing Areas (KTAMAs)



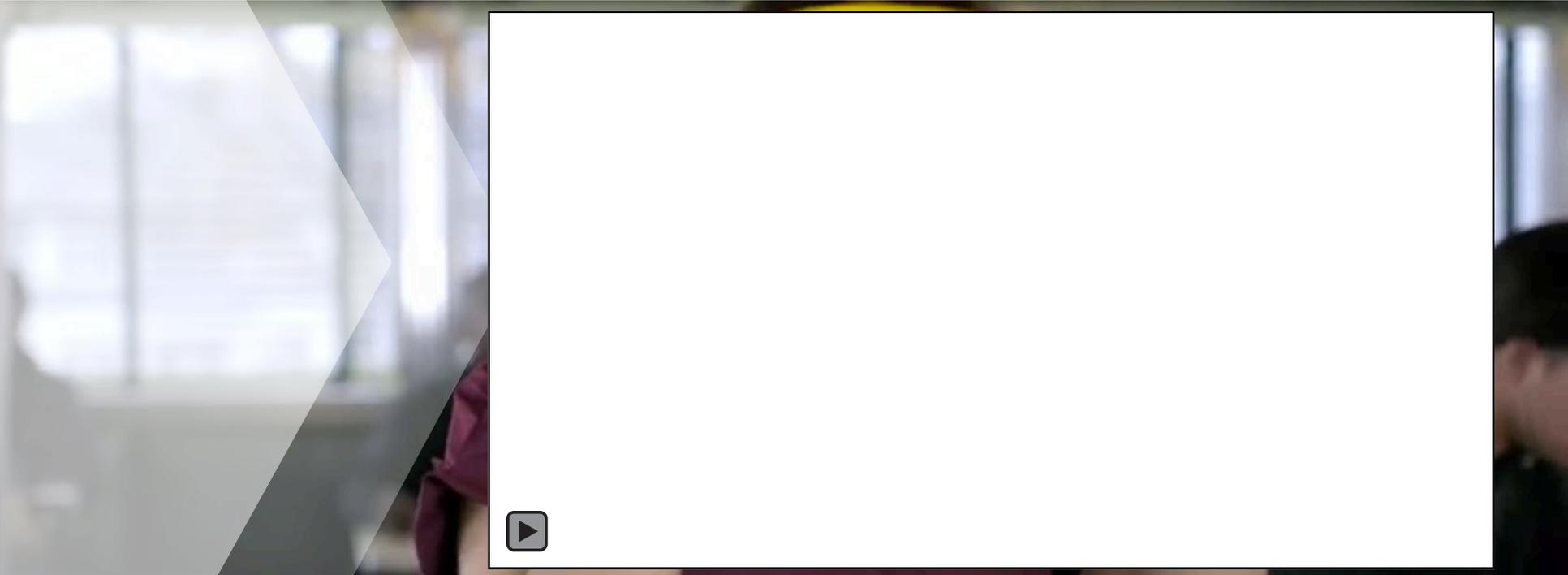
- Coordinate and archive knowledge and technology creation
- Support MCEs and KTAMAs with roadmaps and analyses
 - Define difficult technology challenges
 - Identify potential solutions
- Support TRB with a Technology Roadmap
 - Internal and external context
 - Project selection and execution timelines

metrics – entity participation and impact on decisions

models – ITRS and INEMI



IN CLOSING



POLICY RECOMMENDATIONS

TO BUILD & SUSTAIN MIDDLE SKILLS PIPELINE

+ Federal & state investments in regional models of transformation to sustain impact

- Federal-catalysts
- State-implementation
- Institutional-operations
- Industry partners invested

+ Alignment between community colleges and workforce development systems to deliver more value to students & industry partners

POLICY RECOMMENDATIONS

TO BUILD & SUSTAIN MIDDLE SKILLS PIPELINE

+ Carefully coordinate and leverage investment of federal agencies to support K-16

- Technology-enabled
- Pathways to regional economy
- Stackable credentials

+ Further digital integration on federal, state and local level for increased student & career successes

+ Performance funding formulas to include technology enabled, stackable programming to meet regional needs



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