

NEW ENGLAND BOARD OF
HIGHER EDUCATION

UPSKILLING NEW ENGLAND: *BRIDGING THE GAPS BETWEEN EDUCATORS AND EMPLOYERS*



NEW ENGLAND BOARD
of HIGHER EDUCATION



EDUCATION
NETWORK

May 2020

FOREWARD

We authored this white paper largely prior to the onset of the COVID-19 global pandemic. While the implications of many of our findings have always been significant, we believe that they are now of even greater import. The populations most in need of upskilling are the least likely to receive such opportunities. The economic shock caused by the spread of the novel coronavirus has only increased the vulnerabilities of these individuals, most notably un- and underemployed, low-wage and hourly workers throughout the country and New England. Roughly 26 million jobs nationwide were lost in April 2020 and the Federal Reserve estimates that job losses could top 47 million in the current economic downturn. By comparison, only 8.6 million jobs were lost in the Great Recession. Business leaders predict that the pending recovery – the duration and strength of which are still uncertain – will involve a more rapid acceleration in automation and fundamental shifts in how work will be conducted.

We have yet to understand the full impact of the COVID-19 pandemic on our lives—our businesses, workers, families and students. Nor do we know fully how state and federal governments will respond in terms of financial support for education and training providers or policies on job creation.

If we use the Great Recession as a barometer, higher education institutions and other educational providers will bear much of the weight of preparing individuals to go back to work and fill new types of jobs. In New England, unemployment rates peaked at 9% in 2010 and two-year colleges experienced an 8% increase in enrollment. Notably, this period also represented an inflection point where the number of sub-baccalaureate program completions in demand-driven sectors, such as biomedical sciences, computer sciences, and precision production, more than doubled across the region. It is possible that we could see similar patterns in the near future as the U.S. economy recovers from the coronavirus outbreak.

Certainly, colleges and universities must display a degree of nimbleness exceeding that of prior decades. They will have to respond to the needs of a broader array of students, including adult learners, who are likely to turn to short-term, online methods of gaining industry-validated knowledge and skills. According to Strada Education's [COVID-19 Work and Education Survey](#) (April 15-16, 2020), since mid-March 2020, 54% of working Americans have lost their jobs or income and 34% feel they will need additional education to find a comparable job if they lost theirs during this time. Moreover, 53% of Americans would seek online education and training programs rather than in-person choices.

At the same time, higher education, employers and local and state governments must act quickly to collaborate. Mitigating the likelihood of a full-blown recession or even a short-term depression will depend on prioritizing the acquisition of in-demand, automation-resistant skills and credentials by New England's out-of-work individuals and at-risk incumbent workers.

Even at this relatively early stage of a global pandemic, many of the conditions linked to our recommendations already exist. For example:

- Individuals can adapt quickly to digital methods of teaching, learning and working;
- Current and prospective students' expectations of higher education are changing;
- Deficiencies in our labor market have been revealed, further clarifying the need for transparent education and career pathways;
- We can no longer ignore inequities faced by people of color and low-income individuals.

Given the present circumstances, it is more important than ever that higher education leaders band together to innovate by adjusting delivery models, partnering with employers and creating pathways to in-demand jobs in order to meet the needs of current and future members of our workforce.

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New England is home to a large number of fast-growing, high-skill industries with jobs that require a postsecondary credential. Effective models of education and training need to be created to meet labor market demands, overcome employer-reported skills shortages, and satisfy workers' desire for additional training. Consequently, the region's businesses need to make upskilling programs available to employees to improve skills matching, retention and work productivity. The successful implementation of upskilling programs will require greater collaboration and alignment between New England's educators and employers.

In September 2019, the New England Board of Higher Education (NEBHE) convened a meeting of higher education, industry and policy leaders and subject matter experts to identify best practices and strategies for improving access to—and completion of—upskilling programs in New England.

Nearly 40 stakeholders, including employers from small and mid-sized companies, leaders of higher education institutions, policymakers in state agencies, and representatives of workforce boards and non-profit organizations participated. Their keen insights, combined with consumer data from Strada Education Network on adults' perceived need for additional education, yielded a number of key recommendations

for how New England can expand and improve successful upskilling programs and policies.

These opportunities must be expanded to ensure that more individuals have access to employer-informed upskilling programs, credentials and degrees. Growth of upskilling opportunities in New England is currently hamstrung by the shortage of effective programs, which tend to exist in disconnected silos, and constrained capacity of education providers and employers alike.

Our recommendations to education providers, employers and state policymakers for expanding upskilling focus on three target areas: partnership development, new delivery models and state policymaking. We recommend that:

WHAT IS UPSKILLING?

Education, training and development that prepares someone for advancement in the workforce.



Key upskilling opportunities and outcomes:
Employer training - Credentials - College Degrees

Source: Aspen Institute's UpSkill America

Partnerships

- Employers, institutional leaders, policymakers, and members of workforce boards convene state-level, cross-sector working groups focused on eliminating structural barriers that prevent the implementation and scaling of collaborative upskilling programs.
- Both employers and higher education institutions utilize intermediary organizations or designated points of contact to enhance open, sustainable and growth-oriented communication, partnerships and programming.

Participants identified common ways employers, workforce training providers and higher education institutions deliver upskilling opportunities to adults:



In-house upskilling. An organization has on-site education and training opportunities available to its employees.



Direct Employer-Institution Partnership. An employer works in partnership with an education or training provider to offer upskilling programs for employees, using off-the-shelf or customized programs to fit employer or industry needs.



Industry-led partnerships. An industry group or association--referred to in this paper as an intermediary--connects an employer with education providers to train workers and fill skills gaps.

Partnerships *continued*

- Employers and institutions use standardized skills-related language in job postings, course and credential descriptions to establish alignment between jobs and training programs.

New Delivery Models

- Education and training providers implement flexible education and training delivery models to enable learning at home, in the workplace or community setting or on a college campus.
- Postsecondary education providers redesign programs to include stackable credentials, transferrable credits and pathways to further education and training opportunities. This will enable individuals to transition to and from education and training, work and life responsibilities in a more seamless fashion—setting the conditions for successful lifelong learning practices.
- Upskilling programs include support services tailored to workers' needs, including work-based study spaces and expanded or 24/7 access to learning advisers.

State Policymaking

- Policymakers support and incentivize provider-employer partnerships to expand the validation and recognition of prior learning and work experience—reducing the time to credential attainment and promoting worker participation in upskilling programs.
- Policymakers provide incentives, including grants and tax breaks, to stimulate employer investment in upskilling as a key business and workforce development strategy.
- Policymakers encourage higher education and other training providers to develop accessible, transparent credentials and pathways to better communicate how upskilling programs provide specific skill acquisition, career progression and increased compensation.

- Policymakers promote programs and partnerships that reach underserved populations, including people of color, the incarcerated and the formerly incarcerated, those recovering from drug and/or alcohol dependency, new immigrants and individuals living in rural areas.

Comprehensive implementation of these recommendations is an ambitious charge. However, they serve as critical elements of a state and regional roadmap to:

- Engage and retain employers and support an innovation-driven economy;
- Address pressures felt by higher education systems and institutions, including financial sustainability challenges and public perceptions of the value and career-connectedness of postsecondary learning;
- Develop new and expanded models of education that are accessible to a wide variety of learners, including underserved populations and those left behind by the evolution of skills in a digital economy.

Central to these recommendations is the critical need to enhance individuals' trust in education and training systems and enable them to become lifelong, working learners. Regional collaboration among employers, higher education leaders, training providers, and state policymakers will reinforce communications about the necessity of upskilling and increase the transparency and effectiveness of upskilling programs, policies and partnerships.



The United States is experiencing dramatic shifts in the skills required of incumbent workers and new hires. While the recent low unemployment rate was generally good news, it also exacerbated a persistent skill shortage in the region's labor force that has been consistently reported by many employers. [A McKinsey Global Survey](#) indicates that executives increasingly see investing in retraining and "upskilling" existing workers as an urgent business priority to overcome the labor force skills gap. Nevertheless, [PwC's 23rd Annual Global CEO Survey](#) reveals rising uncertainty among chief executives and workers about the future of the workforce: only 18% of chief executives cite "significant progress" in establishing upskilling programs, and only 33% of surveyed workers feel that they have been given enough upskilling opportunities to develop their skills in preparation for their employment future.

These sentiments are certainly justified. According to the [World Economic Forum](#) the "half-life" of skills today is five years, whereas, 20 years ago it was 10 years. Significant drivers in this shift include automation, digitization, and advances in artificial intelligence that disrupt the workplace and make many high-paying middle-skills jobs increasingly obsolete. By 2030, according to the [McKinsey Global Survey](#), as many as 375 million workers worldwide—or roughly 14% of the global workforce—may need to change occupations.

[The activities most susceptible to automation](#) are physical ones in highly structured and predictable environments, as well as data collection and processing. These activities are conducted by lawyers, machinists, journalists, truck drivers, financial analysts, medics, chefs, and construction workers. According to a [new Brookings Institution report](#) the occupational groups with the greatest risk of automation potential are in production, food service, transportation, and administrative services. In the United States, these activities make up 51% of activities in the economy and account for almost \$2.7 trillion in wages. As processes are transformed by the automation of individual activities, a larger share of people will need to perform activities that complement the work that machines do, and vice versa.

In addition to these global forces, New England is home to a large number of fast-growing, high-skill industries with jobs that require a postsecondary credential. Consequently, the region's employers need to make upskilling programs available to employees to improve skills matching, retention and work productivity. Expanded effective models of education and training will need to be created to meet labor market demands, overcome employer-reported skills shortages, and satisfy workers' appetite and desire for additional training opportunities. Among workers in New England, [Strada Education Network's Consumer Insights Data](#) indicates that half of adults believe they need additional education to advance in the workforce.

The region's employers need an employee base that is ready to perform new kinds of work, fill emergent roles, and adapt existing jobs to workplace changes. The traditional path to solve this vexing problem has been to "buy, not build" talent. Unfortunately, in our current labor market, the talent supply is often not there. The "buy" strategy will only get more expensive, especially when the supply of relatively new skills, such as cloud computing and cybersecurity, cannot satisfy the immense demand.

The New England Board of Higher Education (NEBHE) embarked on a regional initiative to better make sense of how these worldwide forces and trends will affect New England's ability to compete and sustain its advantage as an exceptional place to pursue education, live and work. Higher education is New England's most sustainable resource and a lynchpin to future success. However, it must adapt and innovate to better deliver education and training where and when individuals need it most.

In September 2019, with support from Strada Education Network, NEBHE convened a meeting of higher education, industry and policy leaders and subject matter experts in New England to identify best practices and strategies for improving access to—and completion of—upskilling programs in New England. The group tackled critical questions such as:

- How can regional consumer insights data catalyze cross-state communities of practice to “upskill” adults?
- What emerging best practices and opportunities for scaling successful partnerships and state policies exist in New England?
- What are the needs and capacities of employers, institutions and individuals to implement and utilize new practices and transformations?

Their keen insights on these topics, combined with new consumer insights data from Strada Education Network on adults' perceived need for additional education, yielded a number of key recommendations as to how New England can expand and improve successful upskilling programs and policies. This paper seeks to build buy-in for these recommendations by providing a scan of the region's readiness to adapt, collaborate and act to increase access to and completion of upskilling opportunities, including the acquisition of value-added credentials.

This white paper argues that all unemployed, underemployed and employed people in New England need access to:

- Affordable, industry-validated, marketable upskilling opportunities that operate on...
- Collaboration between employers and education providers and yield...
- Stackable, transferable credentials and lead to family-sustaining wages (\$65,000 in New England*).

Defining Upskilling

According to the widely-cited definition provided by the Aspen Institute, upskilling is “education, training and development that prepares someone for advancement in the workforce,” as defined by the Aspen Institute. Based on New England's economy and demographics, this white paper focuses on models that allow adults to access the following upskilling opportunities and outcomes (based on the Aspen Institute's UpSkill America):

*NEBHE analysis of the American Community Survey. This figure refers to a combined \$65,000 household income for a family of four.

Employer Training. Many companies have programs specifically designed to equip new hires with the skills necessary for success in their new positions and to prepare them for the next step in their careers. In addition to new hires, companies offer in-house and external retraining and upskilling for incumbent workers.

Example: CVS Health operates four fully operational store and pharmacy training locations to support the development of employees and partnering community agencies. As part of its upskilling portfolio, CVS operates a Registered Apprenticeship program called Career Prescriptions for Success (CAPS). CAPS participants receive classroom and online instruction, professional mentorship, and on-the-job training, as well as pre-employment and post-placement retention support. To date more than 1,500 individuals have been placed into Registered Apprenticeships in retail pharmacy and management.

Credentials. An education or work-related credential is documentation of an individual's qualification or competence and can include educational certificates, digital badges, certifications and government-issued licenses.

Example: In 2016, IBM launched its Digital Open Badge Program to increase employee recognition and retention. The program also aims to motivate skill progression and make the information-technology workforce more inclusive. As of 2018, more than 350,000 individuals have earned a digital badge through the program, and over 1 million digital credentials have been issued.

Postsecondary Degrees. Associate or bachelor's degree attainment is another form of documentation of an individual's professional qualification. In organizations that offer education and training benefits, employers pay for some or all of the cost of a degree program.

Example: JetBlue Scholars provides full-time employee "crewmembers" who have already earned some college credits with an opportunity to earn an accredited college degree. The program includes college advising and resources, alternative college credit options, and tuition reimbursement. Since the program launched in 2016, 185 degrees have been conferred, saving participating JetBlue employees \$5.4 million.

Implementing New Upskilling Initiatives: Needs and Capacities of Stakeholders

There are several reasons why employers, individuals, and higher education institutions should care about retraining opportunities: the threat of automation, the emergence of new technology that requires different skill sets, and the need to acquire new competencies to advance in the workplace, to name just a few. NEBHE's convening of thought leaders aimed to determine what challenges and/or needs these stakeholder groups face in seeking to implement or pursue upskilling opportunities.

EMPLOYERS

Playing the long game. Investing in upskilling represents a short-term cost, but it often saves a business money in the long term and can be more cost-effective and less time consuming than hiring and training new employees. For employers who responded to the National Association of Colleges and Employers (NACE) 2018 Recruiting Benchmarks Survey, the average cost-per-new hire ranged from \$1,533 to \$6,110. After factoring the time it takes for an employee to be fully productive, the actual cost-per-hire can be as high as \$15,000 and take as long as eight months. By contrast, the average cost to upskill an employee is \$1,300, according to the Association for Talent Development—a significant overall cost-savings to a company in the long-run.

Redefining the “traditional working age.” Given New England's aging population, employers should seek to increase the labor participation rate among older Americans beyond the “traditional working age” (25-65).

Gathering better data. Companies typically do not have a clear view of their own employees' talents, ambitions and interests. They also lack the bandwidth to assess what type of upskilling program(s) might be the best fit for their labor force.

Increasing worker engagement. If companies involved workers in decisions on new technology to implement, they would find that some already have the knowledge and others can be trained.

WORKERS

Identifying “stretch opportunities.” Stretch assignments provide opportunities that are beyond the scope of team members' job descriptions. These assignments nudge employees up to higher performance levels, giving them a chance to prove themselves in new ways.

Expand employer flexibility and workers' access to support. Workers need employers who will provide flexibility in the workplace (e.g., flexible hours) and financial support, among other incentives.

Inform and empower workers. Workers need to know where employers' unmet skills needs are and be familiar with the upskilling programs available that will help employees fill those needs.

Credential and career mapping. Workers would benefit greatly from the development of tools that act as a “Waze” for their career, showing a pathway and corresponding training to move from one role to the next.

Realistic expectations. Society needs to recalibrate expectations for worker retraining (i.e., the cost of upskilling for both the employer and employee and the time it takes for an individual to complete an upskilling program).

The authorized immigrant workforce, as a whole, faces its own challenges: limited English-speaking capacity, difficulty transferring foreign credential, low digital literacy, lack of transportation and childcare.

HIGHER EDUCATION INSTITUTIONS

Greater agility. Colleges have been slow to catch up to evolving employer needs and changing technological demands of the workplace. More colleges are adapting to an influx of adult students looking to learn new skills to fuel bigger changes, but their slow pace has left room for alternative education providers to step in.

Creating faster and cheaper pathways to good jobs. Research demonstrates that students who receive credit for prior learning accelerate their time to graduation by allowing them to accumulate more credit more quickly and less expensively.

Improving student services. Wraparound services—such as 24/7 advising, block scheduling, extended office hours, food and/or housing assistance and on-campus childcare—can alleviate some of the non-financial pressures individuals endure.

Strengthening employer partnerships. Forging stronger, more effective partnerships between employers and colleges and considering new educational delivery models, such as competency-based approaches and/or workplace-based programs could widen institutional applicant pools and increase job placement rates post-completion.

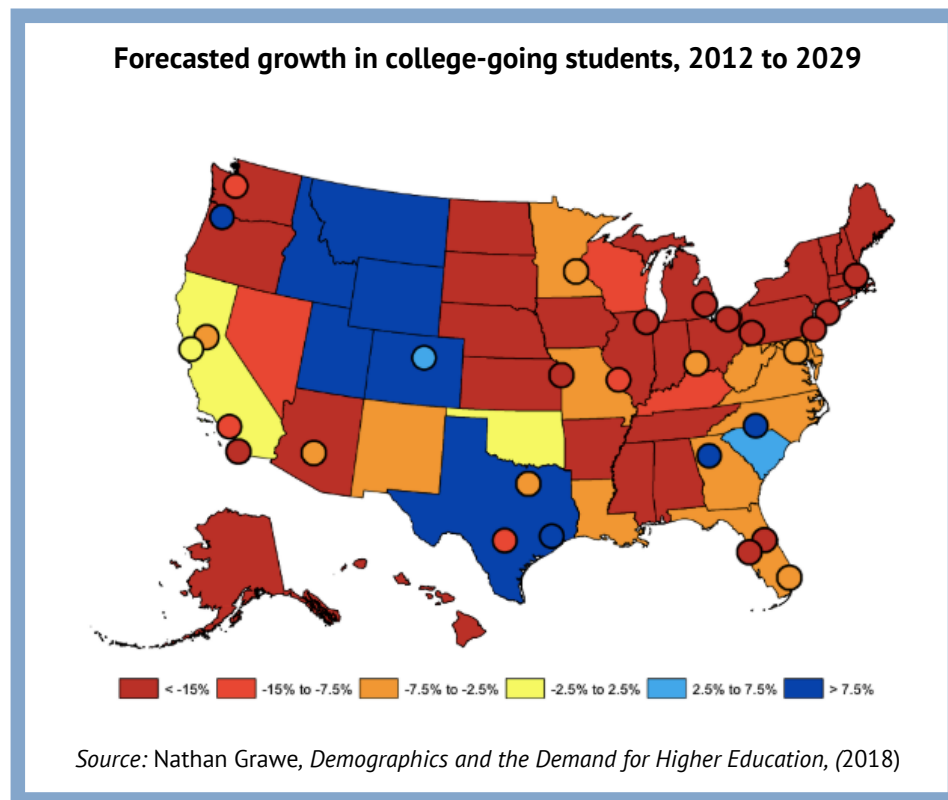
Increasing credential transparency. Increasing transparency in the credential marketplace is crucial to workers' understanding of which credentials have value and will lead them to good-paying jobs.



NEW ENGLAND'S READINESS FOR FOCUSED UPSKILLING EFFORTS

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As New England's leaders seek future prosperity for their states, the region faces a number of headwinds over and above the prospects of automation, digitization and worker competition. Primarily, the number of New England high school graduates reached its peak in 2009-10 and is expected to decline by 14% by 2032. One impact of the overall decline in high school graduates is a commensurate expected decrease in college-going rates, and eventually, the number of college graduates entering the workforce. According to Nathan Grawe's *Demographics and the Demand for Higher Education* (2018), New England's higher education institutions should expect a 25% drop in traditional-aged college-going students by the end of 2030.



Additionally, while the number of white high school graduates in the region is projected to fall 25% by 2032, the number of high school graduates of color will increase significantly—by 46% among Hispanics, 7% among African Americans, 2% among American Indian/Alaska Natives and 37% among Asian/Pacific Islanders. People of color will soon fuel New England's population and future economic growth, but historical data show that education systems often fail to meet these students' needs. Closing these gaps is not only a matter of social justice, but also one of economic stability and growth potential.

**Postsecondary Attainment of Individuals in New England by Race/Ethnicity
(States that have the largest gap in attainment by race/ethnicity in New England)**

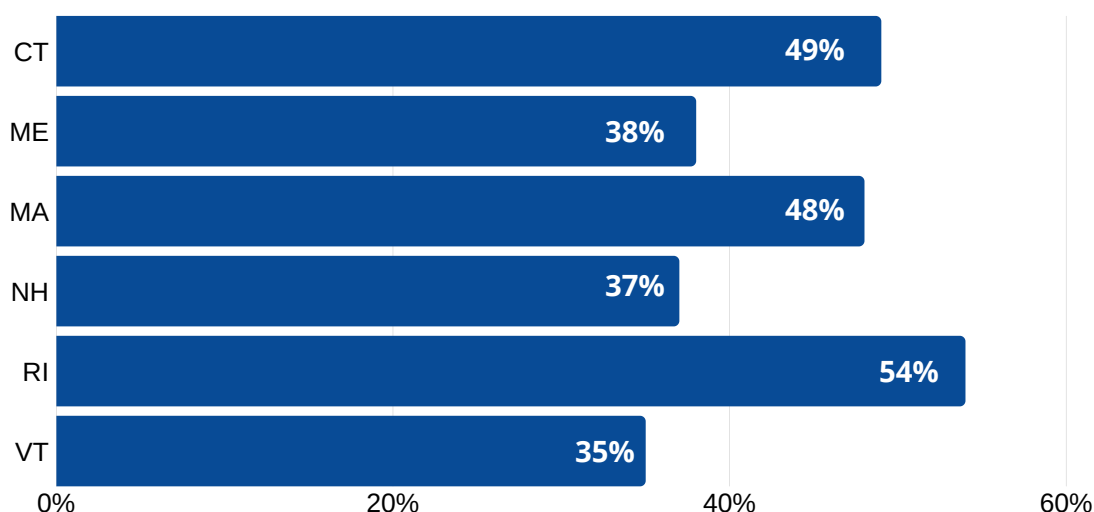
State	White	African American	Hispanic
Massachusetts	57.8%	35.5%	25.2%
Rhode Island	48.5%	31.7%	19.6%
Connecticut	55.7%	31%	23.4%

Source: Lumina Foundation, *A Stronger Nation*

With New England's aging population—Maine, New Hampshire and Vermont have the highest median ages in the country—and low birth rates, the region's need to optimize the existing adult workforce and better serve traditionally underserved populations of students and workers is more imperative than ever. New England's higher education and workforce development leaders and policymakers must address the fact that:

- Nearly 5.5 million (or 53%) of New England's adults lack a postsecondary credential (NEBHE analysis of the American Community Survey, 2018);
- Approximately 203,000 adults are enrolled in undergraduate-level programs at New England colleges and universities, 53,007 of whom are enrolled (many online) at Southern New Hampshire University alone (NEBHE analysis of IPEDS data, 2018);
- The attainment gaps between white individuals and their African American and Hispanic peers are as large as 30 percentage points in some New England states (A Stronger Nation, 2020).

New England: Perceived need for additional education by state

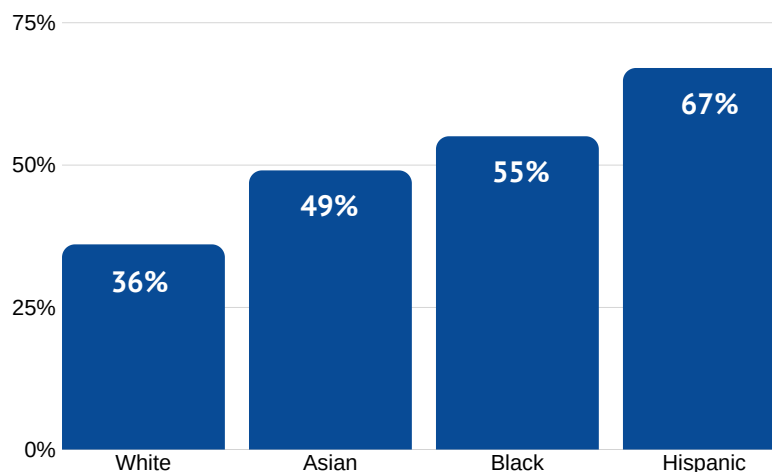


Source: Strada-Gallup Education Consumer Survey. Base: New England adults ages 18-64. Presented by Dave Clayton, Senior Vice President of Consumer Insights at Strada Education Network.

Strada Education Network's Consumer Insights data confirm that there is a clear call among adult learners and underserved individuals for improved access to career-connected postsecondary education opportunities in New England:

- Nearly one in two adults in the region perceives the need for additional education to advance their careers;
- Those without a bachelor's or graduate degree, and particularly individuals with a vocational/technical credential, and African American and Hispanic individuals are more likely to perceive this need;
- 41% of survey participants reported a guaranteed employment outcome (a job placement or wage increase) would impact the likelihood that they would enroll in additional education by a great deal; and
- Healthcare, manufacturing and life sciences are the occupations in which surveyed individuals reported the greatest need for additional education.

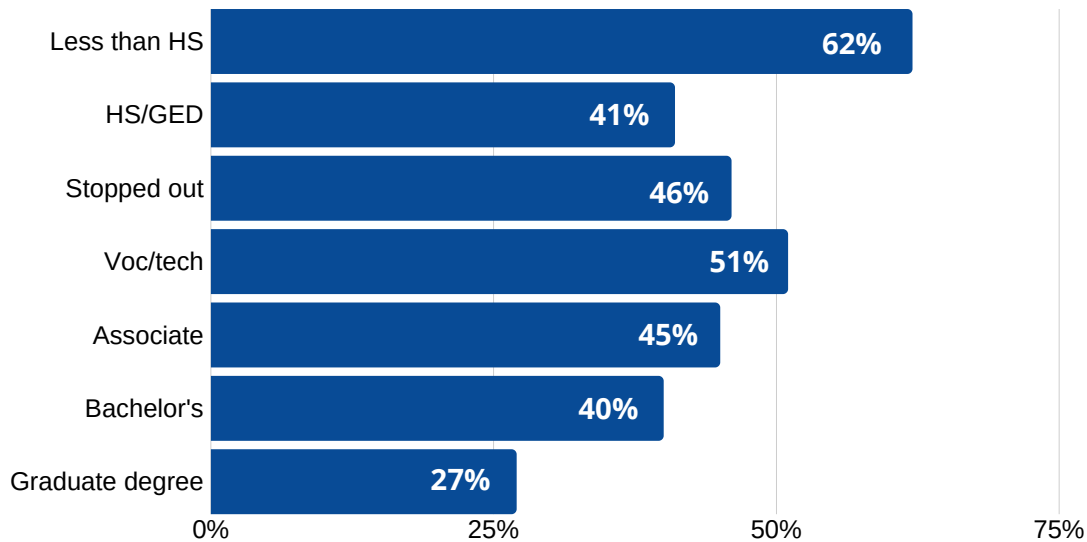
New England: Perceived need for additional education by race/ethnicity



Source: Strada-Gallup Education Consumer Survey. Base: New England adults ages 18-64. Those who are currently enrolled in college-level courses have been excluded for the purpose of this analysis. Presented by Dave Clayton, Senior Vice President of Consumer Insights at Strada Education Network.

However, adults face significant barriers to enrolling in and completing postsecondary credential programs—ranging from excessive demands on their time and resources to administrative structures at higher education institutions that are difficult to navigate or are inadequately prepared to assess and award credit for adults' life, work and education experiences.

New England: Perceived need for additional education by attainment level



Source: Strada-Gallup Education Consumer Survey. Base: New England adults ages 18-65. Those who are currently enrolled in college-level courses have been excluded for the purpose of this analysis

To confidently hurdle these barriers, adults require better guidance and assurance that additional education and training will provide them with an appropriate return on investment and lead to career advancement. Working adults indicate that employers do not sufficiently articulate their expectations of what skills will enhance the company's success over time. Additionally, a number of surveys reveal that there is little consensus on who bears the responsibility for upskilling employees. For example:

- [PwC's Workforce of the Future Survey](#) reports that 74% of workers believe that it is their own responsibility to update their skills rather than their employer.
- [Randstad WorkMonitor's Q4 2018 Survey](#) reports that 76% of people agree that it is their employer's responsibility to provide them with training to acquire digital skills.

In weighing the impact of upskilling, the return on investment for employers is potentially great. Adults in New England report being more likely to enroll in education and training opportunities offered by their employers (38%) than community colleges (23%) or four-year colleges and universities (19%)—signaling a degree of trust in employers as training providers.

One way employers can increase working adults' access to and completion of upskilling opportunities is through education benefits. Case studies of three major companies' tuition reimbursement plans, conducted by Lumina Foundation and Accenture, noted considerable savings of \$1.3-10.9 million dollars and a significant impact on employee retention. Alternative models may achieve greater impacts for both employers and workers. For example, providing tuition assistance dollars upfront to employees may help them immediately enroll in upskilling opportunities, rather than have to put off the experience due to financial barriers.

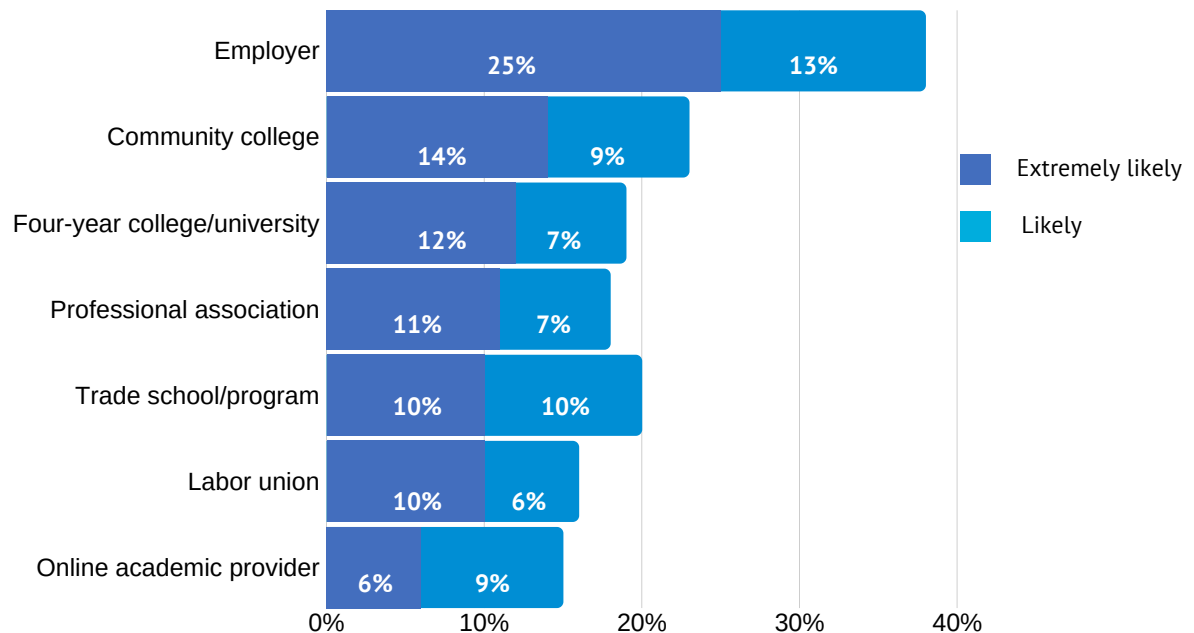
"The most successful way to create a workforce is to build one - and there is no better way to build one than by helping people identify an opportunity for today, that connects to a pathway with career growth for tomorrow. Business and education need each other to create these pathways."

Sarah Currier, Director of Workforce Development, Dartmouth-Hitchcock

New England: Most likely sources for education and training

Within the next five years, how likely are you to enroll in courses or training from the following providers?

Please use a five-point scale where 5 means extremely likely and 1 means not at all likely



Source: Strada-Gallup Education Consumer Survey. Base: New England adults ages 18-64 with less than an associate degree and who are not currently enrolled. Presented by Dave Clayton, Senior Vice President of Consumer Insights at Strada Education Network.

Failure to successfully address the challenges our region faces could mean that businesses are eventually forced to relocate or close, wages stagnate or even decline, and the economic health and well-being of the region becomes imperiled (Grawe, N., 2018). Expanding targeted upskilling programs offers a viable remedy to these challenges.

Building buy-in for and implementing new upskilling programs in New England is made difficult by the following forces:

- Existing programs tend to operate in silos and suffer from a lack of awareness beyond their sector, industry, region or state. Therefore, best practices and opportunities to scale partnerships are not well documented or promoted.
- Education providers are constrained in their abilities to partner with employer organizations to develop and sustain effective upskilling programs, particularly ones that may use innovative delivery models or offer alternative credentials. Barriers to forming these partnerships include not knowing the correct point of contact to initiate a collaboration, lack of available staff time to develop a relationship with an employer and financial constraints.
- The most reputable upskilling programs in the region are typically owned and operated by large employers with the resources to bring programming in-house. Smaller employers and education providers interested in developing an upskilling initiative report not knowing where to begin or whom to contact to kick off the process.

In short, upskilling remains a lesser understood part of the education and training ecosystem within the region. A recognition and understanding of the benefits that upskilling offers employers, individuals and institutions alike is imperative to move forward.

Continue to page 18 to skip the below call-out section

New England's Upskilling Models

In New England, employers, workforce development providers and higher education institutions seek to deliver upskilling opportunities and outcomes (employer training, credentials and degrees) in the following ways:



In-house Upskilling. An employer develops a training program to provide workers with educational opportunities to develop new skills that can also translate to advancement within the company or the industry at-large. These programs are most common in large companies that have the ability to invest significant resources in upskilling, such as Amazon.

Cianbro Corporation is a large, diverse, open shop, 100% employee-owned construction and construction services company with headquarters in Pittsfield, Maine. In 2006, the Cianbro Institute was established to attract, develop and retain a talented workforce.

Cianbro Institute offers a variety of lifelong learning opportunities to its team members, such as, internships, skills development, apprenticeships, safety, professional and leadership development. These sessions help team members grow and advance their careers. Many participants attain valuable industry-recognized credentials.

The future workforce is also a constant priority for the organization. Cianbro models the power of partnerships with K-12 schools, career and technical centers, higher education institutions, and other organizations to engage students in a variety of construction careers.

Source: Dan Coffey, Director of Cianbro Institute



Direct Employer-Institution Partnership. An employer partners with an education or training provider to offer upskilling programs for employees. Partnered entities could use off-the-shelf programming or engage in creating customized programs to fit individual employer or industry needs.

Beth Israel Deaconess Medical Center (BIDMC) in Massachusetts partners with Bunker Hill Community College (BHCC) for its Employee Career Initiative (ECI) to deliver free courses to employees that are prerequisites for careers in allied health (e.g., English, math, and science), career and educational counseling, and tutoring from fellow BIDMC employees. BHCC offers courses—which are developed by BIDMC to correspond to in-demand skills—on-site so that employees do not have to leave work to take classes or meet with tutors or teachers.

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The Maine Quality Centers (MQC), housed within the Maine Community College System, offers workforce training grants to employers to deliver training programs to employees. MQC works individually with employers to design custom curricula that are tailored to meet each organization's skills gaps and workforce needs.



Industry-led Partnerships. A trade association or workforce board serves as an intermediary among employers within a given industry and education providers. The intermediary communicates skills needs, connects employers to education providers, and ensures the sustainability and viability of these partnerships. The intermediary may also be the catalyst in scaling upskilling programs.

Quincy College in Massachusetts, in partnership with the Massachusetts Life Sciences Center, developed a biotechnology credential program with industry partners that prepares students for entry-level positions in the biomanufacturing industry. The program offers short-term customizable training to meet the needs of Boston-area life and biosciences employers.

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The Eastern Advanced Manufacturing Alliance (EAMA) is a collective of manufacturing businesses in Connecticut, Massachusetts and Rhode Island. EAMA has established itself as a nonprofit organization and intermediary for member organizations and partnered education providers. EAMA has also developed educational partnerships in Connecticut with Three Rivers Community College and two technical high schools. These partnerships not only increase the student capacity of the collective, but also promote careers in the manufacturing industry.



A STRATEGIC VISION FOR UPSKILLING NEW ENGLAND

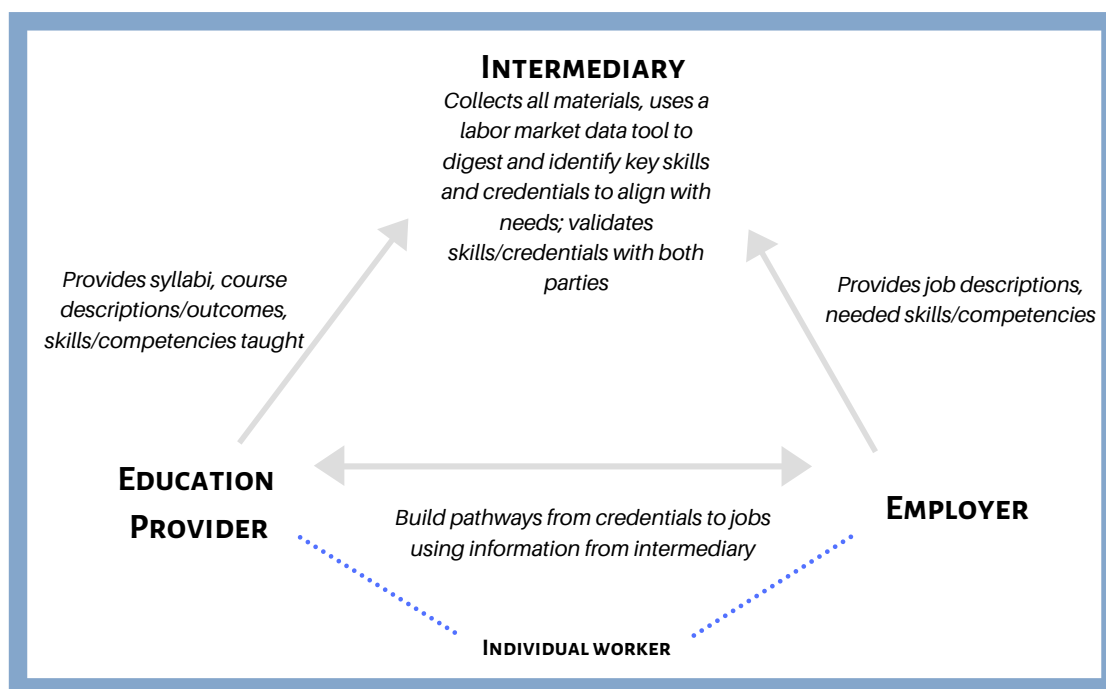
Upskilling efforts must particularly focus on rural, immigrant, incarcerated and post-recovery populations, as well as historically underrepresented groups including those who identify as African American or Hispanic.

Promising Practices: Partnerships, State Policy and Delivery Models

It is generally unrealistic to expect working adults to be able to leave a job to pursue a postsecondary credential full-time while also providing for their families. Building and scaling successful partnerships between employers and education providers that allow workers to advance their skills while still earning a salary is an effective practice that should be replicated widely. A better understanding of these partnerships has only recently surfaced through large-scale initiatives, as well as reports issued by institutions or third-party research organizations.

Financial Resources. According to the Small Business and Entrepreneurship Council, 98% of the 5.6 million employer firms in the U.S. have fewer than 100 workers. Middle- and small-sized firms do not have the same financial resources as large companies to sustain partnerships and seek new ones. However, research shows that small employers actually assign greater value to these partnerships, emphasizing the need to identify mechanisms by which firms of all sizes may locate additional capacity or collaborate with an intermediary to successfully engage with education.

Similarly, community colleges in New York state, for example, report a significant lack of financial and human capital resources to dedicate to building or expanding employer partnerships. Employer engagement that does occur is largely with medium-sized healthcare, manufacturing, information, finance and professional and business services firms.



"Intermediary organizations serve essential roles to help support and sustain strong partnerships between educators and employers. In Maine, high quality upskilling programs are often developed through collaboration of industry groups, intermediary organizations, and educational institutions."

Jason Judd, Executive Director, Educate Maine

Lack of communication. New England's higher education leaders, employers and subject matter experts have echoed researchers' findings that opening lines of communication between education providers and employers remains very difficult and is often the largest barrier to developing effective upskilling programs. In addition to this foundational partnership issue, employers often lack the capacity to assess the need for and, subsequently, develop, administer and sustain upskilling programs for their employees.

Intermediaries. To mitigate these obstacles, education providers or employers are encouraged to more proactively seek intermediaries (including workforce investment boards, business or industry associations and nonprofit or state-wide partnership organizations dedicated to higher education, such as Educate Maine or Advance Vermont) to help initiate and build lasting relationships. The central goal of the intermediary model is alignment of priorities and capacities in terms of skills needs and production that, in turn, yield productive training programs. After guiding partnered businesses and education providers through the development of upskilling programs, intermediaries must ensure the effective activation and continuous utilization of these opportunities by target populations.

State policy. State policy is a critical lever in scaling and replicating interventions that work. There are a number of examples from across the country and region that focus on increasing access to and completion of upskilling programs:

- Grants and/or targeted financial aid for working adults seeking to advance their careers or alter their career paths
 - *Complete 2 Compete (C2C) is a Mississippi state program focused on helping adults who have completed some college to earn their degrees. Adults can use up to \$500 per semester for enrollment costs or to pay back their old college debt.*
- Expansion of state/federal childcare subsidies for parents enrolled in education and training programs
 - *Minnesota's Post Secondary Child Care Grant allows adults enrolled in public, private or vocational technical schools to receive an award of up to \$3,000 per child to offset child care costs. The program is administered by the Office of Higher Education and funds are distributed by eligible institutions.*
- Supporting wider acceptance of postsecondary credit for recognized work and learning experiences
 - *In Utah, under H.B. 45 (2019) the state Board of Regents is drafting a "framework" that will communicate to students in the state's public higher education system about credit for prior learning (including what it is), transfer of credit, transcription of credit, and institutional procedures for maintaining transparency and consistency. Each institution is responsible for determining for which types of prior learning they will provide credit and the amount of credit they will award.*
 - *Indiana's H.B. 1281 (2017) allows scholarship and grant funds to be used to pay for the costs of credit for prior learning programs or assessments.*

- Implementing state grants, loans or tax breaks for small- and mid-sized employers to create, partner with or adopt upskilling programs for their employees
 - *The Massachusetts Workforce Training Fund, housed within the Massachusetts Executive Office of Labor and Workforce Development, invites businesses to apply for a grant up to \$250,000. Employers, employer organizations, labor organizations, training providers, and a consortium of such entities can access the fund to train current and newly hired workers in topics like project management, software and IT skills, and machine setup and operation*

REAL-TIME LABOR MARKET INSIGHTS ON UPSKILLING PATHWAYS

Data on in-demand technical and common skills and qualifications in the fastest growing industries in New England provides a roadmap for building and improving upskilling programs. The top industries that offer at least the average family-sustaining wage (\$65,000 per year, \$31.25 per hour) are:

Top 5 Fastest Growing Industries that Offer Family Sustaining Wages in New England

Industry	2019 jobs	% Change (2020-2029)	Job postings (2018-2019)	Earnings per worker
Health care and social assistance	1,229,350	11%	414,941	\$65,667
Professional, scientific and technical services	533,564	11%	420,140	\$138,481
Construction	310,555	9%	84,281	\$84,686
Educational services	270,065	6%	177,617	\$78,446
Management of companies and enterprises	143,688	8%	12,286	\$151,252

Within these industries are occupations that require varying levels of education and training and offer a range of wages—indicating job ladders that may be shortened with targeted upskilling programs. Opportunities for employers and postsecondary institutions to collaborate on developing market-responsive programs emerge from analyzing the gap between employers' demand for skills and the supply of skills (culled from job posting and resume data), as well as common skills across occupations within an industry. The following examples from the health care and social assistance and professional, scientific and technical services focus on identifying potential upskilling programs for adults without a postsecondary credential who are currently earning less than a family-sustaining wage. The methodology used to reveal these pathways could be replicated across additional industries and for specific state contexts.

Health Care and Social Assistance

The Health Care and Social Assistance industry currently employs 1.23 million New Englanders (78% of whom are women), and employment growth is expected to increase by 11% by 2029. Even though workers in the health care industry power our regional economy, the majority of them earn less than a family-sustaining wage. The pathways to good health care-related jobs for individuals without a postsecondary credential are limited, as jobs that offer family-sustaining wages in this industry almost exclusively require a degree.

Occupations that Offer Family Sustaining Wages and Require Less Than a Bachelor's Degree

Description	Employed in industry (2019)	% Change (2019-2029)	Median hourly earnings	Number of job postings (2018-2019)
Dental hygienists	13,933	9%	\$38.68	1,676
Radiologic technologists	9,649	6%	\$32.31	7,922
Respiratory therapists	4,880	14%	\$33.19	3,863
Diagnostic medical sonographers	3,692	12%	\$39.62	4,547
Cardiovascular technologists and technicians	2,522	5%	\$34.90	3,881
Nuclear medicine technologists	988	4%	\$40.08	457
Radiation therapists	813	6%	\$44.97	388

For individuals employed in low-wage jobs, the first step is to obtain an associate degree. Upskilling pathways to occupations such radiologic technologists are logical, particularly for the many people working as personal care aides and home health aids.

Upskilling pathway: Personal Care Aid → Radiologic Technologist

	Personal Care Aid	Radiologic Technologist
Number employed in industry	136,980	9,649
Number of job postings (2018-19)	36,994	7,922
Median hourly earnings	\$13.45	\$32.31
Top hard skills	<ul style="list-style-type: none"> Caregiving Home care Personal care Nursing Skin care 	<ul style="list-style-type: none"> Radiology Radiography Basic life support X-ray computed tomography CPR
Top common skills	<ul style="list-style-type: none"> Valid driver's license Good driving record First aid Communications Management 	<ul style="list-style-type: none"> Communications Customer service Operations Interpersonal skills Clerical works
Typical entry-level education	High school diploma or equivalent	Associate degree
In-demand industry-recognized credential	N/A	American Registry of Radiologic Technologists Certification

Bullet points highlighted in green indicate shared or translatable skills between occupations

Professional, Science and Technology Services

Currently, 546,620 individuals are employed in this sector and, by 2029, this number is expected to rise to 604,294, an 11% increase. As in the healthcare industry, the majority of jobs that yield a family-sustaining wage require at least an associate degree.

Occupations that Offer Family Sustaining Wages and Require Less Than a Bachelor's Degree

Description	Employed in industry (2019)	% Change (2014-2019)	Median hourly earnings	Number of job postings (2018-2019)
Web developers	2,882	-3%	\$35.93	11,262
Computer network support specialists	2,067	-10%	\$32.97	90
Electrical and electronics engineering technicians	2,041	10%	\$31.48	810
Sales reps, wholesale and manufacturing, except technical and scientific products	1,291	26%	\$31.48	3,326
First-line supervisors of non-retail sales workers	854	-6%	\$36.94	1,794
First-line supervisors of production and operating workers	657	38%	\$32.13	991

Mapping a course from a lower-skilled role (e.g., customer service representative) to a higher-skilled role (e.g., web developer) reveals that the skills and competencies required for each role are comparable and, therefore, an upskilling pathway between the two makes sense for workers.

Upskilling pathway: **Customer Service Representative** → **Web Developer**

	Customer Service Representative	Web Developer
Number employed in industry	8,896	2,882
Number of job postings (2018-19)	5,639	11,262
Median hourly earnings	\$18.49	\$35.93
Top hard skills	<ul style="list-style-type: none"> • Call centers • Customer relationship management • Customer support • Customer satisfaction 	<ul style="list-style-type: none"> • Java • JavaScript • Cascading style sheets • SQL • Front end
Top common skills	<ul style="list-style-type: none"> • Customer services • Sales • Communications • Management • Problem solving 	<ul style="list-style-type: none"> • Problem solving • Communications • Integration • Management • Written communication
Typical entry-level education	High school diploma or equivalent	Associate degree

Bullet points highlighted in green indicate shared or translatable skills between occupations

Because the hard and common skill sets of a personal care aid and radiologic technologist and a customer service representative and web developer are complementary, the transition from one role to another, with the addition of an associate degree and supplemental required certifications, would likely be smooth. If employers, intermediaries or education providers constructed and promoted pathway maps from one occupation to the next, an employee would likely be more inclined to pursue the appropriate credentials to take the next step in his or her career. Furthermore, once an individual achieves family-sustaining wages by way of upskilling, he or she may have more options to obtain additional skills and credentials, as well as the motivation to continue advancing in his or her field.

Source: NEBHE analysis of Bureau of Labor Statistics retrieved from Emsi's Labor Analyst tool, February 2020



In alignment with the Strategic Vision for New England (see pp. 18-19), recommendations to education providers, employers and state policymakers for expanding upskilling focus on three target areas: partnership development, new delivery models and state policymaking. We recommend that:

Partnerships

Employers, institutional leaders, policymakers, and members of workforce boards convene state-level, cross-sector working groups focused on eliminating structural barriers that prevent the implementation and scaling of collaborative upskilling programs.

- Convening state-level, cross-sector working groups, such as MaineSpark, is critical to developing a workforce that is responsive to technological change and innovation, focusing on eliminating the structural barriers that prevent the implementation and scaling of upskilling programs. Working groups might contain small to large employers, institutional leaders, policymakers and members of workforce boards. These coalitions are necessary to ensuring the sustainability of emerging programs, policies and partnerships. Moreover, identifying dedicated entities to move forward impactful state agendas on upskilling can be summoned to collaborate regionally in response to shared economies, employers and workforces.

Both employers and higher education institutions utilize intermediary organizations or designated points of contact to enhance open, sustainable and growth-oriented communication, partnerships and programming.

- Employment of engaged intermediary organizations, in combination with a shared commitment to equity and a strong cross-sector coalition of active stakeholders to catalyze the open and varied lines of communication that are required to scale upskilling efforts. New England's higher education leaders and employers alike have expressed a lack of knowledge about who to contact to jumpstart upskilling opportunities and form lasting partnerships.

Employers and institutions use standardized skills-related language in job postings, course and credential descriptions to establish alignment between jobs and training programs.

- If education providers were to align course descriptions and outcomes with job descriptions that outline required skills for applicants, students could more easily understand how a given course or program will translate to a job, and employers can search their applicant pools for candidates with the exact skills a given role requires. Employing an intermediary, per the relationship infrastructure model, would allow employers to assess employees' upskilling needs and articulate to education providers, in standardized language, the skills upskilling candidates require. Providers may then develop programs that cater to these needs and produce more skilled, employable workers.

New Delivery Models

Education and training providers implement flexible education and training delivery models to enable learning at home, in the workplace or community setting or on a college campus.

- Traditional educational models must better accommodate working adults' schedules so that completing a postsecondary credential does not require sacrificing wages. Flexibility could include: hybrid online and on-campus programs, convenient study space (i.e. at students' place of work) and weekend programming. In turn, employers and postsecondary education providers must work more closely to understand the demands of their workers and generate shared solutions to make participation in upskilling programs easier.

Postsecondary education providers redesign programs to include stackable credentials, transferrable credits and pathways to further education and training opportunities. This will enable individuals to transition to and from education and training, work and life responsibilities in a more seamless fashion –setting the conditions for successful lifelong learning practices.

- To make upskilling opportunities worth the money, time and energy, earned credentials or validated employability skills must be recognized and valued outside of a worker or learner's current occupation, industry or education experience, and must act as the foundation for more advanced credentials and degrees, or simply more opportunity in their field. Without these factors, there is no incentive for workers to engage in the lifelong education and training that is required in today's economy.

Upskilling programs include support services tailored to workers' needs, including work-based study spaces and expanded or 24/7 access to learning advisers.

- In order for individuals to complete upskilling programs and attain credentials, adequate professional and personal support services must be available to them, as on many traditional college campuses. By offering services like childcare, mental health counseling and support for food- or housing-insecure students, training providers create a structure through which individuals may complete their training programs without sacrificing their professional, familial and personal obligations--factors that contribute to the "true cost" of engaging in an educational program, beyond the more direct financial aspect.

"Goodwin University partnered with Pratt and Whitney, the Connecticut Center for Advanced Technology and the International Association of Machinists to create a number of manufacturing programs from short term certificates to graduate degrees. It has been one of the most transformational experiences for the University in my tenure."

Mark Scheinberg, President, Goodwin University

State Policymaking

Policymakers support and incentivize provider-employer partnerships to expand the validation and recognition of prior learning and work experience—reducing the time to credential attainment and promoting worker participation in upskilling programs.

- According to [a study by the Public Agenda](#), 56% of surveyed adults with some college experience (n=620) report that a school's acceptance of credit for prior learning is absolutely essential to choosing an institution. By accepting prior credits and acknowledging a prospective student's record of learning and, therefore, lowering the number of credits required and minimizing the time commitment to complete a credential, education providers potentially open the doors to a wider array of adult learners who may not have considered enrollment otherwise. Additionally, accounting for prior learning lowers the risk associated with undertaking employer-based upskilling programs through shorter time-to-completion and greater employee buy-in stemming from value placed on previously earned credits.

Policymakers provide incentives, including grants and tax breaks, to stimulate employer investment in upskilling as a key business and workforce development strategy.

- Employers and education providers engaged in this initiative reported a lack of capacity and funding to invest in a successful upskilling program. To create cross-sector buy-in and incentivize the initiation of these programs, state governments could offer grants, tax credits or similar assistance to employers that offer educational programs or partner with educational training programs that yield stackable, transferable credentials that respond to real-time labor market demand.
- *Connecticut Gov. Ned Lamont issued an executive order in October 2019 requiring the General Assembly to perform an assessment of workforce development in the state. As part of the final report, the General Assembly will recommend ways of removing barriers for employers to form partnerships required for the creation and administration of upskilling initiatives.*

Policymakers encourage higher education and other training providers to develop accessible, transparent credentials and pathways to better communicate how upskilling programs provide specific skill acquisition, career progression and increased compensation

- By creating pathway models that detail steps from credential attainment to career advancement, we not only delegate responsibility to relevant stakeholders, but also allow prospective students to see the value in upskilling and, therefore, encourage their participation. This level of transparency allows employers and employees alike to understand the training process and subsequent professional and financial gains—for both—associated with credential attainment.

»» Vermont has emerged as an exemplar in this arena. H533, enacted in 2019, requires the Department of Labor to collaborate with postsecondary education and training providers, government agencies and employers to recruit adults into educational training programs, locate funding subsidies for participants and map pathways from high-value credential programs to high-quality job outcomes. This initiative falls under Vermont's statewide attainment goal of 70% attainment by 2025.

»» In May 2018, Lumina Foundation awarded the New England Board of Higher Education a grant to launch High Value Credentials for New England (HVCNE) in partnership with Credential Engine. HVCNE provides individuals, institutions, state policy leaders and employers the tools to:

1. Utilize a common language to catalogue, connect and compare credentials
2. Interpret the quality and value of credentials
3. Identify critical education, training and employment pipelines
4. Understand the skills and competencies obtained by earning a credential

HVCNE targets the life-/bioscience, health, IT, and business & finance fields. Higher education institutions and other credential providers across the region are publishing credentials awarded in these areas to the Credential Registry -- a cloud-based library that houses, organizes, and links credential information. The Credential Registry uses the Credential Transparency Description Language (CTDL), which provides a common set of terms to describe credentials and allows machines to use a readable language that can be used to build customized apps or integrate data.

Policymakers promote programs and partnerships that reach underserved populations, including the incarcerated and the formerly incarcerated, those recovering from drug and/or alcohol dependency, new immigrants and individuals living in rural areas.

» According to Strada's Consumer Insights data, 67% of Hispanic people and 55% of African American people in New England believe they need additional education. Only 36% of white people believe they need more education. Furthermore, 38% of people from rural areas in New England believe they need additional education. The call to cater to this perceived need and engage these populations in New England, therefore, is apparent. While we do not currently have New England-specific data on incarcerated/formerly incarcerated populations, the national focus on education programs administered in prisons makes this group an integral part of upskilling initiatives.



As an advanced skill set, certification, degree or other credential becomes increasingly important for employees in today's—and indeed, tomorrow's—job market, it is crucial to make opportunities for advancement available to all who wish to pursue them. When workers are able to access educational programming on their job site or are given the flexibility to take a class or complete an assignment during the work day, they are more likely to take advantage of these opportunities and feel supported by their employer to do so.

At the September Thinkers' Meeting, employers and education providers alike expressed a lack of trust in the upskilling system as it currently exists. Employers neither know what skills gaps they need to fill nor how to assess their current labor force to identify these gaps. Both employers and education providers expressed a lack of knowledge regarding which organizations to partner with or who they ought to contact at relevant organizations. Leaders of institutions of higher education do not know if employers will recognize the credentials students attain, and as a result, they are hesitant to partner with employers and risk making undue alterations to current instructional practices. This mistrust and absence of transparency inevitably results in confusing messaging to individuals interested in pursuing an upskilling program. Communication between these sectors and identification of clear points of contact is paramount to success in this arena.

By developing and administering upskilling programs, employers invest in a more skilled labor force and, in return, produce a more efficient, high-quality work product. The education and training providers that employers partner with gain more students and position themselves as innovators in an age when traditional higher education models are not feasible for many of today's students. Individuals who complete upskilling programs can become greater contributors in their workplace and their industry, gain higher wages to support themselves and their families and receive promotions at their places of employment as a result of their attained credential. In short, upskilling benefits all stakeholders and creates a culture of lifelong learning that is necessary in today's economy.



Summary of September 2019 Convening

For successful implementation of upskilling programs, collaboration and alignment between New England's educators and employers is imperative. As a first step in addressing the issues posed by the need for upskilling, NEBHE convened nearly 40 higher education leaders, employers and subject matter experts from across the region on September 16-17, 2019.

Participant List

Connecticut

- Kelli Vallieres, President, Sound Manufacturing
- Mark Scheinberg, President, Goodwin College
- Natalie Real, Chief Administrative Officer, Connecticut Center for Advanced Technology
- Taylor Van Antwerp, Director of Career Development, University of Bridgeport

Maine

- Brenda McAleer, Associate Provost and Dean of Professional Studies, University of Maine Augusta
- Claire Sullivan, Assistant Vice Chancellor for Innovation in Digital Badges and Micro-Credentials, University of Maine System
- Dan Coffey, Cianbro Institute Manager, Cianbro
- Ellen Beaulieu, Vice President of Strategy and Communications, University of New England
- Jason Davis, Director of Apprenticeships, Panolam Specialty Resins
- Jason Judd, Executive Director, Educate Maine
- Joshua Howe, Program Coordinator, Maine State Workforce Board
- Lisa MacDonald Cooper, Program Director, Education and the Workforce, Maine Development Foundation
- Robert Clark, President, Husson University

Massachusetts

- Beth Nicklas, General Counsel and Vice President, Mass Life Sciences Center
- Bruce Van Dyke, Founder and Chair, Biotechnology and Good Manufacturing Practice, Quincy College
- Kathy Rentsch, Associate Vice President of Workforce and Innovation, Quinsigamond Community College
- Karim Hill, President and CEO, New England Small Business Association
- Kathryn Decelles, Career Coach, Partners Healthcare System
- Viviana Abreu-Hernandez, Associate Vice President of External Affairs, Quinsigamond Community College

New Hampshire

- Brian Bicknell, President, Manchester Community College
- Larissa Baia, President, Lakes Region Community College
- Michelle Perkins, President, New England College
- Ockle Johnson, Provost, Keene State College
- Sarah Currier, Director, Workforce Development, Dartmouth-Hitchcock Hospital
- Sue Castriotta, Associate Provost for Academic Affairs, Keene State College
- Val Zanchuk, President, Graphicast, Inc.

Rhode Island

- Amy Grzybowski, Executive Director, Westerly Education Center
- Frank Sánchez, President, Rhode Island College
- Jackie Tavares Scungio, Human Resources Operations Director, Providence Community Health Centers
- Joe Devine, Partner, Bridge Technical Talent
- Julian Alssid, Workforce Development, Community College of Rhode Island
- Kim McCauley, Chief Human Resources Officer, Narragansett Bay Insurance Company

Vermont

- Johnna Herrick-Phelps, Assistant Provost, Champlain College
- Paul Millman, President, Chroma Technology Corp
- Phil Susmann, Vice President, Strategic Partnerships, Norwich University
- Tiffany Keune, Associate Dean of Workforce Education, Community College of Vermont

Speakers

- Jaime Fall, Director, UpSkill America, Aspen Institute
- Dave Clayton, Senior Vice President, Consumer Insights, Strada Education Network

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