



COMMISSION **ON**
HIGHER EDUCATION
& EMPLOYABILITY

Learning for Life and Work

Report of the Commission on Higher Education & Employability

Chaired by Gina M. Raimondo, Governor of Rhode Island

NEW ENGLAND BOARD
of HIGHER EDUCATION 

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A Message from Governor Raimondo



There is much that unites us in New England: our rich history, stunning geography, resourceful citizens, innovative businesses, committed policy leaders and a powerful network of postsecondary institutions.

We also share common challenges that are in many ways unique to our region. We welcome dynamic businesses to our region but we are experiencing a shortage of people who are ready and able to fill the jobs these employers require. As soon as 2020, New England states could face a gap as large as 11 percentage points between the share of residents with a postsecondary education, based on current attainment, and the share of jobs requiring some postsecondary education. Additionally, the number of new high school graduates in New England is projected to decline 14% by 2032. Combined, these forces exacerbate talent pipeline gaps for our growing industries.

In April 2017, when the Commission on Higher Education & Employability set out, I charged it to identify and recommend high-impact practices and institutional and state policies to improve the employability for all postsecondary graduates in New England.

I am pleased to say that we have started this work in Rhode Island, and I know that other New England governors are or are seeking to do the same. In my 2018 State of the State address, I talked about Rhode Island's commitment to change and progress and challenged us to "Let's Keep Going." Through Rhode Island's Promise, we have opened the doors to free community college. We opened the Westerly Higher Education Center to train people for jobs in local communities. And through the 10,000 Small Businesses partnership, Rhode Island is helping small business owners learn the skills they need to thrive in this technology-driven environment.

The Commission on Higher Education & Employability's overarching goal is to increase the career readiness, employability and successful work transitions of graduates, so they can make lifelong contributions to the New England economy and its society. In this report, this goal is supported by targeted recommendations and a strategic and collaborative action plan for higher education, policymakers and business/industry.

The outcome will be that Rhode Islanders, and New Englanders, will gain a readiness that goes beyond their diplomas and will be demonstrated by their ability to transition seamlessly into the workforce, continue to adapt to employers' needs throughout their careers, and support their families.

Our collective challenge is to "Let's Keep Going."

Contents

Executive Summary	5
Defining Employability	11
Employability and Equity.....	13
The Case for Employability	14
A Regional Imperative.....	17
The Changing Nature of Work.....	20
Recommendations	23
Effective Use of Labor Market Data & Intelligence (LMDI)	27
Targeted Higher Education-Industry Partnerships.....	33
Planning, Advising and Career Services	37
Work-Integrated, Cooperative and Internship-based Learning	43
Digital Competencies	47
Emerging Credentials and Credentialing Systems	51
Next Steps.....	55
Appendix and References	57



The Commission on Higher Education & Employability, chaired by Governor Gina Raimondo of Rhode Island, is a key initiative of the New England Board of Higher Education (NEBHE). The 50 person Commission represents New England's leaders in education, policy and business who share a commitment to the significance of "employability". New England is the first region to lead such a partnership on employability. The Commission held public meetings and working group sessions from April 2017 to February 2018.

While New England is world-renowned for its high-quality colleges and universities, the region's employers remain concerned about a lack of qualified, skilled workers, particularly in technology-intensive and growth-oriented industries. The challenges of low population growth, persistent equity gaps in postsecondary attainment and increasing global competitiveness require policymakers, business leaders and higher education to collaborate to maximize the region's human capital potential, ensure workforce productivity and improve residents' well-being. While the Commission's origins are regional, it seeks to catalyze a national initiative and assume a broader leadership role in the United States.

The Commission was charged to develop an action agenda, policy recommendations, strategies and next steps to align institutions, policymakers and industry to increase the life and career readiness of college and university graduates—and facilitate their successful transitions to work and sustained contributions to the well-being and competitiveness of their state, region and nation.

More information about the Commission can be found at www.nebhe.org/commission.

About NEBHE

NEBHE was founded in 1955, when six visionary New England governors realized that the future of New England's economy depended on the quality and diversity of the region's extraordinary higher education resources, and committed their states to the shared pursuit of academic excellence. Soon thereafter, NEBHE was approved by New England's six state legislatures and authorized by the U.S. Congress.

The Commission on Higher Education & Employability represents NEBHE's ongoing commitment to bringing higher education leaders together with policymakers and representatives from business and industry to collaborate on timely regional issues. Past efforts have focused on distance learning, international competitiveness, and human capital development.



The Commission on Higher Education & Employability is supported by the following partners:



Executive Summary

New England is home to 260 colleges and universities and a world-famous concentration of human talent that has provided the fuel needed to generate innovative industries and to enrich civic vitality, advance knowledge and encourage exchange.

Despite the region's strength in postsecondary institutions, however, employers remain concerned about a lack of qualified, skilled workers, especially in technology-intensive and growth-oriented industries.

Surveys of employers, college academic officers and graduates have found that:

- While 96% of chief academic officers at higher education institutions say their institution is very or somewhat effective at preparing students for the world of work, only 11% of business leaders strongly agree that today's college graduates have the skills and competencies that their business needs.¹
- While 64% of students think college graduates are highly prepared to work well in teams, only 37% of employers agree; similarly, while 62% of students think that graduates have adequate oral communications skills, only 28% of employers concur.²

The New England Board of Higher Education (NEBHE) in April 2017 convened the Commission on Higher Education & Employability, under the leadership of Rhode Island Governor Gina M. Raimondo. The Commission brought together stakeholders from higher education, government, business and other sectors to commit to increasing the work readiness of New England's college graduates for a rapidly changing, increasingly complex economy and society.

Through its work, the Commission sought to ensure a successful, equitable workforce future where education provides not only a well-documented earnings premium, but also meaningful, fulfilling work; where employers see developing talent as a sound investment; and where better-aligned institutions and employers prepare New Englanders for sustained contributions to the well-being of the region.

This report is focused on the collaboration between higher education, regional employers and policymakers. The Commission recognizes that higher education's role in shaping the workforce is one aspect of its much broader mission to develop active thinkers and lifelong learners.

1 Gallup and Lumina Foundation, *What America Needs to Know about Higher Education Redesign* (Indianapolis: Lumina Foundation, 2014).

2 Hart Research Associates, *Falling Short? College Learning and Career Success* (Washington DC: Author, 2015).

Indeed, definitions of employability should start with a strong foundation of those competencies widely demanded by employers and commonly associated with the liberal arts: communications, critical thinking, empathy and ethical/moral reasoning.

The Commission challenges New England to ensure that all postsecondary graduates are prepared for satisfying careers with living wages, which allow them to contribute to the economic and societal success of the region. To meet this challenge, the Commission believes that all postsecondary students must have access to and demonstrate completion of critical employability-related experiences during their postsecondary education:

- Foundational skills in literacy, numeracy and communication, including the ability to work in teams, communicate clearly verbally and in writing, and solve problems
- An individual career plan prepared early in their postsecondary experience
- At least one paid and/or credit-bearing work-integrated learning experiences
- Achievement of digital competencies related to their course of study, career goals and the fast changing economy
- Attainment of an affordable credential that is employer-informed and is aligned to career pathways

To meet this goal, the Commission calls on all stakeholders including governors, legislatures, state boards of high education, trustees, faculty and employers to engage with its recommendations. Each state, institution, employer, and individual offers its own unique contributions to the region's economy, culture and success and will bring unique approaches to adopting these recommendations. The Commission understands that addressing the goals embedded in these recommendations will require new investments and alignments of current resources—in a time of challenging state, institutional and organizational budgets.

The Commission has set aggressive Strategic Imperatives for Higher Education & Employability in New England to meet the challenge of increasing the employability of graduates. These imperatives apply equally to public and independent institutions, both two-year and four-year, and recognizes that much of the success of this initiative will come from collaboration among New England's higher education leaders and those in industry and policy.

The Commission has developed a series of recommendations in the key areas of:

- Effective use of labor market data to inform programs, policy and practice
- Re-envisioning advising and career services offered by colleges to better align supply and demand and implement best practices and "disruptive" approaches
- Targeted higher education-industry partnerships
- Increasing postsecondary opportunities for work-integrated, experiential and cooperative learning (for example, internships, field placements), including policy incentives and student aid programs
- In-demand digital skills bundles that include fundamental IT and coding skills, knowledge of the digital economy, data analytics, cloud computing, technology

- security and entrepreneurship or other essential 21st century skills
- Policies related to new credentials, including the recognition and aggregation of postsecondary and non-postsecondary training and the work experiences of working adults and veterans

While not intended as an implementation guide, the report's recommendations are designed to be actionable with specific steps outlined for key stakeholders—from governors, legislators and state workforce leaders to business and employer executives and hiring personnel, postsecondary leaders, faculty, staff and students.

The Commission believes that by acting now, New England colleges and universities, working with employers and policymakers, can take the lead in driving toward better employability outcomes for individuals, employers and the region.

Recommendations

Strategic Imperatives

1. New England higher education institutions, along with their respective system, coordinating and/or governing boards, should make increased graduate employability a strategic priority—linked to institutions' strategic plans, key outcomes, performance indicators and accountability measures.
2. New England higher education institutions should work to define and embed employability across the institution and in multiple dimensions of learning and the student experience—both curricular and extracurricular.
3. New England should make strategic investments at the state, system and institution level to expand research, assessment and data systems to support understanding and documentation of employability-related outcomes.
4. New England higher education institutions should undertake formal employability audits to assess strategic, educational and assessment-oriented activities—and effectiveness in embedding employability across the institution.
5. New England states should consider specific employability-related equity strategies to support student success—particularly for underrepresented populations that are at risk of not completing postsecondary credentials.
6. New England states should consider specific employability strategies to support students, including underrepresented populations, who are at risk of not completing postsecondary credentials.

Closing the Employability Gap

The Commission recommends that NEBHE conduct a regular benchmarking of regional equity indicators in order to inform states and where needed, to provide tools and resources that can help states in closing the employability gap.

The recommendations that follow are grouped in six key areas reflecting areas of focus by the Commission.

Effective Use of Labor Market Data and Intelligence

1. Higher education institutions, in partnership with key stakeholders, should develop detailed strategies and action plans for accessing and incorporating actionable labor market data and intelligence into key areas, including: institutional strategy; program offerings, planning, advising and career services; and internship and work-integrated learning (WIL) opportunities.
2. Higher education institutions should launch a regional collaborative to increase institutional capacity, resources and networks to effectively implement insights into action plans and into the region's economic development efforts.
3. New England higher education institutions should develop a regional partnership for the shared purchasing and contracting of labor market data, information and intelligence services.

Targeted Higher Education-Industry Partnerships

4. The New England states should collaborate to launch multistate, industry-specific talent pipeline partnerships focused on top growth-oriented sectors in the state and region, (including healthcare, life and biosciences, information technology, advanced manufacturing and financial services) and driven by key stakeholders from higher education, industry and government.
5. New England higher education institutions, employers and policymakers should create sustained structures to better inform key aspects of institutions' work including: academic program design; course content; WIL opportunities; planning, advising and career services; and creating better and more frequent interfaces between the institutions and the changing world of work.
6. New England higher education institutions should work closely with employers and industry partners (including key human resources staff) to better equip students with the ability to understand and articulate the knowledge, skills and competencies they acquire through postsecondary study-enabling them to speak the language of employment and employers.

Planning, Advising and Career Services

7. New England higher education institutions should invest in, and elevate—on campus, and through New England higher education accreditation standards, recognize—advising and career services as key priorities that improve not only graduate employability but also enrollment, retention and completion.
8. New England higher education institutions should better engage each student in clearer goal-setting processes, career-planning engagements and career-related assessments. They should actively expand students' access to: job search and job-getting skills; career management skills; readiness for lifelong learning; and a knowledge of the future of work and skills-preparing them to navigate the changing world of work.
9. The New England states should launch a New England Planning, Advising and Career Services Network—a collaborative community of practice to drive innovation, provide shared services and increase the availability of cutting-edge and best-in-class resources across all types of higher education institutions.

Work-integrated, Cooperative and Internship-based Learning

10. New England states and higher education institutions should work to ensure that all students who enroll in a postsecondary credential program complete at least one high-quality, work-integrated learning experience—including WIL opportunities in key industries important to New England's local and regional economies.
11. In New England, higher education institutions, employers, policymakers and students should collaborate in exploring, developing and implementing policies (public and institutional) that incentivize businesses (through additive investments such as tax credits or other means) to expand paid internships. These policies should also work to retain students and graduates in our states and region.
12. The New England states and higher education institutions should advocate for changes to federal student aid policies to increase funding for work-study and expand opportunities to use these funds for paid internships with qualified employers.

Digital Competencies

13. New England higher education institutions should participate in a strategic Digital Competencies Initiative to expand their capacity for innovative delivery of the digital knowledge, skills and competencies required for graduates' employability in a fast-changing, technology-driven, global economy.
14. New England higher education institutions should collaborate with employer partners to implement digital competency frameworks-supported by technology-enabled curriculum, assessments, and other learning tools to aid students in digital skill acquisition across the whole of their postsecondary experience.
15. New England higher education institutions should lead in incorporating digital competencies as "essential learning outcomes" that are achieved through high-quality postsecondary learning opportunities.

Emerging Credentials and Credentialing System

16. The New England states should collaborate to support the build-out of Credential Engine's Credential Registry. A regional and collaborative approach to this should address high-value credentials that are important to our shared economy and economic needs.
17. The New England states should identify in-demand, high-quality, growth-oriented credentials in sectors that are critical to the innovation, competitiveness and growth prospects for high-wage jobs in multiple New England states. This should include developing pathways linking such credentials to further postsecondary study options and employment opportunities-demonstrating opportunities for mobility between jobs, industries and complementary credentials.
18. Institutions should continue to innovate in developing "out of the box" credentials that respond to the dynamic changing needs of individuals and employers. Further, policymakers and accreditors should support structures, policies and processes that are responsible, innovative, and enable the development of workplace-relevant credentials and certifications, providing incentives, regulatory flexibility, and updated higher education policies informed by employer involvement.



New England's colleges and universities have been a sustained force to: develop and attract some of the world's best human capital; generate new technologies and intellectual capital; spawn new industries and companies; and cultivate vibrant and engaged citizens and communities.

Despite these compelling roles, one study found that nearly half (46%) of Americans believe a college education is a questionable investment because of high student debt and limited job opportunities. Employers express concern about a lack of qualified, skilled workers, especially in technology-intensive and growth-oriented industries. In the view of many observers, there is increasing need for higher education institutions to demonstrate their capacity to prepare students for satisfying, family-supporting careers in a rapidly changing global and digital economy.

Defining Employability

The Commission espouses an expansive view of employability and rejects simple reasoning or false dichotomies that pit academic outcomes against others perceived as “vocational” or career-related. The vast majority of students who enroll in postsecondary education do so to advance their work and life prospects before and/or after graduation.³ The Commission has seen ample evidence of institutions of all types—large and small, from open access to highly selective—that successfully take a learner-centered approach to employability that integrates the liberal arts and professional preparation.

Guided by that approach, employability broadly means being ready to successfully obtain employment and be productive thereafter in lifelong pursuits in one's chosen field and beyond. The Commission framed its work using the following definition:

Employability is a set of achievements—skills, understandings and personal attributes—that make graduates more likely to gain employment and be successful in their chosen occupations, benefiting themselves, the workforce, the community and the economy.⁴

Employability has multiple dimensions and definitions and commonly includes some combination of knowledge, skills, attributes and behaviors such as:

³ Strada Education Network and Gallup, *Why Higher Ed?* (2018).

⁴ Adapted from Mantz York, *Employability in Higher Education: What It Is and What It Is Not* (Higher Education Academy, 2004)

- Degree- and/or program-specific knowledge and skills
- Foundational knowledge and skills, including: information literacy and numeracy; technology and computing; effective communication; teamwork and collaboration; and analytical and problem solving skills
- Experience, both work and life, and applied learning
- Job search and career management skills and
- Interpersonal and self-management skills

The Commission urges higher education institutions and their collaborators to undertake the challenging and invigorating discussions about how to best define, execute and measure employability in light of multiple critical factors—including institutional mission, populations served and the needs of the students, employers and society.

Likewise, the Commission recognizes the significant diversity that exists among postsecondary institutions. Its recommendations are not intended as a “one size fits all” approach, but to spur further endeavors by key stakeholders in considering, adapting and utilizing applicable elements. Moreover, an expanded focus on employability need not occur to the exclusion of other important institutional priorities—and can, in fact, likely complement and support them.

Employability vs. Employment

Commissioners supported the notion that employability extends beyond employment, per se. While a first or next job is undoubtedly important to the vast majority of students and our economies—it is only one dimension of employability. The Commission (and those who informed its deliberations) repeatedly emphasized the importance of the knowledge, capabilities, skills and competencies that spring from the liberal arts experience and from the broader aims of our postsecondary institutions—and which provide a foundation for agility and lifelong learning. This view is regularly validated by graduates and employers. Such capabilities anchor and enable graduates to more successfully navigate the complexity of organizations, work and the changing world and economy.

Fundamentally, employability must be embedded across the whole of the institution and be rooted in a student-focused approach to high-quality learning. It entails enabling students—at all levels and in all disciplines—to best utilize postsecondary learning opportunities—curricular, co-curricular and other—to prepare for the dynamic world in which they will play multiple roles. It includes a cultivated capacity for lifelong learning across their lives and professions.

Figure 1: **Employability in Higher Education**⁵

What It Is

- An institution-wide priority and responsibility
- Rooted in student-centered learning
- Definable, measurable, improvable
- A combination of knowledge, skills, behaviors, attributes and attitudes enabling success in life and citizenship-not just in employment
- Relevant to all students-across institution types, degree levels, majors, or mode of study
- Aligned and consistent with the aims of liberal arts education
- Made explicit to students to support empowered planning, reflection, action and lifelong learning
- Supported by effective policies, programs and practices at institutional, system and state level

What It Is Not

- Quantified by any single measure
- Just about a graduate's first job
- Just about employment and wages
- Just skill or workforce training
- A reduction of academic rigor or standards
- Primarily the responsibility of Career Services
- Relegated to non-academic staff
- Confined to the period just before graduation

Employability and Equity

The Commission urges stakeholders to pursue strategies to increase employability of students and graduates in light of the imperative to dramatically increase the retention and completion of underrepresented populations. Growth in student employability capabilities must close-and never widen-opportunity and achievement gaps.

“By age two, socioeconomic factors begin having an impact on the cognitive development of children. From there, gaps balloon and students are no longer equal on attainment rates and employment opportunities.”

Elsa Núñez

Commission member

President, Eastern Connecticut State University

Employability and attainment interventions can be mutually reinforcing: Engaging students from the start in career advising and structured degree plans; building relevant connections between learning and future opportunities; cultivating an understanding of the world of work and career paths; engaging in paid internships and work-integrated learning opportunities to increase affordability and applied experience;

and providing advising, mentorship and career-related services to increase social capital for navigating employment. These and other approaches can help clarify students' purpose, build confidence, and incentivize their persistence and completion.

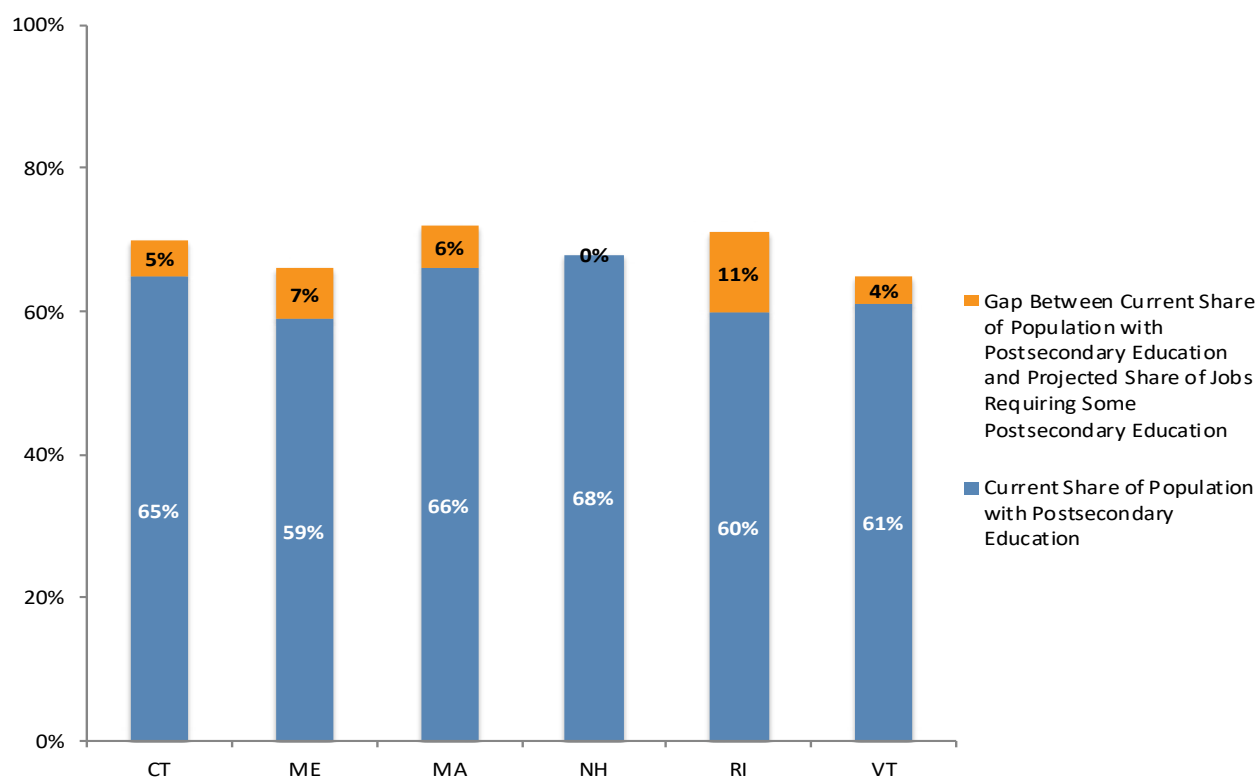
⁵ Adapted from D. Cole and M. Tibby, *Defining and Developing your Approach to Employability: A Framework for Higher Education Institutions* (Higher Education Academy, 2013) and M. Yorke, *Employability in Higher Education: What It Is - What It Is Not* (Higher Education Academy, 2006).

The Case for Employability

Higher education in the United States is a remarkable success story. For decades, U.S. colleges and universities have been the envy of other nations and, in terms of both the overall quality and breadth of higher education offerings, the U.S. has a lot to be proud of—as does New England, which has been viewed historically as a higher education hub.

More and more, New England employers are looking for workers with a postsecondary credential. Projections show that as soon as 2020, New England states could face a gap as large as 11 percentage points between the share of residents with a postsecondary education, based on current attainment, and the share of jobs requiring some postsecondary education. The gaps between the number of jobs requiring postsecondary credentials and the supply of individuals with applicable credentials are expected to persist—and possibly widen—over the coming decade, given slowing attainment rates and economic and technology changes.

Figure 2: Projected Postsecondary Education Gap in New England



Source: NEBHE analysis of Georgetown Center on Education and the Workforce, Recovery 2020.

Demand is especially strong in fields where highly skilled workers are critical to productivity and the region's well-being. More specifically, the vast majority of jobs in the region's four fastest-growing fields will require a postsecondary degree by 2020. Across the New England states, postsecondary credentials will be required for:

- 60% of healthcare support jobs
- 93% of healthcare professional and technical jobs
- 97% of STEM (science, technology, engineering and math) jobs
- 100% of social sciences jobs⁶

Returns on Postsecondary Investments

The economic value of postsecondary credentials remains strong. For four-year degrees, the evidence of growth in economic returns to degree-holders is overwhelming. In 1980, a four-year college graduate earned 34% more than a high school graduate. This “college wage premium,” as it is called, rose dramatically through 2010 when it reached 78%. While no longer rising, this premium is still higher than at any time in U.S. history.⁷

The returns on an associate degree are also positive and significant (though smaller than for a bachelor’s). According to the U.S. Census Bureau in 2015, the wage premium, compared to a high school graduate with no additional education, for an associate’s degree holder was \$6,240 per year and for a bachelor’s degree holder was \$19,000.⁸

Despite the college wage premium, signs of frustration and discontent are becoming more common among the public, employers, state and federal funders of higher education and students themselves, in the face of rising tuition prices and growing student debt levels.

More than half (57%) of Americans say higher education in the U.S. fails to provide students with good value for the money they and their families spend. More significantly, 75% say college is too expensive for most Americans.⁹

Completion Counts

The supply of skilled labor and wage premiums depend heavily, however, on postsecondary completion rates. Among individuals who completed a postsecondary program, 86% say that college was a good investment for them personally. Conversely, significant numbers of students fail to complete and to capture the economic return. Moreover, negative perceptions of higher education among the public and policy makers, and the value related thereto, are compounded by poor completion outcomes for students, particularly for students of color and low-income and first-generation students.¹⁰

As in much of the country, New England’s postsecondary institutions and policymakers

6 Anthony Carnevale, *Recovery 2020: Job Growth and Education Requirements through 2020* (Georgetown University Center on Education and the Workforce, 2013).

7 Robert G. Vellella, *Recent flattening in the higher education wage premium: Polarization, skill downgrading, or both?* (NBER Working Paper No. 22935) (Cambridge, MA: National Bureau of Economic Research, 2016).

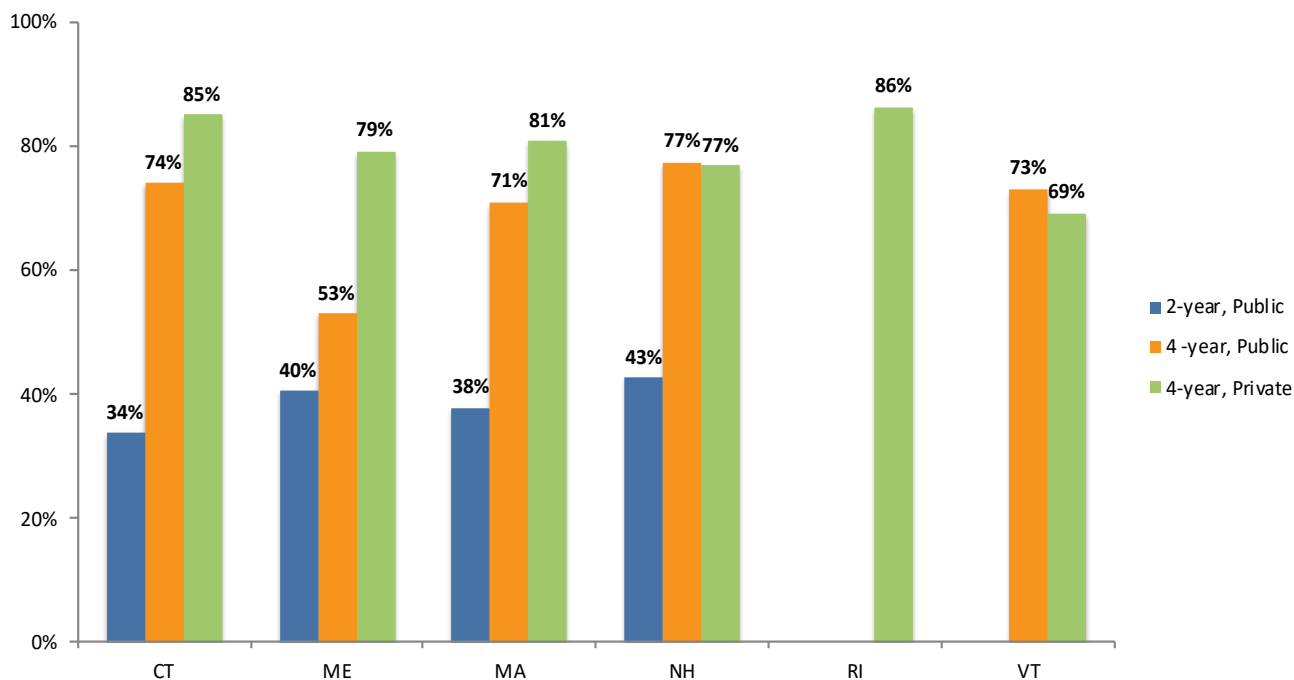
8 U.S. Department of Commerce, Census Bureau. Current Population Survey (CPS). “Annual Social and Economic Supplement.” 2016. See Digest of Educational Statistics 2016. Table 502.30.

9 Pew Research Center, *The Value of College* (2016).

10 *Ibid.*

continue to consider ways to boost completion. Laudably, most New England states have specified goals related to postsecondary completion and attainment. Yet, in light of challenging demographic factors, considerable work remains to meaningfully increase the pipeline of graduates produced by the region's public and independent institutions.

Figure 3: Completion Rates at New England's Higher Education Institutions, Fall 2010 Cohort (150% time)



Source: NEBHE analysis of National Student Clearinghouse data, 2017.

Note: Rhode Island and Vermont have too few HEIs to report to the National Student Clearinghouse in the 2-year public (both states) and 4-year public (Rhode Island) sectors.

Skills Gaps

While the quantity of degree-holding graduates is a critical issue, so is the nature and quality of the skills-and overall levels of work readiness-possessed by such graduates. Employers frequently cite deficiencies in the skill and preparation level of graduates and new employees as they enter many fields. Moreover, students and alumni further echo concerns that they are underprepared for their careers and futures. Specifically, surveys of employers, college academic officers and graduates have found that:

- While 96% of chief academic officers at higher education institutions say their institution is very or somewhat effective at preparing students for the world of work, only 11% of business leaders strongly agree that today's college graduates have the skills and competencies that their business needs.¹¹

¹¹ Gallup and Lumina Foundation, *What America Needs to Know about Higher Education Redesign* (Indianapolis: Lumina Foundation, 2014).

- While 53% of students say they believe their major will lead to a good job, 47% of graduates younger than 24 years old say that if they had to do it all over again, they would change their major. Of graduates aged 24 or over, 40% would select a different major.¹²
- More than half of the 3,000 U.S. employers and managers say they were hiring in 2018, but three-quarters said their industries face severe skills shortages. In fact, 92% of respondents say the problem is negatively affecting productivity, employee satisfaction and turnover.¹³
- Over one-third of employers indicate that inadequate availability of middle-skilled workers has undermined their productivity, with manufacturing (47%) and healthcare (35%) the hardest hit.¹⁴

A Regional Imperative

New England's "higher education advantage" has enabled the region to develop strong knowledge-based industries, leading to per-capita income that is 30% above the nation's, as well as consistently low unemployment. New England colleges play a critical role in supporting regional clusters of economic activity-geographic concentrations of interconnected firms, such as clean-tech in northern Vermont, financial services in Connecticut, or life sciences in Greater Boston. These regional clusters promote the growth of companies within a specific industry (e.g. biotech), as well as opportunities for other companies to serve and support such industries (e.g. finance, accounting and law).

A critical factor working against the region's economic vitality is the *Two New Englands* paradox. Much of urban New England has high per-capita income, high educational attainment and high-tech employment; much of rural New England does not. Skills and opportunities are both unequally distributed across the region.¹⁵

Figure 4: The Two New Englands

	Per Capita Income	Share of Associate's or Above Degree Holders	Share of Workers in High Tech	Share of Workers in IT	Share of Workers in Finance Sciences	Share of Workers in Education
Urban New England	\$65,427	46.0%	9.2%	2.1%	7.4%	11.6%
Rural New England	46,368	37.5%	5.1%	1.6%	4.6%	11.5%
United States	\$48,112	42.3%	4.7%	1.9%	5.7%	2.0%

Source: Gittel, Ross. 2017. *The New England Journal of Higher Education*.

12 Gallup and Strada Education Network, *2017 College Student Survey: A Nationally Representative Survey of Currently Enrolled Students* (Washington DC: Gallup, 2017).

13 Hayes Specialist Recruitment, *Hayes U.S. 2018 Salary Guide*.

14 Third Way, *Mind the Gap: The State of Skills in the U.S.* (2017).

15 Ross Gittel, "Commit to Building on New England's Employability Advantage." (*The New England Journal of Higher Education*, July 31, 2017.)

Slow Growth

Additionally, slow population growth and out-migration from some New England areas exacerbate talent pipeline gaps in growing industries.¹⁶ Where there is population growth, it is increasingly among groups—both urban and rural—whose participation in postsecondary education and the job market is lagging.

Overall, the number of new high school graduates in New England is projected to decline by 14% by 2032. The steepest decline comes from the decrease in the number of white high school graduates (-25%). Over that same period to 2032, the number of minority graduates will increase significantly—by 46% among Hispanics, 7% among blacks, 2% among American Indian/Alaska Natives and 37% among Asian/Pacific Islanders. However, for every 10 white graduates lost, only four minority high school graduates will be gained.

Closing the Employability Gap

Success will require a steady commitment to equity. Increasing the work readiness of underrepresented groups is critical in New England, not only as a matter of social justice, but also as a matter of sound economics, given the region's slow population growth. For the purposes of addressing equity in employability, underrepresented groups include: students of color, students from low-income families and first-generation students. (Though full success in employability will also require attention to groups of students who are disabled, veterans, foreign immigrants, LGBTQA or face other barriers.)

While people of color will fuel New England's population and economic growth, students in these groups are often underprepared. African-Americans in New England have an attainment rate of postsecondary credentials of value that is 10 percentage points lower (37%) than the region's average (47%), while only 33% of Hispanics have some postsecondary credential of value.¹⁷

Figure 5: Postsecondary Attainment Rates (%) in New England by Race/Ethnicity and Geography, 2015

	State Average	African-American	Hispanic	White	Asian & Pacific Islander	American Indian	Most Populated County	Least Populated County
Connecticut	48.5%	31.5%	22.8%	54.2%	72.0%	34.7%	54.6%	33.5%
Maine	41.0%	25.4%	50.1%	41.3%	55.9%	22.9%	55.0%	29.3%
Massachusetts	52.2%	33.9%	24.1%	56.5%	65.7%	27.7%	62.2%	48.1% *
New Hampshire	47.5%	42.2%	30.8%	47.3%	70.1%	17.2%	48.0%	32.4%
Rhode Island	43.8%	28.9%	20.3%	47.2%	55.4%	23.8%	37.6%	58.4%
Vermont	46.6%	59.5%	52.2%	45.2%	52.4%	22.9%	59.5%	27.7%

*not including Cape Cod

Source: NEBHE analysis of *Stronger Nation* 2017, Lumina Foundation

¹⁶ Western Interstate Commission on Higher Education, *Knocking at the College Door* (2016).

¹⁷ *Ibid.*

New England must close the “employability gap” between students based on race/ethnicity and economic opportunity by increasing the options for students to build social capital and engage in meaningful work-integrated learning.

The “employability gap” must also be addressed through hiring practices and workplace environments that actively seek to recruit, mentor, support and promote a diverse work environment through diversity in hiring and creating a culturally sensitive workplace. The Commission heard clearly from its employer members of the importance of a diverse workforce.

Surveys conducted by Gallup and Strada Education Network show that under-represented students, including students of color and first-generation students, rate career services and academic advisors as more helpful than their white peers.¹⁸ But like all groups, these students give the highest ratings for advice about their major to informal work-based sources. As underrepresented students commonly have less access to guidance and expertise in their social networks, increasing access to work-based learning experiences may be particularly beneficial.

The employability gap refers to the difference between groups in skills, understandings and personal attributes that make graduates more or less likely to gain employment and professional success—which leads to poorer employment and socioeconomic outcomes for underserved and underrepresented populations. The employability gap can also reflect differing amounts of social capital to which individuals have access.

The Commission is committed to elevating equity and closing the employability gap in each area of its findings and recommendations, recognizing that doing so has enormous implications for the region’s competitiveness, as well as for the earnings, health and well-being of individuals. Further, the Commission recommends that NEBHE conduct a regular benchmarking of regional equity indicators in order to inform states and where needed, to provide tools and resources that can help states in closing the employability gap.

18 Gallup and Strada Education Network, *2017 College Student Survey: A Nationally Representative Survey of Currently Enrolled Students* (Washington DC: Gallup, 2017).

The Changing Nature of Work

More than other regions around the country, New England faces a shortage of workers with education beyond a high school diploma but below a bachelor's degree—the “middle-skill” jobs that will be an increasingly important component of job demand across the region.¹⁹ Northeastern University economist Alicia Sasser Modestino has estimated there are 37.7 million middle-skill workers in the U.S. labor force.²⁰

Another trend is clear: jobs increasingly require higher skill and education levels. Nationwide, the greatest credentials gaps (between the percentage of job holders with at least a bachelor's degree and the percentage of postings requiring the same) exist in the management (26%), office and administrative services (25%), business and financial operations (21%) and computer and mathematical (21%) occupational fields.²¹

Additionally, research points to the emergence of so-called “hybrid” jobs, which marry technology skills like programming with “offline skills,” such as analysis, design and marketing. Examples of hybrid jobs include web development, data analytics and digital marketing. They are concentrated in tech hubs such as Boston, where there are approximately 12,000 open jobs. Hybrid jobs are increasingly in demand, with more than 250,000 open positions across the country.²²

Technological advances will continue to automate an increasing number of tasks that are traditionally performed by humans—further propelled by robotics, big data, artificial intelligence, the Internet of Things and ever-increasing computing power. In 2016, McKinsey & Company reported that existing technologies could automate 45% of the activities that people are paid to perform and about 60% of all occupations could see 30% or more of their constituent activities automated. And as technology develops, robotics and machine learning are expected to make greater inroads into automating activities that today have only a low technical potential for such.

“ Since the economic recovery began in January 2010, approximately 11.6 million jobs have been created. Of those jobs, more than 11.5 million required a post-secondary degree or credential. Such staggering figures force us to conclude that a high school education remains necessary, but is no longer sufficient to meet the demands of today's labor market. ”

Senator Louis DiPalma
Commission member
Rhode Island General Assembly

According to the report, the hardest activities to automate with currently available technologies are those that involve managing and developing people (only a 9% automation potential) or that apply expertise to decision making, planning or creative

19 James Brett and Alan Clayton-Matthews, *Growth Tied to Job Training* (Boston: The New England Council, 2015).

20 Alicia Sasser Modestino. *The Importance of Middle-Skill Jobs*. (Issues in Science and Technology, Fall 2016).

21 Burning Glass Technologies, *Moving the Goalposts: How Demand for a Bachelor's Degree is Reshaping the Workforce* (2014).

22 General Assembly and Burning Glass Technologies, *Blurring Lines: How Business and Technology Skills are Merging to Create High-Opportunity Hybrid Jobs* (2015).

work (projected at 18%). These activities, often characterized as “knowledge work,” can be as varied as coding software, creating menus, or writing promotional materials.

“ **Students and workers must integrate three critical literacies: an information literacy, namely every student should understand how machines work and how to interact with these machines; second, a data literacy [because] machines are generating a lot of data and we need to understand how to navigate the data and how to make sense of it; and the third literacy is the human literacy ... ultimately what makes humans different from machines ... the ability to be creative, to be entrepreneurial, to be ethical, to be empathetic, to be culturally agile, to be able to have a systems approach ... to be global.** ”

Joseph Aoun

**President, Northeastern University
speaking at NEBHE's *Employability: A National Imperative Summit* on Dec. 4, 2017**

While there is no clear consensus among economists about the projected rate of automation's displacement of jobs in the U.S. economy—or the number of new jobs that will be created—the trend of escalating education requirements for both middle- and high-skill occupations is expected to continue unabated.²³

Moreover, it is increasingly clear that postsecondary graduates and workers will need new combinations of knowledge and skills—requiring siloed and discipline-driven postsecondary institutions to rethink education processes and outcomes. Graduates will need lifelong learning, greater adaptability, additional credentials.

Students will particularly need integrated employability skills that equip them for the machine-human environment and which demonstrate judgment and decision-

making, emotional intelligence, teamwork, people management, creativity and critical thinking, complex problem solving and effective oral and written communication.

The changing nature of work and potential for further automation of even middle skills jobs have created an urgency for postsecondary institutions to take concerted actions that are informed and guided by the recommendations of the Commission on Higher Education and Employability.

²³ Michael Chui, James Manyika and Mehdi Miremadi, “Where Machines Could Replace Humans and Where They Can't—Yet” (*McKinsey Quarterly*, July 2016).

Recommendations

The Commission on Higher Education & Employability was charged to develop an action agenda, policy recommendations, strategies and next steps to align institutions, policymakers and industry to increase the life and career readiness of college and university graduates-and facilitate their successful transitions to work and sustained contributions to the well-being and competitiveness of the New England region. While the Commission's origins are regional, it seeks to catalyze a national initiative and assume a broader leadership role in the United States.

The Commission endorses the Liberal Education and America's Promise (LEAP) framework for high-quality learning for student success in postsecondary education. Developed through the Association of American Colleges and Universities (AAC&U) the framework for higher education institutions has three pillars:

- Development of Essential Learning Outcomes: These are the learning outcomes essential for success in life, civil society, and work in the twenty-first century.
- Using High Impact Educational Practices: These practices engage and challenge students through first-year programs, intensive writing, collaborative assignments, undergraduate research, service learning, internships, learning communities, diversity experiences, and major projects that help students achieve Essential Learning Outcomes.
- Utilizing Authentic Assessments: Using students' own work and faculty-validated rubrics, probing whether individual students have developed essential capacities and can apply their learning to complex problems and real-world challenges.²⁴

The Commission believes that all postsecondary students must have access to and demonstrate completion of critical employability-related experiences during their postsecondary education:

- Foundational skills in literacy, numeracy and communication, including the ability to work in teams, communicate clearly verbally and in writing and solve problems
- An individual career plan prepared early in their postsecondary experience
- At least one paid and/or credit-bearing work-integrated learning experiences
- Achievement of digital competencies related to their course of study, career goals and the fast changing economy
- Attainment of an affordable credential that is employer-informed and is aligned to career pathways

24 Association of American Colleges and Universities, *An Introduction to LEAP-Liberal Education & America's Promise Excellence for Everyone as a Nation Goes to College* (2005).

Strategic Imperatives

In order to meet this challenge, the Commission has developed key Strategic Imperatives that apply equally to public and private institutions, both two- and four-year. The success of this initiative will come from the ongoing collaboration between New England's higher education, employer and policy leaders. The Strategic Imperatives are:

1. New England higher education institutions, along with their respective system, coordinating and/or governing boards, should make increased graduate employability a strategic priority—linked to institutions' strategic plans, key outcomes, performance indicators and accountability measures.
2. New England higher education institutions should work to define and embed employability across the institution and in multiple dimensions of learning and the student experience—both curricular and extracurricular.
3. New England should make strategic investments at the state, system and institution level to expand research, assessment and data systems to support understanding and documentation of employability-related outcomes.
4. New England higher education institutions should undertake formal employability audits to assess strategic, educational and assessment-oriented activities—and effectiveness in embedding employability across the institution.
5. New England states should consider specific employability-related equity strategies to support student success—particularly for underrepresented populations that are at risk of not completing postsecondary credentials.

Thomas College's Guaranteed Job Program (Waterville, ME)

In 2016, Thomas College announced the Guaranteed Job Program, which makes a commitment to students who enroll that they will find a job within six months of graduation. Close to 60% of students who attend the college are first-generation students and many work while attending classes to support themselves. Students who enroll in the Guaranteed Job Program must make commitments of their own, which include regularly visiting career services, keeping their resumes updated, completing an internship, performing community service and maintaining a 3.0. In return, Thomas promises to pay students' loans for 12 months if they are unable to find a job within six months of graduation, or allows students to enroll tuition-free in up to six evening graduate courses at the college. Thomas complements this program with a number of other student success programs and promises. The results are strong—94% of Thomas College graduates are employed within six months of graduation with average earnings above \$47,000.

The Commission examined current workforce and employment data, reviewed reports and models outlining best practices and cutting-edge higher education and business strategies, explored state and national policies that drive employability goals and practice, and expanded its analysis through expert testimony from leaders and researchers in policy, education and business.

Each state, institution, employer and individual offers their own unique contributions to the region's economy, culture and success and will bring unique approaches as they engage with these recommendations. The Commission recognizes that new investments will be required, as well as new alignments of current resources, and calls on education and policy leaders and employers to address such investments. The Commission views these recommendations as opportunities for New England's diverse and competitive higher education ecosystem, including employers and policymakers, to take a leadership role to increase the employability of the region's graduates and work toward a more equitable society.

Effective Use of Labor Market Data & Intelligence (LMDI)

Despite the increasing availability of data related to higher education, critical gaps exist in our understanding of students' skill development and outcomes-particularly those related to employability and employment. These gaps leave policymakers, postsecondary institutional leaders and students themselves without the needed information to make informed decisions related to:

- Developing industry-informed degree and credential offerings
- Adopting well-informed career planning and advising
- Identifying employer-partners and work-integrated learning (WIL) experiences
- Integrating workforce-relevant skills and competencies into curriculum
- Responding to changing labor market demands, skill requirements and regional economic development priorities

Advancements in technology in recent years have expanded labor market data beyond traditional sources such as the Bureau of Labor Statistics and the U.S. Census Bureau, to real-time analytics of online job postings conducted by firms such as Boston-based Burning Glass Technologies.

New technology, data systems and analytics have significantly increased the labor market information and intelligence available to postsecondary institutions and related stakeholders. Such data can be used to inform, prepare and advise postsecondary students; influence the development of major-specific curricula, new credentials and work-integrated learning; inform system and institutional policies, programs and retention interventions; reveal labor market dynamics, skill content and skill requirements; clarify employer needs and preferences; and document actual employment outcomes. Such resources can also support the collaboration and integration of policymakers, workforce agencies, postsecondary institutions and employers.

Figure 6: Common Sources of LMDI

Sources	Benefits	Limitations
Traditional LMDI		
<ul style="list-style-type: none"> Bureau of Labor Statistics 	Reliable and robust	Projections are based on past trends
<ul style="list-style-type: none"> Unemployment Insurance Required Reporting 	Consistent and methodologically rigorous	May be significant lag time between data collection and publication
<ul style="list-style-type: none"> U.S. Census Bureau 		
<ul style="list-style-type: none"> Special Surveys 	Public, no-cost distribution	May not capture emerging occupations/skills requirements/certifications
Real-time LMDI		
<ul style="list-style-type: none"> Burning Glass Technologies 	Reveals new and emerging trends in occupational definitions, skills and certifications	Some duplication errors and online job ads can be vague or incomplete
<ul style="list-style-type: none"> EMSI 		
<ul style="list-style-type: none"> Wanted Analytics 		
<ul style="list-style-type: none"> Monster.com, Government Solutions 	Offers insight into the skills and certifications sought by employers	Certain types of jobs, including the trades (construction, manufacturing) are underrepresented in the data.
<ul style="list-style-type: none"> The Conference Board 		
<ul style="list-style-type: none"> CareerBuilder 	Data is collected continuously	Proprietary software—users must purchase licenses
<ul style="list-style-type: none"> Geographic Solutions 	Tracks (potential) hiring demand	Not every job posting represents an actual vacancy
Outcomes LMDI		
<ul style="list-style-type: none"> Institutional reporting data 	<p>Provides insight into states' or institutions' goals</p> <p>Allows institutions to benchmark progress</p> <p>Offers prospective students information critical to making enrollment decisions</p>	Placement data typically describes only graduates' first jobs and may not be a good indication of long-term employability skills

Source: New Pathways for College and Career Readiness: Increasing Opportunity and Equity through Education, Harvard Graduate School of Education, 2017. NEBHE Analysis.

Despite the growing robustness of data, postsecondary institutions use labor market information unevenly. This can be due to institutional missions, constrained fiscal and human resources or limited knowledge and experience in putting LMDI to use. Moreover, state longitudinal data systems, which seek to connect K-12 education metrics to postsecondary and workforce outcomes, are not always shared across these three silos, nor state lines, and can be difficult to access and interpret.

Labor market data is the means to define successful workforce outcomes, incentivize institutional change and empower students to make decisions about their postsecondary studies and future careers. Given the growing mobility of students across state lines, existing data sources such as state longitudinal data systems and traditional labor market data sources are inadequate for this vital task. Higher education institutions should strive to use traditional, real-time and outcomes LMDI, in conjunction with consideration of local economic drivers and feedback from regional workforce entities to inform and benchmark progress toward increasing the employability of the region's graduates.

Multistate Longitudinal Data Exchange (Western Interstate Commission for Higher Education)

State policymakers and education and labor leaders need a resource to link individual-level data across states to support evidence-based decision-making related to education, training and employment. To address this need, several states are working through the Western Interstate Commission for Higher Education to establish the Multistate Longitudinal Data Exchange (MLDE).

As more states join, the MLDE will increasingly complement individual states' own data systems by providing crucial information on: the effectiveness of programs such as financial aid and dual enrollment by capturing the flow of students who move out of state, as well as providing consumer information across states to aid decisions about postsecondary education, including workforce outcomes.

Recommendations *for Effective Use of Labor Market Data and Intelligence (LDMI)*

- 1. Higher education institutions, in partnership with key stakeholders, should develop detailed strategies and action plans for accessing and incorporating actionable labor market data and intelligence into key areas, including: institutional strategy; program offerings, planning, advising and career services; and internship and work-integrated learning (WIL) opportunities.**
- 2. Higher education institutions should launch a regional collaborative to increase institutional capacity, resources and networks to effectively implement insights into action plans and into the region's economic development efforts.**
- 3. New England higher education institutions should develop a regional partnership for the shared purchasing and contracting of labor market data, information and intelligence services.**

These recommendations must be supported by key stakeholder actions, including:

All Stakeholders

- Higher education, labor and workforce and K-12 agencies should share longitudinal data across silos, state lines and participate fully in the Multistate Longitudinal Data Exchange.
- State higher education, labor and workforce policy leaders should develop a sustainable process to annually review state and applicable regional workforce data to ensure current, useful and consistent flow of labor market data and intelligence that can be readily accessed and applied in state and regional employability planning models.

Higher Education Stakeholders

- Higher education institutions, with support from state policymakers, should expand the collection and use of employability and outcomes data as one key measure to evaluate performance, in line with emerging practices in a number of states.²⁵
- Higher education institutions should provide tools and incentives to faculty, staff and students to integrate LMDI into their practices and learning as one element to achieving employability.

Employer Stakeholders

Employers should participate in regional convenings, serve on academic advisory committees and regularly voice workforce needs and degree requirements to enhance the applicability and short-, medium- and long-term applicability of LMDI.

Policy Stakeholders

NEBHE should convene a regional employer advisory council to further inform strategic policy developments for the use of LMDI.

25 *Rethinking the Mission: Community Colleges and Workforce Education* (American Enterprise Institute, 2017).

New Hampshire Sector Partnership Initiative (Community College System of New Hampshire)

Funded through a U.S. Department of Labor Sector, the New Hampshire Sector Partnership Initiative contracted with Jobs for the Future (JFF) to create asset maps in manufacturing, hospitality, healthcare and technology. Asset maps build on labor market information to connect various existing initiatives and build seamless education, career readiness and training pathways that result in sector strategies.

The asset map surveys the state of the technology sector in New Hampshire and provides labor market analyses of occupational clusters with the number of jobs posted in 2015 (using real-time data), projected growth by 2020, and median hourly earnings for each job. Then trends are pulled out and mapped to New Hampshire's talent pipeline, all partners are identified and strategies are forged to develop the target technology workforce.

Targeted Higher Education-Industry Partnerships

Higher education partnerships with business and other employers are essential to serious efforts to increase the employability of higher education graduates and to address specific talent pipeline needs in key growth-oriented sectors of state and regional economies. Employers need to be engaged with curriculum, pedagogy and access to both work-integrated learning and ultimate employment. Higher education institutions must deeply understand industry-specific skills gaps and offer opportunities for students to improve work readiness. These engagements do not happen automatically.

For New England to meet its economic opportunities and socio-economic challenges head on, higher education and employers must unite and champion a “Collective Impact” strategy: To increase the employability of the region’s postsecondary graduates and to forge clear links and paths from study to work in critical industries. This requires overcoming the obstacles of time and money, misaligned expectations and vocabularies, and disparate perspectives of stakeholder roles and responsibilities.

The Commission on Higher Education & Employability represents the beginnings of the Collective Impact strategy focused on the ongoing development of partnerships between stakeholder groups and key industries to maximize employability and employment in New England. These partnerships must build upon the successful models nationwide that share these features:

- They are rooted in regional partnerships driven by employer demand (short-, intermediate- and long-term) to engage training and education partners.²⁷
- They involve intermediary organizations staffed to support collaboration, reduce culture clashes, and build trust and communication among both employers and educators-and sustain the partnership over time.²⁸

Collective Impact is the commitment of a group of actors from different sectors to a common agenda for solving a complex social problem. In addition to a common agenda, actors coordinate otherwise independent activities so that they mutually reinforce one another, commit to continuous communication, use shared measurement tools to hold one another accountable, and move efforts forward through the support and facilitation of a strong “backbone” organization.²⁶

26 John Kania & Mark Kramer. *Collective Impact* (Stanford Social Innovation Review: Winter 2011).

27 Giloth and Conway, *Connecting People to Work* (The Aspen Institute, 2014).

28 Robert Schwartz, “The Career Pathways Movement.” (*Journal of Social Issues*, December 12, 2016).

- They use labor market data to build a shared vision, which includes regular surveys of local employers, and provides a structure to analyze information and share best practices that speak to the interests of employers and educators.²⁹

The Commission identified other critical ingredients of successful higher education-industry partnerships.

Figure 7: Critical Ingredients of Successful Higher Education-Industry Partnerships

Higher education institutions look for employers who participate in:

- Advisory boards
- Curriculum development
- Providing internship, co-op and apprenticeship opportunities

Employers look for higher education institutions that are:

- Open to feedback on curriculum
- Dedicated to providing students and graduates with strong foundational skills
- Able to appoint an employer point-person or navigator

Policymakers look for targeted partnerships that result in:

- Opportunities for scale
- Sustainable funding
- Increased opportunities for students of color and low-income, first-generation students
- Evidence of industry and employment growth
- Postsecondary graduates who stay in-state to live and work

To ensure effective and equitable development of partnerships, they need to vary by industry structure, employer size and other dynamics. For example, large employers can often partner on their own with a single institution (e.g., Nashua Community College and GE Aviation; Yale-New Haven Health and Gateway Community College). Smaller employers and industries need partners to aggregate their demand, interests and resources to reduce burdens on managers. Additionally, partnerships in urban areas are generally easier to build and sustain than rural ones, where industry and employer size are

Rhode Island Wavemaker Fellowship (The Rhode Island Commerce Corporation)

In 2015, the Rhode Island General Assembly appropriated \$1.75 million to launch Wavemaker Fellowship, one part of a larger initiative to spur business and job-training partnerships. Rhode Island, like its other New England neighbors, struggles with retaining well-educated young people. The Wavemaker Fellowship provides a financial incentive for graduates to stay in the state by defraying student loan payments via a tax credit (ranging from \$1,000 to \$6,000 depending on the level of degree) for up to four years for those pursuing careers or starting businesses in technology, engineering, design and other key sectors. In the past two years, 215 Wavemaker Fellowships have been awarded, amounting to over \$800,000 per year in tax credits. The program is a model for incentivizing the pursuit of higher education in fields key to Rhode Island's economy, providing employers with an educated workforce and maintaining a stable tax base.

²⁹ Heidkamp and Hilliard, *A Review of Community College-Employer Partnerships and Initiatives* (Employer Assistance and Resource Network, 2014).

smaller.

Equity must be a key consideration of all partnerships focused on eliminating barriers and increasing the participation and success of students of color and low-income and first-generation students.

Recommendations *for Targeted Higher Education-Industry Partnerships*

- 4. The New England states should collaborate to launch multistate, industry-specific talent pipeline partnerships focused on top growth-oriented sectors in the state and region (including healthcare, life and biosciences, information technology, advanced manufacturing and financial services), and driven by key stakeholders from higher education, industry and government.**
- 5. New England higher education institutions, employers and policymakers should create sustained structures to better inform key aspects of institutions' work including: academic program design; course content; WIL opportunities; planning, advising and career services; and creating better and more frequent interfaces between the institutions and the changing world of work.**
- 6. New England higher education institutions should work closely with employers and industry partners (including key human resources staff) to better equip students with the ability to understand and articulate the knowledge, skills and competencies they acquire through postsecondary study-enabling them to speak the language of employment and employers.**

These recommendations must be supported by key stakeholder actions, including:

Policy Stakeholders

- Policymakers should conduct regular assessments of active and potential higher education-industry pipeline partnerships focused on critical and high-growth sectors of the economy.
- Policymakers should identify and support intermediary organizations that are trusted by institutions and employers and which foster effective partnerships.

Higher Education Stakeholders

- Institutions should create single points of contact and employer "navigators" and liaisons to simplify the interface and increase the efficiency and effectiveness of partnerships.
- Institutions should regularly assess the employer landscape to identify potential opportunities for collaboration and gain insight on labor market needs and the language employers use to describe skills.

Employer Stakeholders

- Employers should designate organizational liaisons to engage closely with institutions, policymakers and other employers to provide insight into the labor market, the workplace preparation of interns and recent graduates, and on program responsiveness
- Employers should engage with regional organizations, such as industry associations, workforce boards and chambers of commerce, etc. to give voice to needs, as well as to connect with opportunities to work with higher education institutions and students

EducateMaine Project>Login

Project>Login is a partnership among higher education institutions, K-12, employers and government leaders that is managed by EducateMaine, a business-led education advocacy group. Project>Login is focused on helping more students prepare for careers in information technology and computing, beginning in K-12 and moving into postsecondary program options at the state's public and private two- and four-year institutions, as well as identifying internship opportunities in partnership with the private-sector Live and Work in Maine initiative. Project>Login, via TechHire Maine, also connects people to careers in the IT field by leveraging alternative pathways, including boot camps. Funders of the project include AT&T, Google, Idexx Laboratories, Jackson Laboratory, MaineHealth, Maine Medical Center, Husson University, Thomas College, the University of Maine System and more.

Eastern Connecticut Advanced Manufacturing Pipeline and Pathways Programs

This partnership was created to address the hiring needs of Electric Boat, members of the Eastern Advanced Manufacturing Alliance (EAMA), and other Connecticut manufacturers who are expected to see the number of job openings reach the thousands in coming years. The initiative connects job-seekers with employment via multiple pathways, which combine short-term and online manufacturing training programs at area community colleges with opportunities for apprenticeships or upskilling, as well as job-search assistance. The program is funded by the U.S. Department of Labor-Workforce Innovation Fund in partnership with the Connecticut Department of Labor and Eastern Connecticut Workforce Investment Board. EAMA participates in shaping program offerings, hosting apprentices and hiring newly trained workers. The program is provided at no cost to trainees and designed to serve unemployed and underemployed individuals.

Planning, Advising and Career Services

The importance that college students and their parents place on the cost of college and on getting good jobs after graduation continues to grow, according to a survey published by the Higher Education Research Institute at the University of California, Los Angeles. In the annual survey, approximately 85% of freshmen in 2016 said getting a better job was a major reason for going to college-and six in 10 considered a college's ability to help its graduates get good jobs when deciding where to attend.³⁰

The Gallup-Purdue Index, the largest representative study of U.S. college graduates, examines key experiences for college students and their impact on graduate well-being. The six critical experiences are:

- At least one professor who made them excited about learning
- Professors who cared about them as a person
- A mentor who encouraged them to pursue their goals and dreams
- Work on a project that took a semester or more to complete
- An internship or job that allowed them to apply what they were learning in the classroom
- Extremely active in extracurricular activities and organizations

“Students need earlier exposure to career opportunities, and guidance and information about the path to preparing for it. Broad exposure to careers, along with what types of skills and knowledge students need to succeed in those careers is necessary for students to understand there are many opportunities to pursue their interests and talents outside of the well-known professions of doctor, lawyer, etc.”

Linda Noonan

Executive Director,

Massachusetts Business Alliance for Education

Unfortunately, only 3% of all college grads have all six of the critical experiences outlined by Gallup-Purdue, and 24% of all college graduates had none of these experiences. This is a wake-up call for institutions, with critical implications for recruitment, retention and completion.³¹

Career services offices can play vital roles in helping students develop education and career plans and prepare for the world of work. Students often report, however, that career services offices fall short in engaging students with such experiences and support. According to a Gallup survey that polled currently enrolled students at four-year institutions, 61% of students say that they have visited the career services office at least once. Most who visit ask for help creating or updating a resume (60%) or to obtain advice about potential career options (57%). However, of those who ask for advice about

30 Kevin Eagan, et al., *The American Freshman: Fifty-year Trends, 1966-2015*. (Higher Education Research Institute & Cooperative Institutional Research Program, 2016).

31 Gallup and Purdue University, *Great Jobs, Great Lives: The Value of Career Services, Inclusive Experiences and Mentorship for College Graduates* (2016).

potential career options, only 27% rate the service they receive as helpful. Further, very few students visit career services for help applying for a job after graduation (18%). Career services is most helpful to students of color, who are more likely to visit the department for help applying to a job for after graduation.³²

Gallup's poll of graduates reveals that those who rate career services as helpful are almost six times more likely to feel prepared for life after college and three times more likely to say that their education was worth the cost and that they had a good job waiting upon graduation.³³

Increasingly, higher education leaders recognize career services' critical role in improving student outcomes and satisfaction. At some colleges and universities, this means organizational changes and new reporting structures to expand career services' leadership role and involvement in planning and decision-making. While almost 50% of students say academic advisors provide help in choosing courses, only 28% of students say that academic advisors are very helpful in identifying or evaluating career options. Moreover, students' confidence that they will graduate with the knowledge and skills needed to be successful in the workforce is correlated to the feeling that faculty and staff are committed to students finding a rewarding career.³⁴

Additionally, in an era when vast amounts of career information are easily accessible via the internet, some career services offices are focused more on relationships with employers to create authentic and custom experiences related to students' studies, extracurricular activities and future careers.³⁵

Despite these growing roles, career services offices at many institutions are under-resourced and dependent on external fundraising to support their activities. This is especially true at public, two-year colleges. The best career centers leverage other parts of the institution—including academic departments and the alumni office—and have the full support of top leaders, including the academic provost and president.

32 Gallup and Strada Education Network, *2017 College Student Survey: A Nationally Representative Survey of Currently Enrolled Students* (Washington DC: Gallup, 2017).

33 Gallup and Purdue University, *Great Jobs, Great Lives: The Value of Career Services, Inclusive Experiences and Mentorship for College Graduates* (2016).

34 Gallup and Strada Education Network, *2017 College Student Survey: A Nationally Representative Survey of Currently Enrolled Students* (Washington DC: Gallup, 2017).

35 Farouk Dey and Christine Cruzvergara, "The Evolution of Career Services in Higher Education" (*New Directions for Student Services*, Volume 2014, Issue 148 (2014).

Bentley University (Waltham, MA)

Bentley University has a unique approach to planning, advising and career services, engaging its entire campus, early and often, in the work readiness of its students and graduates. Bentley students participate in a four-year HIRE education career-action plan, which takes students through four stages: explore, experiment, experience and excel. The comprehensive program begins with strength and skill identification and transforms into comprehensive internship preparation and career coaching by junior and senior years.

Bentley's model is built on scaled classroom learning, in which 99% of first year students complete a six-week career development class which lays the foundation for a lifetime of successful career management. The journey continues in sophomore year with an advanced job search readiness course and 13 active Career Communities allowing deeper exploration of roles, industries and career paths. Student Career Colleague leaders, who work closely with career services staff to provide additional advising and peer mentoring to first and second year students, are key to Bentley's strategy. Faculty who understand the importance of tying academics to the workplace, as well as alumni who serve as mentors, participate in networking events, and host internships, site visits and job shadows.

Bentley Associate Vice President of University Career Services Susan Brennan refers to this model as a rotary where each exit connects students to supportive community members. Ninety-two percent of students complete one internship before graduation and more than 70% complete at least two.

Recommendations *for Planning, Advising and Career Services*

7. New England higher education institutions should invest in, elevate—on campus, and through New England higher education accreditation standards, recognize—advising and career services as key priorities that improve not only graduate employability but also enrollment, retention and completion.
8. New England higher education institutions should better engage each student in clearer goal-setting processes, career-planning engagements and career-related assessments. They should actively expand students' access to: job search and job-getting skills; career management skills; readiness for lifelong learning; and a knowledge of the future of work and skills-preparing them to navigate the changing world of work.
9. The New England states should launch a New England Planning, Advising and Career Services Network—a collaborative community of practice to drive innovation, provide shared services and increase the availability of cutting-edge and best-in-class resources across all types of higher education institutions.

These recommendations must be supported by key stakeholder actions, including:

Higher Education Stakeholders

- Institutions should appoint (or promote) the senior career services leader to an assistant or associate provost level (or the equivalent) to better integrate with academic affairs and to support planning, advising and career services in serving the institution's business model, students' needs and employer partners.
- Institutions should require that the career planning and advising process begin early in students' postsecondary experiences (sophomore year in a 4-year institution, second semester in a community college, or early in a training or certificate program). It should include identification of a student's personal strengths and relevant career tools, the development of résumés and LinkedIn profiles and a knowledge of internship and job search skills, interview preparation, the ability to articulate skills and knowledge of employers and industries.
- Institutions should view career services as a key part of a larger "ecosystem" of improved student employability that includes administrators, faculty, staff, employers, alumni and parents-not as the responsibility of one department.
- Institutions should create interdepartmental partnerships to identify career readiness competencies and objectives-and strategies to ensure that students attain such competencies.
- Institutions should support professional development opportunities for faculty and career services staff, to stay current with labor market and technology trends and better prepare graduates for the marketplace.

Employer Stakeholders

Employers and alumni should actively inform and support: career readiness tools and modules, definition of foundational and technical competencies, mentoring and peer mentoring, planning and advising services, work-integrated learning and students' ability to articulate knowledge and skills.

Policy Stakeholders

- Policymakers and accreditors should recognize, assess and reward the crucial roles that planning, advising and career services play in institutional performance and effectiveness (including student recruitment, retention, completion, job placement or further education, fundraising and alumni relations).
- NEBHE should catalyze key stakeholders to collaboratively build institutional capacity across the region for planning, advising and career services. This should include communities of practice and shared resources driven by model innovation, emerging technologies and best practices.
- NEBHE, in conjunction with employers and higher education institutions, should form a regional student advisory committee to inform issues related to employability.

Wake Forest University (Winston-Salem, NC)

Transformational change at Wake Forest came from the top. In 2009, as part of his strategic plan, President Nathan O. Hatch envisioned a campus culture in which personal and career development would be a critical component of the undergraduate student experience. He set out to ensure an undergraduate experience in which students would gain not only an academic education, but also a career education by utilizing all four years to learn about themselves and their options in the world of work. He launched a new initiative and appointed a vice president for personal and career development. The new Office of Personal & Career Development raised more than \$10 million from 2010 to 2013 for its career-services activities.

Work-Integrated, Cooperative and Internship-based Learning

Every postsecondary student, whether an 18-year-old residential student or a working or returning adult, is likely to ask, “How well are my higher education experiences preparing me for employment?” In addition to academic coursework and previous work experience the successful completion of high-quality work-integrated learning (WIL) opportunities is increasingly a distinguishing factor in workplace readiness.

According to the National Association of Colleges and Employers, 69% of bachelor’s degree graduates of the Class of 2015 had at least one work-integrated learning experience.³⁶ Other survey research reveals that a WIL experience can drastically change the way students value their education and have a positive effect on future workplace engagement. Significantly, 27% of students who completed an internship had a job offer by graduation and those who were paid interns were likely to have higher wages than their peers.³⁷

Work-integrated learning is defined as: “A continuum of programs that provide work and education experiences to help participants advance along a career pathway, including internships, co-ops, apprenticeships and other paid work experiences that relate to a student’s studies.”

“The first-hand experiences outside of the classroom, required of and reflected upon by me, made lasting impacts. It forces you to learn how to interact with people within many different forms of employment depending on the class ... I believe that being able to apply what you learn in the classroom in the real world is a skill that needs to be practiced, and internships, fieldwork and volunteering helps enable students to practice this, which then makes them more employable.”

Desirae LeBlanc

Commission student member
University of New England, Class of 2019

Employers further attest to the benefits of WIL to them and to participating postsecondary students: Job applicants with WIL experience are more likely to be prepared and possess foundational workplace skills. Moreover, work-integrated learning programs help employers create recruitment pipelines and increase employee retention.

Nonetheless, many employers point to significant barriers to hiring student interns, co-op students or apprentices. These barriers can include few human resources, the cost of paid student interns and obtaining security clearances.

To address such challenges and to target key economic development priorities, some states have created programs that

³⁶ National Association of Colleges and Employers, *The Class of 2015 Student Survey* (2016).

³⁷ Gallup and Purdue University, *Great Jobs, Great Lives: The Value of Career Services, Inclusive Experiences and Mentorship for College Graduates* (2016).

provide incentives or state support for internships and work-integrated learning. In doing so, state policymakers create an environment in which employers and higher education institutions can unite behind workforce goals to develop programs with benefits to all stakeholders.

Eastern Connecticut State University's Work Hub (Windham, CT)

Not all work-integrated learning experiences are accessible to all postsecondary students due to required transportation, the cost of appropriate clothing and "opportunity costs." To address these barriers, Eastern Connecticut State University began a partnership with Cigna in 2011, which brings internships to campus. Students apply and interview in a competitive process and, when hired, arrive at the "Work Hub" as they would a Cigna office but without worrying about transportation or food costs, for instance. Students are paid and work up to 25 hours per week in web development and receive on-site guidance from Cigna staff. For students of color, low-income and first-generation students, this experience is transformative. Over 75% of interns ultimately accept a full-time job offer from Cigna upon graduating.

Recommendations *for Work-Integrated, Cooperative and Internship-based Learning*

10. New England states and higher education institutions should work to ensure that all students who enroll in a postsecondary credential program complete at least one high-quality, work-integrated learning experience-including WIL opportunities in key industries important to New England's local and regional economies.
11. In New England, higher education institutions, employers, policymakers and students should collaborate in exploring, developing and implementing policies (public and institutional) that incentivize businesses (through additive investments such as tax credits or other means) to expand paid internships. These policies should also work to retain students and graduates in our states and region.
12. The New England states and higher education institutions should advocate for changes to federal student aid policies to increase funding for work-study and expand opportunities to use these funds for paid internships with qualified employers.

These recommendations must be supported by key stakeholder actions, including:

Higher Education Stakeholders

- Institutions should require the completion of at least one high-quality WIL experience, including awarding credit for successful completion. Where possible, students should be supported in completing multiple WIL experiences during the course of an academic program. Accordingly, institutions should expand their capacity to document such experiences via transcripts and portfolios.
- Institutions, students and employers should rigorously evaluate WIL experiences, demonstrating value and continuously aligning workplace and academic dimensions.
- Institutions should form partnerships with key regional employers to develop specific WIL experiences focused on supporting growth-oriented sectors of state and regional economies.
- Institutions should partner with employers to develop innovative models to provide WIL experiences for students of color and low-income, first generation and adult students.

Employer Stakeholders

Employers should provide sustainable and high-quality WIL experiences that include: pay, mentorship, performance evaluation and clear articulation of responsibilities, skills and competencies.

Policy Stakeholders

- Policymakers should consider policy levers such as sustainable stipend funds and tax credits to expand WIL opportunities and link to regional economic and workforce needs and be inclusive of students from all types of postsecondary institutions.
- NEBHE should support regional collaboration to identify and leverage institutional best practices, toolkits and assessments to reduce barriers to create successful WIL programs. These tools should be tailored to institutions of all sizes and types and students of all backgrounds-expanding equity and opportunity for underrepresented and at-risk students.

North Dakota's Operation Intern (North Dakota Department of Commerce)

The program was enacted by legislation and is managed by the North Dakota Department of Commerce. It seeks to expand the number of internships and apprenticeship positions. It is supported by an annual appropriation from the Legislature, targeting priority industries, including energy, advanced manufacturing, value-added agriculture, tourism and technology-based businesses—as well as high-wage/high-demand occupations, such as healthcare. It recently expanded to include high school juniors and seniors.

Participating businesses can receive up to \$15,000 per year of matching funds from the state to employ interns. By providing funds directly to employers, North Dakota increases the demand for interns and incentivizes employers to participate as equal partners in developing a skilled workforce.

Annual appropriations have been just over \$1 million, but were recently reduced due to state budget pressures, highlighting one of the limitations of stipend programs.

Digital Competencies

The employability of the region's postsecondary graduates depends on increased access to digital skills—the keys to participating in a fast-changing, technology-driven economy. Specifically, digital skills include the knowledge and competencies that fit someone living, working and learning in an ever-evolving digital society.³⁸

Notable workforce trends are shaping the way postsecondary institutions consider preparing students for their futures. According to the Brookings Institution, of the 13 million jobs that were created between 2010 and 2016, two-thirds required medium to high levels of digital skills. The researchers also found that workers with superior digital skills have higher earnings and are less exposed to automation-driven displacement. The changing skill profile of recently created jobs is also related to “hybridization.” More and more, jobs wed digital skills to traditional, non-technical roles.

The ability to successfully navigate an increasingly digital life, learning environment and working world is a critical employability skill. But the U.S. lags many countries (including the U.K., Canada, Ireland, Australia and several E.U. countries) in developing digital skill frameworks to provide all postsecondary students with access to obtaining digital skills. Additionally, the U.S. trails in engaging industry to link and translate these frameworks to all levels of education, especially postsecondary.

Specifically, we know that U.S. higher education institutions cultivate and assess a variety of essential learning outcomes that support graduates' ability to contribute to the economy and society on a lifelong basis—but conspicuously lack useful definitions and frameworks to identify, deliver and assess digital skills. Accordingly, a majority of U.S. postsecondary students (particularly those in non-STEM majors) are not prepared to identify, understand and acquire the digital skills needed to advance in the digital economy over the short term or, more importantly, the long term.

However, there's considerable evidence that liberal arts graduates can double the number of entry-level jobs that are available to them and command salary premiums when they add specific skill sets—including digital competencies—to their postsecondary coursework, work-integrated learning and other experiences.³⁹ Consequently, higher education institutions may much more effectively facilitate and expand opportunities to acquire such skills across students' educational experiences (curricular, co-curricular and other).⁴⁰ The limited responses by higher education institutions to these skill demands have drawn many non-public higher education institutions, providers, including boot camps, into the digital skills credential marketplace.

38 *Framework for Irish Higher Education* (National Forum for the Enhancement of Teaching & Learning).

39 Burning Glass Technologies, *The Art of Employment: How Liberal Arts Graduates can Improve their Labor Market Prospects* (2013).

40 Burning Glass Technologies, *Blurring Lines: How Business and Technology Skills Are Merging to Create High-Opportunity Hybrid Jobs* (2015).

Moreover, the ineffective and uneven provision of digital skills increasingly will exacerbate equity gaps in postsecondary education and society.

At a time when there are significant financial costs associated with postsecondary credential attainment, there's a clear imperative to help students maximize employability and economic returns on their education investments.

By staking claim in a digital competencies framework, New England postsecondary institutions position themselves to be the go-to supplier of in-demand workers, as well as a shield against the rising tide of social and economic inequity.

University of New England's Academy of Digital Sciences (Biddeford, ME)

The University of New England (UNE) Office of Strategic Initiatives launched the UNE Academy of Digital Sciences as an accelerated pilot program to provide learners with in-demand digital competencies. The curriculum integrates online instruction with project-based learning and mentorship from local employers. Competencies include web development, user interaction, data analysis and project management. Learners do not receive college credit for completion, but do receive a digital badge. The UNE Academy was initially geared toward aspiring digital professionals, including recent immigrants. Now the University is adapting the lessons learned toward undergraduate students who need digital competencies as a bridge from education to employment. Learners are connected with area employers, such as Fluid Imaging Technologies, , FieldStack, L.L Bean, Unum Group, Idexx, Winxnet, and others.

Recommendations *for Digital Competencies*

13. New England higher education institutions should participate in a strategic Digital Competencies Initiative to expand their capacity for innovative delivery of the digital knowledge, skills and competencies required for graduates' employability in a fast-changing, technology-driven, global economy.
14. New England higher education institutions should collaborate with employer partners to implement digital competency frameworks-supported by technology-enabled curriculum, assessments, and other learning tools to aid students in digital skill acquisition across the whole of their postsecondary experience.
15. New England higher education institutions should lead in incorporating digital competencies as "essential learning outcomes" that are achieved through high-quality postsecondary learning opportunities.

These recommendations must be supported by key stakeholder actions, including:

All Stakeholders

- Policymakers, postsecondary system heads, governing boards and state higher education commissioners should challenge HEIs to make expanding and improving the provision of digital competencies an important strategic priority, supported by clear goals, outcomes and measures.
- Employers and industry associations should assist HEIs by identifying specific, high-demand and industry-recognized credentials (certificates and other) to be incorporated into HEIs' digital competency provision-and for which curricula, assessments and resources exist.

Employer Stakeholders

Employers should assist institutions and policymakers with labor market data to identify the specific digital skills and competencies associated with the growing number of hybridized jobs that wed technical and non-technical skills.

Higher Education Stakeholders

- Institutional leaders, policymakers and employers should support the collaborative development and use of Open Education Resources (OERs) for institutions and systems in providing digital competencies.
- Higher education institutions should engage faculty, staff, students and employers in formally evaluating the effectiveness of digital competency provision and acquisition and in developing institutional strategies for improvement. This includes assessing how digital competencies are incorporated into syllabi, curricula, and learning outcomes attained via both curricular and non-curricular offerings

Policy Stakeholders

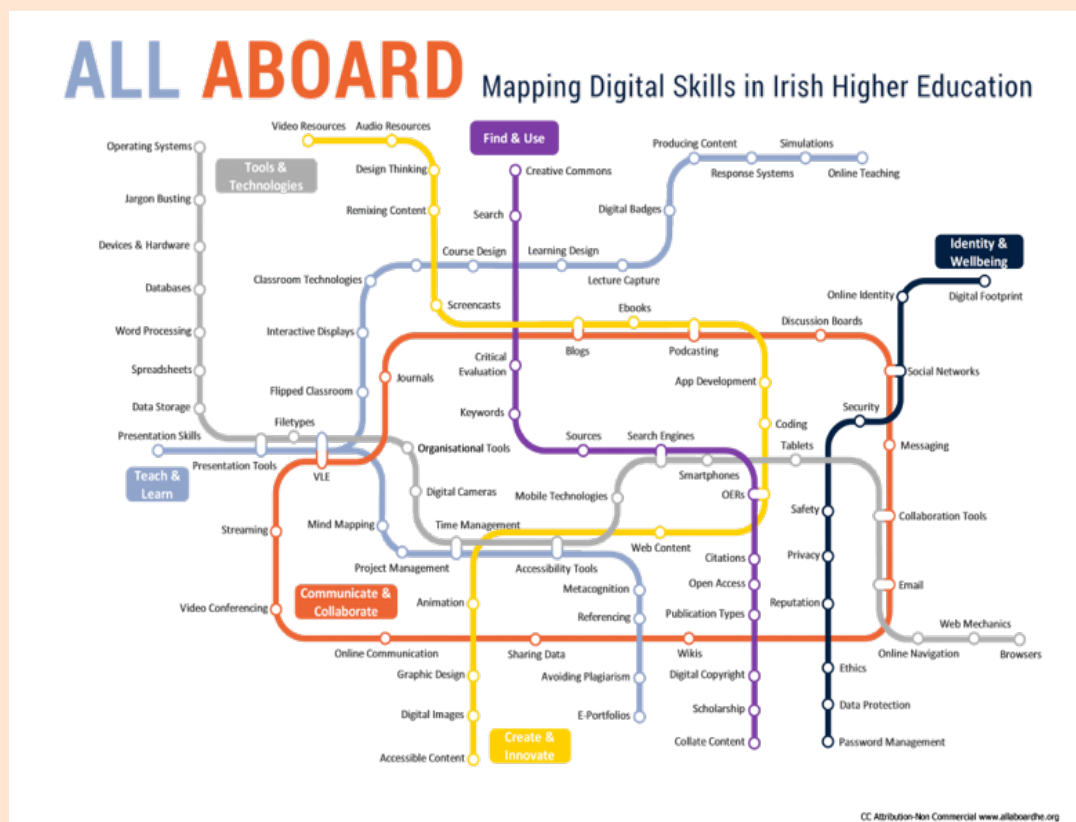
- Policymakers, postsecondary system heads and state higher education commissioners should support institutional collaboration and the sharing of best practices, tools and resources.
- State leaders and policymakers should ensure that K-12 education systems implement rigorous standards and requirements for technology and digital competencies, providing a solid foundation for future postsecondary learners.

Ireland's All Aboard!: Digital Skills in Higher Education Initiative

In 2014, Ireland's National Forum for the Enhancement of Teaching and Learning, in collaboration with the four Irish higher education institutions, launched the All Aboard! project, which sought to map in-demand competencies to common digital categories that can be adopted by higher education institutions.

The framework built on a vision where: digital literacy and digital skills for teaching and learning are developed, supported and fully embedded; students have access to a range of technological supports and resources to enhance their learning in a manner that enables them to become lifelong learners in the digital world; and institutions collaborate with each other, and with the schools and further education sectors in order to build digital capacity for teaching and learning, with students as key partners in the process.

All Aboard identified six common categories of digital skills: Communicate & Collaborate, Create & Innovate, Find & Use, Identity & Wellbeing, Teach & Learn, Tools & Technologies. These categories were used to create a subway map that details the various competencies within a category and can be used by students as a "travel card," which can ultimately result in obtaining a badge for a particular category.



Emerging Credentials and Credentialing Systems

The traditional outputs or “currency” of higher education institutions—credit hours, programs and degrees—increasingly exist in a large, dynamic and growing marketplace of institutional and non-institutional providers delivering new types of credentials (certificates, licenses, badges or other non-degree credentials). This demonstrates the potential value of credentials (postsecondary and others) in the marketplace, the motivation of learners to advance and progress—and the growing demand for lifelong, just-in-time learning, quality credentials and new credential systems to keep pace with changing industries, skill requirements and professions.

The benefits of alternative credentials are notable: They can advance careers and earnings. Competency-based credentials provide job applicants with more transparent ways to demonstrate mastery of skills to employers and are not based on students’ seat time. Students can earn credentials in a shorter period of time with the learning often being online, adaptive and self-paced. Some are modularized and can be combined and stacked over time to create a more comprehensive set of skills or a degree. Alternative credentials are viewed as being more timely, accessible and affordable than traditional degrees, which is attractive to unemployed or underemployed adults and those seeking to make a career change. They can be used to upskill incumbent workers—opening up opportunities, wage increases or new career pathways.⁴¹

“By staking claim in a digital competencies framework, New England postsecondary institutions position themselves to be the go-to supplier of in-demand workers, as well as a shield against the rising tide of social and economic inequity.”

Sean Gallagher

Executive Director, Center for Future of Higher Education and Talent Strategy, Northeastern University

The resulting proliferation of multiple types and sources of credentials creates a complex web for institutions, students and employers. As the Lumina Foundation notes, this has resulted in a highly fragmented credential landscape, with no system in place to ensure the quality of those credentials. Employers report that they don’t recognize, nor trust, the quality of many of these credentials. While the nation boasts more than 4,000 personnel-certification bodies, less than 10% of them are accredited or reviewed by a third party.⁴²

41 Jessie Brown and Martin Kurzweil, *The Complex Universe of Alternative Postsecondary Credentials and Pathways* (American Academy of Arts and Sciences, 2017).

42 WordCred. Accessed on January 28, 2018 at <https://www.workcred.org>.

Even for those that are accredited or reviewed by a third party, the validation process is often uneven and not transparent for either the consumer or the employer.

The exceptions are those credentials issued by employers or employer associations like CompTIA (CompTIA is a nonprofit trade association that issues professional certifications for the information technology industry). Employers on the Commission on Higher Education & Employability frequently mentioned that they are far more likely to trust a credential like a degree or badge issued by a recognized and accredited higher education institution than by a third-party provider of whom they have never heard.

The Commission reviewed important efforts to bring structure, transparency, clarity and validations of quality to this dynamic environment. For example, to protect consumers and enhance the utility of credentials, Lumina Foundation has made a significant investment to develop a common framework, Connecting Credentials that will help compare the value and suitability of different types of credentials supported by the Corporation for a Skilled Workforce (CSW) and the Center for Law and Social Policy (CLASP). Another effort, the Credential Registry (also funded by Lumina Foundation, and JP Morgan Chase Foundation), will eventually use open-licensed software to continuously capture, connect, archive and share metadata about credentials, credentialing organizations, quality assurance organizations and competency frameworks and additional metadata as needed to support an open-applications marketplace.

The Credential Registry will allow users to see what various credentials represent in terms of competencies, transfer value, assessment rigor, third-party approval status and more. The open and voluntary registry will include all kinds of credentials, from education degrees and certificates to industry certifications, occupational licenses and micro-credentials. The ultimate goal is to allow users, including states, students, institutions and employers, to evaluate pathways to occupations in industries key to economic growth.

New Jersey's Partnership with Credential Engine (New Jersey Department of Labor and Workforce Development)

The nonprofit Credential Engine, backed by the Lumina Foundation, launched its effort to collect every postsecondary credential for comparison by students and employers, known as the Credential Registry. New Jersey is an early partner with Credential Engine, recognizing that to meet its goal of 65% of New Jersey residents with some postsecondary credential, people need more information about the value of credentials in order to make decisions about their educational futures and careers.

New Jersey has identified 200 credentials that will be valuable in the state's labor market in the following industries: advanced manufacturing, transportation, logistics and distribution, healthcare, construction and utilities, and retail, hospitality and tourism. The state will begin by working with higher education and workforce partners to upload 10 credentials and their metadata to the registry, with the goal of including all 200 credentials of value.

Recommendations *for Emerging Credentials and Credentialing Systems*

16. The New England states should collaborate to support the build-out of Credential Engine's Credential Registry. A regional and collaborative approach to this should address high-value credentials that are important to our shared economy and economic needs.
17. The New England states should identify in-demand, high-quality, growth-oriented credentials in sectors that are critical to the innovation, competitiveness and growth prospects for high-wage jobs in multiple New England states. This should include developing pathways linking such credentials to further postsecondary study options and employment opportunities-demonstrating opportunities for mobility between jobs, industries and complementary credentials.
18. Institutions should continue to innovate in developing "out of the box" credentials that respond to the dynamic changing needs of individuals and employers. Further, policymakers and accreditors should support structures, policies and processes that are responsible, innovative, and enable the development of workplace-relevant credentials and certifications, providing incentives, regulatory flexibility, and updated higher education policies informed by employer involvement.

These recommendations must be supported by key stakeholder actions, including:

Employer Stakeholders

Employers should create shared learning environments with postsecondary institutions to award student's micro-credentials or industry certifications and further, to provide current employees with avenues to continue their educations.

Higher Education Stakeholders

Institutions should leverage employer partnerships to evaluate what credentials can be integrated in academic coursework to enhance graduates' employability and hold employers accountable to recognizing them.

Policy Stakeholders

- Policymakers should assess and document the landscape of growth-oriented occupations that offer living wages. Policymakers should work with employer and higher education partners to support pathways to those jobs and bring awareness of pathways to workers.
- Policymakers should support alternative pathways to in-demand credentials with workforce grants, etc.

Virginia's New Economy Workforce Credential Grant (State Council of Higher Education for VA)

In 2016, the Virginia Legislature created the New Economy Workforce Credential Grant Program to address the shortage of skilled workers in key industries. Students who take advantage of the grant can receive up to \$3,000 to pay two-thirds of the cost of a business-endorsed and valued non-credit training program that leads to an industry certification. Students may access these workforce-aligned training programs at the state's community colleges, education centers and Richard Bland College. Since its inception, the number of high-demand industry certifications earned has tripled to over 4,000. Notably, the student profile has changed slightly, as older working adults feel more secure taking the risk of obtaining a new credential with the support of the grant. Due to its success, the Legislature authorized an additional \$4.5 million for the grant program in FY2018 to secure its total funding at \$8.5 million.

Next Steps

Through this report and recommendations, the Commission calls on all stakeholders to engage in next steps. The report is purposefully designed to be a working tool to support active engagement. It strives to present a clear and compelling case for a regional imperative to focus on employability given New England's shared history, strengths and opportunities as well as changing demographics and economic and equity challenges.

Throughout the report and recommendations, the Commission has presented "exemplars" to illustrate best practices and current successes across all stakeholder groups and to provide models to build upon.

While not an implementation guide, the recommendations are designed to be actionable with specific "action steps" outlined for key stakeholders, from governors, legislators and state workforce leaders to employer executives and hiring personnel, postsecondary leaders, faculty, staff and students. The Commission has challenged all to be actively engaged, contribute their leadership, collaborate in problem-solving and bring their best innovative thinking to the employability imperative and enable New England to once again be a model of success for the country.

NEBHE and Commission members do not consider this call to action a one-off. Among specific next steps, the Commission envisions facilitating initiatives in areas such as regional labor market data and intelligence sharing, mapping credentials and digital competencies in key fields, and career services.

NEBHE intends to work with Commission partners to pursue recommendations for formal "employability audits" to review the strategic, operational and assessment-oriented activities related to employability and to recognize best practices.

Per the Commission's recommendation, NEBHE will also seek support to conduct a regular benchmarking of regional equity indicators in order to inform states and where needed, to provide tools and resources that can help states in closing the employability gap.

NEBHE invites Commission partners and as well as others to leverage philanthropic dollars to pursue support for the specific recommendations and the broader strategy.

Appendix

For live links and more resources, please visit www.nebhe.org/commission/report

Commission Membership

Gina M. Raimondo • Governor of Rhode Island • Commission Chair
Brenda Dann-Messier • Rhode Island Commissioner of Postsecondary Education • Commission Co-chair
Michael K. Thomas • President & CEO of NEBHE • Commission Executive Director

Connecticut

Andrea Comer • Vice President, Workforce Strategies • Connecticut Business & Industry Association Education and Workforce Partnership
Freddy Cruz • Student • Eastern Connecticut State University
Maura Dunn • Vice President of Human Resources & Administration • General Dynamics Electric Boat
Mae Flexer • Senator • Connecticut General Assembly
Tyler Mack • Student Government Association President • Eastern Connecticut State University
Elsa Núñez • President • Eastern Connecticut State University
Mark Ojakian • President • Connecticut State Colleges & Universities
Jen Widness • President • Connecticut Conference of Independent Colleges
Jeffrey Wihbey • Superintendent • Connecticut Technical High School System

Maine

Margaret Harvey • State Director of Career and Technical Education • Maine Department of Education
Laurie Lachance • President • Thomas College
Desirae LeBlanc • Student • University of New England
Cary Olson • Assistant Vice President, Corporate Social Responsibility • Unum
James Page • Chancellor • University of Maine System
Janet Sortor • Chief Academic Officer • Maine Community College System
Paul Stearns • Representative • Maine Legislature

Massachusetts

Rosalin Acosta • Secretary of Labor & Workforce • Commonwealth of Massachusetts
Mohamad Ali • President and CEO • Carbonite
Susan Brennan • Associate Vice President, University Career Services • Bentley University
Alec Carstensen • Head of Global Talent • Carbonite
Christine Cruzvergara • Executive Director and Associate Provost for Career Education • Wellesley College

Nyal Fuentes • Coordinator, College, Career, and Technical Education • Massachusetts Department of Elementary and Secondary Education
Kerry Healey • President • Babson College
Ellen Kennedy • President • Berkshire Community College
Jacqueline Moloney • Chancellor • University of Massachusetts Lowell
Carlos Santiago • Commissioner • Massachusetts Department of Higher Education
Alexandria Steinmann • Student • Bentley University

New Hampshire

Heather Bollinger • Alumna • Great Bay Community College
Sara Colson • Director, Workforce Accelerator 2025 • Business & Industry Association of New Hampshire
Frank Edelblut • Commissioner of Elementary and Secondary Education • New Hampshire Department of Education
Ross Gittell • Chancellor • Community College System of New Hampshire
Rick Ladd • Representative • New Hampshire General Court
Todd Leach • Chancellor • University System of New Hampshire
Paul LeBlanc • President • Southern New Hampshire University

Rhode Island

Lou DiPalma • Senator • Rhode Island General Assembly
Dan Egan • President • Association of Independent Colleges & Universities of Rhode Island
Donald Farish • President • Roger Williams University
Janet Hasson • President and Publisher • *The Providence Journal*
Meghan Hughes • President • Community College of Rhode Island
Kim Keck • President & CEO • Blue Cross Blue Shield Rhode Island
Mariela Lucaj • Student • Community College of Rhode Island
Stefan Pryor • Secretary of Commerce • State of Rhode Island
Frank Sánchez • President • Rhode Island College
Rosanne Somerson • President • Rhode Island School of Design
Margaret Van Bree • President • Rhode Island Hospital

Vermont

Joyce Judy • President • Community College of Vermont
John Neuhauser • President • Saint Michael's College
Peter Pollak • Chief Executive Officer • Dynapower
David Rosowsky • Provost & Senior Vice President • University of Vermont
Jeb Spaulding • Chancellor • Vermont State Colleges
Kate Webb • Representative • Vermont General Assembly

Regional members

Jim Brett • President & CEO • The New England Council
Kurt Heissenbuttel • Vice President, Head of University Relations • Fidelity Investments

Staff (New England Board of Higher Education)

John O. Harney • Executive Editor, New England Journal of Higher Education

Susan C. Lane • Senior Director, Policy & Research

Carolyn Morwick • Director of Government and Community Affairs

Stafford Peat • Senior Consultant

Working Groups

The Commission on Higher Education & Employability divided into three Working Groups, which each deliberated on two areas critical to the employability of the region's graduates, including:

Working Group 1

Co-chaired by:

- Susan Brennan, Associate Vice President of University Career Services, Bentley University
- Ellen Kennedy, President, Berkshire Community College

Addressed:

- Effective use of labor market data to inform programs, policy and practice.
- Re-envisioning advising and career services offered by colleges to better align supply and demand and implement best practices and “disruptive” approaches.

Working Group 2

Co-chaired by:

- Andrea Comer, Executive Director of Education and Workforce Partnership, Connecticut Business & Industry Association
- Ross Gittell, Chancellor, Community College System of New Hampshire

Addressed:

- Targeted higher education-industry partnerships.
- Increasing postsecondary opportunities for work-integrated, experiential and cooperative learning (for example, internships, field placements), including policy incentives and student aid programs.

Working Group 3

Co-chaired by:

- Mohamad Ali, President & CEO, Carbonite Inc.
- Paul LeBlanc, President, Southern New Hampshire University

Addressed:

- In-demand digital skills bundles such as fundamental IT and coding skills, knowledge of the digital economy, data analytics, cloud computing, technology security and entrepreneurship or other essential 21st century skills.
- Policies related to new credentials, including the recognition and aggregation of postsecondary and non-postsecondary training and the work experiences of working adults and veterans.

Each working group was charged with considering and proposing:

- Strategies for utilizing employability-related strategies to drive completion and close equity gaps in attainment, career readiness and employment transitions
- Specific roles of key stakeholder groups (postsecondary institutions, industry, government/policymakers, others) in addressing identified issues, strategy development and implementation
- Key success measures, indicators and outcomes

Expert Testifiers and Subject Matter Experts

The Commission would like to extend special thanks to those who provided expertise in Commission meetings and proceedings. These expert testifiers and subject matter experts included:

- **Richard Kazis** • Senior Consultant
- **Andreas Schleicher** • Director for the Directorate of Education and Skills • Organization for Economic Cooperation and Development (OECD) (Launch Event, April 12, 2018)
- **Brandon Busteed** • Executive Director, Education and Workforce Development • Gallup (Launch Event, April 12, 2017)
- **Elsa Núñez** • President • Eastern Connecticut State University (June 28, 2017 meeting)
- **Matt Sigelman** • CEO • Burning Glass Technologies (June 28, 2017 meeting)
- **Sara Lamback** • Senior Program Manager, Building Economic Opportunity Group • Jobs for the Future (June 28, 2017 meeting)
- **Travis McCready** • President & CEO • Mass Life Sciences Center (June 28, 2017 meeting)
- **Frank Edelblut** • Commissioner of Education • New Hampshire (September 27, 2017 meeting)
- **Margaret Harvey** • State Director of Career and Technical Education • Maine (September 27, 2017 meeting)
- **Jennifer Gwatkin** • Early College Program Coordinator • Massachusetts (September 27, 2017 meeting)
- **Jeffrey Wihbey** • Superintendent • Connecticut Technical High School (September 27, 2017 meeting)
- **Chris Flanagan** • President • Kinetic Seeds (September 27, 2017 meeting)
- **Peter Stokes** • Managing Partner • Huron Consulting (September 27, 2017 meeting)
- **Sean Gallagher** • Executive Director, Center for the Future of Higher Education • Northeastern University (September 27, 2017 meeting)

Meetings of the Commission

Between April 2017 and March 2018, the Commission met in-person or virtually of six times:

- April 12, 2017 – Launch Event, Rhode Island State House
- May 31 & June 1, 2017 – Working Group meetings, Zoom
- June 28, 2017 – Second Full Meeting, Providence, RI
- September 27, 2017 – Third Full Meeting, Carbonite Inc., Boston
- October 26, 2017 – Working Group meetings, Zoom
- March 19, 2018 – Report Release & Commission Reception, Rhode Island State House

Employability: A National Imperative Summit

On December 4, 2017, NEBHE, in association with the Commission, held its Employability: A National Imperative summit. Expert speakers explored topics that dovetailed with the Commission's work and served to amplify the Commission's agenda:

- What kinds of jobs will be eliminated by the rise of analytics, automation and artificial intelligence? What kinds will be created?
- Will higher education be able to innovate new roles to ensure that grads are "career ready"?
- Can "People Analytics" help job applicants and employers speak the same language?
- How will we bridge the "employability gap" facing students who lack the competencies to navigate successful and long-lasting careers?

For more information related to the summit, including the agenda, speaker list and videos, please visit www.nebhe.org/events/employability.

Public Comment Period

The Commission called for public comments on its recommendations beginning on December 4, 2017 at the Employability summit and concluding on December 22, 2017. Higher education institution administrators and presidents, agency staff, state legislators, and employers submitted comments, which were incorporated by NEBHE staff into the Commission's final report.

Key Resources

The Commission repeatedly turned to the following reports and resources in its deliberations and as it made its recommendations:

Equity

- University of Southern California's Center for Urban Education: Making Equity Part of Your State's Postsecondary Planning

Effective Use of Labor Market Data & Intelligence

- New Hampshire Technology Talent Partnership Asset Map And Recommendations
- U.S. Dept. of Labor: Real Time Labor Market Information
- Jobs for the Future: Success in Real-Time

Planning, Advising & Career Services

- Gallup: Great Jobs. Great Lives: The Value of Career Services, Inclusive Experiences and Mentorship for College Graduates 2016
- NACE: Career Readiness for the New College Graduate
- CCRC: What We Know About Technology-Mediated Advising Reform

Targeted Higher Ed.-Industry Partnerships

- Aspen Institute: Communities That Work Partnership Playbook
- New England Council: Partnerships for the Talent Pipeline
- CIEB: Gold Standard: The Swiss Vocational Education & Training System

Work-integrated, Cooperative & Internship-based Learning

- National Governors Association: State Strategies to Scale Quality Work-based Learning
- Burning Glass Technologies: 2015 Internship Report
- Strada/U.S. Chamber of Commerce: Learning to Work Working to Learn

New Economy Digital Skills Bundles

- Burning Glass Technologies: The Digital Skills Gap in the Workforce
- ACT Foundation/Joyce Fondation: Future of Work Skills
- ACT Foundation/Joyce Fondation: Future of Work Infographic

Emerging Credentials & Credentialing Systems

- American Academy of Arts & Sciences: The Complex Universe of Alternative Postsecondary Credentials and Pathways

For live links for these and other resources, please visit www.nebhe.org/commission/report.



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