USING TECHNOLOGY TO IMPROVE CREDENTIAL TRANSPARENCY

A Regional Case Study

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THE FACTS

About New England
Pahk the cah in Hahvahd Yahd

- Bad drivers
- High concentration of colleges and universities
- Expensive
- Knowledge-based economy
- Leaf peepers
Looming Demographics

Projected High School Graduates by State

Source: NEBHE Analysis of Knocking at the College Door data
Postsecondary Education Gaps in New England by 2020

<table>
<thead>
<tr>
<th>State</th>
<th>Current Share of Population with Postsecondary Credential of Value</th>
<th>Projected Share of Jobs Requiring Some Postsecondary Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT</td>
<td>22%</td>
<td>49%</td>
</tr>
<tr>
<td>ME</td>
<td>25%</td>
<td>41%</td>
</tr>
<tr>
<td>MA</td>
<td>20%</td>
<td>52%</td>
</tr>
<tr>
<td>NH</td>
<td>21%</td>
<td>48%</td>
</tr>
<tr>
<td>RI</td>
<td>27%</td>
<td>44%</td>
</tr>
<tr>
<td>VT</td>
<td>18%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Source: NEBHE analysis of Lumina Foundation’s A Stronger Nation 2017 and Georgetown Center for Education and the Workforce’s Recovery 2020
Are Students Prepared for Work?

- 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.

- Research indicates that increasing numbers of jobs are “hybrids” that wed digital/technical competencies to traditional, non-technical ones—but that traditional HEIs fail to prepare students for such hybrid jobs, instead largely providing “silooed” programs and degrees.

- Liberal arts and sciences graduates can double the number of entry-level jobs available to them and command salary premiums when they add specific skill sets—including digital competencies.
Perceived Need for Additional Education Among Adults in New England

Source: Strada-Gallup Education Consumer Survey. Base: New England adults ages 18-65. Those who are currently enrolled in college-level courses have been excluded for the purpose of this analysis, n=12,559
Proliferation of Credentials

- 370,020 credentials issued by postsecondary education institutions
- 7,132 credentials from MOOC providers
- 315,067 credentials from non-academic organizations
- 46,209 credentials from public and private secondary schools
The Responding Ecosystem

- Individuals
- Workforce System
- Researchers
- Policymakers
- Employers
- Education System

x 6 states!!
Commission on Higher Education & Employability

- 5 meetings
- Testimony from 13 experts
- 11 months
- 1 Summit, attended by 450 people
- 18 action-oriented recommendations
- 66-page report
5 Critical Employability Experiences

1. Foundational skills in literacy, numeracy and communication, including the ability to work in teams, communicate clearly verbally and in writing, and solve problems

2. An individual career plan prepared early in their postsecondary experience

3. At least one paid and/or credit-bearing work-integrated learning experience

4. Achievement of digital competencies related to their course of study, career goals and the fast-changing economy

5. Attainment of an affordable credential that is employer-informed and is aligned to career pathways

Emerging Credentials + Credentialing Systems

- The New England states should:
  - Collaborate to support the build-out of Credential Engine’s Credential Registry. A regional approach to this should address high-value credentials that are important to our shared economy and needs
  - Identify in-demand, high-quality, growth-oriented credentials in critical sectors and develop linkages to demonstrate opportunities for mobility between jobs, industries and credentials.

- Institutions should continue to innovate in developing “out-of-the-box” credentials that respond to the dynamic changing needs of individuals and employers.
CREDENTIAL ENGINE
Credential Data: Current State

Why are the searches different?

- Travel industry uses linked data
- Credentials currently don’t
  - information is not well-organized or comparable.
- With Credential Engine, we’re moving the credential marketplace to use linked data, allowing credentials to be found and compared just like cars, flights, or commercial goods.
- To get there, we need a common language
  - CTDL is going through the process of gaining recognition to become the official schema for Credentials.
The Problem – Lack of Understanding for All Credentials

The Marketplace of Credentials Is Confusing and Complex:

- Many different types of credentials with variation in content, quality and value.
- The market is expanding - over 730,000 confirmed in the U.S. alone.
- Previously no common language to describe or compare credentials
- Misalignment between industry needs and educational offerings
- No mechanism for stacking credentials based on “competencies.”
How We do it: Transparency Through Technology

Credential Transparency Description Language (CTDL) – Common language that describes key features of credentials, credentialing organizations, and quality assurance bodies. Common descriptors will allow for better apples-to-apples comparison between credentials.

Publishing – After creating a user account, organizations use the API, Registry Publisher, bulk upload, or-in the future-harvest structured data to convert organization, credential and quality assurance information to the common language and publish to the registry. Organizations will have a suite of options to add information to the registry.

Credential Engine Registry – houses information described by the common language and supports an open applications marketplace. Developers will create specialized applications for different types of users, like employers, military veterans, and students.

Credential Finder Prototype Application – Basic search to view information in the registry. The public will use Credential Finder to see all information in the registry. Community – Receives technical assistance and other services to consume from and publish to the registry. Credentialing organizations, developers, and other users will have access to resources like best practices, user guides, and staff support.
How is Credential Engine Scaling Up?

Industry Sectors

Associations

States
Education and skills are the key to economic security, mobility, and vitality for individuals, employers, and nations.

Challenges addressed by High Value Credentials for New England:

- Credential marketplace inefficient and lacks transparency.
- Proliferation of number and types of labor market credentials.
- Confusion about credentials’ meaning, content, quality, value.
- No standardized, common framework to describe credentials.
- Misalignment between labor market demands and educational competencies.
- No mechanism for stacking credentials based on “competencies.”
Joe’s interested in a career in information technology.
Defining and Identifying “High Value” Credentials

A high value credential may be one that:

- Represents an individual’s **first step** along a pathway that leads to a satisfying career with family-sustaining wages (i.e. a Certified Nursing Assistant license may pave the way to a career as a Licensed Practice Nurse or a Registered Nurse)
- Fills a **community need** (i.e. teachers, healthcare professionals, police officers, etc.)
- Is **portable** across state lines
- Is made **affordable** due to the availability of institutional, employer, state or federal financial support
- Offers **valuable types of learning opportunities**, including work- or competency-based education

And is influenced by:

- A **tightness in the workforce**, brought on by low unemployment, which influences the demand for skills, competencies and credentials over traditional degrees
- The **changing nature of work** that prioritizes human, foundational competencies over technical skills that can be learned on the job
- The **ways employers articulate** in-demand skills, competencies and experiences and, in turn, filter job candidates
Key Industries:

- Healthcare
- Life- and Bio-Sciences
- Information Technology
- Business and Financial Operations

States Participating:

- Maine
- Massachusetts
- New Hampshire
- Rhode Island
Credential Finder Search App Prototype

credentialfinder.org

- Shows the credential information from the Registry.
- Provides context for understanding the Credential Transparency Description Language (CTDL).
Emsi data

**Labor market data**
Data from government sources like the US Census Bureau and the Department of Labor

**Job postings**
Data from job advertisements made by employers (aka real-time labor market)

**Resumes and profiles**
Data from online profiles and resumes created by students and job seekers
Our data helps colleges to...

- Offer the right programs
  Aligning academic programs with the labor market data

- Get students on a path to career success
  Exploring career interests and labor data matched with college programs

- Measure alumni and institutional outcomes
  Demonstrating ROI to students and stakeholders
Program Overview

Computer and Information Sciences, General

Program Overview

3,974 Completions

- All Programs: 3,974 (100%)
- Distance Offered Programs: 1,221 (31%)
- Non-Distance Offered Programs: 2,753 (69%)

Institutions (2017)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Southern New Hampshire University</td>
<td>894</td>
<td>18.7%</td>
<td>22.5%</td>
</tr>
<tr>
<td>Northeastern University</td>
<td>418</td>
<td>19.1%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Sacred Heart University</td>
<td>253</td>
<td>-11.2%</td>
<td>6.4%</td>
</tr>
<tr>
<td>University of Massachusetts-Boston</td>
<td>174</td>
<td>13.0%</td>
<td>4.4%</td>
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</tbody>
</table>
# Target Occupations

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Software Developers, Applications</td>
<td>54,080</td>
<td>5,111</td>
<td>$49.45/ hr</td>
<td>+25.05%</td>
<td>1.15</td>
</tr>
<tr>
<td>Software Developers, Systems Software</td>
<td>33,639</td>
<td>2,434</td>
<td>$54.31/ hr</td>
<td>+5.77%</td>
<td>1.58</td>
</tr>
<tr>
<td>Computer and Information Systems Managers</td>
<td>32,856</td>
<td>2,712</td>
<td>$67.62/ hr</td>
<td>+7.49%</td>
<td>1.59</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>30,315</td>
<td>2,263</td>
<td>$43.57/ hr</td>
<td>+8.36%</td>
<td>0.98</td>
</tr>
<tr>
<td>Network and Computer Systems Administrators</td>
<td>19,076</td>
<td>1,313</td>
<td>$40.75/ hr</td>
<td>+5.35%</td>
<td>1.00</td>
</tr>
<tr>
<td>Computer Occupations, All Other</td>
<td>18,633</td>
<td>1,524</td>
<td>$42.33/ hr</td>
<td>+12.10%</td>
<td>0.89</td>
</tr>
<tr>
<td>Web Developers</td>
<td>9,931</td>
<td>855</td>
<td>$33.42/ hr</td>
<td>+13.02%</td>
<td>1.16</td>
</tr>
<tr>
<td>Computer Network Architects</td>
<td>9,238</td>
<td>656</td>
<td>$57.00/ hr</td>
<td>+4.55%</td>
<td>1.15</td>
</tr>
<tr>
<td>Database Administrators</td>
<td>5,854</td>
<td>435</td>
<td>$45.72/ hr</td>
<td>+8.78%</td>
<td>1.00</td>
</tr>
<tr>
<td>Information Security Analysts</td>
<td>5,761</td>
<td>559</td>
<td>$49.11/ hr</td>
<td>+24.25%</td>
<td>1.00</td>
</tr>
</tbody>
</table>
### Top Companies Posting

<table>
<thead>
<tr>
<th>Company</th>
<th>Total/Unique (Sep 2018 - Aug 2019)</th>
<th>Posting Intensity</th>
<th>Median Posting Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Corporation</td>
<td>49,729 / 10,746</td>
<td>5 : 1</td>
<td>61 days</td>
</tr>
<tr>
<td>Cybercoders, Inc.</td>
<td>25,531 / 4,135</td>
<td>6 : 1</td>
<td>29 days</td>
</tr>
<tr>
<td>Efinancialcareers, Inc.</td>
<td>7,327 / 3,617</td>
<td>2 : 1</td>
<td>24 days</td>
</tr>
<tr>
<td>Anthem, Inc.</td>
<td>9,154 / 3,455</td>
<td>3 : 1</td>
<td>29 days</td>
</tr>
<tr>
<td>Raytheon Company</td>
<td>17,643 / 3,296</td>
<td>5 : 1</td>
<td>43 days</td>
</tr>
<tr>
<td>Workbridge Associates</td>
<td>7,082 / 3,090</td>
<td>2 : 1</td>
<td>23 days</td>
</tr>
<tr>
<td>Virtual Vocations</td>
<td>3,632 / 3,080</td>
<td>1 : 1</td>
<td>8 days</td>
</tr>
<tr>
<td>Renature, Inc.</td>
<td>20,817 / 3,002</td>
<td>7 : 1</td>
<td>15 days</td>
</tr>
<tr>
<td>Deloitte LLP</td>
<td>12,215 / 2,703</td>
<td>5 : 1</td>
<td>48 days</td>
</tr>
<tr>
<td>Robert Half International Inc</td>
<td>13,989 / 2,409</td>
<td>6 : 1</td>
<td>32 days</td>
</tr>
</tbody>
</table>

### Top Posted Job Titles

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Total/Unique (Sep 2018 - Aug 2019)</th>
<th>Posting Intensity</th>
<th>Median Posting Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Engineers</td>
<td>262,011 / 49,158</td>
<td>5 : 1</td>
<td>32 days</td>
</tr>
<tr>
<td>Java Developers</td>
<td>64,101 / 13,752</td>
<td>5 : 1</td>
<td>30 days</td>
</tr>
</tbody>
</table>
Emsi Occupation Snapshot Report

11 Occupations

in 6 States

Executive Summary

Aggressive Hiring Competition Over a Deep Supply of Regional Talent

- Jobs: 220,883
- Compensation: $102,888
- Job Posting Demand: 29,058

Your area is a hotspot for this kind of talent. The national average for an employee is higher, the median annual income for a self-employed worker is lower, and competition from online job postings is high in your area.
# Graduate Pipeline

## Program Information

**35 Programs**

36 programs can train for this job, while only 35 programs have produced completers in this region.

**14,500 Completions (2018)**

The completions from all regional institutions for all degree types.

**19,534 Openings (2018)**

The average number of openings for an occupation in the region is 1.282.

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science</td>
<td>4,212</td>
<td>Southern New Hampshire University</td>
<td>1,427</td>
</tr>
<tr>
<td>Computer and Information</td>
<td>3,414</td>
<td>Northeastern University</td>
<td>1,003</td>
</tr>
<tr>
<td>Science/Studies</td>
<td>1,069</td>
<td>Boston University</td>
<td>775</td>
</tr>
<tr>
<td>Computer Engineering, General</td>
<td>757</td>
<td>Massachusetts Institute of...</td>
<td>712</td>
</tr>
<tr>
<td>Information Technology</td>
<td>661</td>
<td>University of Massachusetts...</td>
<td>619</td>
</tr>
</tbody>
</table>
High-Value Credentials for New England

Bringing Transparency and Credential Literacy for New England

**Take Career Assessment**
Take a Career Assessment to learn about yourself and Career Coach will give you career suggestions based on your interests.

[Take the Assessment](#)

**Browse Careers**
Browse or search for careers and we will give you relevant data on wages, employment, and the training you need.

[Search for Careers](#)
Or Browse all Careers

**Browse Credentials**
Browse or search for the available credentials that lead to the career you want.

[Search for Credentials](#)
Or Browse all Credentials
Information Technology and Services

People with these jobs manage IT projects, solve computer problems, and manage websites.

### Computer Hardware Engineers

Research, design, develop, or test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and...

- **Median Salary**: $112,785
- **Top Entry-level Education**: Bachelor's Degree
  - **A Bachelor's Degree**: 68%
  - **A Master's or Professional Degree**: 27%

### Computer and Information Research Scientists

Conduct research into fundamental computer and information science as theorists, designers, or inventors. Develop solutions to problems in the field of computer hardware and software.

- **Median Salary**: $126,695
- **Top Entry-level Education**: Master's or Professional Degree
  - **A Master's or Professional Degree**: 80%
$112,785
Median Salary

New workers start around $66,347. Normal pay is $112,785 per year. Highly experienced workers can earn up to $164,132.

20
Annual job openings

Openings are regional vacancies due to growth and turnover in this career.

Available Programs

Computer Science
A.S.

Below are institutions that provide this program.

Manchester Community College

Computer Science and Innovation
A.S.

Below are institutions that provide this program.

Manchester Community College
OUR VISION

Investing in credential transparency infrastructure will allow New England’s residents, education and training providers, employers and policymakers to:

- Chart clear paths to and from credentials and jobs
- Utilize a common language and coalesce on needed skills and competencies
- Integrate education and training credential information, labor market insights, and individuals’ credential and skill attainment in a meaningful way
- Harness technology and create a “Zillow” for education and training
QUESTIONS?
CONTACT US!

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