USING TECHNOLOGY TO IMPROVE CREDENTIAL TRANSPARENCY

A Regional Case Study

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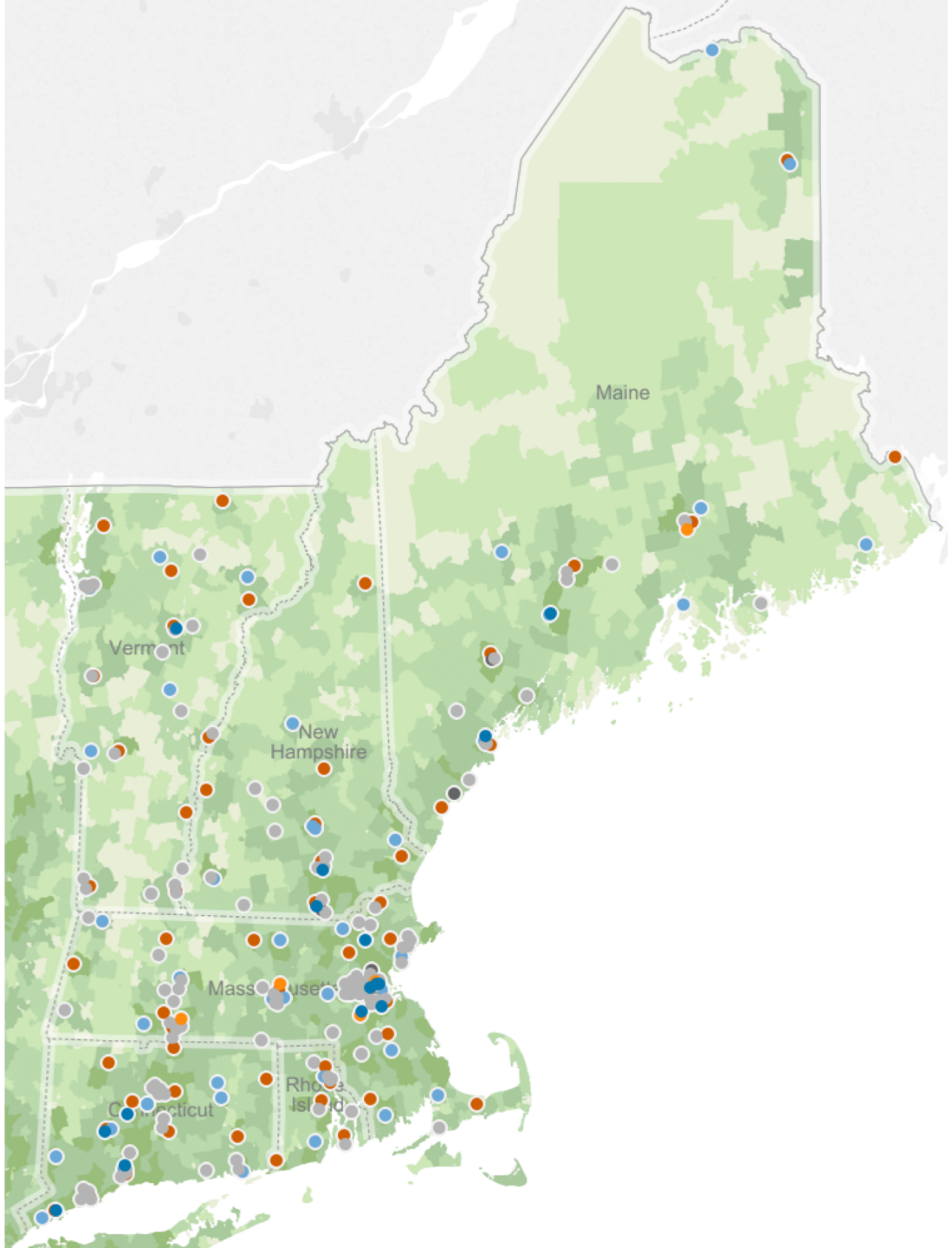
THE FACTS

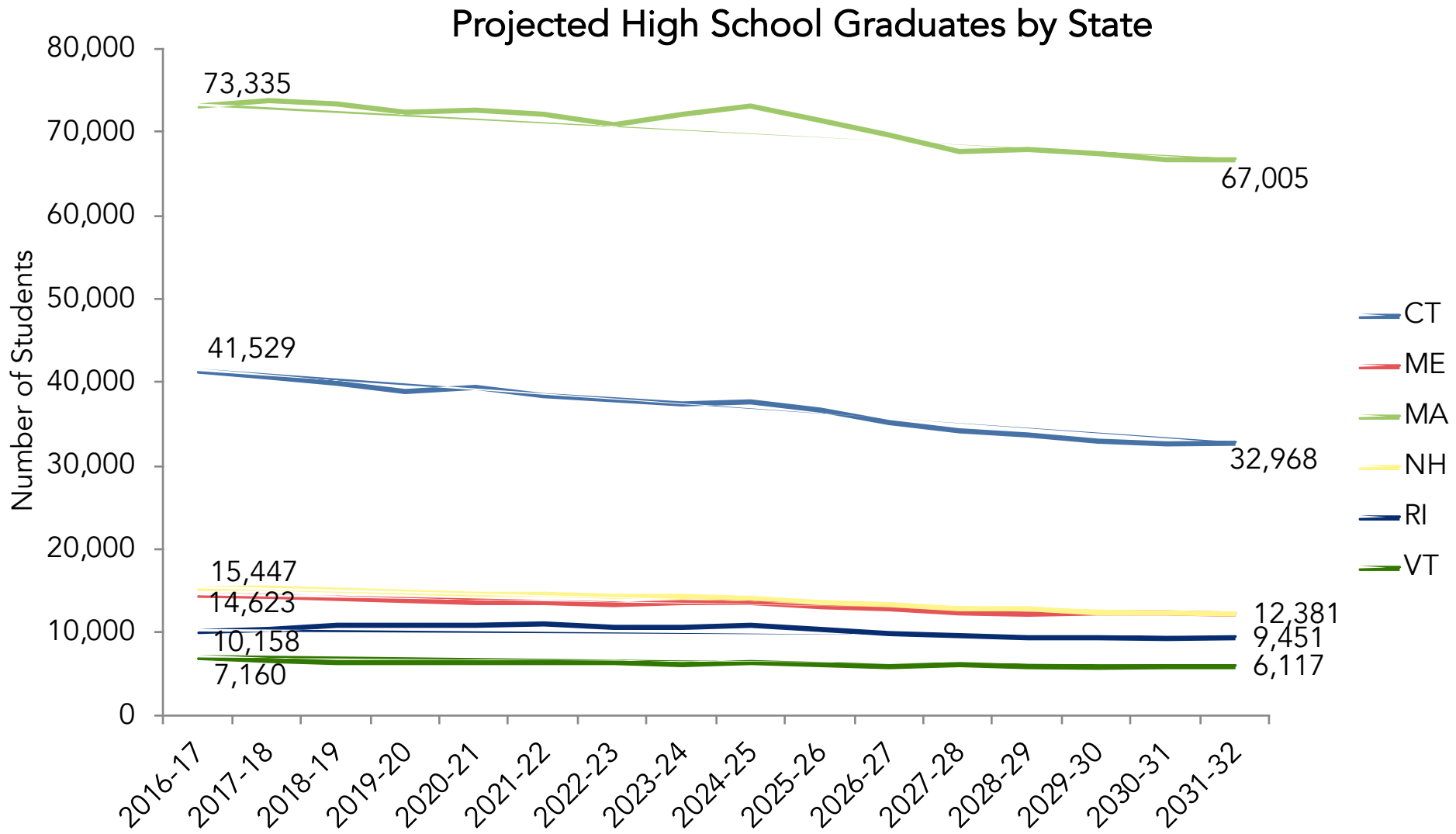
About New England

Pahk the cah in Hahvahd Yahd

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

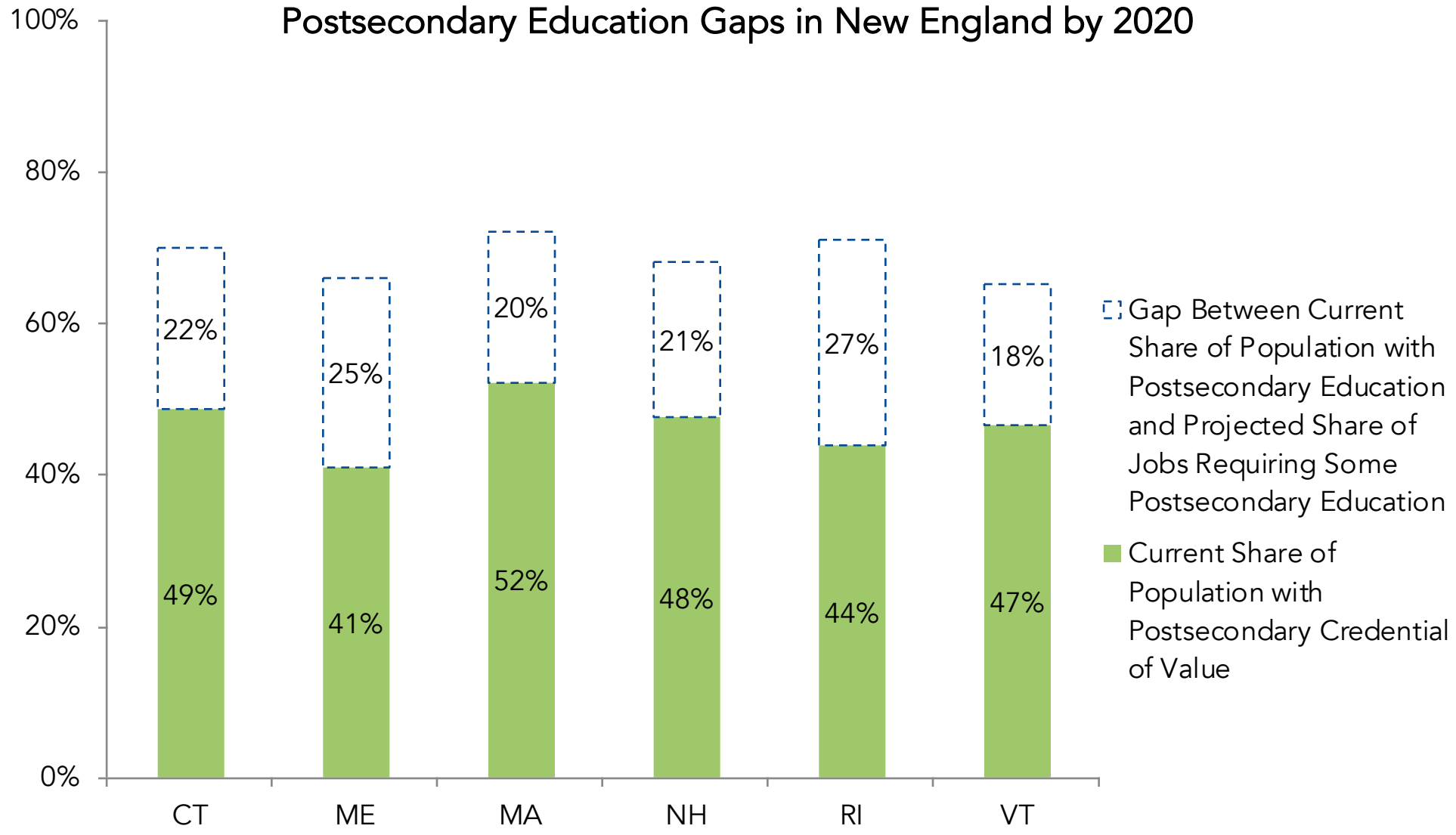


Looming Demographics



Source: NEBHE Analysis of *Knocking at the College Door* data

Attainment Needs Work

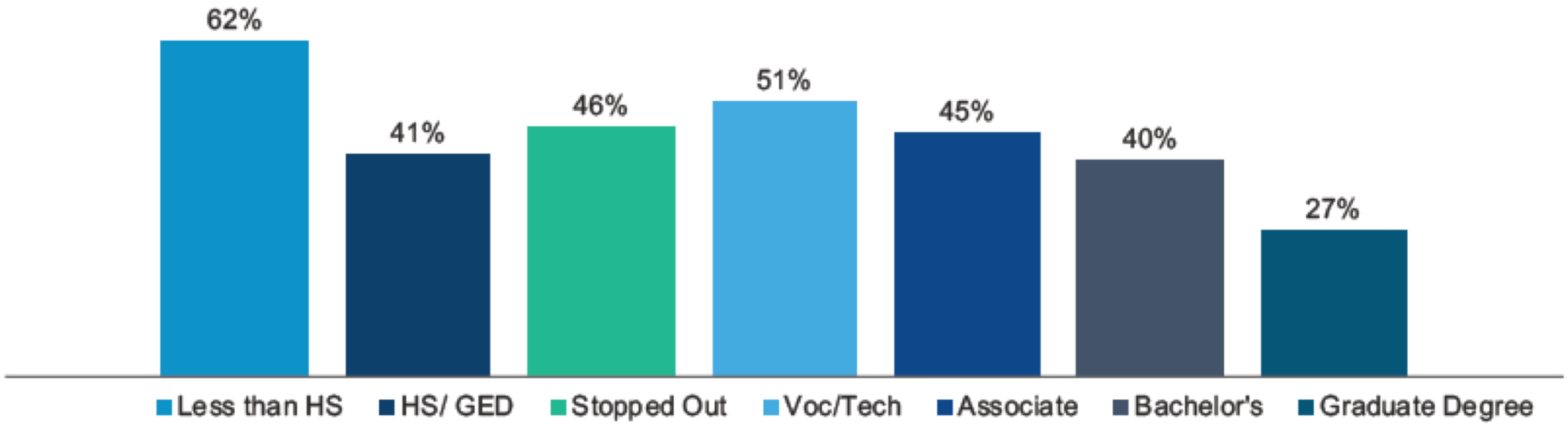


Source: NEBHE analysis of Lumina Foundation's *A Stronger Nation 2017* and Georgetown Center for Education and the Workforce's *Recovery 2020*

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 "siloed" 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

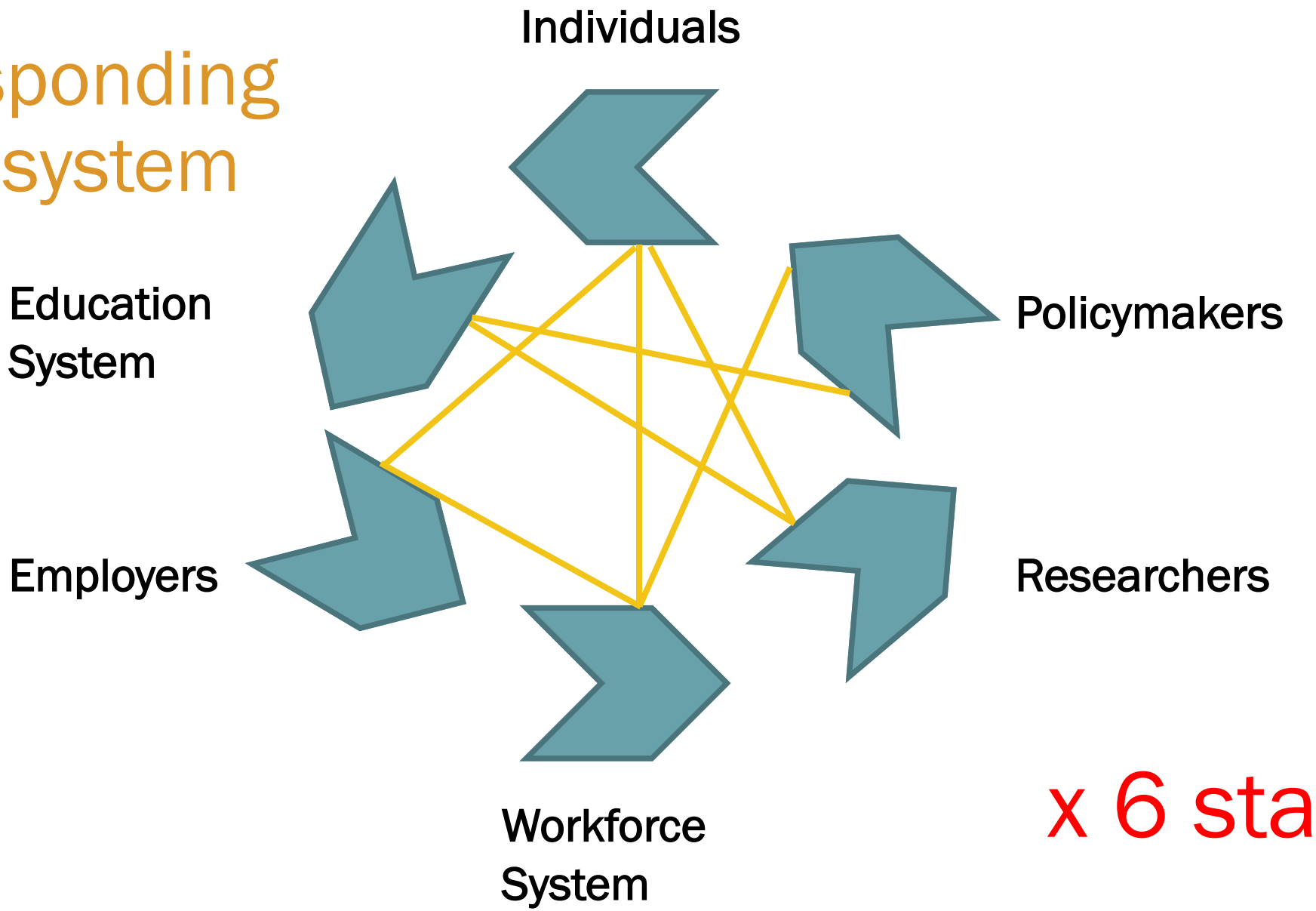


Source: Strada-Gallup Education Consumer Survey. Base: New England adults ages 18-65. Those who are currently enrolled in college-level courses have been excluded for the purpose of this analysis, n=12,559

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



x 6 states!!

Commission on Higher Education & Employability

11 months

5 meetings

1 Summit, attended by 450 people

Testimony from 13 experts

66-page report

18 action-oriented recommendations

COMMISSION ON HIGHER EDUCATION & EMPLOYABILITY

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

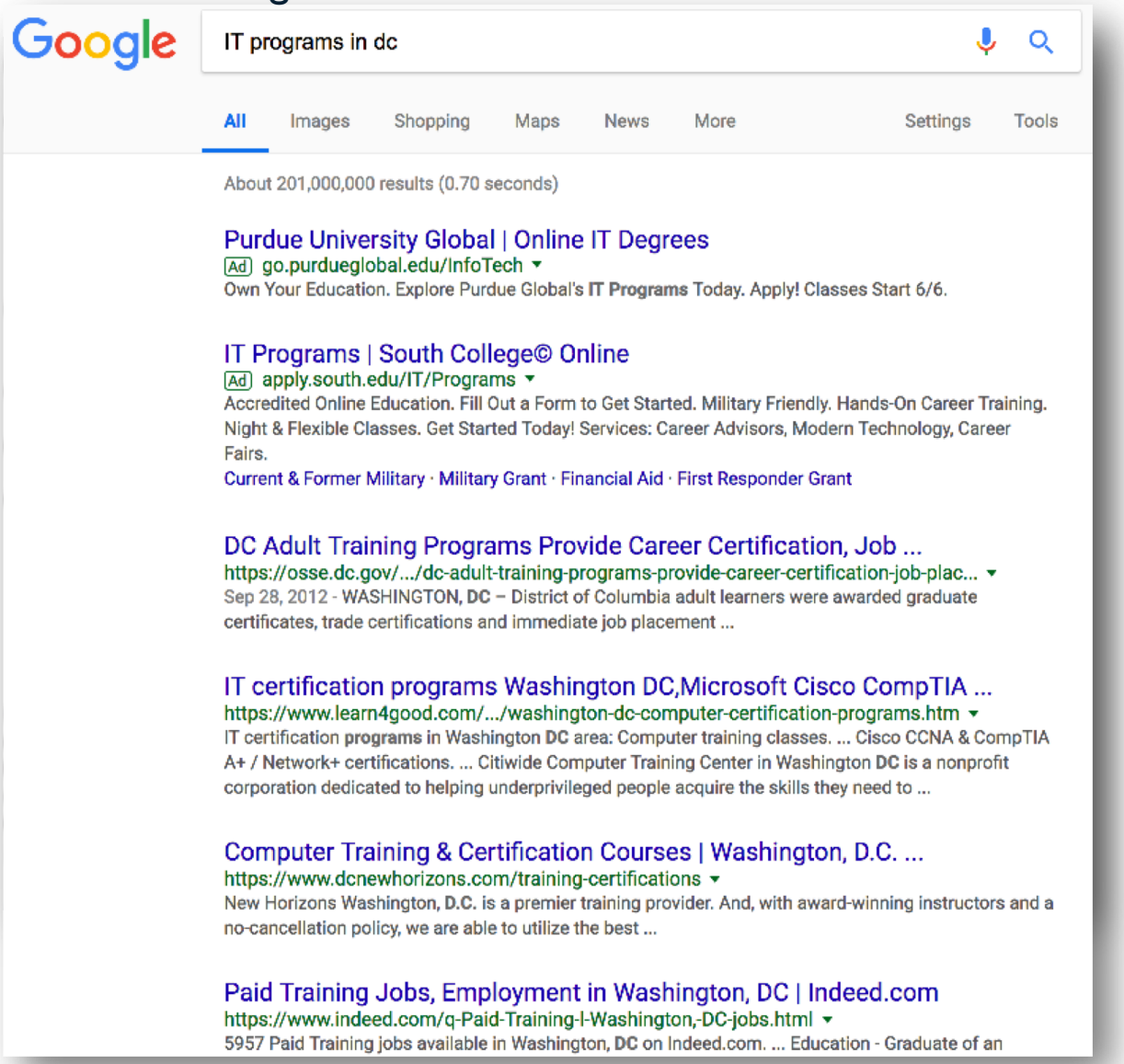
Emerging Credentials + Credentialing Systems

- 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

Searching for Hotels v. Credentials



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

Apprenticeship

Badge

Certificate

Certification

Diploma

Degree

License

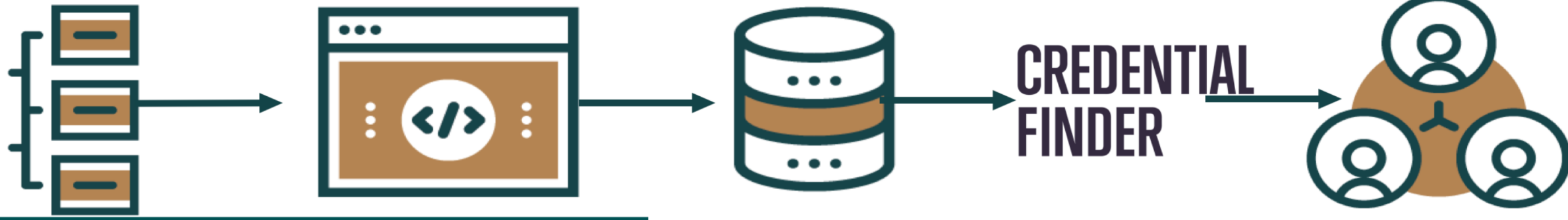
Micro-Credential

Quality Assurance (QA)

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.

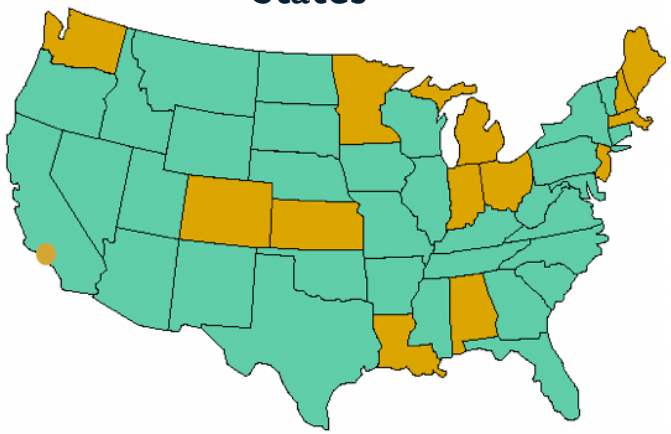
Credentialing organizations, developers, and other users will have access to resources like best practices, user guides, and staff support.

How is Credential Engine Scaling Up?

Industry Sectors

Associations

States



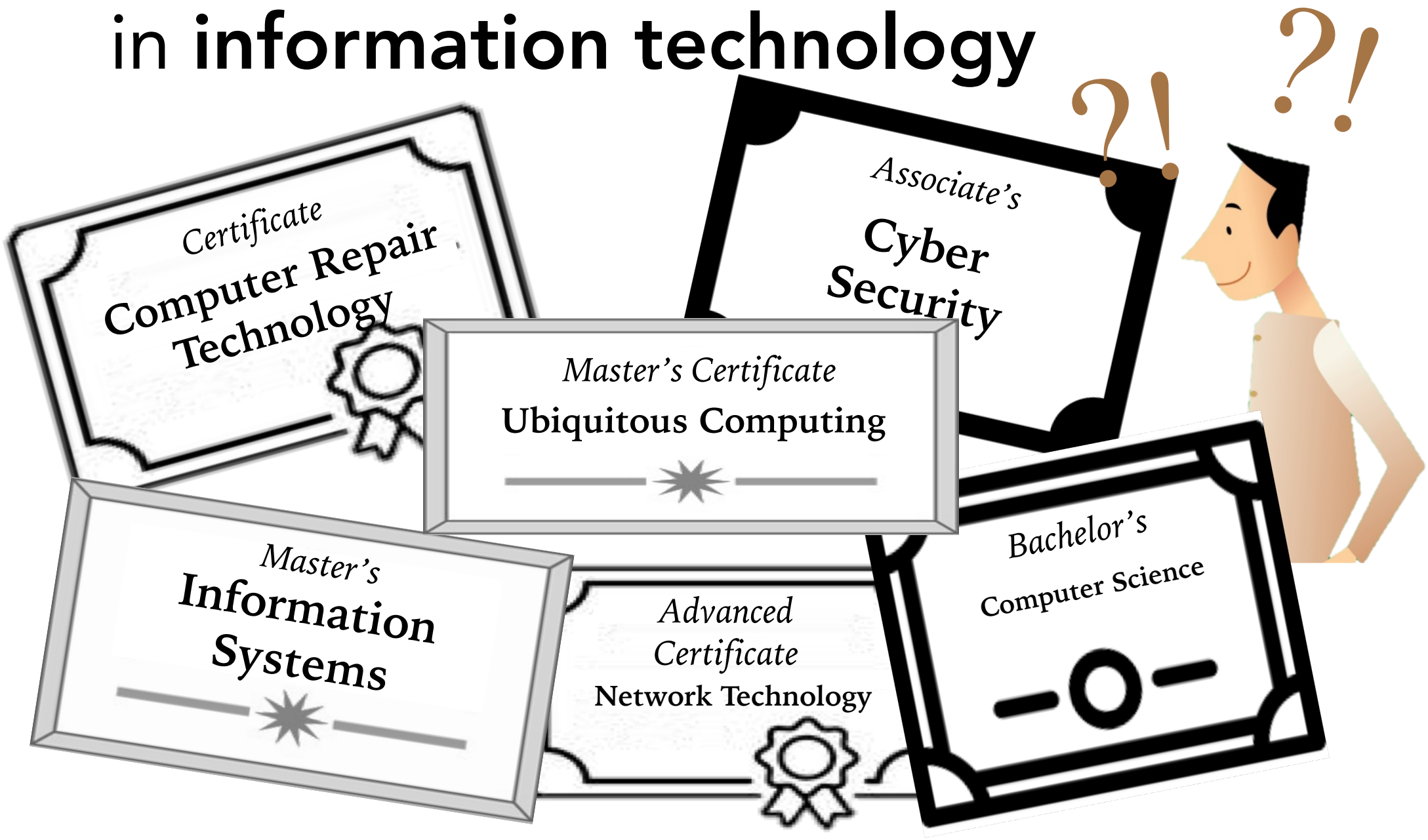
Credential Engine

Challenges addressed by **High Value Credentials for New England**

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

- 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

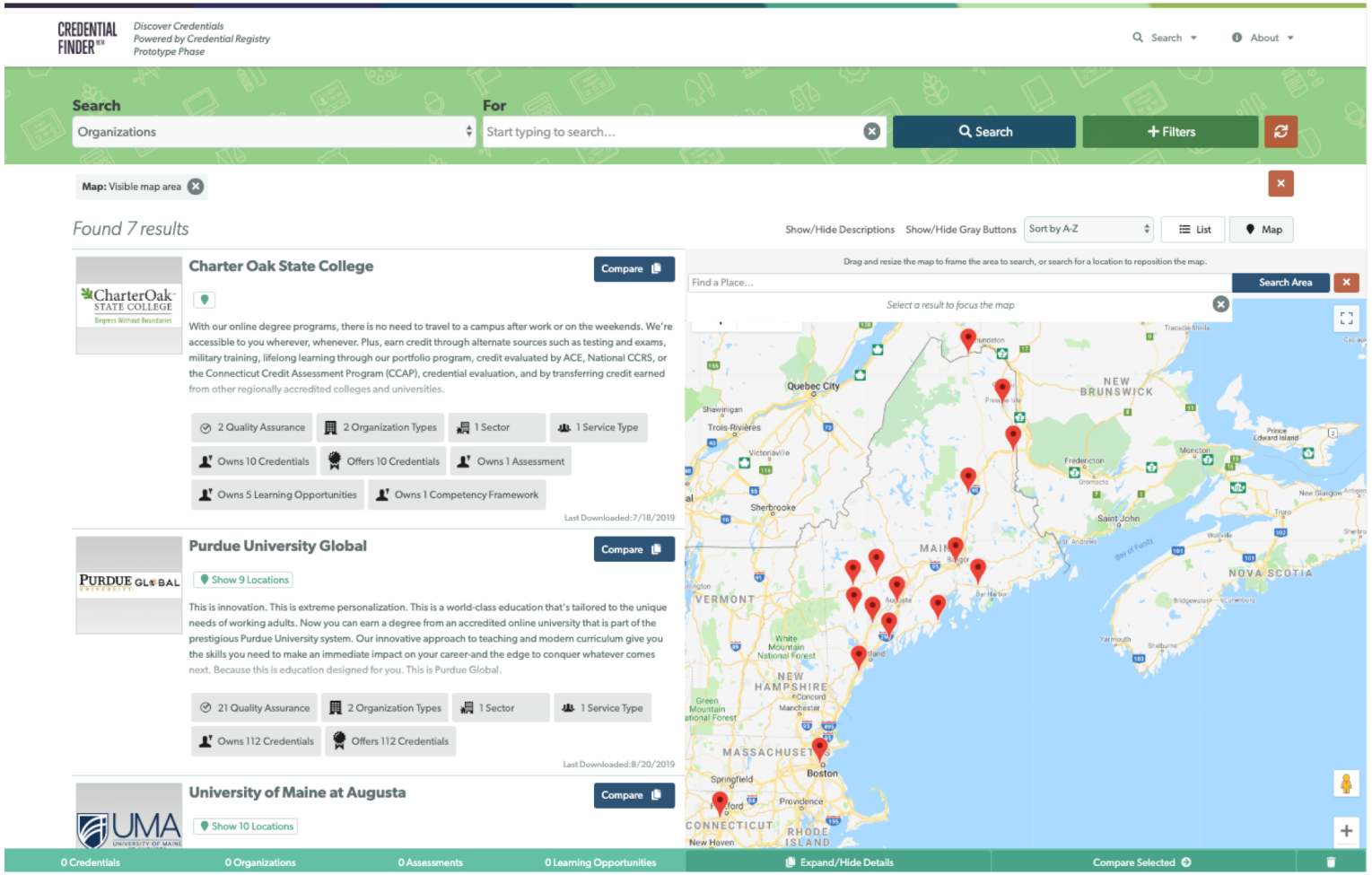
Key Industries:

- 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

Emsi data

COMPREHENSIVE. CURRENT. EASY TO USE.

Labor market data

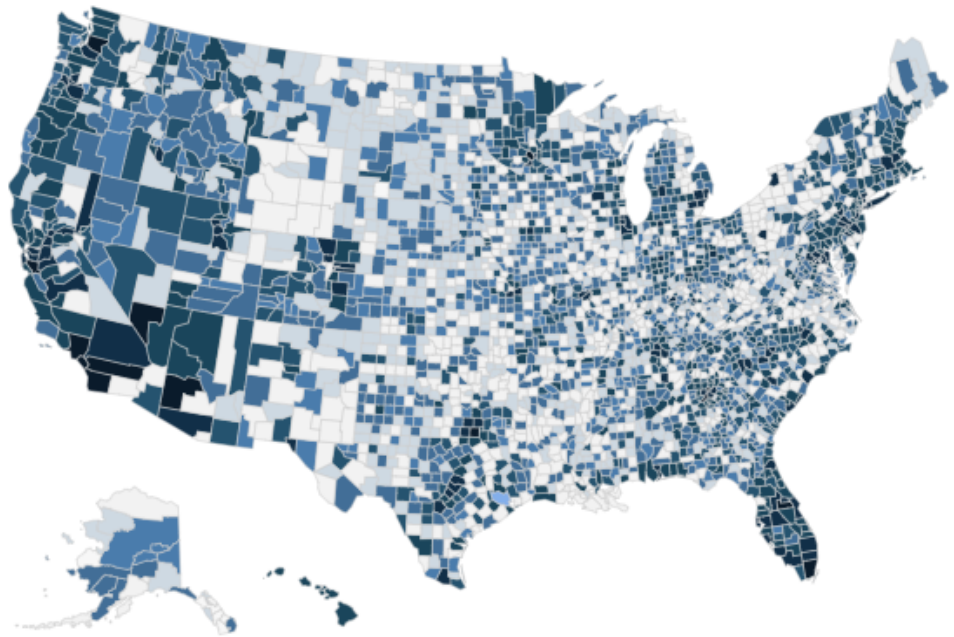
Data from government sources like the US Census Bureau and the Department of Labor

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



SERVING HIGHER EDUCATION SINCE THE YEAR 2000

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

Start Over

1 Program Clear · Save · Advanced

Computer and Information Sciences, Gene...

11

6 States Clear · Save · Advanced

Maine (23)
Massachusetts (25)
New Hampshire (33)
Rhode Island (44)
Vermont (50)

Add Regions...

Program Modality

Distance Offered Programs
Non-Distance Offered Programs

All Education Levels

Associate's degree
Bachelor's degree
Master's degree
Ph.D. or professional degree

Completions Year

Program Overview

Computer and Information Sciences, General

Save Project Export

Program Overview

	Completions (2017)	% Completions	Institutions (2017)	% Institutions
All Programs	3,974	100%	88	100%
Distance Offered Programs	1,221	31%	14	16%
Non-Distance Offered Programs	2,753	69%	77	88%

Institution	Completions (2017)	Growth % YOY (2017)	Market Share (2017)
Southern New Hampshire University	894	18.7%	22.5%
Northeastern University	418	19.1%	10.5%
Sacred Heart University	253	-11.2%	6.4%
University of Massachusetts-Boston	174	13.0%	4.4%

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Program Modality

- [ ] Distance Offered Programs
- [ ] Non-Distance Offered Programs

All Education Levels

- [ ] Associate's degree
- [ ] Bachelor's degree
- [ ] Master's degree
- [ ] Ph.D. or professional degree

Completions Year

Target Occupations

Jump to Occupation Overview

220,883	+12.6%	$49.47/hr	18,021
Jobs (2018)	% Change (2018-2029)	Median Hourly Earnings	Annual Openings
16% above National average	Nation: +17.4%	Nation: $47.48/hr	

Occupation	2018 Jobs	Annual Openings	Median Hourly Earnings	Growth (2018 - 2029)	Location Quotient (2018)
Software Developers, Applications	54,080	5,111	$49.45/hr	+25.05%	1.15
Software Developers, Systems Software	33,639	2,434	$54.31/hr	+5.77%	1.58
Computer and Information Systems Managers	32,856	2,712	$67.62/hr	+7.49%	1.59
Computer Systems Analysts	30,315	2,263	$43.57/hr	+8.36%	0.98
Network and Computer Systems Administrators	19,076	1,313	$40.75/hr	+5.35%	1.00
Computer Occupations, All Other	18,633	1,524	$42.33/hr	+12.10%	0.89
Web Developers	9,931	855	$33.42/hr	+13.02%	1.16
Computer Network Architects	9,238	656	$57.00/hr	+4.55%	1.15
Database Administrators	5,854	435	$45.72/hr	+8.78%	1.00
Information Security Analysts	5,761	559	$49.11/hr	+24.25%	1.00

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- [ ] Ph.D. or professional degree

Completions Year

Top Companies Posting

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

More

Top Posted Job Titles

Job Title	Total/Unique (Sep 2018 - Aug 2019)	Posting Intensity	Median Posting Duration
Software Engineers	262,011 / 49,158	5 : 1	32 days
Java Developers	64,101 / 13,752	5 : 1	30 days

Start Over

1 Program Clear · Save · Advanced

Computer and Information Sciences, Gene...

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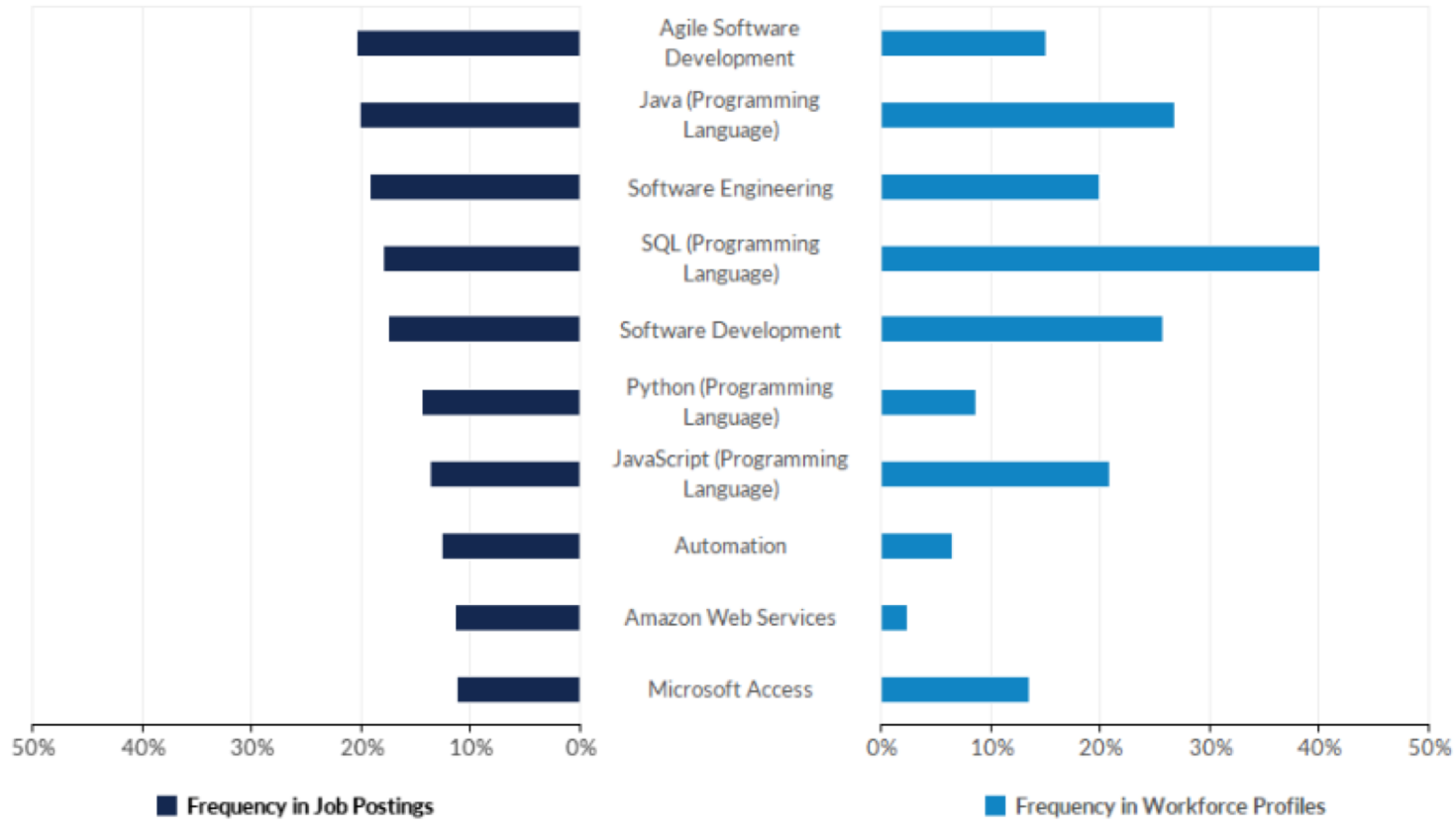
Ph.D. or professional degree

Completions Year

Top Hard Skills



Top Hard Skills

Skill	Frequency in Postings	Postings with Skill / Total Postings (Sep 2018 - Aug 2019)	Frequency in Profiles	Profiles with Skill / Total Profiles (2017 - 2019)

Start Over

11 Occupations Clear · Save · Advanced

- Computer and Information Systems M...
- Computer and Information Research S...
- Computer Systems Analysts (15-1121)
- Information Security Analysts (15-1122)
- Software Developers, Applications (15-...

Add Occupations...

6 States Clear · Save · Advanced

- Connecticut (9)
- Maine (23)
- Massachusetts (25)
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- Rhode Island (44)

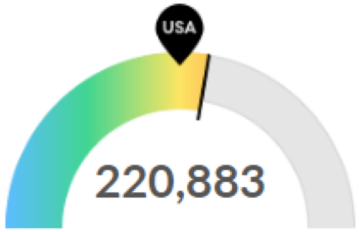
Add Regions...

Class of Worker (Basic) Advanced

- Employees
- Self-Employed

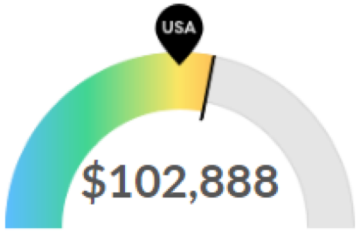
Executive Summary

Aggressive Hiring Competition Over a Deep Supply of Regional Talent



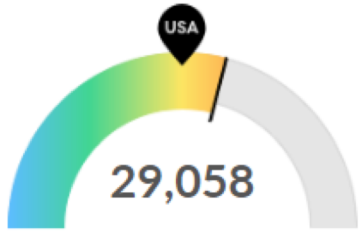
Jobs

Your area is a hotspot for this kind of talent. The national average for an



Compensation

The cost for talent is about average in your area. The national median



Job Posting Demand

Competition from online job postings is high in your area. The

Start Over

11 Occupations Clear · Save · Advanced

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Add Regions...

Class of Worker (Basic) Advanced

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Graduate Pipeline

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.

Top Programs	Completions (2018)
Computer Science	4,212
Computer and Information...	3,414
Information Science/Studies	1,069
Computer Engineering, Ge...	757
Information Technology	661

Top Schools	Completions (2018)
Southern New Hampshire ...	1,427
Northeastern University	1,003
Boston University	775
Massachusetts Institute of...	712
University of Massachuse...	619

NEW ENGLAND BOARD of HIGHER EDUCATION

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.

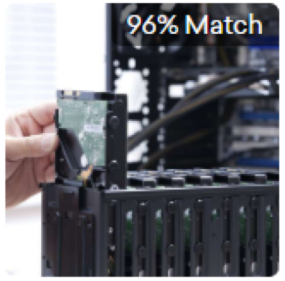
Search for Credentials

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... Show More

Median Salary

$112,785

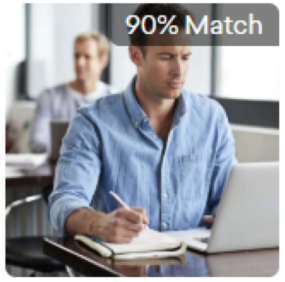
Top Entry-level Education

A Bachelor's Degree 68%

A Master's or Professional Degree 27%

Save

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

A Master's or Professional Degree 80%

Save

Career Filters

Sort By

Match %

Top Entry-Level Education

- [ ] A High School Diploma or Less (0)
- [ ] A Certificate (0)
- [ ] Some College (0)
- [ ] An Associate Degree (0)
- [x] A Bachelor's Degree (11)
- [x] A Master's or Professional Degree (1)
- [ ] A Doctoral Degree or More (0)

Career Coach - Therapy and Nat
https://ccsnh.emsicc.com/browse-careers/8.4?region=State%20of%20New%20Hampshire&radius=
Apps Salesforce Economic Modeling Executive Communic Emsi Employee Direct Confluence Emsi Insider Free Audio Conferen Login Inside Higher Ed | Hig The Chronicle Community College

$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

Region Selection

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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