JOBS FOR THE FUTURE

LABOR MARKET INFORMATION TRAINING MODULES

These modules were developed as part of JFF's Greenforce Initiative in partnership with the National Wildlife Federation.

Please contact Sara Lamback (slamback@jff.org) with any questions regarding the content.

Part I: Analyzing and Applying Labor Market Information

1. Understand the definition of labor market information (LMI)

2. Understand key terms and concepts related to labor market information research

3. Understand the difference between traditional and real-time LMI (RT LMI)

4. Understand the benefits and limitations of both traditional and RT LMI

Labor Market Information can be defined as the systematic collection, analysis, reporting, and publishing of a broad range of data that describes current economic conditions within a given geographic area.

> Wages/benefits

> Unemployment rate

> Skill requirements

> Career information

> Projections

> Demographics

> Geography

> Company downsizing and expansion

> Job opportunities

> Industry trends

> Demand and growth

> Labor market information can inform decisions related to workforce and economic development, education and training, and other key policies.

> It is an important tool for a variety of stakeholders, including:

– Businesses

– Workforce agencies

– Researchers

– Colleges

– Policymakers

– Job seekers

– Students

WHY IS LABOR MARKET INFORMATION USEFUL FOR COLLEGES?

Demand Driven Programming

- **OUTCOMES:** Match and revise program offerings to economic demand

Curriculum Content

- **OUTCOMES:** Align learning outcomes to identified skill and qualification requirements

Employer Engagement

- **OUTCOMES:** Spur and enhance conversations with employers

Career Guidance
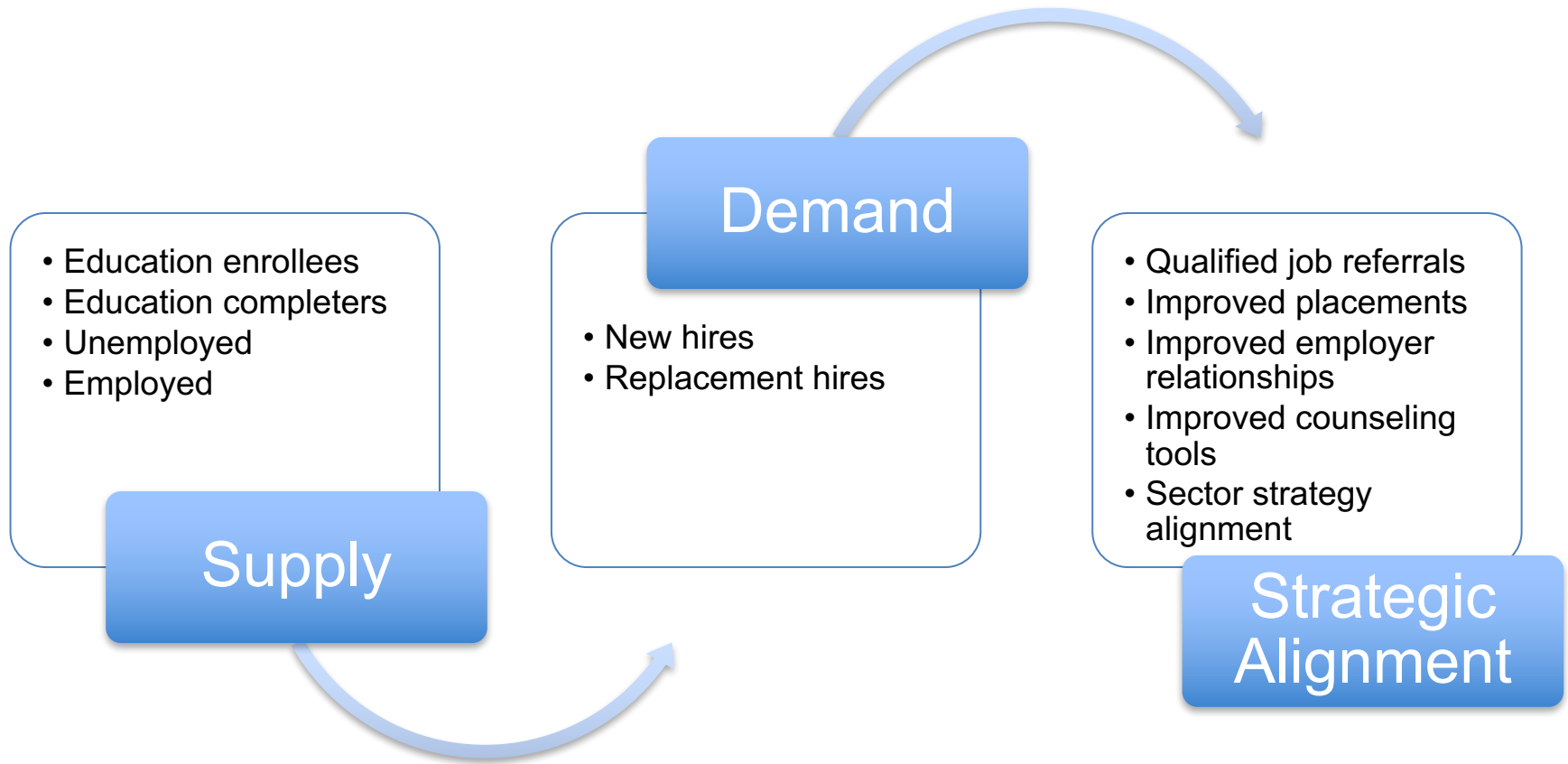
- **OUTCOMES:** Improve matching for student employment

LMI Also adds significant value to overall strategic and administrative planning

THE IMPORTANCE OF LMI

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Supply
- Education enrollees
- Education completers
- Unemployed
- Employed

Demand
- New hires
- Replacement hires

Strategic Alignment
- Qualified job referrals
- Improved placements
- Improved employer relationships
- Improved counseling tools
- Sector strategy alignment

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COMMON LMI CLASSIFICATION SYSTEMS

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Industry
E.g., Agriculture

Occupation
E.g., Construction Worker

Program
E.g., Computer Science

NAICS

SOC

CIP

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> **North American Industry Classification System** (NAICS): These codes are used to classify businesses into 20 industry sectors, according to the type of economic activity in which an establishment is involved (e.g., manufacturing, agriculture)

The North American Industry Classification System (NAICS) is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

- Agriculture, Forestry, Fishing & Hunting (11)
- Mining (21)
- Utilities (22)
- Construction (23)
- Manufacturing (31-33)
- Wholesale Trade (42)
- Retail Trade (44-45)
- Transportation/Warehousing (48-49)
- Information (51)
- Finance & Insurance (52)

- Real Estate, Renting & Leasing (53)
- Professional, Scientific, & Technical Services (54)
- Management Services (55)
- Administrative and Support and Waste Management and Remediation Services (56)
- Educational Services (61)
- Health & Social Services (62)
- Arts, Entertainment & Recreation (71)
- Accommodation & Food Services (72)
- Other Private Services (81)
- Public Administration (92)

To learn more about NAICS: See http://www.bls.gov/bls/naics.htm

TOP 10 U.S. NAICS SECTORS BY EMPLOYMENT, 2015

NAICS	Description	2015 Jobs	2010 - 2015 % Change
90	Government	24,235,811	(1%)
62	Health Care and Social Assistance	21,479,992	13%
44	Retail Trade	18,855,600	8%
72	Accommodation and Food Services	13,769,288	16%
54	Professional, Scientific, and Technical Services	13,097,549	12%
31	Manufacturing	13,032,746	8%
56	Administrative and Support and Waste Management and Remediation Services	11,908,009	15%
81	Other Services (except Public Administration)	10,397,432	4%
52	Finance and Insurance	10,171,975	10%
23	Construction	9,907,033	13%

Source: EMSI Analyst 2015.4

Apple Orchards

NAICS Level	NAICS Code	Description
Economic Sector	11	11: Agriculture
Subsector	111	111: Crop Production
Industry Group	3	1113: Fruit and Tree Nut Farming
NAICS Industry	3	11133: Non-citrus Fruit and Tree Nut Farming
National Industry	1	111331: Apple Orchards
	11-111331	

> **Standard Occupational Classification (SOC)**: These six-digit codes classify workers into occupational categories; all workers are classified into one of 840 occupations (e.g., medical assistant, hydrologist, or machinist).

SOC covers all occupations. Occupations are classified based on work performed, and the skills, education, or training needed to performed the work competently.

The 23 Broad SOC Clusters are:

> Management

> Business & Financial Operations

> Computer & Mathematical Science

> Architecture & Engineering

> Life, Physical, & Social Science

> Community & Social Service

> Legal

> Education, Training, & Library

> Arts, Design, Entertainment, Sports, & Media

> Healthcare Practitioner & Technical

> Healthcare Support

> Protective Service

> Food Preparation & Serving Related

> Building & Grounds Cleaning & Maintenance

> Personal Care & Service

> Sales & Related

> Office & Administrative Support

> Farming, Fishing, & Forestry

> Construction & Extraction

> Installation, Maintenance, & Repair

> Production

> Transportation & Material Moving

> Military Specific Occupations

SOC Code for Construction Workers

SOC Level	SOC Code	Description
Major Group	47	47-0000: Construction and Extraction Occupations
Minor Group	2	47-2000: Construction Trade Workers
Broad Occupation	06	47-2060: Construction Laborers
Detailed Occupation	1	47-2061: Construction Laborers

MORE ON SOC CODES

SOURCE: Bureau of Labor Statistics, www.bls.gov/soc

> **Classification of Instructional Programs (CIP):** A six-digit code that enables data to be collected an analyzed for a field of study or academic discipline within U.S. institutions of higher education.

INTRODUCTION TO CIP CODES

Developed by the National Center for Educational Statistics (NCES) within the U.S. Education Department in 1980. CIP provides a classification scheme for accurate tracking, assessment, and reporting of fields of study and program completions activity.

SAMPLE 2-DIGIT CIP SERIES

- Agriculture, agriculture operations, and related sciences (01)

- Natural resources and conservation (03)

- Architecture and related services (04)

- Area ethnic, cultural, gender, and group Studies (05)

- Communication, Journalism, and related programs (09)

- Communications technologies/ technicians and support services (10)

- Computer and information sciences and support services (11)

- Personal and culinary services (12)

- Education (13)

- Engineering (14)

CIP Code for Computer Science Programs:

11: Computer and Information Sciences and Support Services

11.07: Computer Science

11.0701: A program that focuses on computer theory, computing problems and solutions, and the design of computer systems and user interfaces from a scientific perspective. Includes instruction in the principles of computational science, computer development and programming, and applications to a variety of end-use situations.

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> A **region** is your geographic unit of analysis; it can be defined in a variety of ways, such as:

- Nation
- State
- Metropolitan (or micropolitan) Statistical Area (MSA)
- Labor Market Area (LMA)
- Workforce Investment Area
- Multi-county area
- City
- County
- ZIP code

> **Metropolitan Statistical Areas** (MSAs): large multi-county regions that describe major city economies.

  – Contain areas with at least one urban area with a population over 50,000

> **Labor Market Area** (LMAs): describe the integration between cities, towns, and unincorporated areas not included in metro- or micro-politan statistical areas.

> **Counties**: Regions within states.

> **Zip Codes**: Smaller regions within counties.

Industry

- North American Industry Classification System (NAICS)
- Categorizes types of *businesses*

Occupation

- Standard Occupation Classification (SOC)
- Categorizes types of *jobs*

Instructional Programs

- Classification of Instructional Programs (CIP)
- Academic and occupationally-specific *programs*

Geography

- Statewide
- County
- Workforce Investment Area
- Metropolitan Statistical Area

SOURCE: USDOL / ETA

1. Understand the definition of labor market information (LMI)

2. Understand key terms and concepts related to labor market information research

3. Understand the difference between traditional and RT LMI

4. Understand the benefits and limitations of both traditional and RT LMI

Traditional LMI provides a robust picture of national, local, and regional labor markets based upon government surveys.

Data collection:

– Drawn from tax records or mandatory surveys of employers and workers

Types of data:

– Provides information on workforce employment, trends, and projections for standardized industries and occupations.

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Federal Resources include:

> Bureau of Labor Statistics

> JOLTS: Job Openings and Labor Turnover Survey

> U.S. Census Bureau

> O*NET: The Occupational Information Network

State and Local LMI resources include:

> Such as Floridajobs.org, TexasTracer, etc.

> Local WIBs

Other

> Private vendors (e.g., EMSI)

TRADITIONAL LMI: TOP BOSTON INDUSTRIES

Industry	2009 Jobs	2014 Jobs	Change (2009-2014)	% Change	2014 Earnings Per Worker
General Medical and Surgical Hospitals	116,054	122,509	6,456	6%	$86,696
Colleges, Universities, and Professional Schools	112,771	117,356	4,584	4%	$60,285
Elementary and Secondary Schools (Local Government)	108,655	112,327	3,672	3%	$79,254
Full-Service Restaurants	83,459	96,774	13,315	16%	$24,844
Local Government, Excluding Education and Hospitals	65,721	63,738	(1,983)	(3%)	$87,072
Supermarkets and Other Grocery (except Convenience) Stores	52,790	57,533	4,743	9%	$26,275
State Government, Excluding Education and Hospitals	50,691	52,626	1,935	4%	$100,906
Corporate, Subsidiary, and Regional Managing Offices	48,619	54,525	5,906	12%	$141,772
Offices of Physicians (except Mental Health Specialists)	43,212	47,203	3,990	9%	$120,788
Janitorial Services	38,648	39,755	1,107	3%	$27,383

Source: EMSI data for Boston, Cambridge, Newton MA-NH, 2009-2014.

TRADITIONAL LMI: SELECT BOSTON OCCUPATIONS

Occupation	2009 Jobs	2014 Jobs	Change	% Change	Median Earnings
Industrial Production Managers	3,016	3,027	11	0%	$47.79
Nuclear Technicians	74	75	1	1%	$38.77
Solar Photovoltaic Installers	69	78	9	13%	$22.29
Wind Turbine Service Technicians	49	30	(19)	(39%)	$21.52
Totals	**3,208**	**3,210**	**2**	**0.1%**	**$46.74/hr**

Source: EMSI data for Boston, Cambridge, Newton MA-NH, 2009-2014.

Characteristics of traditional labor market information:

> Released at set intervals, typically every year or every five years

> Can answer questions such as:

- How many jobs are there in a particular industry/ occupation?

- Has there been job growth or decline in an industry/ occupation?

- What are the typical earnings for a particular position?

- How many jobs in an industry/ occupation will an area have in five years (projections)?

> **Real-time LMI** refers to <u>online job postings</u> and resume data obtained from Internet job boards, company websites, and newspapers using "spidering" technology.

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"Spidering" of Internet Job Boards
Job postings collected from thousands of online job boards

De-duplication
Removal of jobs posted on more than one website

Clean Up
Removal of jobs with inappropriate content
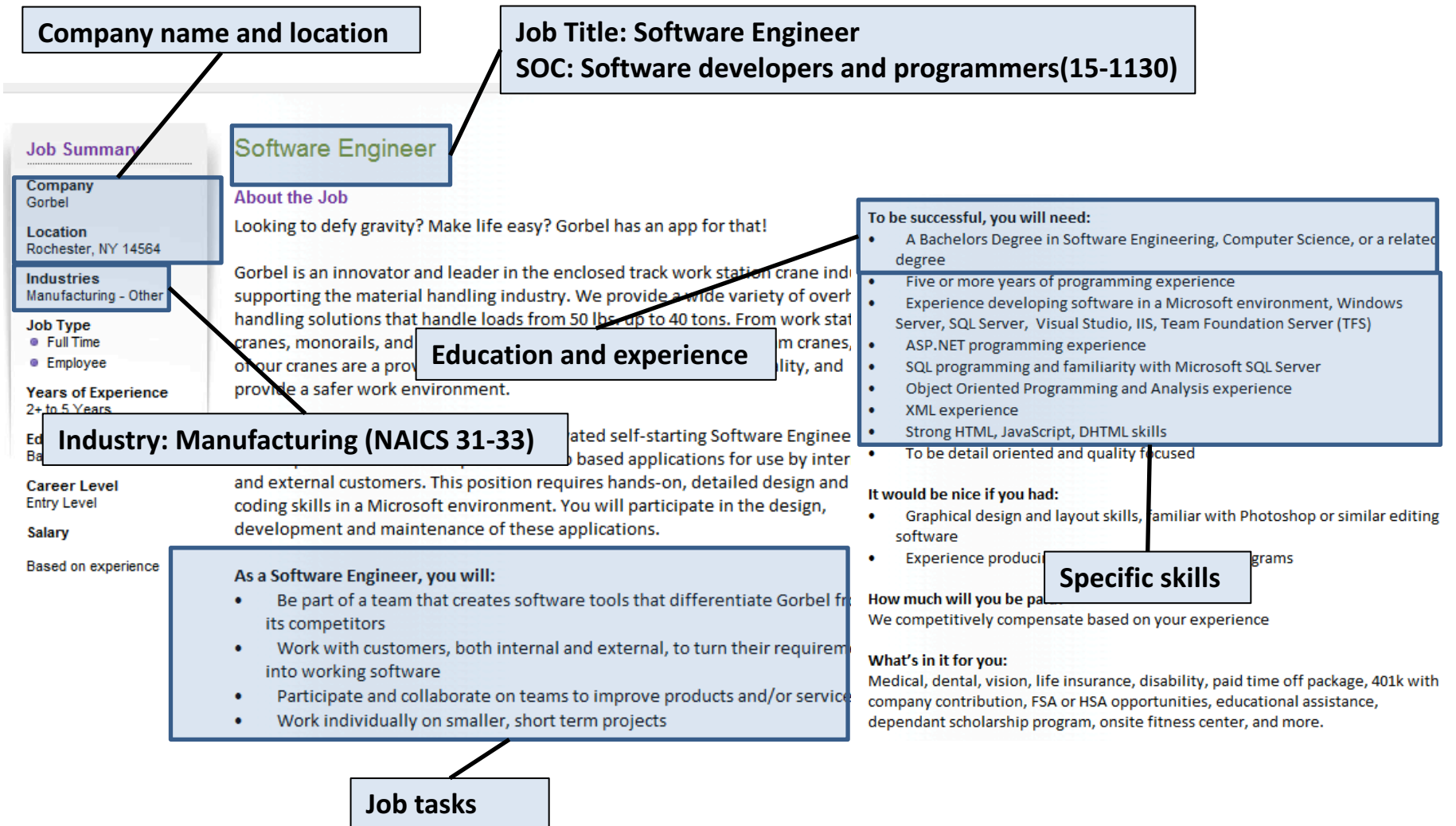
Coding
Assignments to industry, occupation, geography, skills

Company name and location

Job Title: Software Engineer
SOC: Software developers and programmers(15-1130)

Job Summary

Company
Gorbel

Location
Rochester, NY 14564

Industries
Manufacturing - Other

Job Type
- Full Time
- Employee

Years of Experience
2+ to 5 Years

Industry: Manufacturing (NAICS 31-33)

Career Level
Entry Level

Salary

Based on experience

Software Engineer

About the Job

Looking to defy gravity? Make life easy? Gorbel has an app for that!

Gorbel is an innovator and leader in the enclosed track work station crane ind
supporting the material handling industry. We provide a wide variety of overh
handling solutions that handle loads from 50 lbs up to 40 tons. From work stat
cranes, monorails, and   m cranes,
of our cranes are a prov   lity, and
provide a safer work environment.

Education and experience

ated self-starting Software Engine
b based applications for use by inter
and external customers. This position requires hands-on, detailed design and
coding skills in a Microsoft environment. You will participate in the design,
development and maintenance of these applications.

As a Software Engineer, you will:
- Be part of a team that creates software tools that differentiate Gorbel fr
its competitors
- Work with customers, both internal and external, to turn their requirem
into working software
- Participate and collaborate on teams to improve products and/or service
- Work individually on smaller, short term projects

Job tasks

To be successful, you will need:
- A Bachelors Degree in Software Engineering, Computer Science, or a related degree
- Five or more years of programming experience
- Experience developing software in a Microsoft environment, Windows Server, SQL Server, Visual Studio, IIS, Team Foundation Server (TFS)
- ASP.NET programming experience
- SQL programming and familiarity with Microsoft SQL Server
- Object Oriented Programming and Analysis experience
- XML experience
- Strong HTML, JavaScript, DHTML skills
- To be detail oriented and quality focused

It would be nice if you had:
- Graphical design and layout skills, familiar with Photoshop or similar editing software
- Experience produci   grams

Specific skills

How much will you be pa
We competitively compensate based on your experience

What's in it for you:
Medical, dental, vision, life insurance, disability, paid time off package, 401k with company contribution, FSA or HSA opportunities, educational assistance, dependant scholarship program, onsite fitness center, and more.

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KEY CHARACTERISTICS AND STRENGTHS

> **Timeliness:** Vendors spider up to 20,000 sites daily.

> **Quality assurance:** Complex algorithms to increase integrity and reliability of data provided for analysis and decision making. Some benchmark against Job Opening and Labor Turnover Survey (JOLTS).

> **Current hiring trends:**

– In-demand experience levels, education requirements, skills and certifications

– Not based on estimates or projections

– Does not require active employer participation

– Key word searches allow us to find information on new and emerging industries and occupations

- Job Title Search – Health Informatics, medical coder

- New Industry Search – Nanotechnology

- Emerging skills – "cloud computing or apps developer"

Source: JFF (http://www.jff.org/publications/education/vendor-product-review-consumers-guide-re/1417)

Well Represented

- Arts, design, entertainment

- Building and grounds cleaning and maintenance

- Food preparation and serving related

- Legal

- Office & Administrative

- Personal Care and service

- Production

- Protective Services

- Sales & Retail positions

- Transportation & Material moving

Under Represented

- Construction

- Farming

- Community and social services*

- Military Specific*

* RT LMI algorithms have difficulty with these postings

Source: Burning Glass

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NOT ALL JOB ADVERTISMENTS ARE CLEAR CUT

| Overview | Duties | Qualifications & Evaluations | Benefits & Other Info | How to |

Bureau Of Prisons / Federal Prison System

Job Title: Correctional Officer
Department: Department Of Justice
Agency: Justice, Bureau of Prisons/Federal Prison System
Sub Agency: Federal Bureau of Prisons
Job Announcement Number: BOP-N-0007-002-2012

SALARY RANGE: $38,619.00 to $51,193.00 / Per Year

OPEN PERIOD: Friday, March 02, 2012 to Saturday, March 02, 2013

SERIES & GRADE: GL-0007-05/06

POSITION INFORMATION: Full Time - Permanent

PROMOTION POTENTIAL: 07

DUTY LOCATIONS: MANY vacancy(s) - Prisons-Nationwide

How many is MANY?!   Where?!

Source: USA Jobs: http://www.usajobs.gov/GetJob/ViewDetails/310926400

Top Boston-Area Hospital Employers
(18,287 job postings)

Employer	Job Postings
Partners Healthcare	1,920
Kindred Healthcare Incorporated	1,379
Childrens Hospital Boston	979
Boston Medical Center	948
Massachusetts General Hospital	718
Boston Children's Hospital	699
Beth Israel Deaconess Medical Center	649
Hospital Corporation of America	613
Harvard Vanguard Medical Associates	519
MetroWest Medical Center	417
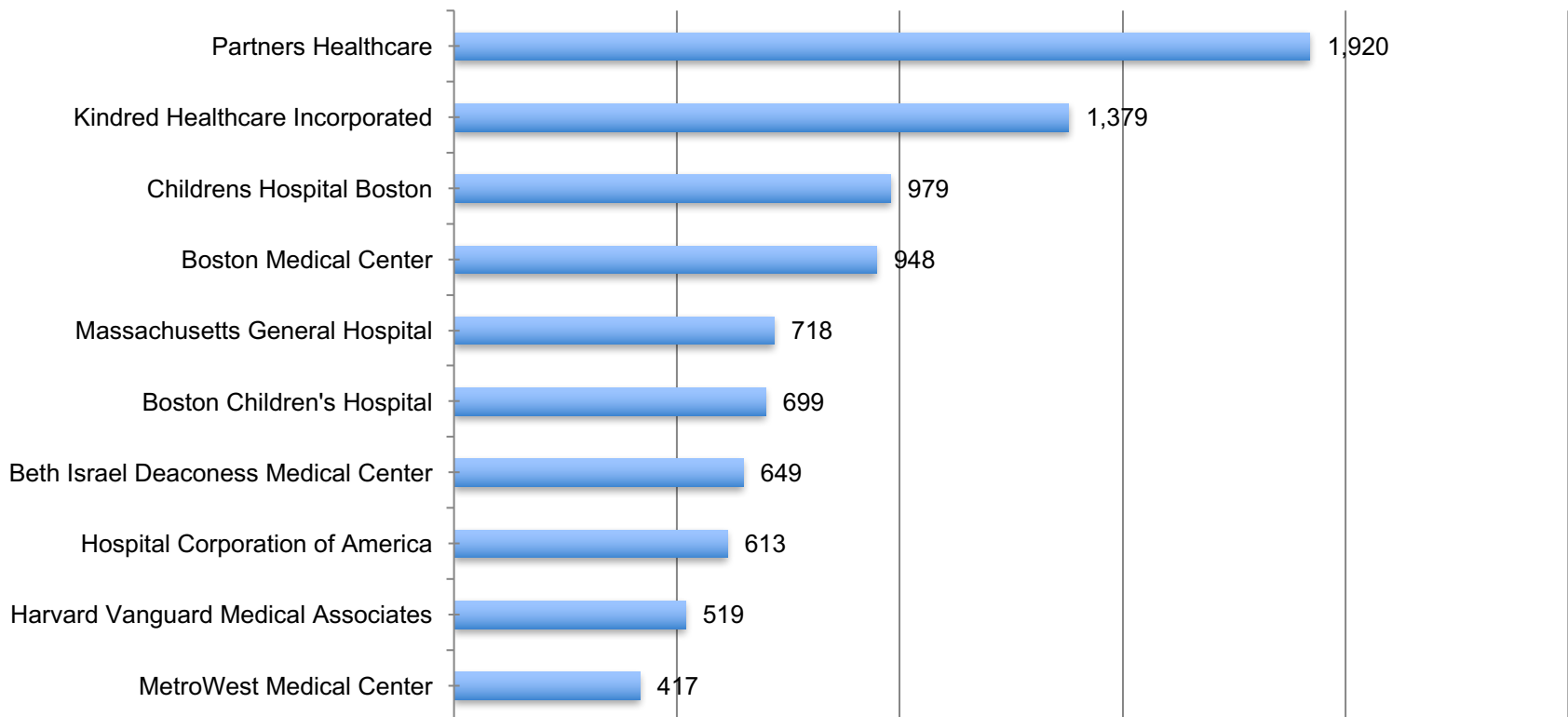
Source: Burning Glass Labor/Insight data for Boston, Cambridge, Quincy MA-NH, 1/14-12/14

Top Boston-Area Skills for the Hospital Industry
(18,287 total job postings)
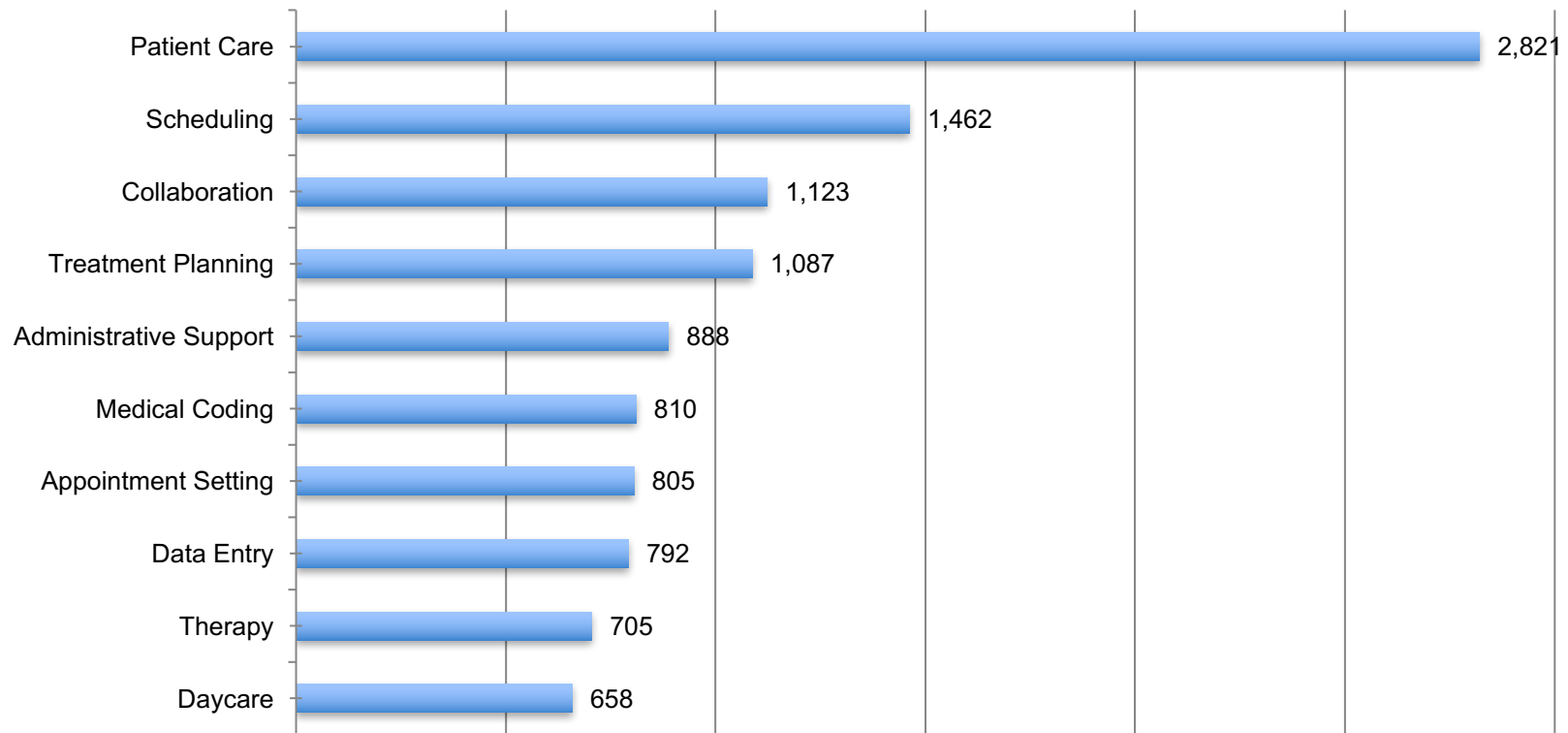
Skill	Job Postings
Patient Care	2,821
Scheduling	1,462
Collaboration	1,123
Treatment Planning	1,087
Administrative Support	888
Medical Coding	810
Appointment Setting	805
Data Entry	792
Therapy	705
Daycare	658

Source: Burning Glass Labor/Insight data for Boston, Cambridge, Quincy MA-NH, 1/14-12/14

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Characteristics of RT LMI:

– Collected frequently—typically every day

– Can answer questions such as:

- Which businesses are hiring in a particular region?

- What skills are employers seeking in a specific industry or occupation?

- What certifications are in high demand for an occupation?

- What type of candidates are employers looking to hire?

- Other information on current trends, emerging occupations, and current and emerging skill requirements.

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LABOR MARKET INFORMATION SUMMARY

	Benefits	Limitations
Traditional LMI	Reliable and robust	Looks backward to forecast; lacks current labor market perspective
	Consistent and methodologically rigorous	Significant lag time between data collection and publication
	Regional comparisons	Lacks data on employers' requirements
	Public, no-cost distribution	May not effectively capture emerging occupations/skills requirements/certifications
Real-time LMI	Reveals new and emerging trends in occupational definitions	Some duplication errors (though this is less of a problem as the technology improves)
	Offers insight into the skills and certifications sought by employers	Certain types of jobs, including the trades (construction, manufacturing) are underrepresented in the data.
	Identifies early indications of market shifts; data is collected regularly	Online job ads can be vague or incomplete
	Tracks hiring demand	Not every job posting represents an actual vacancy
	Consistently updated	Proprietary software—users must purchase licenses

> Traditional LMI and RT LMI both offer valuable information on local labor markets; they are best employed as *complementary* resources—since each has benefits and limitations.

Part 2: Assessing Your Local Labor Market

> Identify the labor market demand in your area for target occupation(s)

> Identify the labor supply in your area for target occupation(s)

> Download the Supply and Demand Data Elements Matrix

- Identify program(s) of focus

- Identify target occupation(s)

- Determine geographic unit of analysis (MSA, counties that comprise the college catchment area, etc.)

Required Data Elements (sample)				
Institution/Initiative:				
Program(s):				
GENERAL				
BACKGROUND				
Data Collection Category	*Data*	*Data Source*		*Description/Comments*
Institution Name				Select college(s) / programs to examine
Community College Traditional Demand LMI Search Area				Area served by community college
Community College Real-Time Demand LMI Search Area				Select WIA, Enrollment Cluster, or MSA
LABOR MARKET DEMAND				
TRADITIONAL DEMAND				
Data Collection Category	*Data*	*Data Source*		*Description/Comments*
				2014 hourly occupational employment. Da... from the May 2013 Occupational Employm...
Job Title (Standard Occupational Classification #)		ONet Code Connector: https://www.onetcodeconnector.org		OES methodology but have not been revie...
				Provides percent distribution of educationa...
Educational/Training Classification		http://www.bls.gov/emp/ep_table_111.htm		2013. State occupational projections provi...
2015 Jobs		http://www.maine.gov/labor/cwri/outlook.html		The average wages by occupational group...
2024 Jobs		http://www.maine.gov/labor/cwri/outlook.html		10-year occupational projections
10 Yr % Change		http://www.maine.gov/labor/cwri/outlook.html		10-year occupational projections; this num...
Projected Annual Openings		http://www.maine.gov/labor/cwri/outlook.html		Annual total openings.
				Occupational Employment and Wage Estim... are estimates of the number of people emp...
2013 Jobs		http://www.bls.gov/oes/current/oes_me.htm#top		not included. This data can be sorted by sp...
2013 Average Annual Wage		http://www.bls.gov/oes/current/oes_me.htm#top		OES
REAL-TIME DEMAND				
Data Collection Category		*Data Source*		*Description/Comments*
2014 Job Postings		http://laborinsight.burning-glass.com/		Utilize annual time frame or any other time...
2015 Job Postings		http://laborinsight.burning-glass.com/		Utilize annual time frame or any other time...

> Institution: Bunker Hill Community College (Boston, MA)

> Program: Energy and Sustainability Management Certificate Program

> Occupation: Environmental Science and Protection Technicians, Including Health (SOC 19-4091)

> Geographic area: Boston MSA

Occupation Change Summary
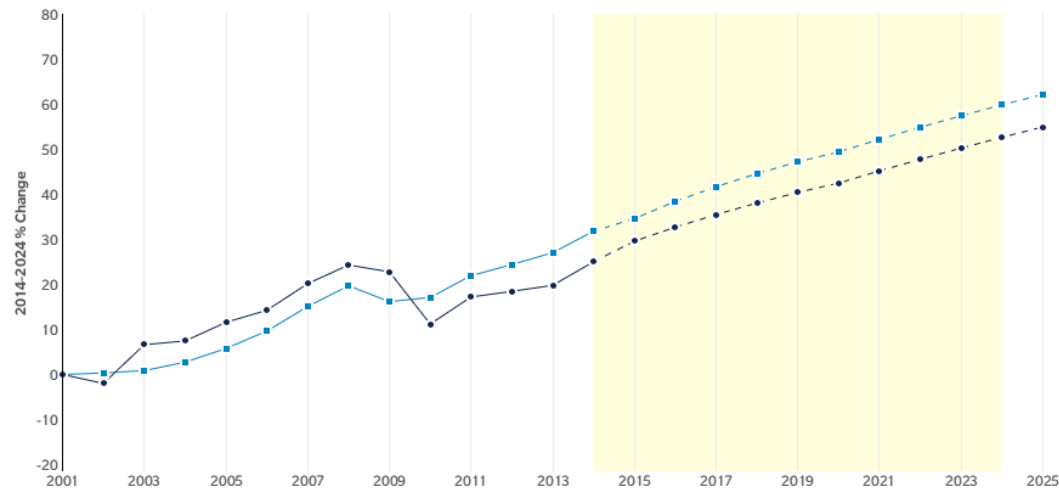
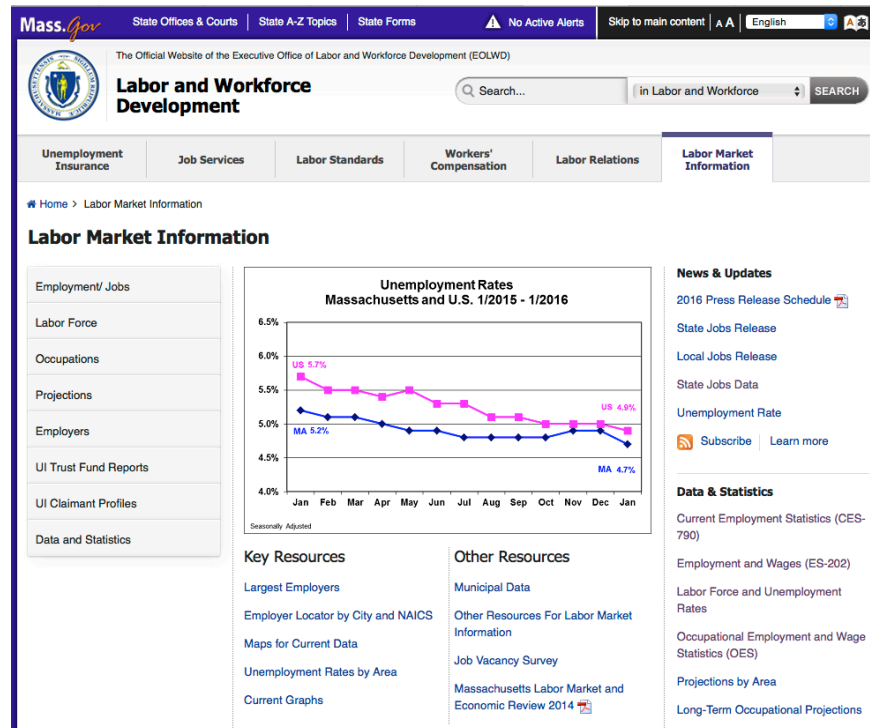| Region	2014 Jobs	2024 Jobs	Change	% Change	Median Hourly Earnings
Boston-Cambridge-Newton, MA-NH	771	942	171	22%	$24.80
United States	39,392	47,774	8,382	21%	$22.59

Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for both the Boston MSA and nationally. 2016.Q1 Dataset.

TOP 5 INDUSTRIES: ENVIRONMENTAL SCIENCE AND PROTECTION TECHNICIANS

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Industries Employing Environmental Science and Protection Technicians, Including Health ❓   Jump to Inverse Staffing Patterns ✂

Industry	Occupation Jobs in Industry (2015)	% of Occupation in Industry (2015)	% of Total Jobs in Industry (2015)
🏢 Administrative Management and General Management Consulting Services	130	16.3%	0.5%
🏢 State Government, Excluding Education and Hospitals	58	7.2%	0.1%
🏢 Marketing Consulting Services	58	7.2%	0.4%
🏢 Testing Laboratories	57	7.1%	2.1%
🏢 Local Government, Excluding Education and Hospitals	54	6.8%	0.1%

Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for both the Boston MSA and nationally. 2016.Q1 Dataset.

ENVIRONMENTAL SCIENCE AND PROTECTION TECHNICIANS: NATIONAL COMPARISON

MSA Name	2014 Jobs	2024 Jobs	2014 - 2024 Change	2014 - 2024 % Change	Median Hourly Earnings
New York-Newark-Jersey City	2,843	3,313	470	17%	$25.66
Houston	1,193	1,467	274	23%	$21.73
Los Angeles	1,176	1,609	433	37%	$25.51
Chicago	1,172	1,433	261	22%	$21.11
Philadelphia	862	993	131	15%	$20.28
San Francisco	794	1,017	223	28%	$25.93
Washington, DC	791	1,089	298	38%	$27.55
Boston	771	942	171	22%	$24.80
Dallas	654	857	203	31%	$23.62

Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for MSAs across the nation. 2016.Q1 Dataset.

JOBS FOR THE FUTURE

Living wage information for the Boston Metropolitan Statistical Area:

Source: MIT Living Wage Calculator. Data retrieved from:
http://livingwage.mit.edu/counties/51510

Hourly Wages	1 Adult	1 Adult 1 Child	1 Adult 2 Children	1 Adult 3 Children	2 Adults (One Working)
Living Wage	$13.30	$27.26	$31.34	$38.30	$19.69
Poverty Wage	$5.00	$7.00	$9.00	$11.00	$7.00
Minimum Wage	$8.00	$8.00	$8.00	$8.00	$8.00

Typical Expenses

These figures show the individual expenses that went into the living wage estimate.

Annual Expenses	1 Adult	1 Adult 1 Child	1 Adult 2 Children	1 Adult 3 Children	2 Adults (One Working)
Food	$3,509	$5,176	$7,786	$10,321	$6,434
Child Care	$0	$10,125	$13,602	$17,079	$0
Medical	$2,667	$6,416	$6,204	$6,268	$5,141
Housing	$11,661	$16,368	$16,368	$20,507	$13,013
Transportation	$3,764	$6,855	$7,901	$9,258	$6,855
Other	$2,096	$3,644	$3,987	$4,819	$3,644
Required annual income after taxes	$23,698	$48,583	$55,848	$68,252	$35,088
Annual taxes	$3,962	$8,123	$9,338	$11,412	$5,867
Required annual income before taxes	$27,660	$56,706	$65,185	$79,664	$40,955

PROJECTED GROWTH BY MSA: 2014-2024
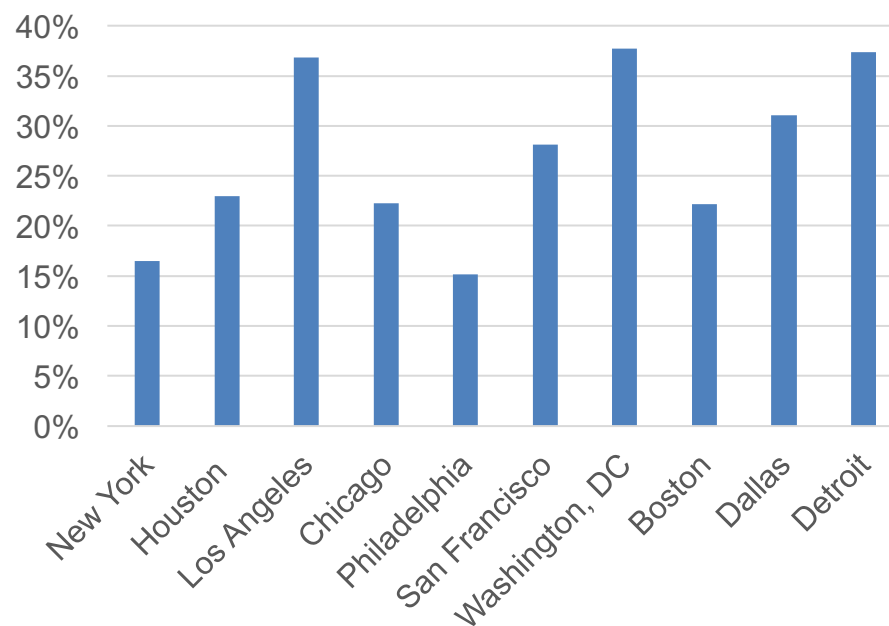
Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for MSAs across the nation. 2016.Q1 Dataset.

TAKE ADVANTAGE OF YOUR STATE LMI SHOP

JOBS FOR THE FUTURE

OCCUPATIONAL EMPLOYMENT STATISTICS (OES)

NEXT STEPS: IDENTIFY REAL-TIME DEMAND

TOP INDUSTRY SECTORS: ENVIRONMENTAL SCIENCE AND PROTECTION TECHNICIANS
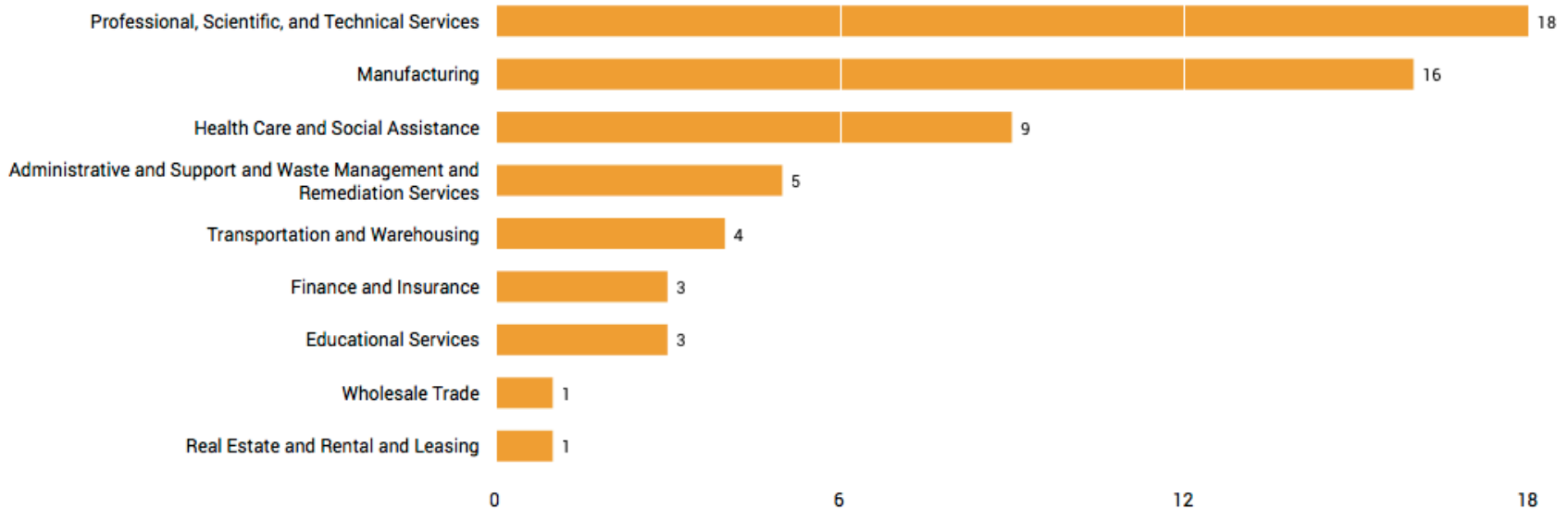
Industry Sector	Count
Professional, Scientific, and Technical Services	18
Manufacturing	16
Health Care and Social Assistance	9
Administrative and Support and Waste Management and Remediation Services	5
Transportation and Warehousing	4
Finance and Insurance	3
Educational Services	3
Wholesale Trade	1
Real Estate and Rental and Leasing	1

Source: Burning Glass Labor/Insight data for Environmental Science and Protection Technicians, Including Health in the Boston MSA. Data from 3/1/2015-2/29/2016. 127 total postings.

Distribution of education and experience: environmental science and protection technicians
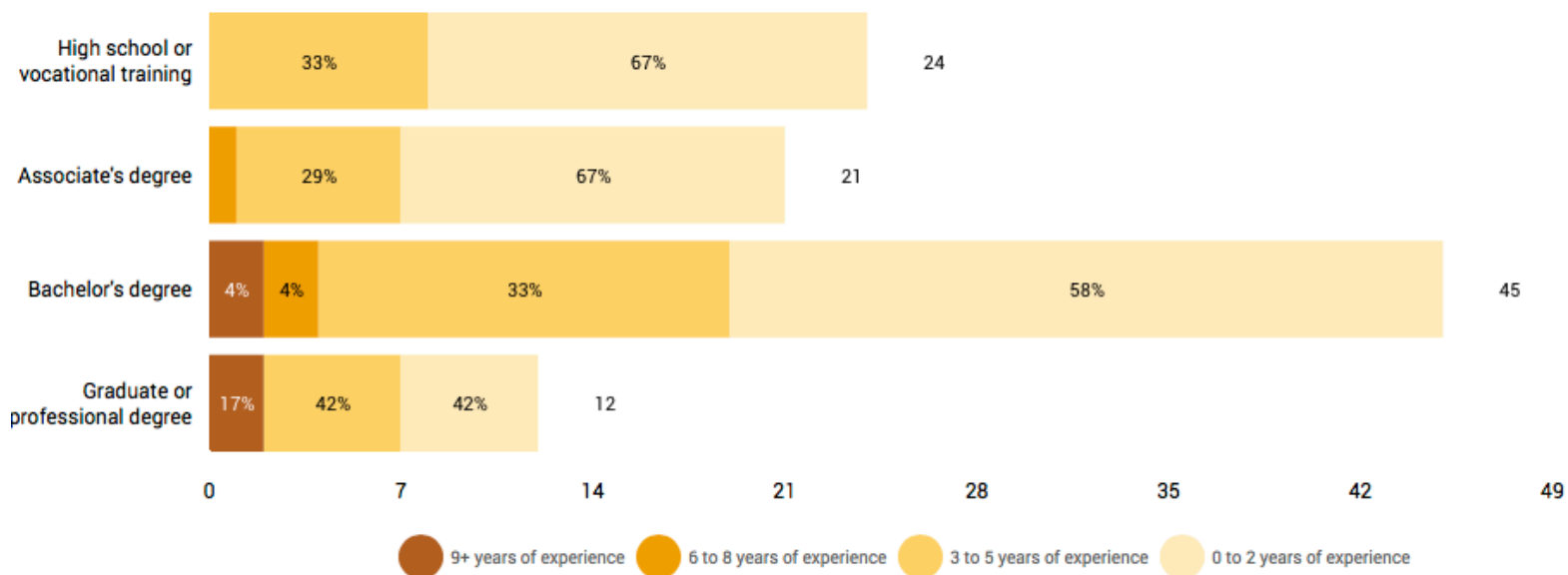
Source: Burning Glass Labor/Insight data for Environmental Science and Protection Technicians, Including Health in the Boston MSA. Data from 3/1/2015-2/29/2016. 127 total postings.

> Identify the labor market demand in your area for target occupation(s)

> Identify the labor supply in your area for target occupation(s)

> You may also want to research (from state or other resources):

– Number of individuals who completed a related CIP program statewide (or regionally), to include other training institutions in your area

Occupational Programs

4	373	63
Programs (2013)	Completions (2013)	Openings (2013)

CIP Code	Program	Completions (2010)	Completions (2011)	Completions (2012)	Completions (2013)	Completions (2014)
03.0103	🎓 Environmental Studies	79	85	100	227	228
03.0104	🎓 Environmental Science	64	89	93	136	162
41.0399	🎓 Physical Science Technologies/Technicians, Other	4	12	6	10	11
41.9999	🎓 Science Technologies/Technicians, Other	0	0	0	0	0

Source: EMSI Analyst. Data for Environmental Science and Protection Technicians, Including Health (19-4091) for MSAs across the nation. 2016.Q1 Dataset.

> Calculate the following:

– **Ratio of number employed to number of job postings**

This ratio estimates the number of experienced workers who may compete for a given job opportunity

– **Ratio of college completions to projected annual openings**

This is an indication of the number of graduates competing for a typical opening

– **Subtract the number of completions from the projected annual openings**

This provides an indication of whether supply is meeting demand

JOBS FOR THE FUTURE

LABOR SUPPLY & STUDENT OUTCOMES			
Data Collection Category	*Data*	*Data Source*	*Description/Comments*
Community College Program		Institution / College	Identify programs for analysis. C
2014-2015 Number of Students by Program		Institution / College	2013-2014
2014-2015 Number of Graduates by Program		Institution / College	Provide completion by program f
2014-2015 All Completions		Institution / College	Provide completion by program f
Job Placement/Entered Employment (number or percentage)		Schools can choose to supply placement information based on student surveys (e.g. Perkins) or use institution/ college data	Provide completion by program f match); only includes those maki
Data Collection Category		*Data Source*	*Description/Comments*
Ratio of 2013 Employed to 2013 Job Postings		CWRI and Burning Glass Labor/ Insight	Analysis of employment and job a job opportunity.
Ratio of All Completions to Projected Annual Openings		Institution/ College and CWRI	Analysis of completions and job projected job opening.
Projected Annual Openings Minus Completions		Institution/ College and CWRI	Comparison of job postings and
OTHER RELEVANT DATA			
Data Collection Category			
Area living wage		MIT living wage calculator: http://livingwage.mit.edu	
Other relevant industry or employment trends			

Integrate local and institutional knowledge into the analysis!

Local Drivers
Traditional LMI
Real-Time LMI
Program Graduate Outcomes
Employer Demands
Institutional Priorities
Staff Expertise

GE confirms it's heading to Boston

204

BENOIT TESSIER/REUTERS/FILE

The company began looking to leave Fairfield, Conn., last year after state legislators threatened to raise corporate taxes.

Source: Boston Globe, January 13, 2016, retrieved via: https://www.bostonglobe.com/business/2016/01/13/general-electric-will-announce-tomorrow-that-has-selected-boston-for-global-headquarters-according-official-familiar-with-process/ZYZSu7GorfVTRXM2ZIaabJ/story.html

JOBS FOR THE FUTURE

Part 3: Identifying In-Demand Skills and Credentials

> Understand the rationale behind skills mapping

> Identify the basic concepts related to sustainability skills and how they can be examined

> Use Labor/Insight to and other LMI resources to identify in-demand skills and credentials

Example: Sustainability Skills

> Customize your search to your college's needs, for example take advantage of BG's:

- Green Skill Cluster

- Specialty Sector: Green Occupations (based on the O*Net list of 'greening' occupations)

- Keyword search: Search for a specific sustainability skill (e.g., conservation, weatherization)

LABOR☀INSIGHT/JOBS

RT LMI can highlight the top local occupations for a particular skill

Occupation	Value
Maintenance and Repair Workers, General (49-9071.00)	315
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (41-4012.00)	177
Electricians (47-2111.00)	168
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (43-6014.00)	158
Solar Photovoltaic Installers (47-2231.00)	130
Construction Managers (11-9021.00)	124
Administrative Services Managers (11-3011.00)	123
Surveyors (17-1022.00)	120

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Period: 3/1/2015-2/29/2016
Filter: Sub-BA (inferred) and Green Skill Cluster
Postings: 4,029

TOP "GREEN SKILL" MANUFACTURING AND PRODUCTION OCCUPATIONS

RT LMI can highlight the top occupations within a sector (or occupational cluster), based upon specific skills
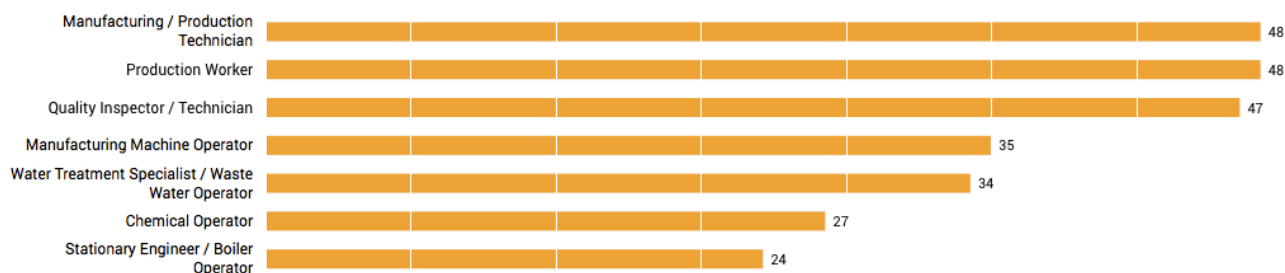
Occupation	Postings
Manufacturing / Production Technician	48
Production Worker	48
Quality Inspector / Technician	47
Manufacturing Machine Operator	35
Water Treatment Specialist / Waste Water Operator	34
Chemical Operator	27
Stationary Engineer / Boiler Operator	24

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Period: 3/1/2015-2/29/2016
Filter: Sub-BA (inferred), Green Skill Cluster, BGTOCC: Manufacturing and Production
Total Postings: 380 postings

APPLY RT LMI TO UNDERSTAND BASELINE SKILLS FOR MACHINISTS

RT LMI can identify high-demand soft skills by occupation
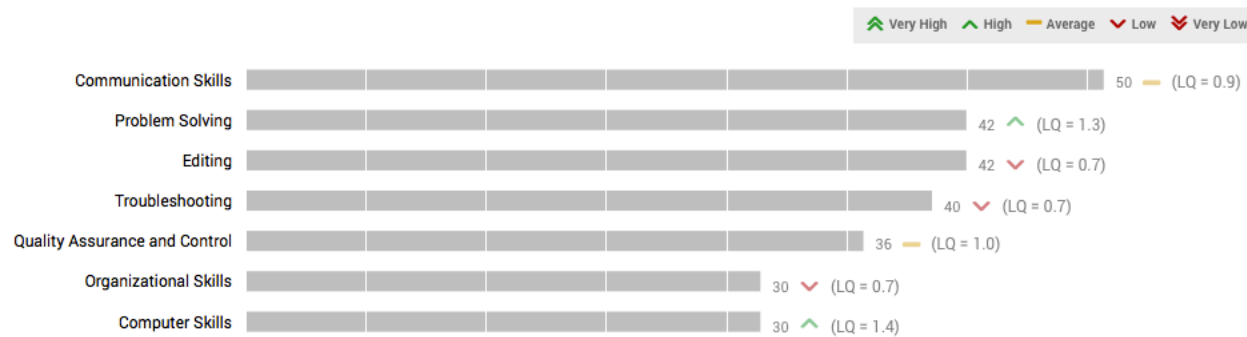
		Very High	High	Average	Low	Very Low

Skill	Value		LQ
Communication Skills	50	—	(LQ = 0.9)
Problem Solving	42	∧	(LQ = 1.3)
Editing	42	∨	(LQ = 0.7)
Troubleshooting	40	∨	(LQ = 0.7)
Quality Assurance and Control	36	—	(LQ = 1.0)
Organizational Skills	30	∨	(LQ = 0.7)
Computer Skills	30	∧	(LQ = 1.4)

Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Period: 3/1/2015-2/29/2016
Filter: Machinists
Total Postings: 467 (95 unspecified)

APPLY RT LMI TO UNDERSTAND CREDENTIALS AND CERTIFICATIONS

JOBS FOR THE FUTURE

RT LMI can highlight in-demand credentials
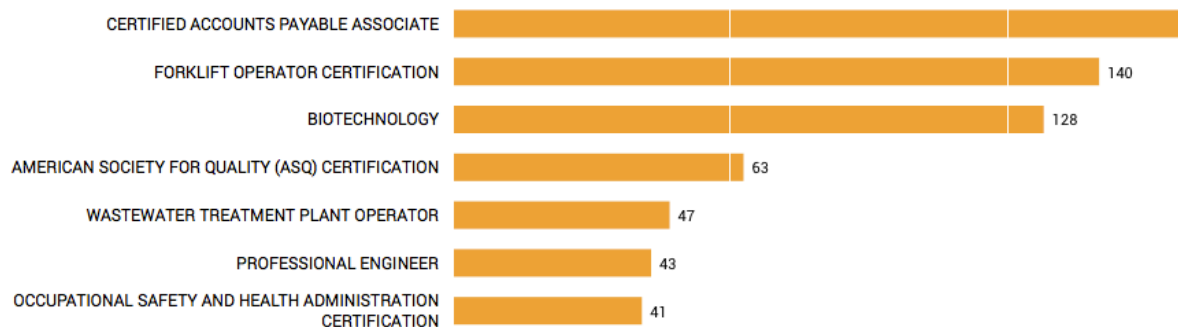
Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Period: 3/1/2015-2/29/2016
Filter: Manufacturing and Production family (BGTOCC)
Total Postings: 12,277 (11,145 unspecified)

Minimum Education Requirements
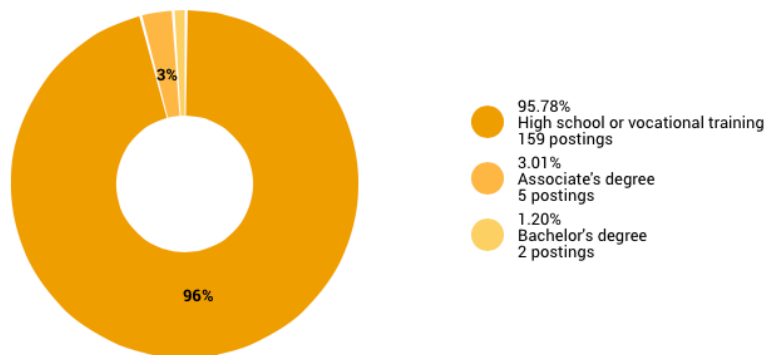
Advertised Education

95.78%
High school or vocational training
159 postings

3.01%
Associate's degree
5 postings

1.20%
Bachelor's degree
2 postings

High school or vocational training — 39.53%
Associate's degree — 22.09%
Bachelor's degree — 43.02%
Graduate or professional degree — 19.77%
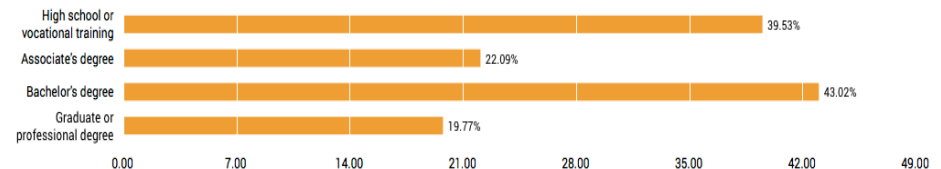
Source: Burning Glass Labor/Insight Jobs
Region: Boston MSA
Period: 3/1/2015-2/29/2016
Filter: Mechanical Engineering Technician (70-3027)
Total Postings:160 (74 unspecified)

Source: http://www.careeronestop.org/credentials/toolkit/find-certifications.aspx?keyword=51-4041.00&ajax=occ&direct=0

STRATEGIC PLANNING / DEMAND PROGRAMMING

- **AUDIENCE:** Boards of trustees, senior institutional leadership (education, economic and workforce development)
- **SOURCE:** Long term projections, state and regional economic analyses, industry and trade studies, real-time LMI, employer input
- **PRACTICE**: Allow better understanding of current hiring conditions in your state or region

BUSINESS OUTREACH / RETENTION

- **AUDIENCE:** Boards, senior institutional leaders, deans, department chairs, instructors
- **SOURCE:** Long term occupational projections, job vacancy studies, real-time LMI, regional economic analysis, employer input
- **PRACTICE**: Inform outreach efforts by identifying growth industries and companies

CURRICULA MODIFICATION

- **AUDIENCE:** Instructors, department chairs, deans
- **SOURCE:** Real-time LMI, traditional LMI (O*NET), employer input, postsecondary program review
- **PRACTICE**: Confirm or refute the insights of experts or anecdotal evidence. Conduct dynamic skills audit.

STUDENT CAREER GUIDANCE

- **AUDIENCE:** Counselors, workforce development staff, department chairs, deans, lenders, students
- **SOURCE:** Occupational employment statistics and projections, real time LMI, employer input, postsecondary program review
- **PRACTICE**: Help identify specific job opportunities, show areas of demand for transitioning workers, description of common job activities and career planning

	COMPUTER AND NETWORK TECHNOLOGY							
	Ability	Curriculum/Where Taught	Faculty Comments	Gap?	Employer Comments			
	COMPUTER AND NETWORK TECHNOLOGY							
	Ability	Curriculum/Where Taught	Faculty Comments	Gap?	Employer Comments			
Baseline/Professional Skills	Ethical, legal, professional behavior	A+ Certification Prep						Large Gap
	Oral comprehension & expression	COM 221 Tech Comm						Partial Gap
	Written comprehension & expression	COM 221 Tech Comm						Ability Met
	Customer service	A+ Certification Prep						
	Active listening	All COE Courses						
	Critical thinking	All COE Courses						
	Time Management	All COE Courses						
	Active learning	All COE Courses						
	Instructing/Training	All COE Courses						
	Stress Tolerance	All COE Courses						
Software/IT Skills	Backup/Archival	A+ & Net+ Cert Prep						
	Config Management	COE135 Network Admin						
	Database/Query	Not in curriculum						
	Desktop Communications	A+ Certification Prep						
	OS Admin Tools and Software	COE135 Network Admin						
	Network & Device Security	Sercurity+ Cert Prep						
	VPN and Virtualization	A+ & Sercurity+ Cert Prep						
Tools and Technology	*Tools*							
	Computer hand tool kits	A+ Certification Prep						
	Network analyzers	Net+ Certification Prep						
	Screwdrivers	All COE Courses						
	Multimeter	A+ Certification Prep						
	Basic electrical knowledge	COE 219 Digital Basics for Comp Techs						
	Technology							
	Email	All COE Courses						
	Tele/Cell Phone	All COE Courses						

Part 4: USING LMI TO ENHANCE EMPLOYER ENGAGEMENT

JOBS FOR THE FUTURE

> Understand the rationale for community colleges to engage with employers

> Differentiate the various types of employer engagement and understand how such engagements can build over time

  – Categorize your own relationships with employers and their potential to broaden/deepen

> Use labor market data and other resources to identify local employers for engagement

> Employer engagement is a mutually beneficial partnership between employers and education/workforce system.

> Some examples include:

  – Recruiting on campus

  – Advising students

  – Providing curricular/ program feedback and expertise

  – Offering work-based learning opportunities

  – Developing sectoral partnerships

Source: CTW

EMPLOYER ENGAGEMENT HAS WIDE-RANGING BENEFITS

Students	Colleges	Employers
• Better understanding of potential career pathways and the skills, credentials, and certifications necessary to pursue a particular occupation • Work-based learning opportunities • Additional networking, advising, and other informal opportunities to interact with employers	• Access to additional resources • Additional knowledge related to the local business landscape (and understanding of what employers actually need) • Improved credibility and relationships within the community	• Improved talent pipeline • Higher employee retention, increased productivity • Improved reputation within the community

TYPES OF EMPLOYER ENGAGEMENT

Advising
- Provide insight into curricula, hiring needs

Capacity Building
- Provide speakers, internships, in-kind donations

Co-Designing
- Develop curricula and pathways for students

Convening
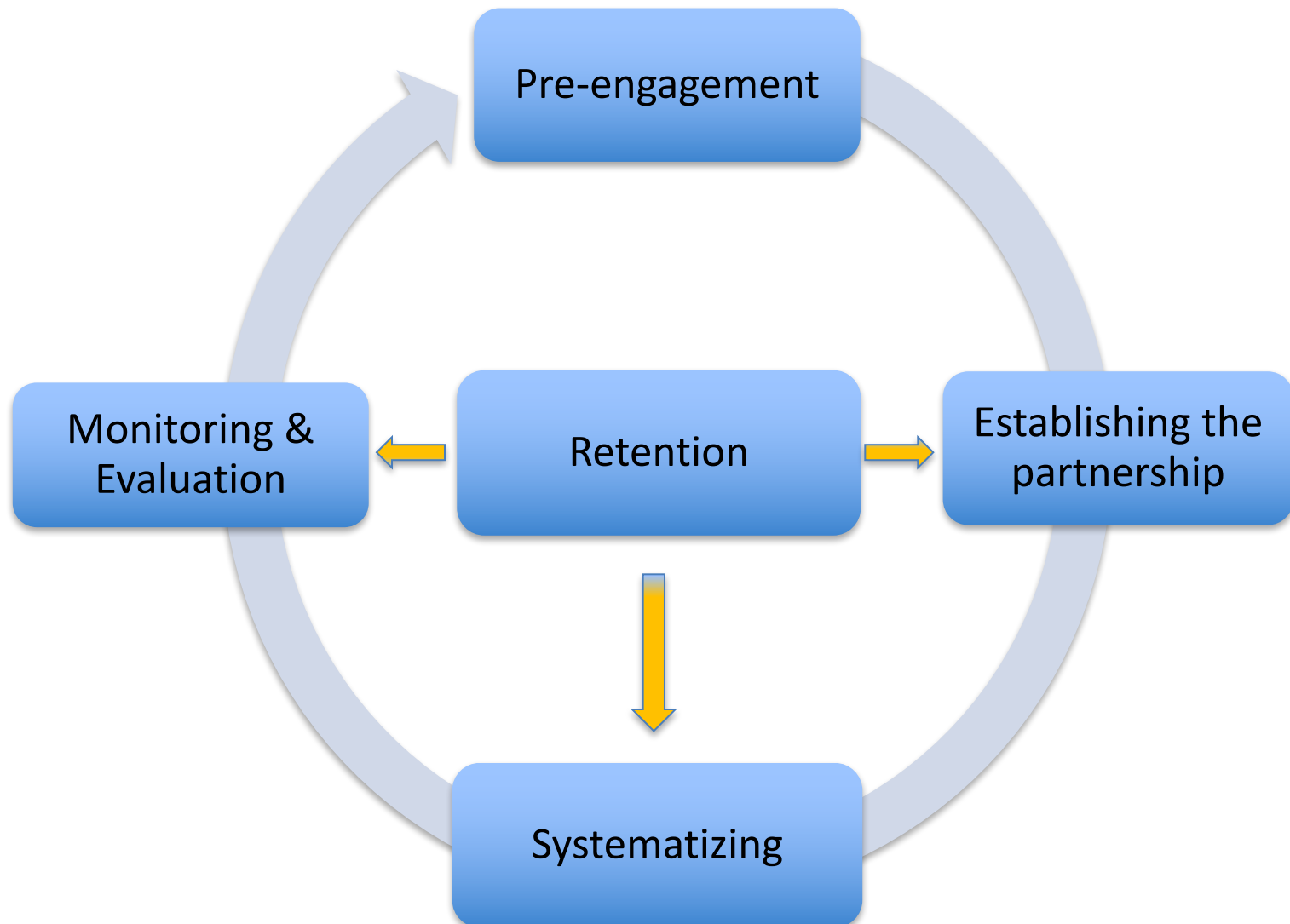- Develop sectoral partnerships between employers and colleges

Leading
- Develop multi-employer, multi-college partnerships

Adapted from: Randall Wilson (2015). A Resource Guide to Engaging Employers. Retrieved from: XXXXX

> Take stock of any existing relationships your school has with employers; these could include those who contribute via:

- Work-based learning partnerships

- Participation in curricular review committees

- Recruiting or offering career expertise to students

UNDERSTANDING THE EMPLOYER PERSPECITVE: STEPS

> Use LMI and other resources to research local industries, occupations, relevant

> Identify "target" employers that are hiring for a particular occupation

> Understand the skills and industry-recognized certifications employers seek for new hires in this occupation.

> Develop a set of guiding questions (adapted to reflect the occupation and industry of interest)

> Conduct informational interviews with employers (or advisory councils) to gather additional data on job requirements, preferred qualifications, etc.

> Summarize findings from interviews and labor market research

> Develop an action plan

> Queries that can provide useful data for employer engagement efforts:

  – Top employers

  – Top detailed industries

  – In-demand skills and certifications

  – And more—take the time to explore!

HOW LMI CAN HELP INFORM YOUR EMPLOYER ENGAGEMENT EFFORTS

JOBS FOR THE FUTURE

Employer

- Improved talent pipeline of skilled workers
- Better employee retention and increased labor productivity
- Improved reputation in the community

Education/Workforce System

- Identify Hiring Employers
- Identify relevant training and skills for in-demand positions
- Validate growth trends with employers
- Help structure conversation with employers
- Develop cost-effective training solutions for companies

Students

- Better knowledge of potential career pathways and the necessary certifications and credentials to pursue these pathways

Adapted from: Randall Wilson (2015). A Resource Guide to Engaging Employers. Retrieved from: XXXXX

PROCESS TO IDENTIFY EMPLOYERS FOR ENGAGEMENT

JOBS FOR THE FUTURE

Industry outlook

- Examine highest ranked industries by employment size, wage, growth, or competitive effect

Occupation profiles

- Examine top occupations, job titles, wages, and skills/credentials needed for entry or progression

Employer targets

- Identify employers to target for engagement

RESOURCES AND ADDITIONAL READING

> Aspen Institute: http://www.aspeninstitute.org/policy-work/college-excellence/college-excellence-blog/using-labor-market-data-improve-student-success

> Making use of labor market information: http://www.ccsf.edu/dam/Organizational_Assets/Department/Career_And_Technical_Education/Making%20Use%20of%20Labor%20Market%20Info.pdf

> Bureau of Labor Statistics: http://www.bls.gov/

> Department of Labor, Employment & Training Agency: http://www.doleta.gov/

> Labor Market Information WIN-WIN Network Community of Practice: https://winwin.workforce3one.org/page/home

> LMI Training Institute: http://www.lmiontheweb.org/?page=8

> State LMI Locator: careeronestop.org/red/StateLaborMarket Information.aspx

> State LMI Contact List: www.bls.gov/bls/ofolist.htm

> State Occupational Projections http://www.projectionscentral.com/

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