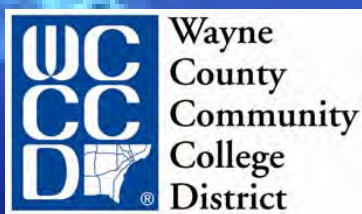




WORKFORCE INTELLIGENCE NETWORK

QUARTERLY REPORT • **CITY OF DETROIT**
Q4 2015 & 2015 Annual Summary



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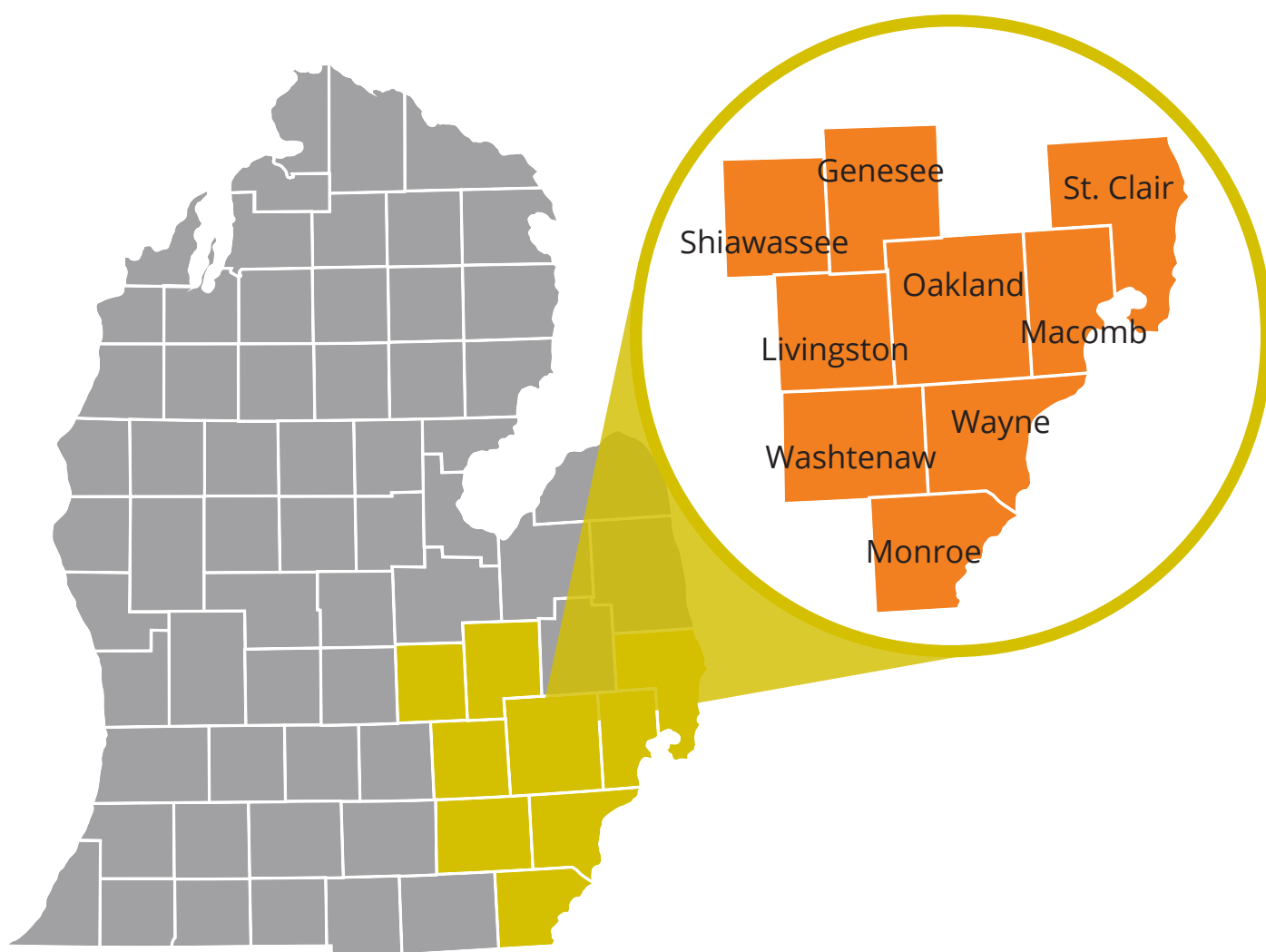
Health Care

Retail & Hospitality

Data Notes and Sources

Southeast Michigan WIN region includes
9 counties:

**Genesee, Livingston, Monroe, Macomb,
Oakland, Shiawassee, St. Clair, Washtenaw, and
Wayne.*** This report focuses on the City of Detroit.



* The original WIN partnership included the 9 counties in this report . The WIN partnership expanded to include 16 counties as of late 2015. Hillsdale, Huron, Jackson, Lapeer, Lenawee, Sanilac, and Tuscola counties were added. While this report is still focused on the original 9-county labor shed, much of the analysis (wages, location quotients, recent graduates, and educational attainment requirements), are shown in all reports for the new broader 16-county area.

SECTION ONE

EXECUTIVE SUMMARY

Findings

- ***Three-fourths of the most in-demand jobs in Detroit require at least a Bachelor's for entry-level openings (see page 7 for a list of the top jobs).***

Seventy-five percent of the top jobs in Detroit during Q4 2015 required at least a Bachelor's degree for entry-level openings. Meanwhile, census data estimates that just 12.7% of Detroit residents over the age of 25 have a Bachelor's degree. The mismatch in the education required by in-demand occupations and education attained by residents indicates that employers will have a difficult time finding talent for open positions unless they can attract individuals to Detroit. See page 7 for the top 20 jobs in-demand in Detroit.

- ***Employer demand reaches another historic level during Q4 2015 (see page 8).***

Online job postings for the City of Detroit increased from 26,050 in Q3 to 27,606 in Q4 2015 (+6.0%). Historically, postings in southeast Michigan decrease during Q4, however, Detroit bucked that trend in both 2014 and 2015. Online ads in the city have increased for a fifth consecutive quarter and reached a historic high in Q4 2015. See page 8 for City of Detroit online job postings over time.

- ***Employer demand increased in four of five occupations clusters analyzed by WIN during Q4 2015 (see page 14).***

With exception to IT, all of the occupation clusters analyzed by WIN saw an increase in postings during Q4 2015 in Detroit. The Health Care cluster returned to the top as the most in-demand sector with 4,869 online ads (17.6% of total share). Despite the decrease, occupations in the IT cluster remained in high demand with over 4,700 postings during Q4 (17.2% of total share). See page 14 for a demand overview for the five WIN clusters in Detroit.

Findings

- ***Want a recession-proof job in Detroit? Then go into health care (see pages 39-46 for details).***

Employment in the Health Care occupation cluster increased from 27,214 workers in 2014 to 27,908 in 2015 (+2.6%). The growth rate of employment in 2015 nearly tripled the 2006-2014 yearly average. The recession did not influence Health Care occupations—at least from an employment perspective—as it did with other sectors of the economy. See pages 39-46 for details on the Health Care occupation cluster.

- **Unemployment down in Detroit—but not necessarily because of people finding jobs (see pages 9-11).**

Employment in the City of Detroit continues to have slow yet steady growth as it continues to recover from the Great Recession. Although employment has started to grow, the labor force continues its steady decline. Unemployment continued its downward descent with Q4 estimates at 11.9%, or 0.8 percentage points lower than Q3's 12.7%. The November 2015 unemployment rate was 10.7%. Since the labor force decreased at a greater rate than employment, the drop in unemployment can be entirely attributed to individuals leaving the labor force rather than to individuals gaining jobs. See pages 9-11 for more information on the labor market in Detroit.





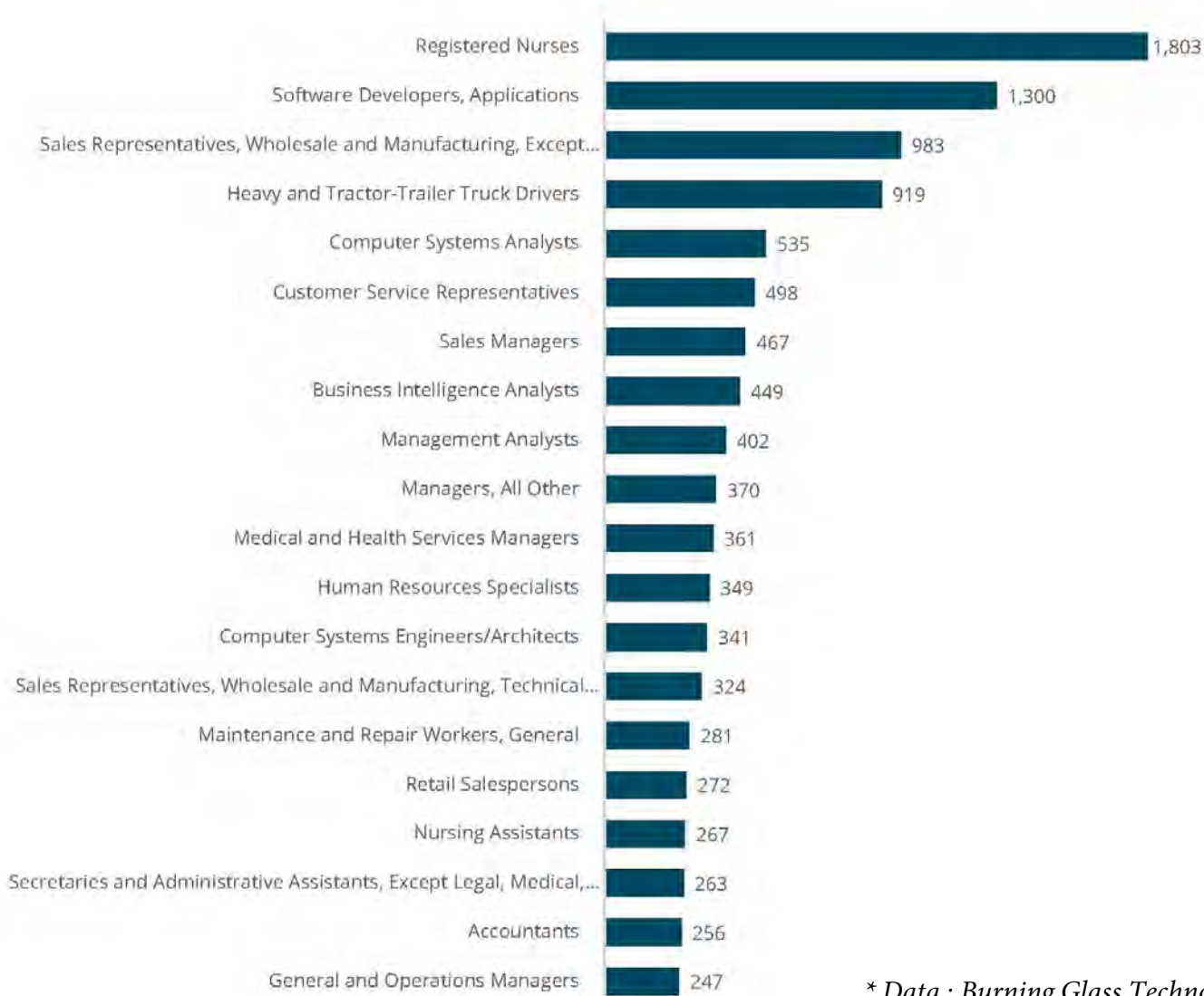
SECTION TWO

LABOR MARKET AND DEMAND OVERVIEW



TOP 20 JOBS IN DEMAND

OCTOBER - DECEMBER 2015



* Data : Burning Glass Technologies

Registered nurses maintained the position as most in-demand occupation in the City of Detroit for the fifth consecutive quarter during Q4 2015. The 1,803 online ads for RNs during Q4 2015 outperformed Q3's historic record of 1,632 by 10.5%. Postings for management analysts increased to 402 in Q4 2015 compared to 186 in Q4 2014 (+116.1%).

The top 12 occupations in Q4 2015 were also included in the top 20 for Q4 2014; a total of 15 of the top Q4 2014 jobs remained in the top 20 for Q4 2015. New to the top 20 were:

- Computer systems engineers/architects
- Maintenance and repair workers
- Nursing assistants
- Secretaries and administrative assistants
- General and operations managers

Management-related occupations represented five of the top jobs in Detroit, and 75% of the top posting occupations required at least a Bachelor's for entry-level openings.

EMPLOYER DEMAND

OCTOBER - DECEMBER 2015

City of Detroit Online Job Postings

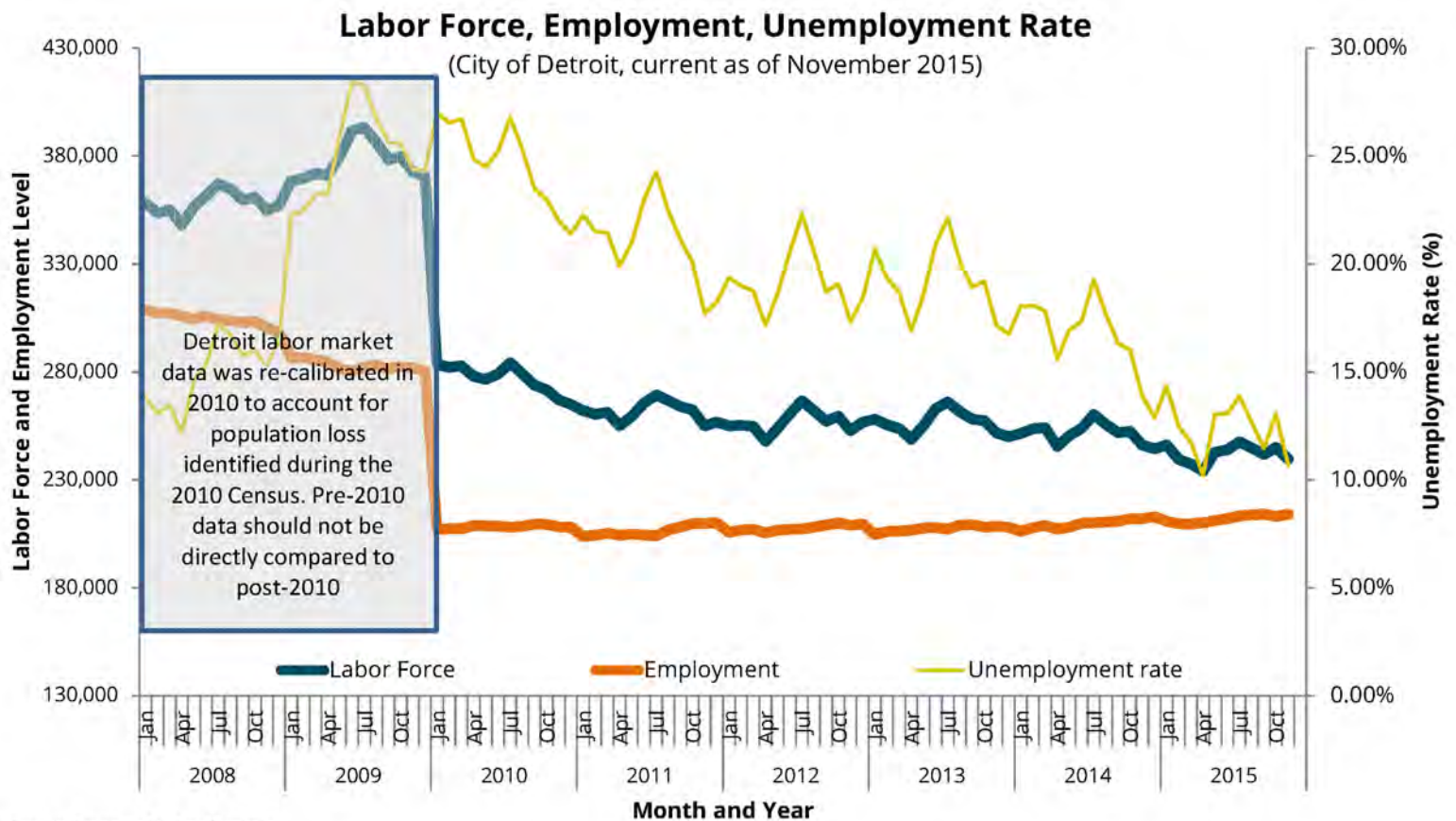


Source: Burning Glass Technologies

Analysis: Workforce Intelligence Network

Online job postings for the City of Detroit increased from 26,050 in Q3 to 27,606 in Q4 2015 (+6.0%). Historically, postings in southeast Michigan decrease during Q4, however, Detroit bucked that trend in both 2014 and 2015. Online ads in the city have increased for a fifth consecutive quarter. Employer demand, as evidenced by increasing online postings, considerably outpaces the slow growth of employment in Detroit. If employers in the city can find qualified workers for their open positions, employment growth is expected to better match the rate of increasing demand.

EMPLOYMENT AND LABOR FORCE



Employment in the City of Detroit continues to have slow yet steady growth as it continues to recover from the Great Recession. Contrary to other regions in Michigan and the United States, employment in Detroit did not begin to grow until 2014. Although employment has started to grow, the labor force continues its steady decline. The labor force could grow if Detroit begins to attract more individuals from both in and out of state to fill in-demand positions available in the city and/or long-term unemployed individuals re-enter the labor force. Unemployment has been decreasing for the last few years and is more likely due to the shrinking labor force rather than increasing employment. Unlike other areas within southeast Michigan, Detroit's employment and labor force do not have substantial volatility based on seasonal or business cycles.

EMPLOYMENT AND LABOR FORCE OVERVIEW

Annual Labor Market Data

	2010 Annual	2011 Annual	2012 Annual	2013 Annual	2014 Annual	2015 To-Date	Change from 2014	Percent Change from 2014
Labor Force	276,884	261,506	256,875	256,583	251,684	242,091	-9,593	-3.8%
Employment	208,289	206,305	207,617	207,456	209,692	211,984	2,292	1.1%
Unemployment	68,596	55,201	49,258	49,127	41,992	30,107	-11,885	-28.3%
Unemployment Rate	24.8%	21.1%	19.2%	19.1%	16.7%	12.4%	-4.2%	na

Data: Bureau of Labor Statistics

Quarterly Labor Market Data

	4th Quarter 2014	1st Quarter 2015	2nd Quarter 2015	3rd Quarter 2015	4th Quarter Esimate	Change from 3rd Quarter 2015	Percent Change from 3rd Quarter 2015
Labor Force	247,676	241,038	240,287	244,788	242,332	-2,456	-1.0%
Employment	212,313	210,023	211,142	213,721	213,584	-138	-0.1%
Unemployment	35,362	31,015	29,145	31,067	28,749	-2,319	-7.5%
Unemployment Rate	14.3%	12.9%	12.1%	12.7%	11.9%	0	na

**Note: Monthly data averaged by quarter*

Data: Bureau of Labor Statistics

EMPLOYMENT AND LABOR FORCE OVERVIEW

As of November 2015, 214,103 workers were employed in the City of Detroit. Initial Q4 estimates were 213,584 workers, 0.1% less than Q3's 213,721. November 2015 has reported 239,668 individuals in the labor force. Initial Q4 estimates were 242,332 individuals in the labor force, 1.0% less than Q3's 244,788.

Unemployment continued its downward descent with Q4 estimates at 11.9%, or 0.8 percentage points lower than Q3's 12.7%. The November 2015 unemployment rate was 10.7%. Since the labor force decreased at a greater rate than employment, the drop in unemployment can be entirely attributed to individuals leaving the labor force rather than to individuals gaining jobs.

Monthly Labor Market Data

	October 2014	November 2014	December 2014	January 2015	February 2015	March 2015	April 2015	May 2015	June 2015	July 2015	August 2015	September 2015	October 2015	November 2015
Labor Force	252,427	246,198	244,402	246,113	239,585	237,415	234,081	242,863	243,918	247,666	244,874	241,825	244,996	239,668
Employment	212,011	212,010	212,919	210,821	209,707	209,541	210,191	211,194	212,041	213,245	213,805	214,114	213,064	214,103
Unemployment	40,416	34,188	31,483	35,292	29,878	27,874	23,890	31,669	31,877	34,421	31,069	27,711	31,932	25,565
Unemployment Rate	16.0%	13.9%	12.9%	14.3%	12.5%	11.7%	10.2%	13.0%	13.1%	13.9%	12.7%	11.5%	13.0%	10.7%

* Note: Data shown for 14 most recently available months

Data: Bureau of Labor Statistics






SECTION THREE

OCCUPATIONAL CLUSTERS

CITY OF DETROIT DEMAND OVERVIEW

	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Change over time	Share of Total Postings Q4 2015
Total	20,930	21,859	23,549	26,050	27,606		
Skilled Trades & Technicians	293	373	391	474	492		1.8%
Engineers & Designers	816	1,023	1,151	1,262	1,334		4.8%
IT	3,033	4,831	4,351	5,275	4,747		17.2%
Health Care	2,753	3,367	3,773	4,081	4,869		17.6%
Retail & Hospitality	3,643	2,930	3,272	3,719	4,515		16.4%



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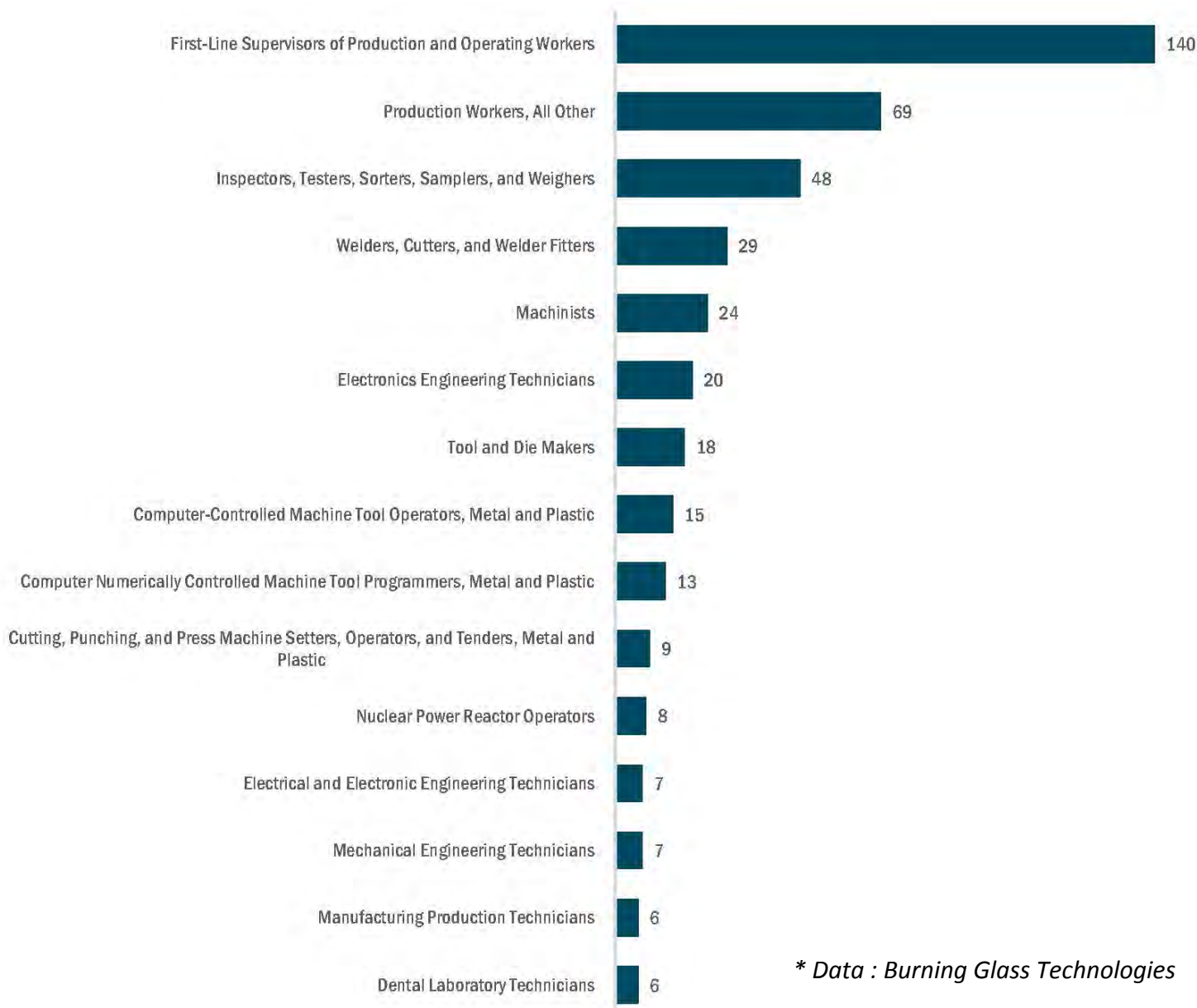
SKILLED TRADES AND TECHNICIANS

WIN's technicians/skilled trades category includes jobs related to advanced manufacturing. Southeast Michigan has more demand for skilled- trades labor, such as CNC machinists and welders, than almost anywhere else in the country. In 2015, skilled trades employment reached 6,413 individuals in 2015.

NOTE: Skilled trades related to construction and repair are not included in this cluster, as the focus is on advanced manufacturing.

ADVANCED MANUFACTURING

SKILLED TRADES AND TECHNICIANS: TOP JOBS



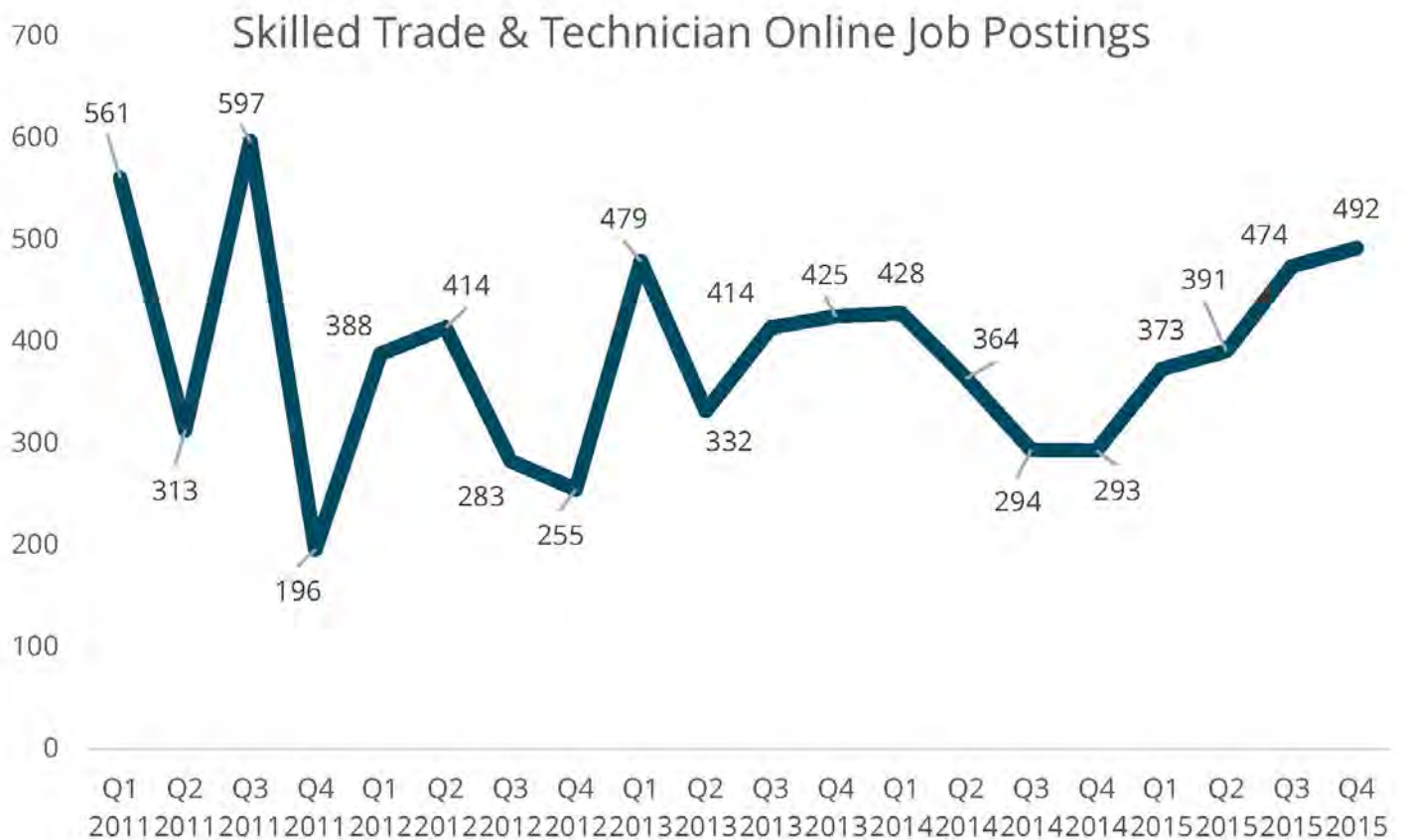
Demand for supervisors of production workers—the most in-demand Skilled Trades occupation in Detroit—increased 15.7% from 121 online ads in Q3 to 140 in Q4 2015. The top four Skilled Trades occupations from Q3 maintained that positioning in Q4 rankings.

The most in-demand Skilled Trades jobs in Detroit have seen considerable increases in postings since Q4 2014. For example, online ads for supervisors have increased from 78 in Q4 2014 to 140 in Q4 2015 (+79.5%). Meanwhile, ads for machinists have surged from just 9 in Q4 2014 to 24 in Q4 2015 (+166.7%). Other emerging occupations in this cluster include welders and tool & die makers. Overall, 17 of the top 20 (85%) Skilled Trades occupations in Detroit have higher Q4 2015 postings than last year at this time.

Supervisors of production workers represented nearly one of every three online postings for Skilled Trades occupations in Detroit, and the average supervisor earns over sixty thousand dollars per year.

ADVANCED MANUFACTURING

SKILLED TRADES AND TECHNICIANS: ONLINE JOB POSTINGS OVER TIME



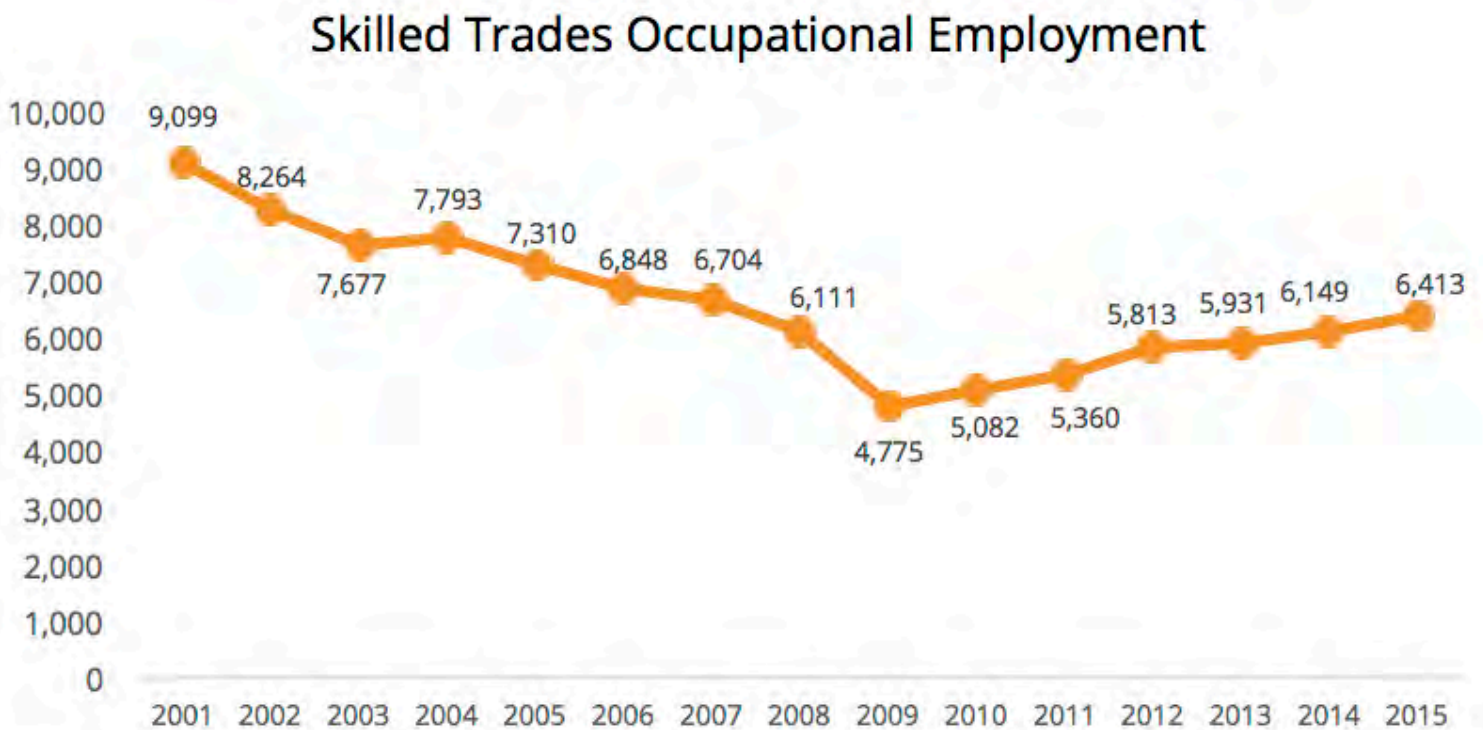
Source: Burning Glass Technologies

Analysis: Workforce Intelligence Network

Online job postings for Skilled Trades occupations increased 3.8% from 474 in Q3 to 492 in Q4 2015. Despite historical trends of a Q4 decrease in online ads each year, the Skilled Trades cluster saw postings rise for a fourth consecutive quarter. Similarly, employment increased for the sixth consecutive year in 2015. The Skilled Trades occupation cluster, the smallest cluster analyzed by WIN, accounted for just 1.8% of total online postings in the City of Detroit during Q4 2015.

ADVANCED MANUFACTURING

SKILLED TRADES AND TECHNICIANS: EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Employment in Detroit for Skilled Trades occupations increased to 6,413 workers in 2015, 4.3% higher than the 6,149 workers in 2014. Skilled Trades employment has been growing an average of 5.7% annually since the 2009 low of 4,775 workers. While employment has increased to above 2008 levels, it remains only 71% of 2001 employment numbers. During 2015, City of Detroit employers posted nearly seven online postings for each net new job (not including turnover). Employers of skilled trade workers do not post online with the same intensity as other Detroit employers.

ADVANCED MANUFACTURING

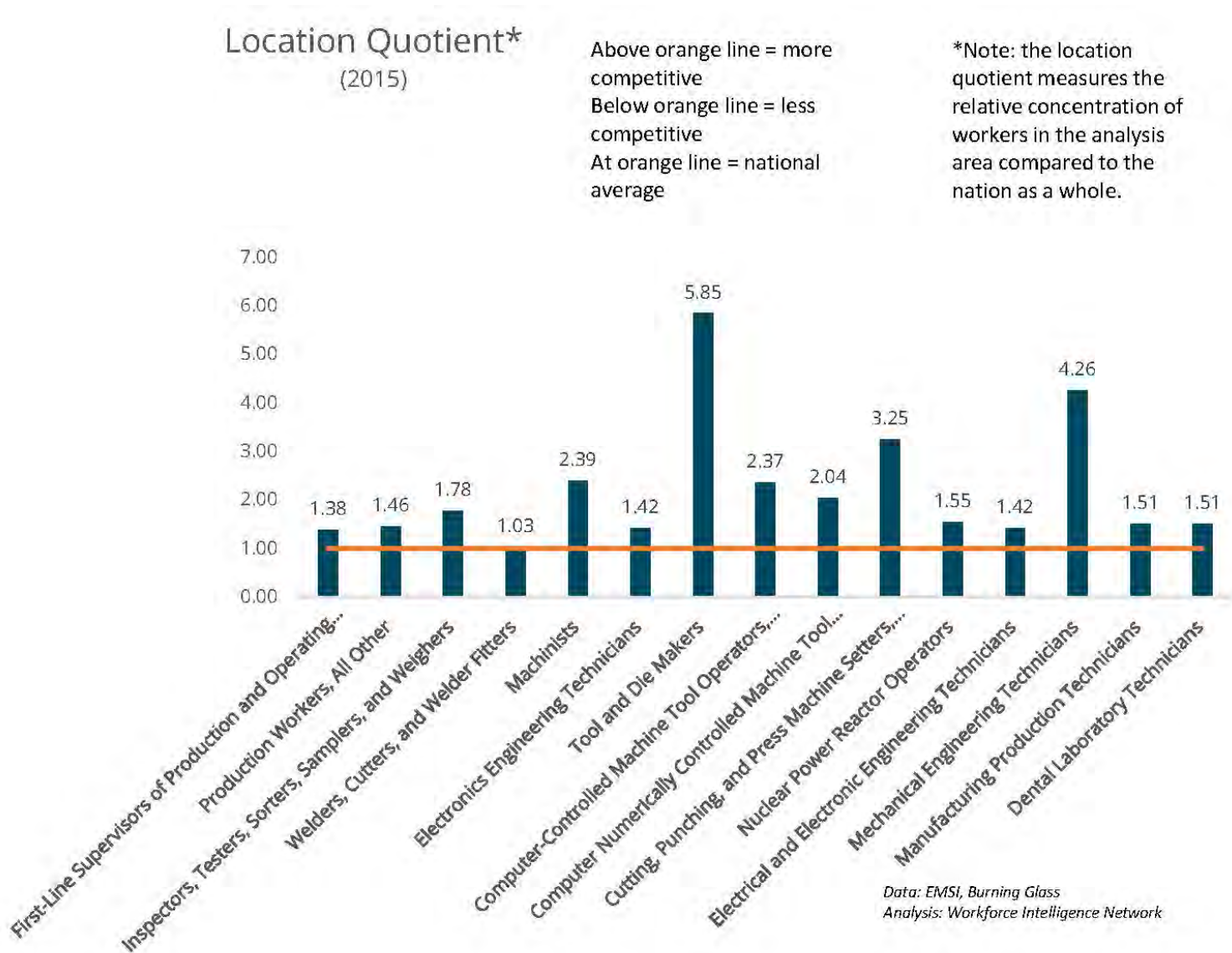
SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS WAGES

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
51-1011	First-Line Supervisors of Production and Operating Workers	\$17.29	\$21.96	\$29.26	\$38.23	\$46.05
51-9199	Production Workers, All Other	\$10.31	\$13.11	\$15.94	\$18.96	\$23.51
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$9.81	\$11.83	\$15.89	\$22.92	\$28.71
51-4121	Welders, Cutters, and Welder Fitters	\$12.37	\$14.81	\$17.64	\$22.22	\$27.73
51-4041	Machinists	\$12.13	\$15.41	\$19.60	\$25.32	\$30.41
17-3023	Electronics Engineering Technicians	\$15.41	\$19.53	\$24.81	\$31.27	\$36.14
51-4111	Tool and Die Makers	\$16.71	\$20.94	\$26.86	\$32.63	\$35.60
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	\$10.63	\$12.79	\$17.88	\$22.00	\$27.37
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	\$16.18	\$18.77	\$23.20	\$27.74	\$32.02
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	\$10.26	\$12.24	\$16.09	\$22.54	\$28.04
51-8011	Nuclear Power Reactor Operators	\$29.34	\$35.22	\$42.40	\$49.51	\$51.76
17-3023	Electrical and Electronic Engineering Technicians	\$15.41	\$19.53	\$24.81	\$31.27	\$36.14
17-3027	Mechanical Engineering Technicians	\$18.03	\$22.24	\$28.58	\$34.32	\$39.82
17-3029	Manufacturing Production Technicians	\$16.14	\$21.60	\$29.62	\$36.20	\$45.68
51-9081	Dental Laboratory Technicians	\$11.35	\$15.71	\$20.22	\$25.60	\$28.63

While 8 of the top 15 Skilled Trades occupations in Detroit offer a living wage (\$15+ per hour) at entry-level earnings (10th percentile), all 15 offer at least a living wage at median-level earnings. Seven of the top occupations offer annual salaries greater than \$50,000 per year (\$24.04 hourly). Some of the highest earners in the Skilled Trades include supervisors (\$60,860 annually), mechanical engineering technicians (\$59,446 annually), manufacturing production technicians (\$61,610 annually), and nuclear power reactor operators (\$88,192 annually).

ADVANCED MANUFACTURING

SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS LOCATION QUOTIENT



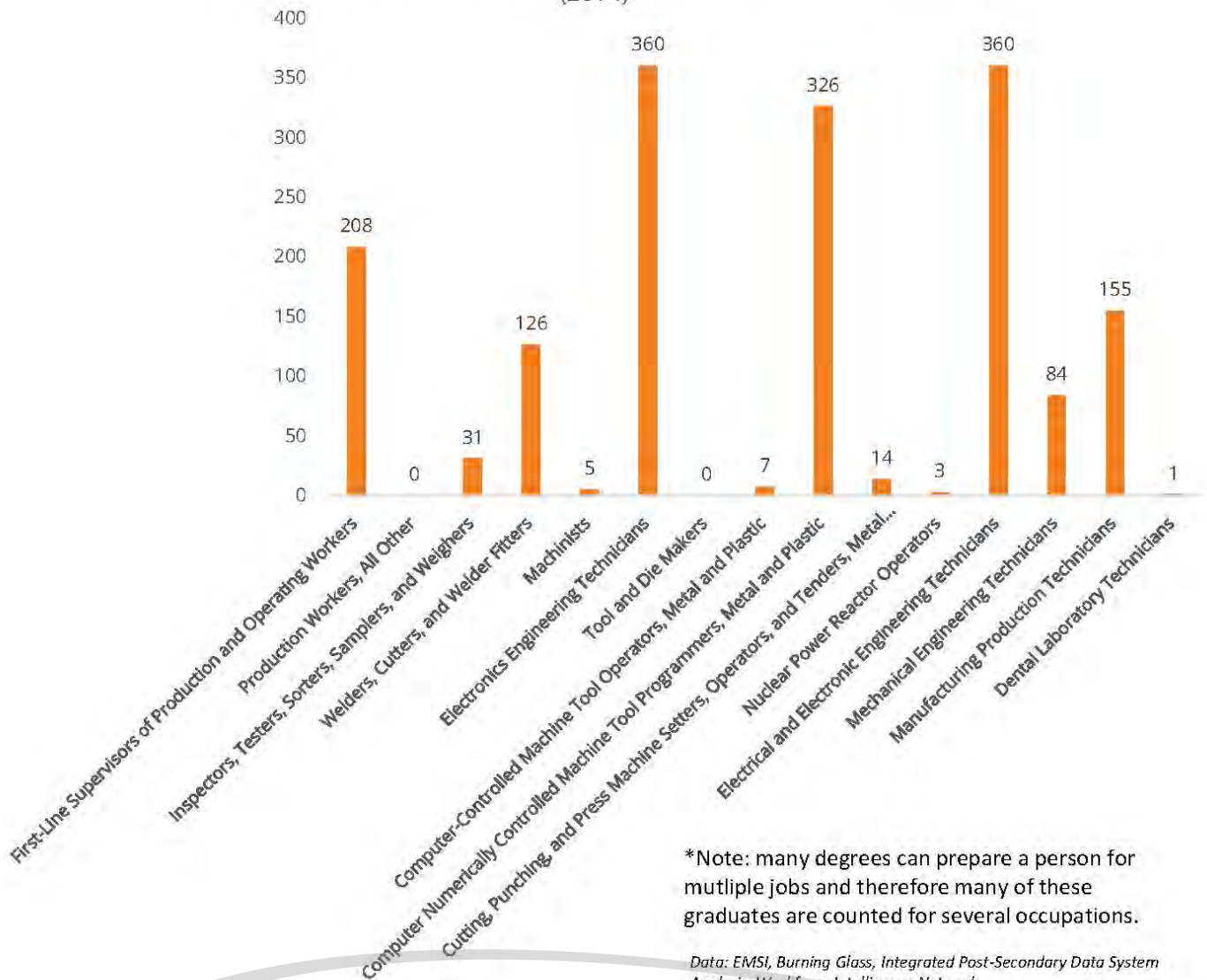
The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Southeast Michigan boasts an impressive concentration of Skilled Trades workers, with all 15 of the most in-demand Detroit skilled trades workers having an LQ greater than one. Tool and die makers have a particularly high concentration with 485% more workers in the region compared the U.S. averages. In contrast, welders have just a 3% higher concentration.

ADVANCED MANUFACTURING

SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS RECENT REGIONAL GRADUATES

Recent Area Grads with Degrees Related to Top Jobs*

(2014)




Due to the regional nature of the labor force in Southeast Michigan, data is shown for degree and certificate completions awarded by colleges and universities from all 16 counties in the WIN partnership. Occupations in the Skilled Trades cluster often require training, especially as modern equipment and tools necessitate advanced specialization. Technicians boast the highest number of graduates in related fields relative to other Skilled Trades occupations. In contrast, CC machine tool operators had just seven graduates in 2014, despite being one of the most in-demand Skilled Trade occupations throughout southeast Michigan.

ADVANCED MANUFACTURING

SKILLED TRADES AND TECHNICIANS: TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
51-1011	First-Line Supervisors of Production and Operating Workers	Postsecondary non-degree award	Less than 5 years	None
51-9199	Production Workers, All Other	High school diploma or equivalent	None	Moderate-term on-the-job training
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent	None	Moderate-term on-the-job training
51-4121	Welders, Cutters, and Welder Fitters	High school diploma or equivalent	None	Moderate-term on-the-job training
51-4041	Machinists	High school diploma or equivalent	None	Long-term on-the-job training
17-3023	Electronics Engineering Technicians	Associate's degree	None	None
51-4111	Tool and Die Makers	High school diploma or equivalent	None	Long-term on-the-job training
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	High school diploma or equivalent	None	Long-term on-the-job training
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	None	Moderate-term on-the-job training
51-8011	Nuclear Power Reactor Operators	High school diploma or equivalent	None	Long-term on-the-job training
17-3023	Electrical and Electronic Engineering Technicians	Associate's degree	None	None
17-3027	Mechanical Engineering Technicians	Associate's degree	None	None
17-3029	Manufacturing Production Technicians	Associate's degree	None	None
51-9081	Dental Laboratory Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training

While two-thirds of the most in-demand Skilled Trades occupations in the City of Detroit require a high school degree, in reality, employers prefer candidates with experience or specialized training in these fields. The ten occupations that require just a high school degree also require moderate to long-term on-the-job training. The technician occupations typically require an Associate's Degree, while supervisors need a post-secondary award. As a result of the necessary higher education, these occupations typically lead the Skilled Trades in wages offered.

A photograph of four professionals, three men and one woman, wearing blue hard hats and business attire. They are gathered around a table, looking at and pointing to documents. The image is overlaid with a semi-transparent blue filter. The text 'ADVANCED MANUFACTURING' is written in large, orange, sans-serif capital letters across the middle of the image.

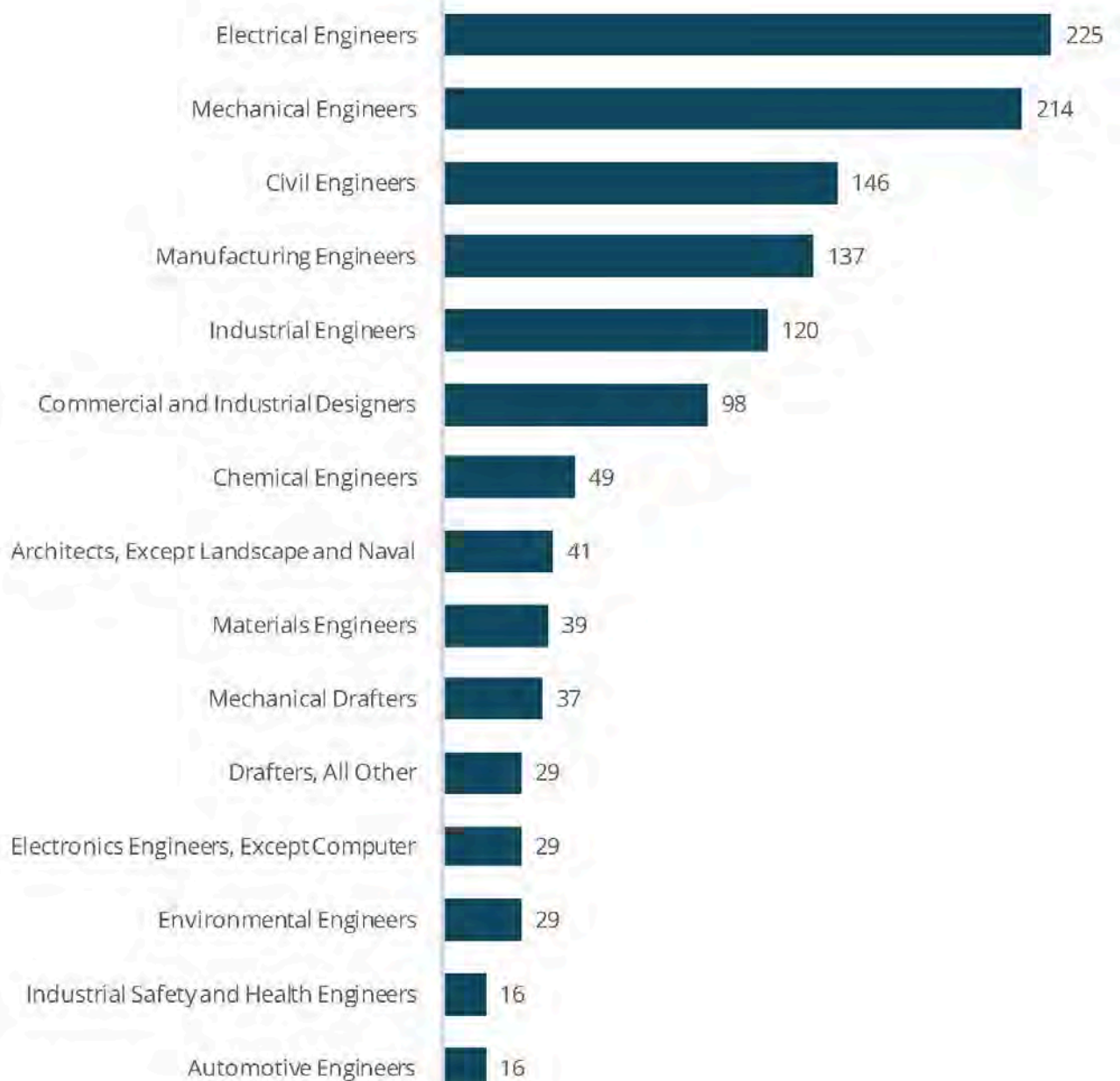
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ENGINEERS AND DESIGNERS

Jobs in the manufacturing industry can range from assembly and production, to skilled trades and technicians, designers and engineers, and even computer-related occupations such as software development. This section focuses on engineers & designers, which represent 6,074 employed individuals in the City of Detroit during 2015. Demand for engineers in the region has been consistent, and employment has been growing quickly.

ADVANCED MANUFACTURING

ENGINEERS AND DESIGNERS : TOP JOBS



* Data : Burning Glass Technologies

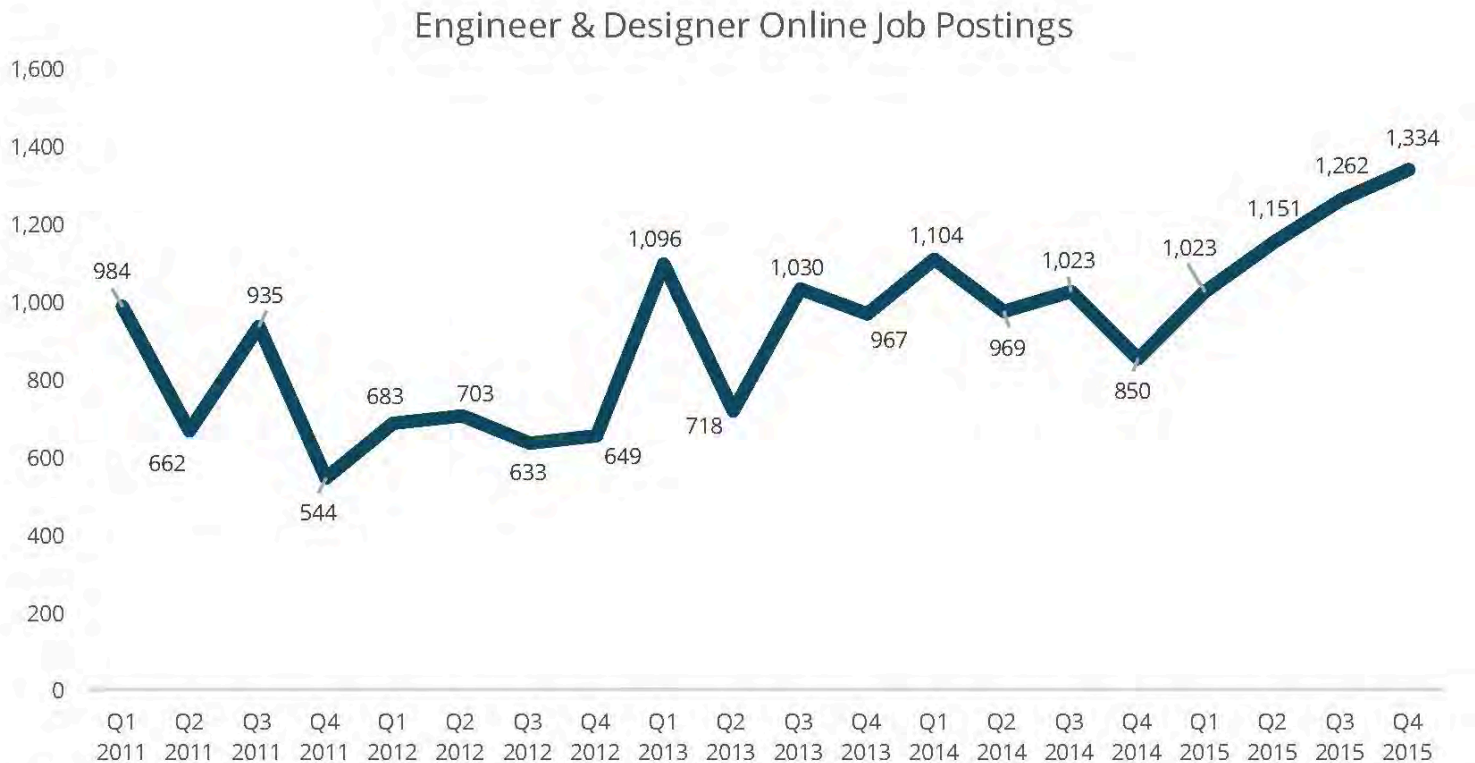
Electrical engineers replaced mechanical engineers as the most in-demand Engineer & Designer occupation with postings increasing from 212 in Q3 to 225 in Q4 2015 (+6.1%). Of the top 15 Engineer and Designer occupations from Q4 2014, 12 remained in this past quarter's list (80%). The following lost their place as part of the most in-demand in Q4 2015:

- Petroleum engineers
- Aerospace engineers
- Computer hardware engineers

Postings for manufacturing engineers have increased nearly three-fold since Q4 2014. The five most in-demand Engineer occupations accounted for 63.1% of all online ads for this cluster in the City of Detroit during Q4 2015.

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ENGINEERS AND DESIGNERS : ONLINE JOB POSTINGS OVER TIME



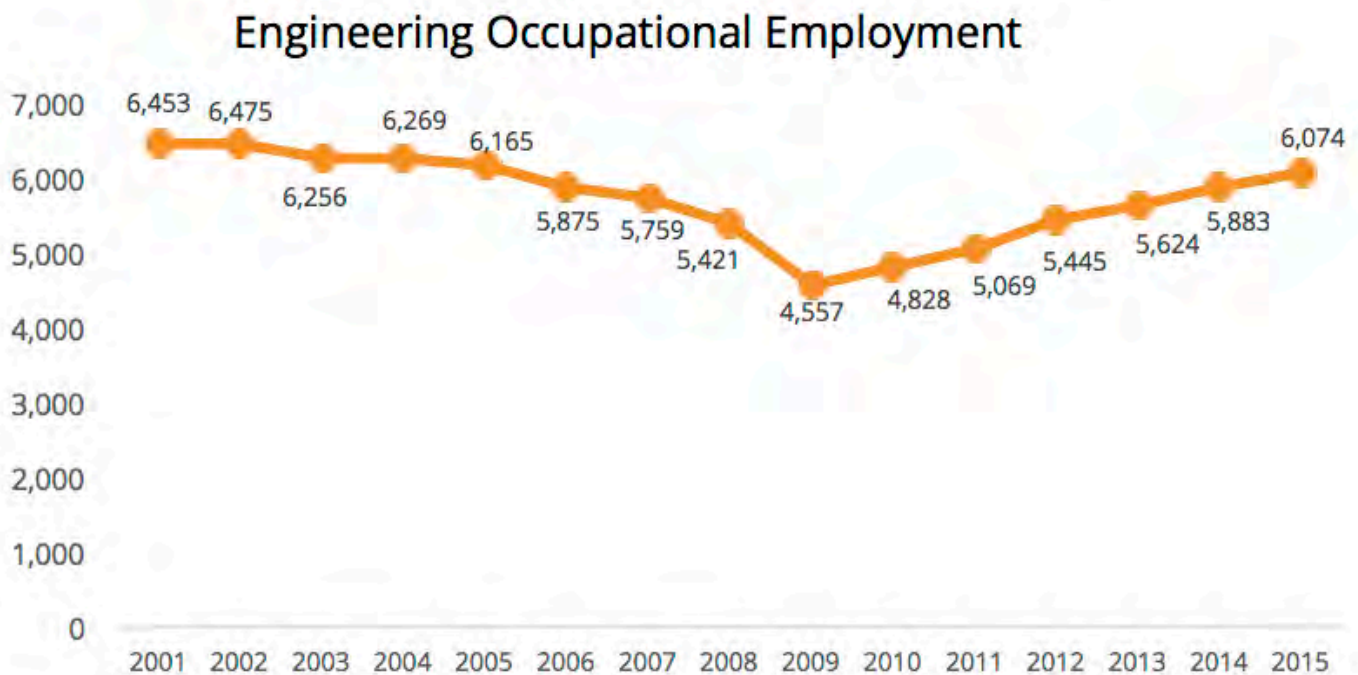
Source: Burning Glass Technologies

Analysis: Workforce Intelligence Network

Online ads for Engineer & Designer occupations increased from 1,262 in Q3 to 1,334 in Q4 2015 (+5.7%). This past quarter marked the fourth consecutive quarter of posting growth and represented a historic high for the cluster in Detroit. The Engineers & Designers occupation cluster accounted for 4.8% of all postings in Detroit during Q4 2015. The increasing employer demand for workers in this cluster has translated to recent employment growth.

ADVANCED MANUFACTURING

ENGINEERS AND DESIGNERS: EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Employment in the Engineers and Designers occupation cluster increased from 5,883 workers in 2014 to 6,074 in 2015 (+3.2%). Employment had been decreasing in Detroit prior to the recession, but 2015 marked a sixth consecutive year of growth. Engineering occupational employment in Detroit has now surpassed 2006 levels. Detroit employers posted nearly 25 online ads per net new job in 2015 (not including turnover). Comparatively, southeast Michigan employers posted 11 online job ads per net new engineer employee hired.

ADVANCED MANUFACTURING

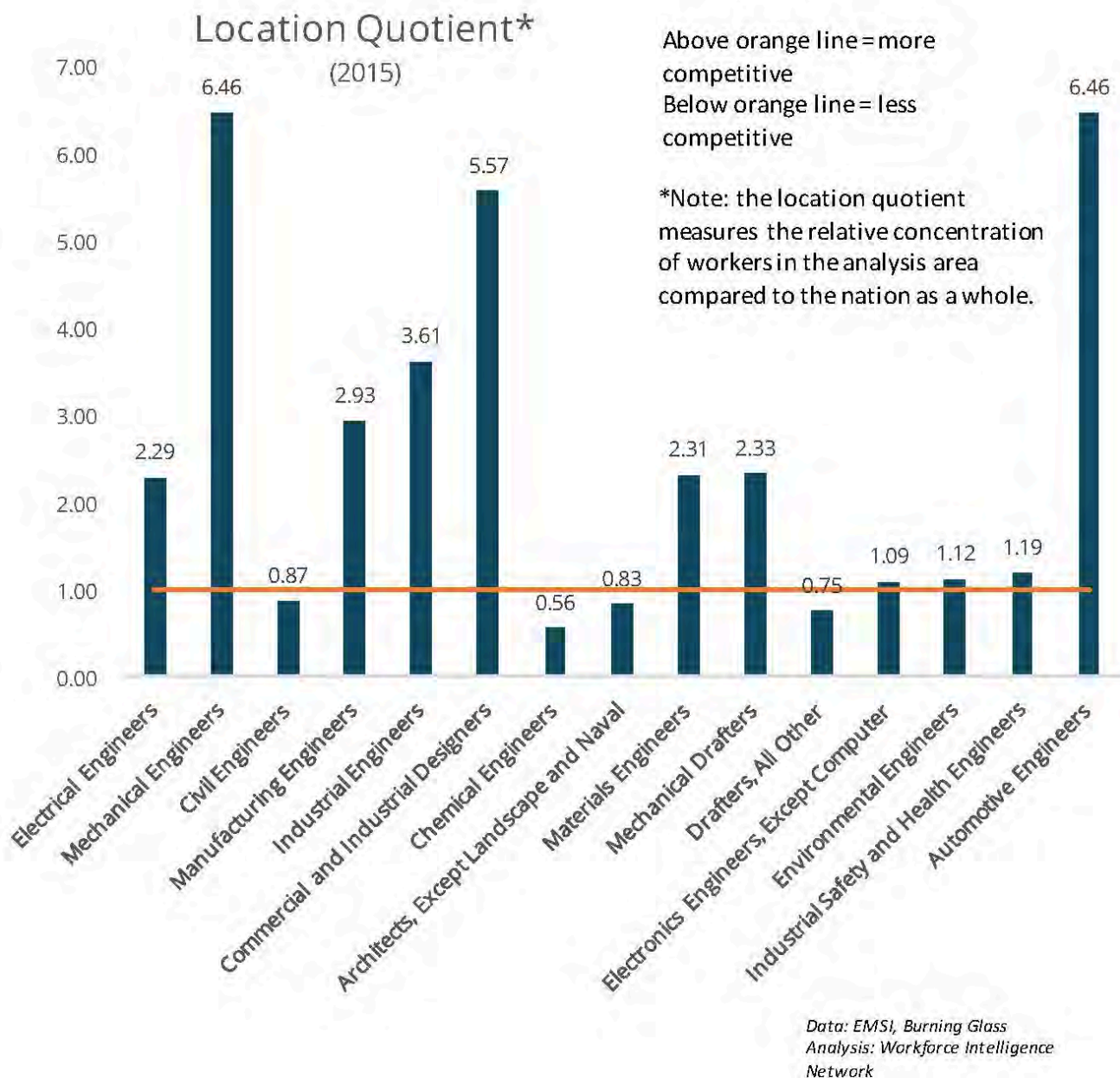
ENGINEERS AND DESIGNERS : TOP 15 JOBS WAGES

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
17-2071	Electrical Engineers	\$28.63	\$34.35	\$41.89	\$49.10	\$57.09
17-2141	Mechanical Engineers	\$29.77	\$36.77	\$44.46	\$53.21	\$59.58
17-2051	Civil Engineers	\$23.14	\$27.72	\$33.64	\$39.22	\$46.33
17-2199	Manufacturing Engineers	\$24.18	\$35.80	\$44.80	\$54.72	\$65.93
17-2112	Industrial Engineers	\$27.86	\$33.64	\$40.59	\$47.63	\$55.91
27-1021	Commercial and Industrial Designers	\$25.72	\$31.72	\$37.52	\$43.28	\$48.42
17-2041	Chemical Engineers	\$27.53	\$31.53	\$37.82	\$45.31	\$54.09
17-1011	Architects, Except Landscape and Naval	\$20.30	\$25.98	\$32.97	\$40.22	\$49.53
17-2131	Materials Engineers	\$25.60	\$31.02	\$38.44	\$48.01	\$58.55
17-3013	Mechanical Drafters	\$16.44	\$20.81	\$26.26	\$32.63	\$38.29
17-3019	Drafters, All Other	\$15.97	\$17.50	\$19.97	\$25.42	\$31.05
17-2072	Electronics Engineers, Except Computer	\$26.28	\$31.27	\$39.29	\$46.96	\$55.15
17-2081	Environmental Engineers	\$25.94	\$35.07	\$42.71	\$50.88	\$58.52
17-2111	Industrial Safety and Health Engineers	\$29.76	\$36.56	\$45.61	\$55.07	\$63.22
17-2141	Automotive Engineers	\$29.77	\$36.77	\$44.46	\$53.21	\$59.58

All of the most in-demand Engineer occupations in Detroit offer a wage of at least \$15 per hour at the entry-level (10th percentile). Most offer initial wages between \$25 and \$30 per hour. Manufacturing and industrial safety engineers offer the most upward mobility with wages exceeding \$60 per hour (\$124,800 annually) for the most experienced (90th percentile) workers in these fields. The typical engineer in the Detroit area earns about \$0.70 per hour more than their counterparts throughout the United States.

ADVANCED MANUFACTURING

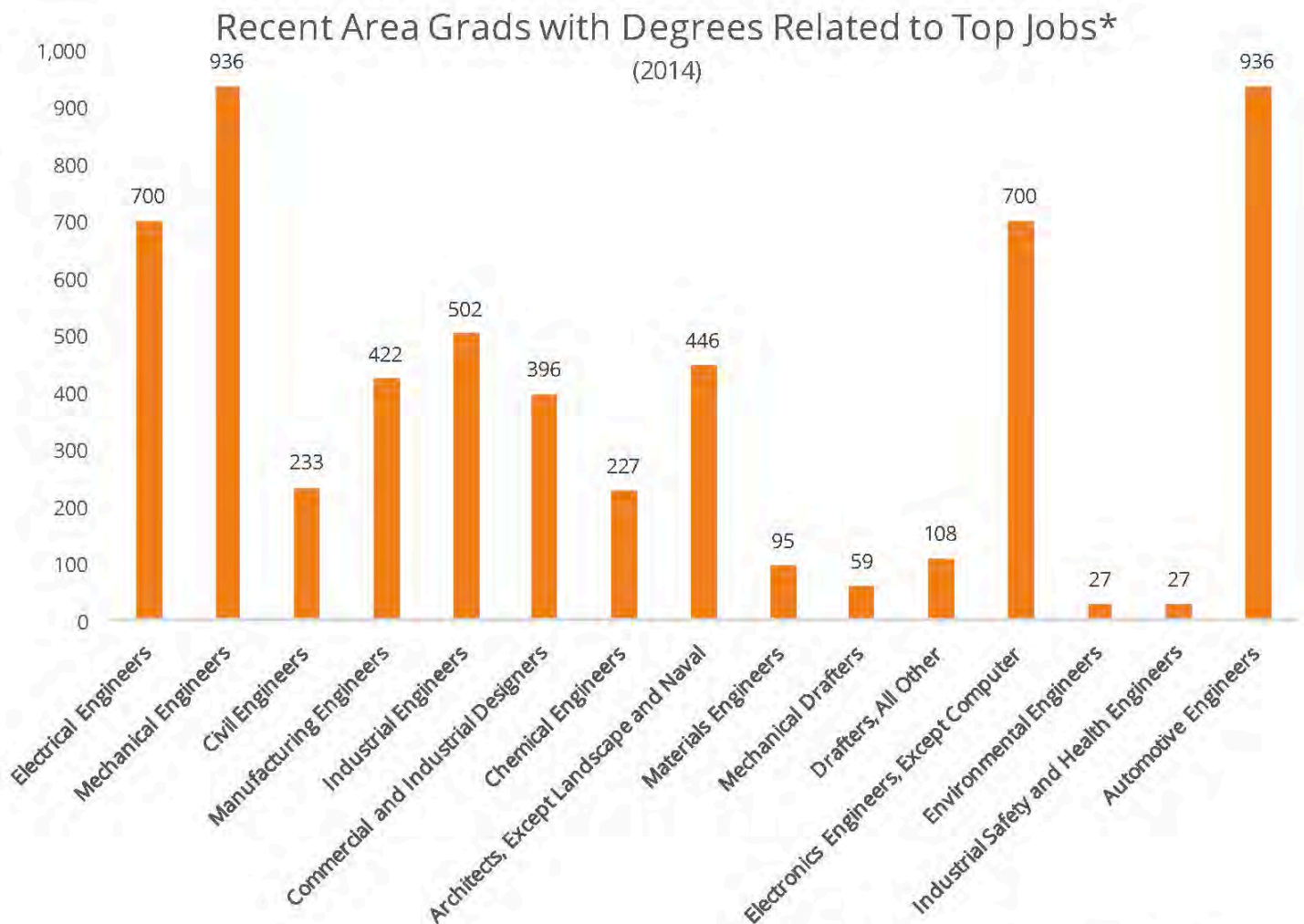
ENGINEERS AND DESIGNERS : TOP 15 JOBS LOCATION QUOTIENT



The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. The southeast Michigan region boasts impressive concentrations of engineers. For example, mechanical engineers have an LQ of 6.46, indicating that these workers have a 546% higher concentration in the region compared to U.S. averages. In contrast, chemical engineers have just 56% the typical U.S. concentration in southeast Michigan.

ADVANCED MANUFACTURING

ENGINEERS AND DESIGNERS : TOP 15 JOBS RECENT REGIONAL GRADUATES



*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Data: EMSI, Burning Glass, Integrated Post-Secondary Data System
Analysis: Workforce Intelligence Network

Due to the regional nature of the labor force in Southeast Michigan, data is shown for degree and certificate completions awarded by colleges and universities from all 16 counties in the WIN partnership. The Engineer and Designer cluster typically requires students from four-year universities with highly specialized STEM skills. While mechanical engineers seem to have a high number of graduates relative to other engineering occupations, the number of postings in the region for this occupation during Q4 2015 (2,259) more than doubled the number of graduates in all of 2014 (936).

ADVANCED MANUFACTURING

ENGINEERS AND DESIGNERS : TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
17-2071	Electrical Engineers	Bachelor's degree	None	None
17-2141	Mechanical Engineers	Bachelor's degree	None	None
17-2051	Civil Engineers	Bachelor's degree	None	None
17-2199	Manufacturing Engineers	Bachelor's degree	None	None
17-2112	Industrial Engineers	Bachelor's degree	None	None
27-1021	Commercial and Industrial Designers	Bachelor's degree	None	None
17-2041	Chemical Engineers	Bachelor's degree	None	None
17-1011	Architects, Except Landscape and Naval	Bachelor's degree	None	Internship/residency
17-2131	Materials Engineers	Bachelor's degree	None	None
17-3013	Mechanical Drafters	Associate's degree	None	None
17-3019	Drafters, All Other	Associate's degree	None	None
17-2072	Electronics Engineers, Except Computer	Bachelor's degree	None	None
17-2081	Environmental Engineers	Bachelor's degree	None	None
17-2111	Industrial Safety and Health Engineers	Bachelor's degree	None	None
17-2141	Automotive Engineers	Bachelor's degree	None	None

With exception to the two drafting occupations, all of the most in-demand jobs for this cluster require a Bachelor's Degree for entry-level openings. The highly advanced mathematical skills required to complete degrees for these occupations and their high demand help explain the high wages offered.

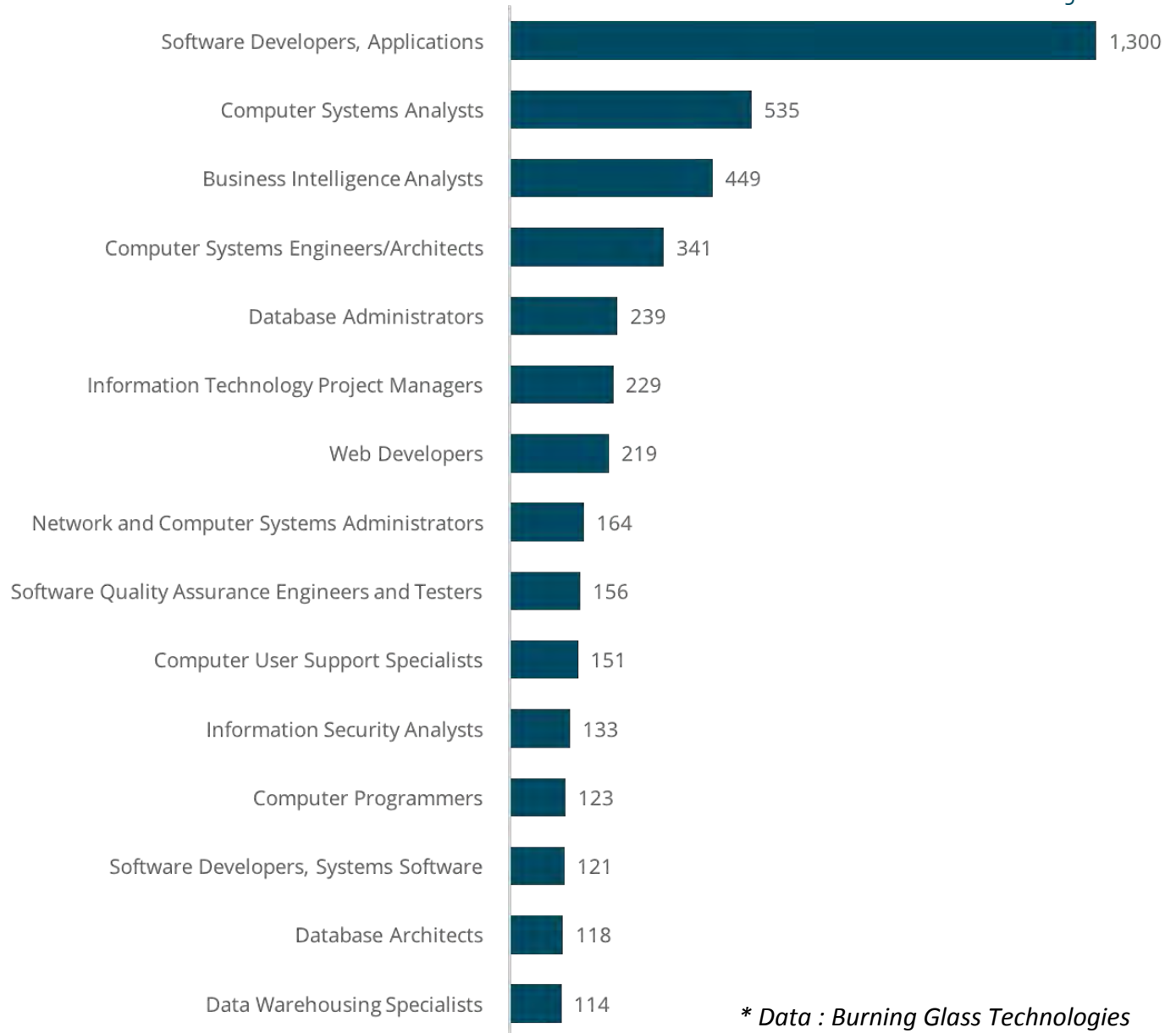
A woman with brown hair, wearing a light blue sweater, is sitting at a desk in a server room. She is looking at a computer monitor and has her hand on a mouse. In the background, there are server racks with many green and blue cables. Another person is standing in the background, looking at a clipboard. The text "INFORMATION TECHNOLOGY" is overlaid in large, orange, sans-serif capital letters across the middle of the image.

INFORMATION TECHNOLOGY

Information technology jobs include occupations that are associated with entry level, technical, and professional careers related to the design, development, support and management of hardware, software, multimedia, and systems integration services. While the information technology cluster does not currently meet the employment levels of the other clusters, it is quickly growing. In 2015, IT occupational employment was 7,721 in the City of Detroit. Top jobs in this cluster include computer support specialists, computer systems analysts, and software developers for applications.

INFORMATION TECHNOLOGY

TOP JOBS



The top four IT occupations from Q3 maintained their positions in Q4 despite experiencing a drop-off in postings. Postings for computer systems analysts decreased the most, from 726 in Q3 to 535 in Q4 2015 (-26.3%). Software developers for applications had the largest growth in demand since Q4 2014; online ads increased from 566 in Q4 2014 to 1,300 this past quarter (+129.7%).

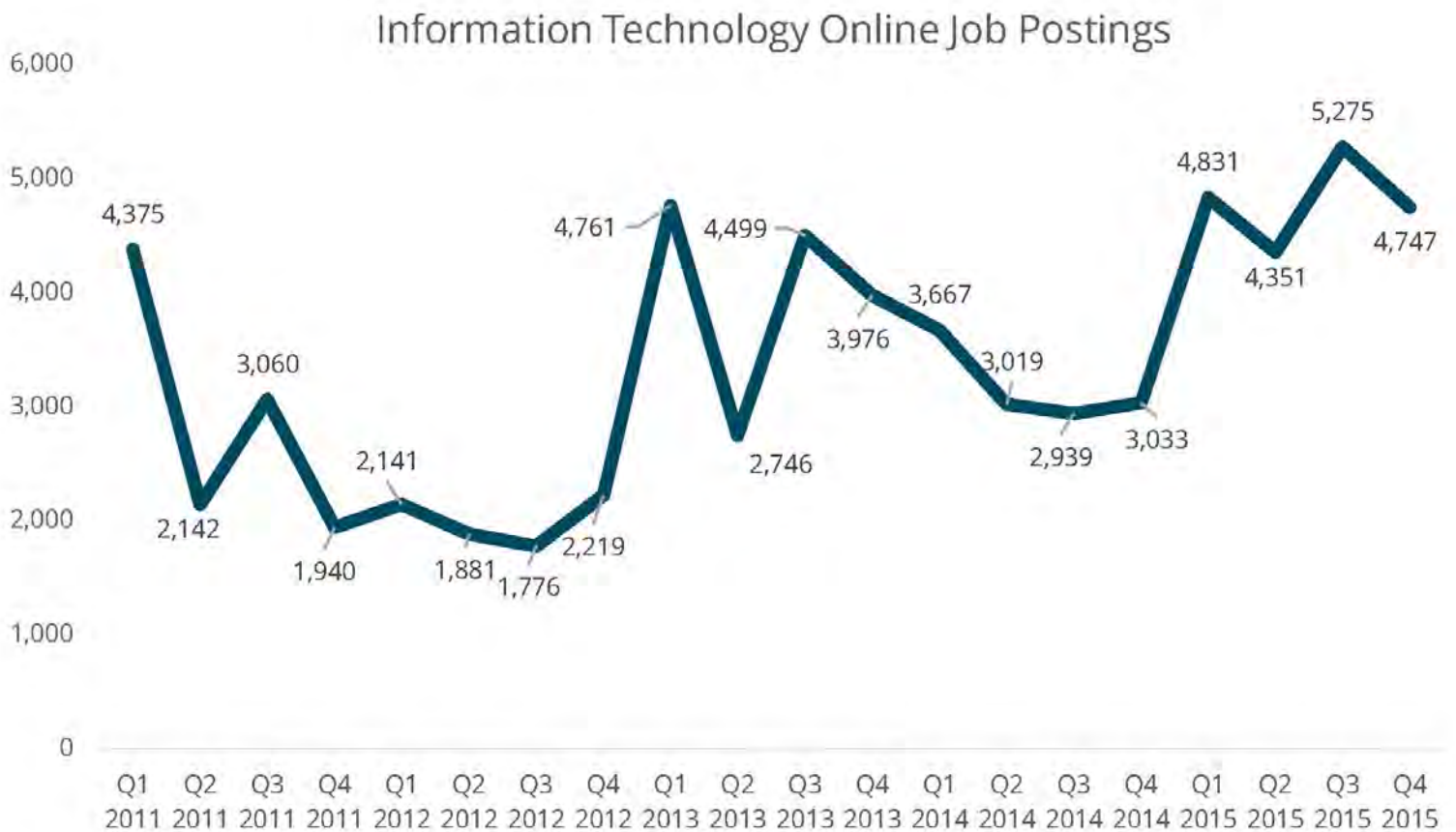
Emerging IT occupations in Detroit include computer systems engineers, which saw postings jump from 128 in Q4 2014 to 341 in Q4 2015 (+166.4%). In contrast, online ads for computer user support specialists have decreased by more than half when comparing the past two Q4's.

Of the top 15 IT occupations from Q4 2014, 14 remained in the top list for this past quarter. Database architects (118 ads) replaced computer and information systems managers.

During Q4 2014, postings for software developers accounted for 2.7% of all online job postings in the City of Detroit. This past quarter saw that share jump to 4.7%.

INFORMATION TECHNOLOGY

ONLINE JOB POSTINGS OVER TIME



Source: Burning Glass Technologies

Analysis: Workforce Intelligence Network

Online ads for the IT cluster decreased from a historic high of 5,275 in Q3 to 4,747 in Q4 2015 (-10.0%). Historically, postings for IT occupations decrease between Q3 and Q4. Overall, employer demand has been growing for IT workers since Q4 2014. The IT occupation cluster accounted for 17.2% of total online job postings in the City of Detroit during Q4 2015. The sustained high level of demand for IT workers in Detroit has corresponded to increasing employment.

INFORMATION TECHNOLOGY

EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Employment for IT workers in Detroit increased from 7,667 in 2014 to 7,721 in 2015 (+0.7%). Following peak employment in 2004, the IT cluster began trending downwards and suffered a substantial loss of workers during the recession. Employment has been inching up slowly, but has not yet reached pre-recession levels. Detroit employers posted 355 online ads during 2015 per net new job (not including turnover), highlighting the urgent need for more IT workers in the city.

INFORMATION TECHNOLOGY

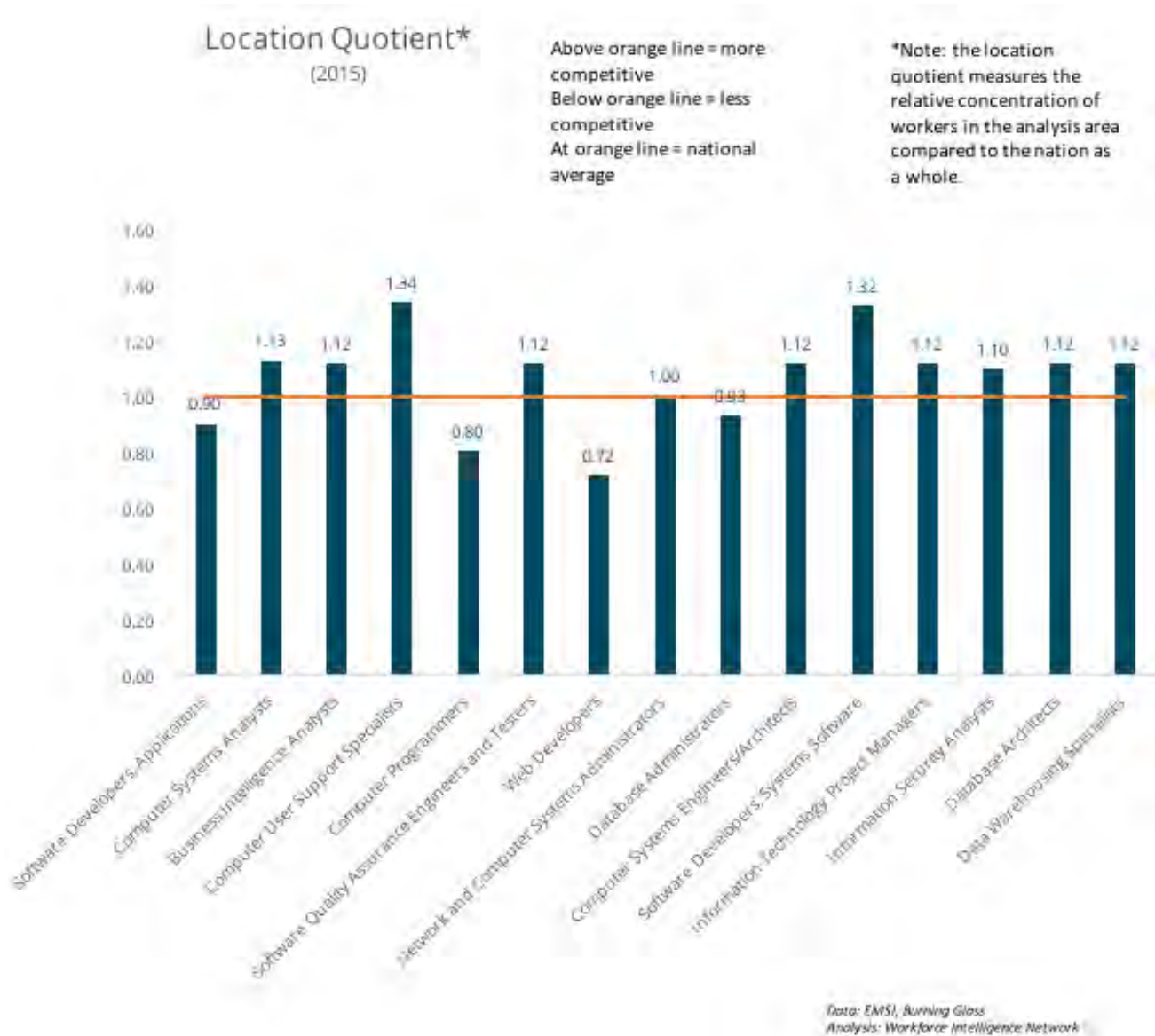
TOP 15 JOBS WAGES

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
15-1132	Software Developers, Applications	\$25.18	\$31.35	\$39.38	\$49.47	\$58.83
15-1121	Computer Systems Analysts	\$25.22	\$32.05	\$39.84	\$49.08	\$58.30
15-1199	Business Intelligence Analysts	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1151	Computer User Support Specialists	\$12.38	\$15.95	\$21.56	\$29.06	\$36.96
15-1131	Computer Programmers	\$23.77	\$28.94	\$34.77	\$43.65	\$51.99
15-1199	Software Quality Assurance Engineers and Testers	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1134	Web Developers	\$18.03	\$21.59	\$27.32	\$33.96	\$40.35
15-1142	Network and Computer Systems Administrators	\$21.59	\$27.21	\$35.57	\$43.28	\$51.30
15-1141	Database Administrators	\$23.80	\$31.38	\$41.07	\$50.08	\$58.17
15-1199	Computer Systems Engineers/Architects	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1133	Software Developers, Systems Software	\$26.94	\$33.62	\$42.38	\$51.79	\$60.54
15-1199	Information Technology Project Managers	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1122	Information Security Analysts	\$24.03	\$28.45	\$39.29	\$48.80	\$57.24
15-1199	Database Architects	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12
15-1199	Data Warehousing Specialists	\$23.42	\$30.58	\$38.80	\$48.99	\$57.12

All of the most in-demand IT occupations in Detroit, except computer user support specialists, offer a wage greater than \$15 per hour at the entry-level (10th percentile). Most entry-level wages fall in the \$22-\$26 range. Software developers offer the greatest upward mobility with highly experienced workers (90th percentile) earning around \$59 per hour (\$122,720 annually). The typical IT worker in Detroit earns \$2.25 less per hour than their counterparts across the United States. Continued high demand should drive wages up to attract more workers to the city.

INFORMATION TECHNOLOGY

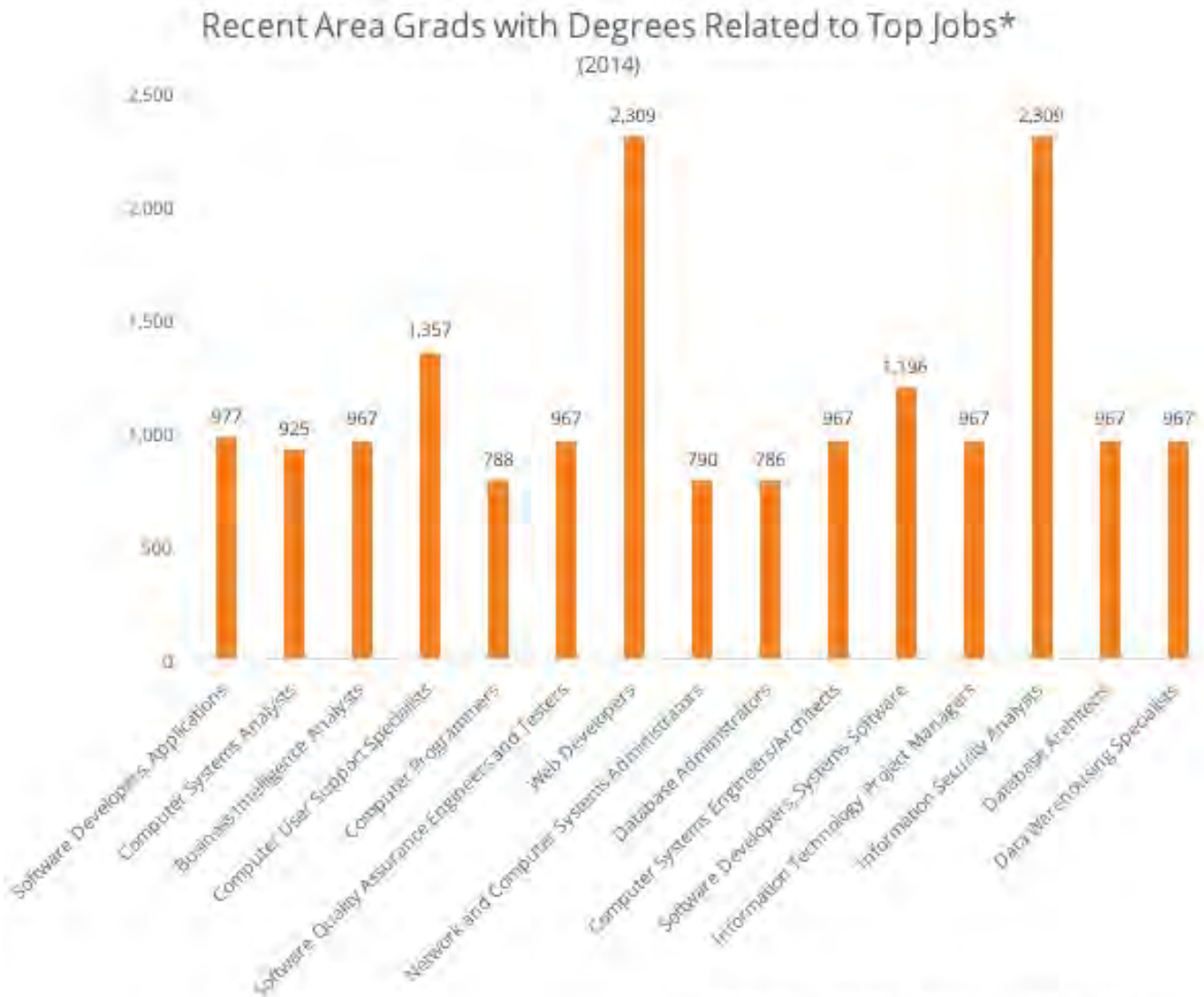
TOP 15 JOBS LOCATION QUOTIENT



The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Most IT occupations have slightly higher concentrations of workers in southeast Michigan. For example, computer user support specialists have an LQ of 1.34, indicating that the concentration of these workers is 34% higher than the national average. In contrast, the region has a concentration of just 72% the national average for web developers.

INFORMATION TECHNOLOGY

TOP 15 JOBS RECENT REGIONAL GRADUATES



Data: EMSI, Burning Glass, Integrated Post-Secondary Data System
Analysis: Workforce Intelligence Network

*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Due to the regional nature of the labor force in Southeast Michigan, data is shown for degree and certificate completions awarded by colleges and universities from all 16 counties in the WIN partnership. The IT occupation cluster typically requires workers with four-year degrees specializing in STEM-related areas of study. Over 2,300 students graduated with a degree in southeast Michigan in an area of study related to web development. Meanwhile, less than 1,000 students earned a degree suitable for a software development job. The City of Detroit experienced a higher number of postings for software developers this past quarter alone (1,300 online ads).

INFORMATION TECHNOLOGY

TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS

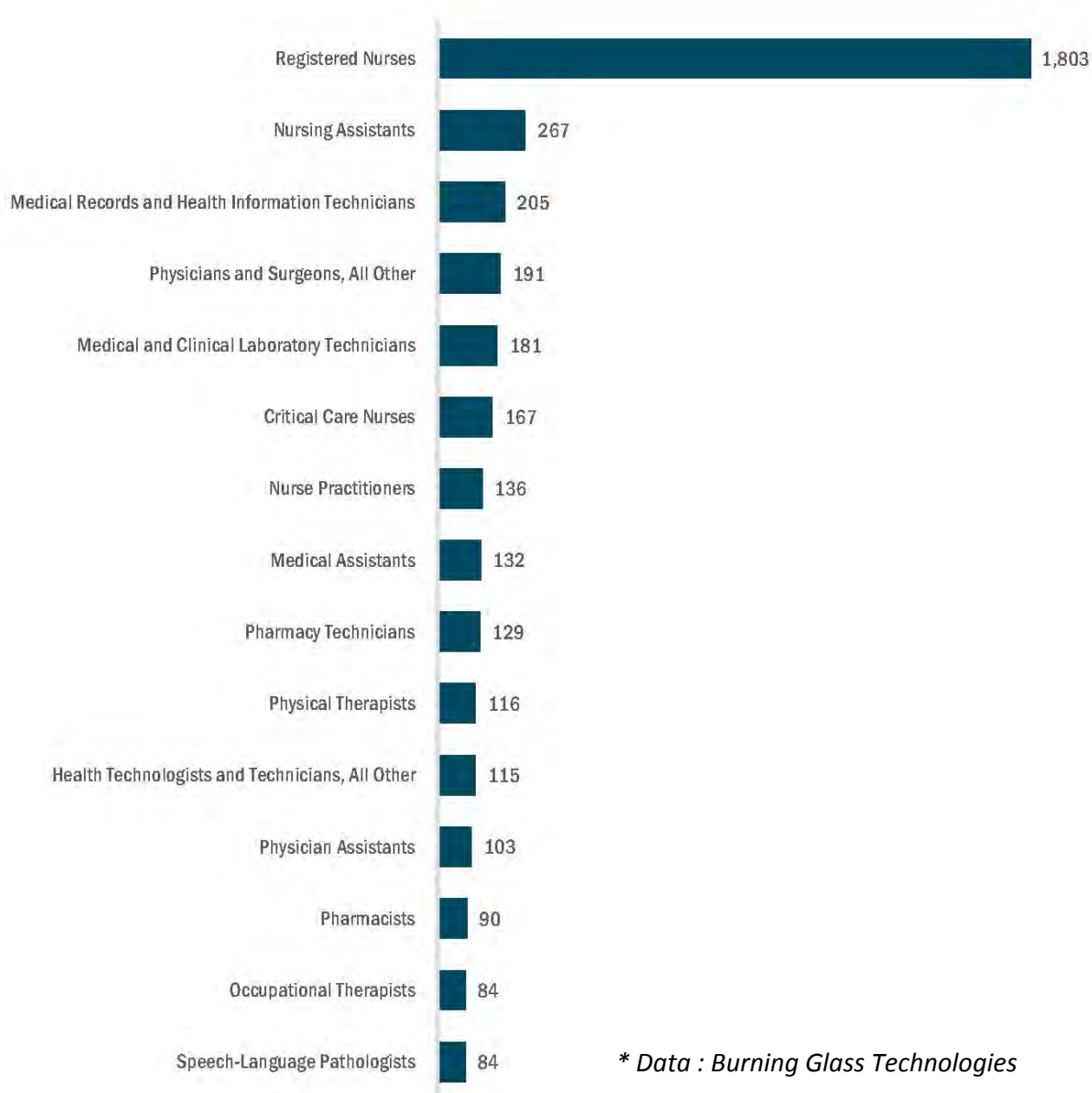
ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
15-1132	Software Developers, Applications	Bachelor's degree	None	None
15-1121	Computer Systems Analysts	Bachelor's degree	None	None
15-1199	Business Intelligence Analysts	Bachelor's degree	None	None
15-1151	Computer User Support Specialists	Some college, no degree	None	Moderate-term on-the-job training
15-1131	Computer Programmers	Bachelor's degree	None	None
15-1199	Software Quality Assurance Engineers and Testers	Bachelor's degree	None	None
15-1134	Web Developers	Associate's degree	None	None
15-1142	Network and Computer Systems Administrators	Bachelor's degree	None	None
15-1141	Database Administrators	Bachelor's degree	Less than 5 years	None
15-1199	Computer Systems Engineers/Architects	Bachelor's degree	None	None
15-1133	Software Developers, Systems Software	Bachelor's degree	None	None
15-1199	Information Technology Project Managers	Bachelor's degree	None	None
15-1122	Information Security Analysts	Bachelor's degree	Less than 5 years	None
15-1199	Database Architects	Bachelor's degree	None	None
15-1199	Data Warehousing Specialists	Bachelor's degree	None	None

Of the 15 most in-demand IT occupations in the City of Detroit, 13 require a Bachelor's Degree for entry-level openings. Computer user support specialists, while requiring less than a Bachelor's, does require moderate-term training. The increasing demand for workers in this field, the low supply of graduates relative to demand, and the required STEM degrees result in the high wages for IT occupations.

A photograph of two healthcare workers, a woman and a man, sitting at a desk in a clinical setting. The woman on the left is wearing red scrubs and has a name tag. The man on the right is wearing blue scrubs and is holding a pen. They are both smiling at the camera. The background is slightly blurred, showing office equipment and papers.

HEALTH CARE

WIN's health care occupation cluster includes jobs related to health care support and practitioners. This cluster is one of Southeast Michigan's largest with 27,918 employees in 2015 in Detroit. Employment in this cluster has been consistently growing, more health care workers needed to care for Michigan's aging population and in response to regulatory and other changes. Registered nurses are routinely the most in-demand job in this cluster.

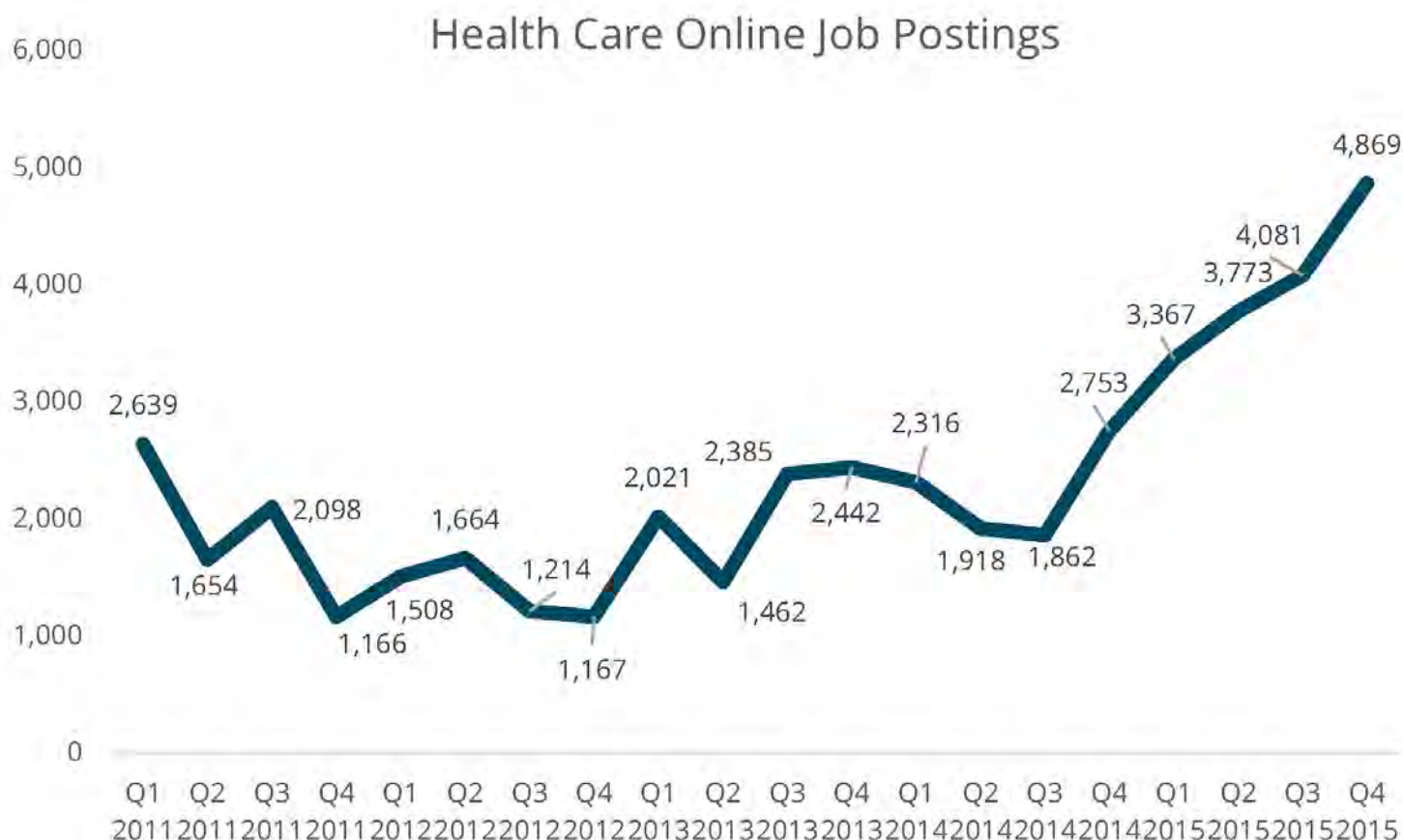


Demand for registered nurses (RNs) continued its incessant rise, with postings increasing from 1,632 during Q3 to 1,803 in Q4 2015 (+10.5%). Compared to Q4 2014, ads for RNs increased by 809 (+81.4%) this past quarter. Of the 15 top health care occupations in Q4 2014, all but one remained on the list for Q4 2015; speech language pathologists are new to the list while LPNs dropped out. Over the same time period, postings for medical and clinical lab technicians increased by 116 (+178.5%), moving this occupation up to the top five.

The 1,803 online ads for RNs during Q4 2015 was equivalent to the sum of postings for the 12 next most in-demand healthcare occupations.

HEALTH CARE

ONLINE JOB POSTINGS OVER TIME



Source: Burning Glass Technologies

Analysis: Workforce Intelligence Network

Online ads for occupations in the Health Care cluster increased from 4,081 in Q3 to 4,869 in Q4 2015 (+19.3%). While online ads have historically declined for Health Care in Detroit between Q3 and Q4, 2015 bucked that trend as employer demand continued to increase. This past quarter marked the fifth consecutive quarter of posting growth and a historic high for the city. Online ads for the Health Care occupation cluster accounted for 17.6% of all postings in Detroit during Q4 2015. Skyrocketing demand has led to increased employment growth in the last year.

HEALTH CARE

EMPLOYMENT OVER TIME

Health Care Occupational Employment



Source: EMSI

Analysis: Workforce Intelligence Network

Employment in the Health Care occupation cluster increased from 27,214 workers in 2014 to 27,908 in 2015 (+2.6%). The growth rate of employment in 2015 nearly tripled the 2006-2014 yearly average. The recession did not influence Health Care occupations—at least from an employment perspective—as it did with other sectors of the economy. Health Care employers in the City of Detroit posted over 23 online ads per net new hire in 2015 (not including turnover).

HEALTH CARE

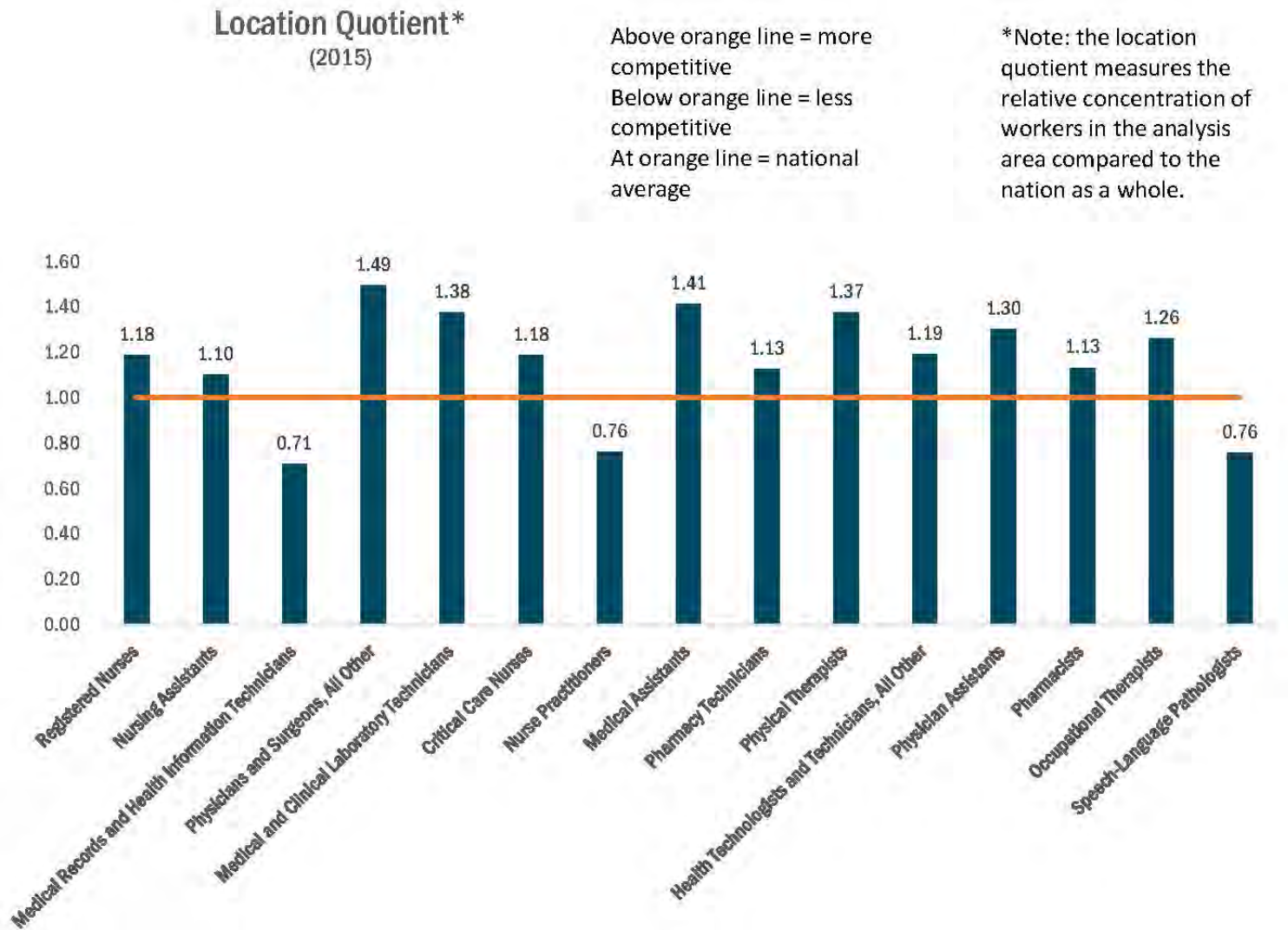
TOP 15 JOBS WAGES

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
29-1141	Registered Nurses	\$24.99	\$28.50	\$32.85	\$37.31	\$46.89
31-1014	Nursing Assistants	\$10.13	\$11.69	\$13.42	\$15.30	\$17.31
29-2071	Medical Records and Health Information Technicians	\$11.72	\$14.03	\$17.80	\$21.92	\$25.68
29-1069	Physicians and Surgeons, All Other	\$30.16	\$49.14	\$81.42	\$96.19	\$147.67
29-2012	Medical and Clinical Laboratory Technicians	\$11.24	\$12.90	\$15.76	\$20.29	\$27.64
29-1141	Critical Care Nurses	\$24.99	\$28.50	\$32.85	\$37.31	\$46.89
29-1171	Nurse Practitioners	\$33.61	\$39.39	\$44.63	\$51.83	\$58.61
31-9092	Medical Assistants	\$10.65	\$12.19	\$13.94	\$16.27	\$18.70
29-2052	Pharmacy Technicians	\$9.48	\$11.58	\$14.28	\$16.91	\$19.19
29-1123	Physical Therapists	\$27.31	\$32.99	\$39.33	\$47.40	\$62.90
29-2099	Health Technologists and Technicians, All Other	\$12.55	\$14.57	\$18.42	\$23.57	\$30.00
29-1071	Physician Assistants	\$23.49	\$33.18	\$45.90	\$54.05	\$62.10
29-1051	Pharmacists	\$40.26	\$48.78	\$54.92	\$60.79	\$69.34
29-1122	Occupational Therapists	\$24.71	\$28.86	\$33.91	\$40.61	\$57.03
29-1127	Speech-Language Pathologists	\$24.88	\$29.69	\$35.59	\$44.25	\$61.80

Wages for Health Care occupations widely vary depending on the education and skills required. The in-demand jobs offering entry-level (10th percentile) wages above \$15 per hour typically require Master's or Professional degrees. Not until the 75th percentile do all of the top occupations in this cluster offer wages greater than \$15 per hour. Physicians, physical therapists, physician assistants, and speech-language pathologists offer the greatest upward mobility but also demand the most education. The typical Detroit worker in Health Care earns \$0.40 more per hour than counterparts across the nation.

HEALTH CARE

TOP 15 JOBS LOCATION QUOTIENT



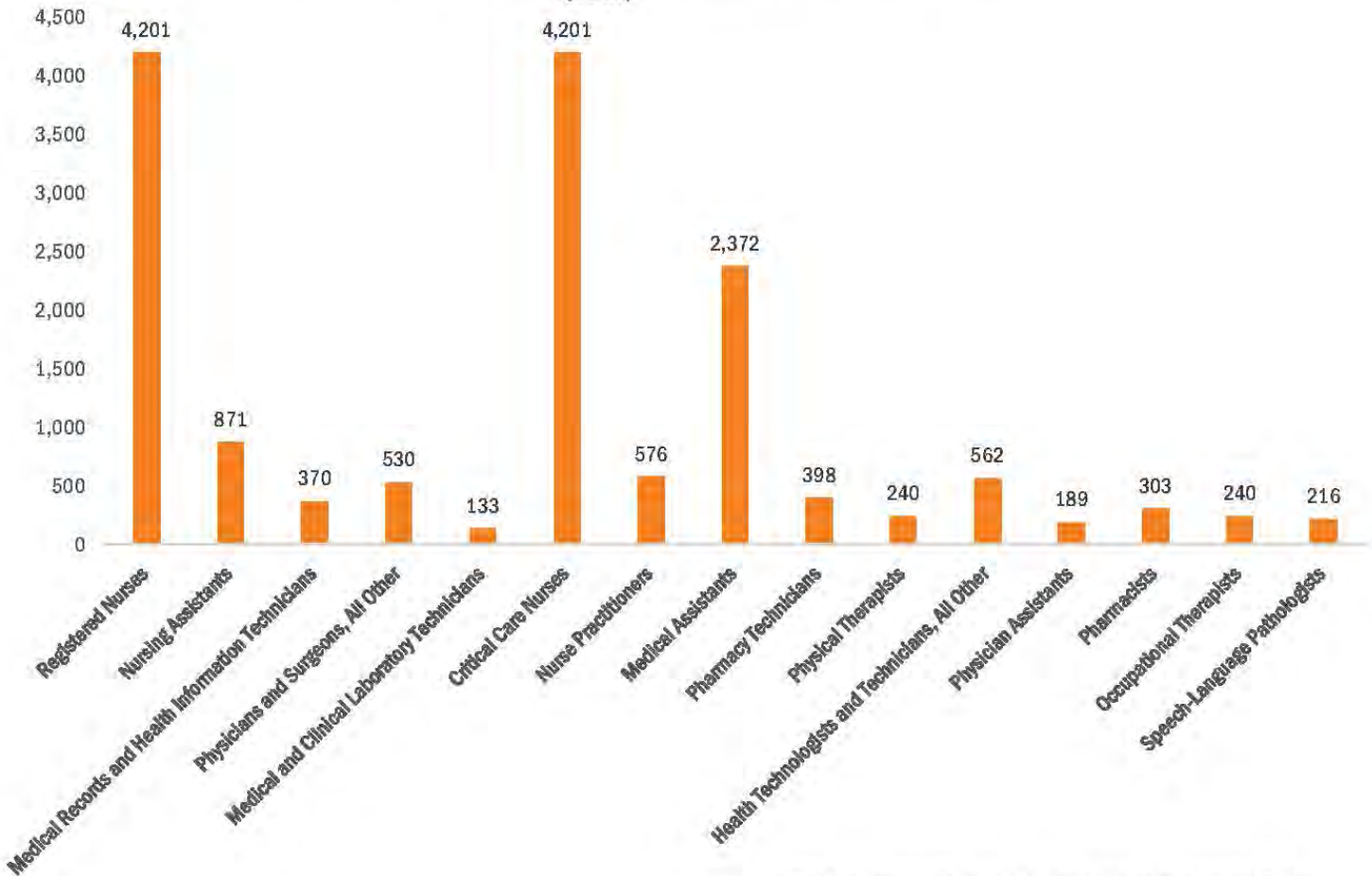
Data: EMSI, Burning Glass
Analysis: Workforce Intelligence Network

The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Despite having a strong health care system, southeast Michigan does not boast concentrations of these workers substantially higher than U.S. averages. This makes sense because health care needs, while driven by consumer demand, is roughly similar across all metro areas. Southeast Michigan is not as competitive for medical records and health information technicians. These workers are in high demand and employers are likely having trouble filling open positions. Note, this is also one of the lower paying health care jobs for entry-level wages. If demand continues to increase, wages may rise.

TOP 15 JOBS RECENT REGIONAL GRADUATES

Recent Area Grads with Degrees Related to Top Jobs*

(2014)



*Note: many degrees can prepare a person for multiple jobs and therefore many of these graduates are counted for several occupations.

Data: EMSI, Burning Glass, Integrated Post-Secondary Data System
Analysis: Workforce Intelligence Network

Due to the regional nature of the labor force in Southeast Michigan, data is shown for degree and certificate completions awarded by colleges and universities from all 16 counties in the WIN partnership. In 2014, the number of graduates with certificates and degrees related to in-demand health care fields was not adequate to meet demand. The disconnect between the level of degree required for nursing and the level of degree graduates attain in the region exacerbates the supply-demand mismatch. Many individuals complete two-year degrees in nursing to become an LPN, however, most health systems and hospitals now require new nursing staff to hold four-year degrees. Another top job in nursing, critical care nurses, requires even more specialized training than a Bachelor's degree. This, and demand for other nursing specialists, furthers the divide between employer demand and the supply of qualified workers.

HEALTH CARE

TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
29-1141	Registered Nurses	Associate's degree	None	None
31-1014	Nursing Assistants	Postsecondary non-degree award	None	None
29-2071	Medical Records and Health Information Technicians	Postsecondary non-degree award	None	None
29-1069	Physicians and Surgeons, All Other	Doctoral or professional degree	None	Internship/residency
29-2012	Medical and Clinical Laboratory Technicians	Associate's degree	None	None
29-1141	Critical Care Nurses	Associate's degree	None	None
29-1171	Nurse Practitioners	Master's degree	None	None
31-9092	Medical Assistants	Postsecondary non-degree award	None	None
29-2052	Pharmacy Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training
29-1123	Physical Therapists	Doctoral or professional degree	None	None
29-2099	Health Technologists and Technicians, All Other	High school diploma or equivalent	None	None
29-1071	Physician Assistants	Master's degree	None	None
29-1051	Pharmacists	Doctoral or professional degree	None	None
29-1122	Occupational Therapists	Master's degree	None	None
29-1127	Speech-Language Pathologists	Master's degree	None	None

All but two in-demand Health Care occupations require post-secondary training or education for entry-level positions. Most require a Bachelor's degree or higher. For select occupations, like pharmacy technicians, on-the-job training is important. Similar to other occupation clusters, wages in Health Care increase with educational attainment. Beyond high levels of education, top occupations in this cluster often require previous experience in the industry as well.

RH

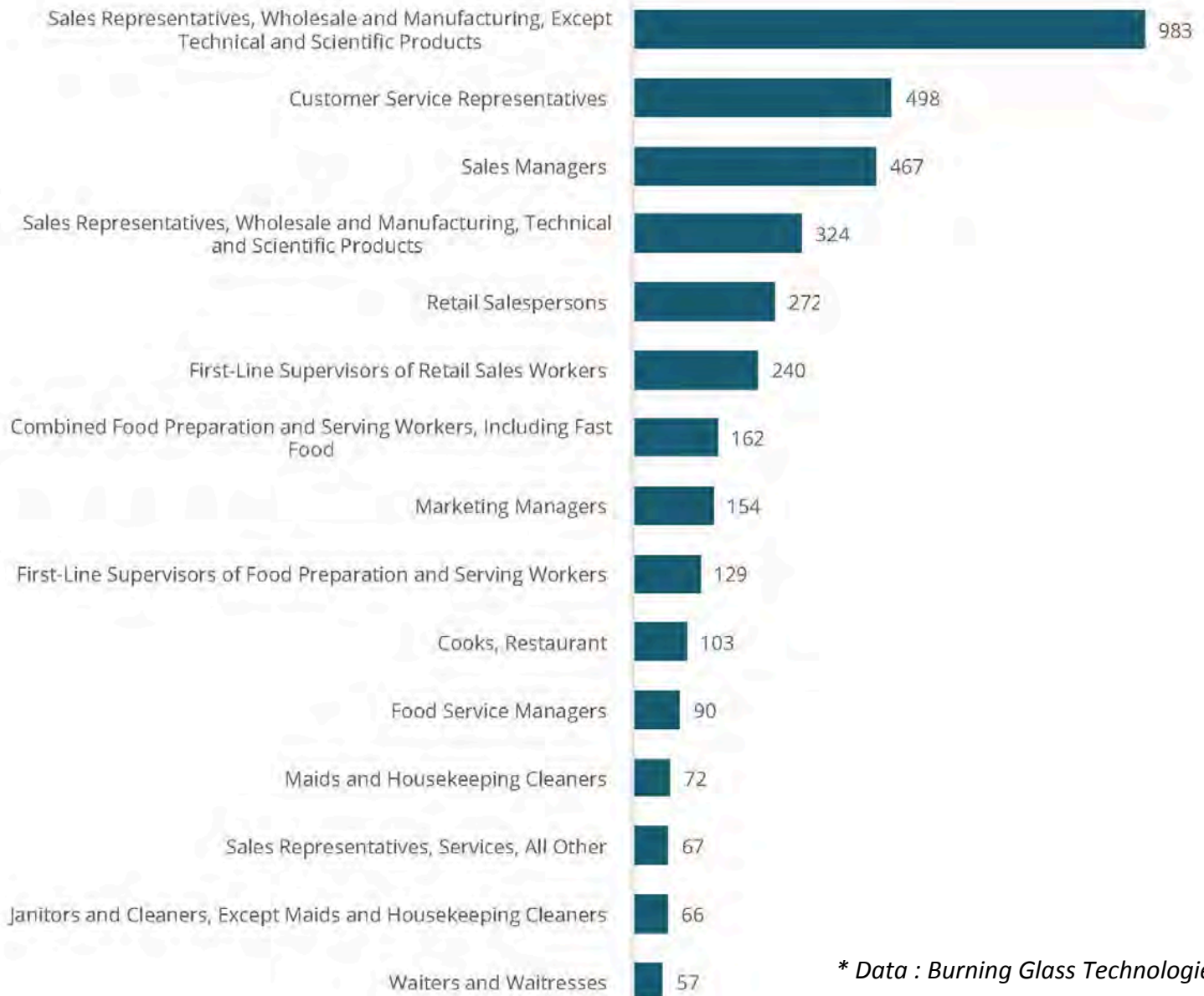


RETAIL AND HOSPITALITY

The retail and hospitality cluster is the largest occupational cluster that WIN analyzes, both in terms of employment and online job postings. This cluster is of very high importance to the region because it is the first to grow when the economy expands and the first to contract in a downturn: It is often a leading indicator. As defined by WIN, the retail and hospitality cluster encompasses all customer service occupations, with skills transferrable across the retail sector, the hotel industry, food and beverage service industry, call centers, and other areas. In 2015, 59,707 individuals were employed in retail and hospitality related occupations in Detroit.

RETAIL & HOSPITALITY

TOP JOBS



** Data : Burning Glass Technologies*

The top four Retail & Hospitality occupations from Q3 2014 maintained their positions in Q4's rankings while also seeing an increase in postings. Seventeen of the top twenty jobs (85%) from this past quarter remained in the top list for Q4 2015. For these 17 remaining occupations, postings increased over the past year. Demand rose the most for sales representatives (non-technical products) as online ads jumped from 720 in Q4 2014 to 983 this past quarter (+36.5%). Occupations removed from the top 20 include:

- Cashiers
- First-line supervisors of non-retail sales workers
- Stock clerks

The top four occupations accounted for half of online ads for the R&H cluster in Detroit during Q4 2015.

RETAIL & HOSPITALITY

ONLINE JOB POSTINGS OVER TIME



Online ads for Retail & Hospitality occupations surged from 3,272 in Q3 to 4,515 in Q4 2015 (+38.0%). Postings in R&H typically decline in the region between Q3 and Q4; however, Detroit has bucked that trend for the last two years. Online ads for this cluster in the city have been volatile over the last six quarters but generally trend upwards. Retail & Hospitality occupations accounted for 16.4% of postings in the City of Detroit during Q4 2015. Despite a high share of postings, employer demand has not translated into employment growth.

RETAIL & HOSPITALITY

EMPLOYMENT OVER TIME



Source: EMSI

Analysis: Workforce Intelligence Network

Retail & Hospitality employment increased from 59,348 in 2014 to 59,707 in 2015 (+0.6%). Employment in this cluster experienced a rebound in 2010 and 2011 following systemic decline in the first decade of the 21st century. Since 2011, however, employment has effectively stagnated; 2015 employment was just a 0.3% increase from 2011 numbers. As a result, employment levels remain well below the number of retail workers in the city during the early 2000's. Detroit employers posted 40 online ads per net new hire in R&H during 2015 (not including turnover). The high posting per hire and lack of employment growth could indicate that high turnover rather than an increase in new openings largely drives retail demand in the city.

RETAIL & HOSPITALITY

TOP 15 JOBS WAGES

ONET Code	Occupation	10th Percentile Hourly Earnings	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings	90th Percentile Hourly Earnings
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	\$12.94	\$18.83	\$27.15	\$39.50	\$55.51
43-4051	Customer Service Representatives	\$9.36	\$11.52	\$15.01	\$19.07	\$24.48
11-2022	Sales Managers	\$28.89	\$38.96	\$52.65	\$70.34	\$106.63
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	\$18.93	\$26.15	\$36.68	\$50.95	\$68.91
41-2031	Retail Salespersons	\$8.35	\$8.98	\$10.24	\$13.13	\$19.00
41-1011	First-Line Supervisors of Retail Sales Workers	\$11.18	\$13.60	\$17.23	\$21.87	\$27.40
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	\$8.15	\$8.52	\$9.14	\$9.92	\$12.12
11-2021	Marketing Managers	\$33.98	\$43.88	\$56.23	\$71.85	\$108.91
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	\$8.92	\$10.54	\$14.22	\$19.22	\$23.99
35-2014	Cooks, Restaurant	\$8.32	\$9.14	\$10.69	\$12.73	\$14.30
11-9051	Food Service Managers	\$12.37	\$15.46	\$19.44	\$26.51	\$35.87
37-2012	Maids and Housekeeping Cleaners	\$8.15	\$9.04	\$10.31	\$11.99	\$13.73
41-3099	Sales Representatives, Services, All Other	\$11.82	\$16.14	\$23.13	\$36.54	\$53.85
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$8.37	\$9.47	\$11.71	\$14.97	\$18.31
35-3031	Waiters and Waitresses	\$8.24	\$8.63	\$9.28	\$10.58	\$14.90

Just three of the top R&H occupations in Detroit offer an hourly wage higher than \$15 at the entry-level (10th percentile). At the median level, eight jobs offer wages higher than \$15 per hour. The occupations that offer the most upward mobility include managerial positions that require a Bachelor's degree and years of relevant experience. The typical R&H worker in Detroit earns \$0.80 more per hour on average compared to counterparts nationally. DIT

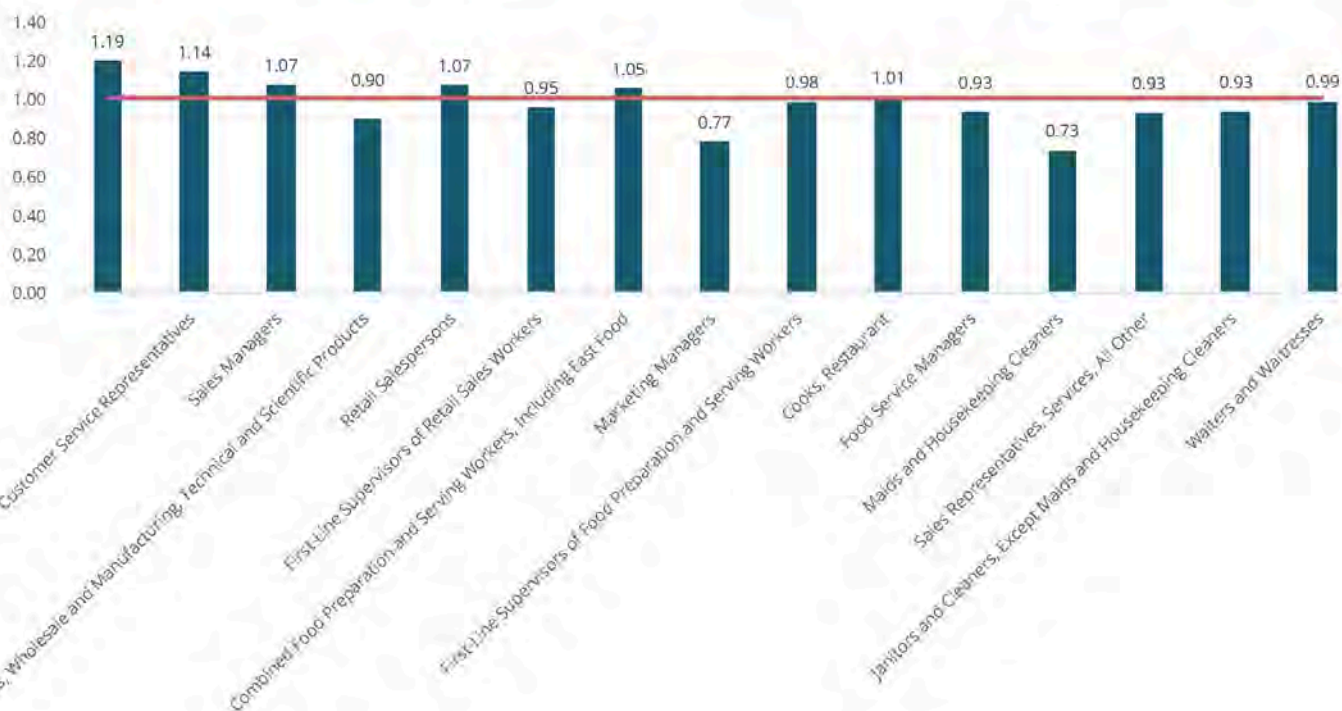
RETAIL & HOSPITALITY

TOP 15 JOBS LOCATION QUOTIENT

Location Quotient*
(2015)

Above orange line = more competitive
Below orange line = less competitive
At orange line = national average

*Note: the location quotient measures the relative concentration of workers in the analysis area compared to the nation as a whole.

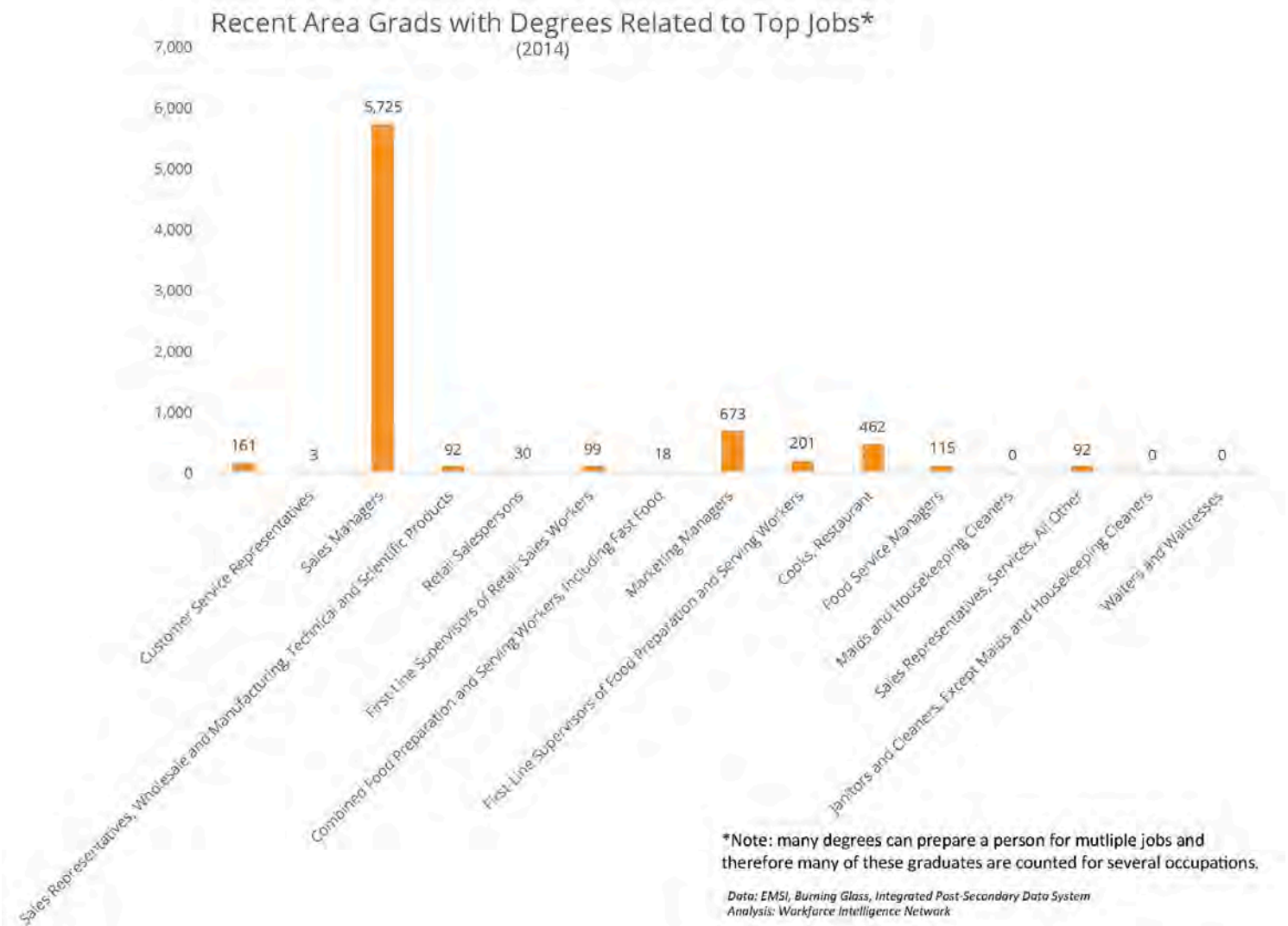


Data: EMSI, Burning Glass
Analysis: Workforce Intelligence Network

The location quotient (LQ) is a measure of relative concentration. In this case, it measures the relative concentration of workers in an occupation in a specific geography compared to the U.S. on average. Higher LQ's typically indicate that employers will have an easier time finding talent because those workers are more concentrated in the area; lower LQ's will make filling open positions more difficult. Southeast Michigan is not particularly competitive in its concentration of retail hospitality workers. This makes sense since consumer demand drives employment in this cluster and is roughly similar across all metro areas. For the top R&H jobs in Detroit, sales representatives (non-technical products) had the greatest concentration with 19% higher employment concentration than the national average.

RETAIL & HOSPITALITY

TOP 15 JOBS RECENT REGIONAL GRADUATES



Due to the regional nature of the labor force in Southeast Michigan data is shown for degree and certificate completions awarded by colleges and universities from all 16 counties in the WIN partnership. Most retail and hospitality jobs do not require an advanced degree. Sales managers have a large number of graduates with related degrees because the region's educational programs graduate a large number of students with training in business management. For certain occupations where specialized training is essential, marketing managers, cooks, technical sales, etc. very few graduates exist to fill employer needs.

RETAIL & HOSPITALITY

TOP 15 JOBS EDUCATION & TRAINING REQUIREMENTS

ONET Code	Occupation	Typical Entry Level Education	Work Experience Required	Typical On-The-Job Training
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	Moderate-term on-the-job training
43-4051	Customer Service Representatives	High school diploma or equivalent	None	Short-term on-the-job training
11-2022	Sales Managers	Bachelor's degree	Less than 5 years	None
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Bachelor's degree	None	Moderate-term on-the-job training
41-2031	Retail Salespersons	Less than high school	None	Short-term on-the-job training
41-1011	First-Line Supervisors of Retail Sales Workers	High school diploma or equivalent	Less than 5 years	None
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	Less than high school	None	Short-term on-the-job training
11-2021	Marketing Managers	Bachelor's degree	5 years or more	None
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	Less than 5 years	None
35-2014	Cooks, Restaurant	Less than high school	Less than 5 years	Moderate-term on-the-job training
11-9051	Food Service Managers	High school diploma or equivalent	Less than 5 years	None
37-2012	Maids and Housekeeping Cleaners	Less than high school	None	Short-term on-the-job training
41-3099	Sales Representatives, Services, All Other	High school diploma or equivalent	None	Short-term on-the-job training
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	Less than high school	None	Short-term on-the-job training
35-3031	Waiters and Waitresses	Less than high school	None	Short-term on-the-job training

While 12 of the top 15 R&H occupations require a high school degree or less, most require non-credit training, and employers often prefer workers with previous experience. The higher paying sales and managerial occupations typically require a Bachelor's degree.



SECTION FOUR

DATA NOTES AND SOURCES

DATA NOTES AND SOURCES

SPECIAL DATA NOTE

- Due to changes in Burning Glass's aggregation, parsing, and deduplication methods implemented in December 2014, data from previously released reports should not be compared to data in reports starting in Q4 2014 and moving forward. For the Q4 2014 report, the WIN team re-gathered and analyzed all of the data (postings from 2011 through 2014) to ensure that all numbers are up-to-date. If you would like information on the differences between the updated data and data from previous reports, please contact WIN's Research Director Colby Spencer Cesaro at colby.cesaro@win-semich.org.
- Wage, location quotient, completion, and education requirement data is shown for the 16 county region that is part of the WIN partnership.
- All numbers included in this report are the correct and updated data.
- Wage and educational attainment data available varies depending on the occupation. All wage and educational attainment data provided is for the 6-digit SOC code. Some 6-digit codes do not have education or wage data available, in this case we leave the information blank.
- Educational attainment data available refers to the share of the current workforce in each bracket, not what is shown in postings. Employers may require different educational attainment than what is in this report.
- Quarterly reports: Due to a data update in Burning Glass Technologies' Labor Insight tool, comparisons should not be made between data from each quarterly report and the annual review data should not be compared to data from previous quarterly reports.
- Adjustments to the labor force information were also made to reflect and incorporate updated inputs, re-estimation, and controlling to new statewide totals. Much of the information related to monthly and quarterly employment is updated several months after the initial release. More information can be found here: <http://www.bls.gov/lau/launews1.htm>
- This report uses \$15 as a "living wage" estimate. Any job paying more than this is considered to pay at least a living wage. Below \$15 is less than a living wage. This definition is based on a median household income in Michigan which is close to \$50,000 per year. If we assume that most homes have two income earners and both earn at least \$15 per hour, then that household's annual income would be at least \$62,000 putting these jobs above the median.

DATA NOTES AND SOURCES

UNDERSTANDING DEMAND VS EMPLOYMENT

- Employment refers to actual employment numbers—the number of people in jobs—in targeted industries or occupations.
- Demand refers to statistics derived from employer job postings, which indicate the potential for employment but may or may not materialize into actual jobs.
- Job posting-related demand, as presented in this report, is measured by online job postings. Employer demand may be larger than what is highlighted in this report if employers find talent by other means.

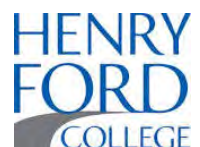
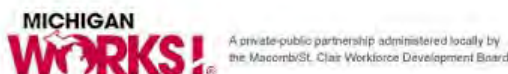
DATA SOURCES

- Labor market demand data for this report was compiled using Burning Glass Technologies' Labor Insight Tool, and analyzed by the Workforce Intelligence Network. Other data sources include, the Bureau of Labor Statistics, and Economic Modeling Specialists Inc. (EMSI). Check out our website <http://www.win-semich.org> for more data and detailed information about our sources.

UNDERSTANDING CLUSTERS

- Rather than focusing on talent demand within industries (types of firms), WIN generally emphasizes exploring talent demand based on occupations, including the skills, educational credentials, and experience needed to work in them.
- WIN research examines industry data, as the health of companies can be useful for economic development purposes. However, shifting focus from industry to occupation is important as different types of occupations with extremely different skillsets may work within and across industries. For example, accountants, computer specialists, and engineers all may work in the manufacturing industry.
- By clustering occupations, the talent system can identify employer demand for particular skillsets across multiple industry types and develop a response through training and pipeline development to meet that demand.

BOARD ORGANIZATIONS



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