
KNOWLEDGE INNOVATION ECONOMY

PARTNERSHIPS FOR A SKILLED WORKFORCE

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Metro Southwest . . . Technology Heartland of Massachusetts

Covering the area between Routes 128/I495, and serving 43 communities, Metro Southwest is one of the largest of the 16 workforce regions in Massachusetts.

The Metro Southwest (MSW) region contains communities that are defined by high-growth, high-paying knowledge and innovation industries, exceptional educational attainment and outstanding research and education institutions.

MSW is a college labor market in which jobs requiring post-secondary education dominate and college-educated residents thrive. Those without post-secondary education do not.

The Great Recession and the Recovery

MSW employment level exceeds employment at the beginning of the recession

MSW lost 3.3% of the jobs in the Great Recession, while job loss in the state as a whole was 4.0%.¹

MSW had the strongest growth among all state's regional labor markets, increasing 2.6% between the fourth quarters of 2009 and 2010.²

In the first quarter of 2008, there were 468,967 jobs in the region. In May 2014 employment was at 512,851.

Like the state as a whole, the recovery has spanned industries

EMPLOYMENT IN KEY METRO SOUTHWEST INDUSTRY SUPERSECTORS			
Industry	Q1/2008	Q2/2013	% Difference
Scientific Research & Development	9,837	12,129	23.3%
Computer Systems Design	19,425	23,809	22.6%
Health Care	45,708	52,814	15.5%
Professional & Technical Services	66,422	67,569	1.7%
Telecommunications	1,788	2,589	44.8%

Job vacancies rates rising

The job vacancy rate in Greater Boston was 3.4% at the end of 2007, declining by more than a percentage point at the end of 2009 and rising to near 3.0% as the economy recovered. Greater Boston has 45% of employment, but 55% of the vacancies across the state.³

As reported in the 2013 Greater Boston Job Vacancy Survey conducted by the Executive Office of Labor and Workforce Development, the vacancy rate for all occupations was 4.7%, with the highest rates reported for computer and mathematical occupations (6.8%), protective series (5.2%), building and grounds cleaning and maintenance (5.2%), personal care and service jobs (6.6%), and sales (5.8%).

The vacancy rate for all industries was 4.8%. Vacancy rates exceeded five percent in retail trade; real estate rental and leasing; management of companies; arts, entertainment and recreation; and accommodation and food services.

Labor force participation has increased over the past year

In June 2014 503,997 residents were either employed or actively looking for work. By June 2015 that number had increased to 516,503. This represents 14% of the Commonwealth's workforce.

Unemployment remains the lowest in the state, but almost 40% experience long periods of joblessness

The unemployment rate in MSW jumped to 6.5% during the recession, up from 3% in 2007—but it was the lowest among all workforce regions in the state.⁴

The MSW rate increased over the past year—from 5.2% in June 2012 to 5.8% in June 2013, still well below the state rate of 7.4%.

By June 2015 the unemployment rate for the region had fallen to four percent, below the Massachusetts rate of 4.9%

20,501 people who were looking for employment remained unemployed—12.1% of the states' unemployment.

In July 2013, 37.0% of the unemployed had been unemployed for 27 weeks or longer. The average weekly spell of unemployment was slightly over 36 weeks. The median was 15.7 weeks.⁵

The unemployed in MSW were older and more educated than the unemployed in the state as a whole

Almost one-third of the unemployed have a high school diploma or less, compared to one-half in the state. However, as a consequence of the highly educated workforce in MSW, 52.7% of the unemployed in MSW have a bachelor's degree or higher, substantially higher than the 27.7% statewide.⁶

Youth did not fare well in the recession and have not regained employment in the recovery

17.5% of the unemployed are ages 16 to 24, but they are only 9.5% of the workforce. However, youth unemployment in Metro Southwest is significantly below the state as a whole. 26.4% of the unemployed in the state are between the ages of 16 and 24.

Population

Without the influx of immigrants, the population in MSW would have declined over the past decade

At 1,038,784 residents, MSW accounted for 16.6% of the state's population at the end of 2010, behind the Southeast (21%) and Boston/Metro North (19.2%)⁷

After experiencing the second fastest population growth rate (0.4%) early in the decade, MSW was one of only three regions to experience a decline in population in recent years—0.1%.⁸

From 877,860 in 2000, the native born population fell to 859,444 in 2010, while the immigrant population grew by 2.7% to 179,340 in 2010.⁹

In the period 2000–2007, the growth of working-age immigrants was 3.6%, larger than in Massachusetts at 2.8% and in the United States at 3.2%. Immigration slowed in 2010 to 1.5%, less than in Massachusetts at 2.0% and in the United States at 2.3%.¹⁰

The region became more ethnically and racially diverse over the decade, with a 6.3% increase in the number of Hispanic residents and a 5.2% increase in Asian residents.¹¹

Income Sufficiency

MSW is a high-income region, but not all individuals share in the prosperity, and poverty rates have increased slightly even in the recovery

From 2009 to 2013, the median household income was \$82,090 in Middlesex County and \$84,916 in Norfolk County, well above \$66,866 in Massachusetts.¹²

For the same time period, per capita income in Norfolk County was \$44,692 and \$42,861 in Middlesex County compared to the state per capita income of \$35,763.¹³

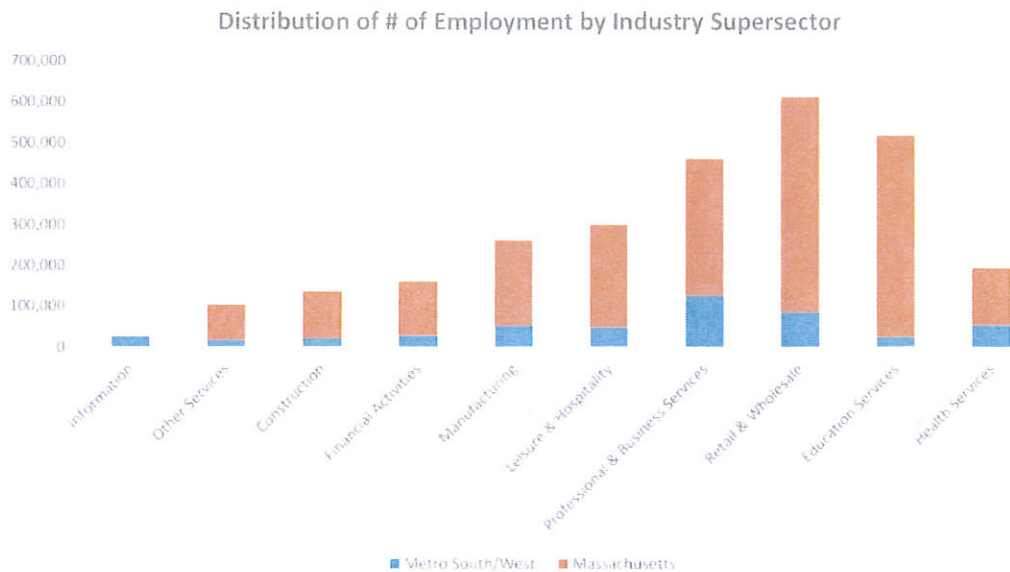
8.1% of the population in Middlesex County and 6.6% of the population in Norfolk County fell at or below the federal poverty level (the federal government defines poverty as \$15,510 for a family of two up to \$39,630 for a family of 8) compared to 11.4% of the residents in the state.¹⁴

Youth poverty rates for 15 to 24 year olds in Metro Southwest range from 16.6% in Brookline, 11.5% in Waltham, 7.8% in Framingham to 0/0.7% in Dover. The average poverty rate for all 43 cities and towns is 4.9%.

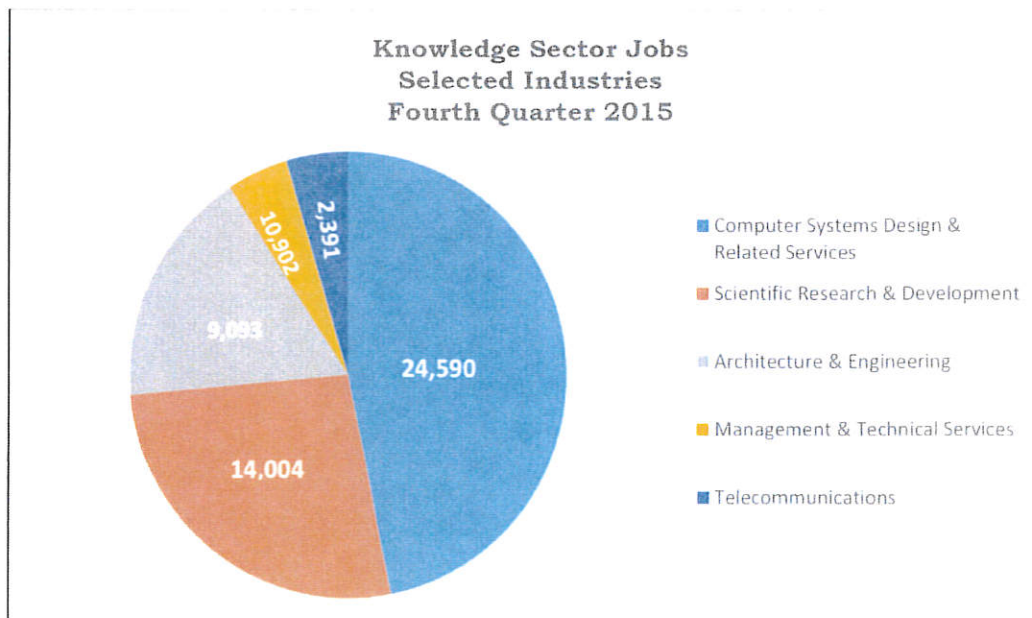
The MSW Labor Market: Demand

MSW has 17.52% of the state's employment-512,851 jobs

In the fourth quarter of 2014 professional and business services dominate the region with 26% (126,972) of the jobs in the region- one quarter of the professional and business services jobs in the state.



Knowledge technology jobs dominate in Metro Southwest



Firms with 100 or more employees accounted for almost one-half of the jobs in MSW

The majority of companies (86.5%) had fewer than 20 employees, but they accounted for only 21.8% of employment.

MSW Labor Market: Supply

MSW is a net importer of workers

MSW is a net importer of workers with 60,000 more employees commuting into the region for work than residents commuting out.¹⁵

Labor force growth slowed by 2010

Between 2000 and 2005, the labor force grew by 4.6%, compared to Massachusetts, 4.4% and the United States, 4.8%. By 2010 the growth rate of the MSW labor force slowed to 2.2%, less than that of Massachusetts, 3.0% and the United States, 3.2%.¹⁶

MSW has the oldest workforce in the Commonwealth

Slightly over 50% of the unemployed in MSW are 45 or older, compared to 36.6% in the state.¹⁷

Between 2000 and 2010, the number of 45–64 year olds in the workforce in MSW increased by 5.6%; 16–24 year olds increased by 1.8%. The prime working age group, 25–44 year olds, declined by 4.5%.¹⁸

Best educated workforce in the Commonwealth

80% of MSW workers had completed some post-secondary education by the end of the decade, compared to 70% in Massachusetts and 60% in the nation.¹⁹

Nearly 30% of MSW's workers had a master's degree or higher, almost double the share of workers in Massachusetts with a master's.²⁰

46.7% of the unemployed in MSW have a bachelor's or higher, compared to 22.8% in the state.²¹

The number of people in the labor force in the region without a high school diploma or GED fell by 2.0% to 29,248 in 2010.²²

Educational attainment falls sharply by age cohort. The largest potential shortfall is in associate's degrees; 12,600 people in MSW between 45 and 54 have an associate's degree. Fewer than 5,000 people between the ages of 25 and 34 have an associate's.²³

The 128 loop encompasses 58 institutions of higher education—18 in Metro Southwest.²⁴

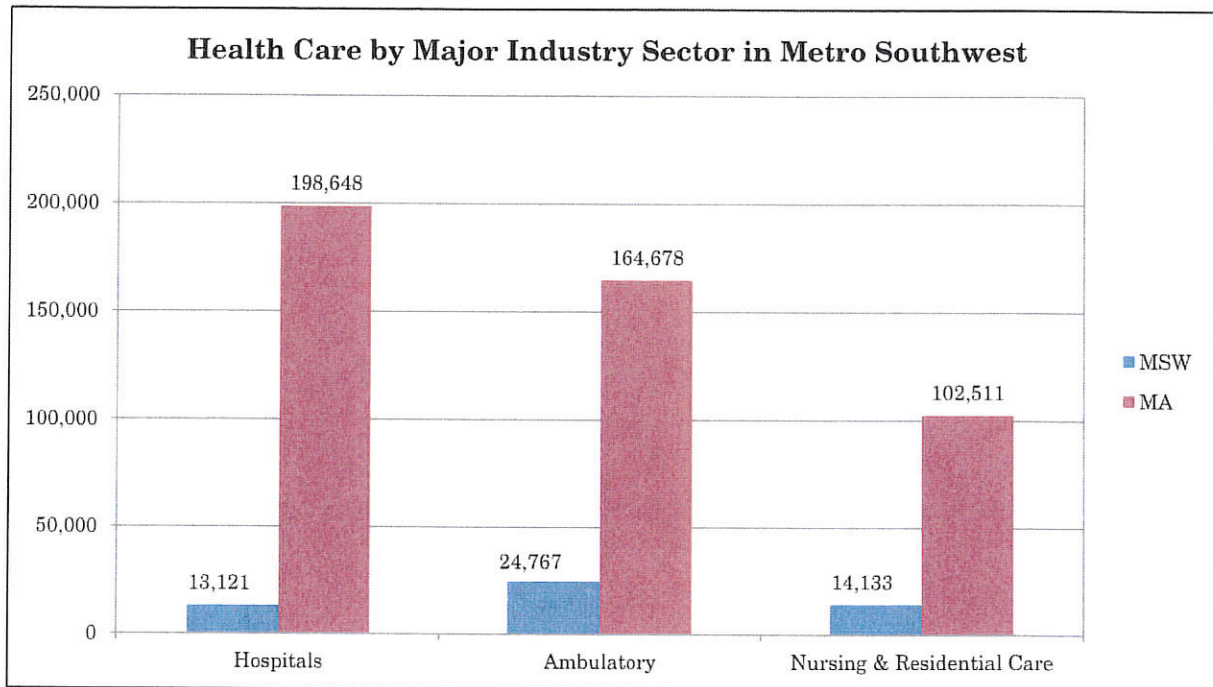
INSTITUTIONS OF HIGHER EDUCATION IN METRO SOUTHWEST	
Brookline	Boston Graduate School of Psychoanalysis Hellenic College and Holy Cross Greek Orthodox School of Theology New England Institute of Art Newbury College Pine Manor College
Canton	Massasoit Community College
Marlborough	Quinsigamond Community College
Needham	Franklin W. Olin College of Engineering
Newton	Andover Newton Theological School Boston College Hebrew College Lasell College Mt. Ida College
Waltham	Bentley University Brandeis University
Wellesley	Babson College Massachusetts Bay Community College Wellesley College

MSW is home to 44 secondary school districts

In addition to the 40 “comprehensive” high schools, there are four regional career technical schools—Minuteman in Lexington, Tri-County in Franklin, Blue Hills in Canton, Joseph P. Keefe in Framingham and Assabet Valley Regional Technical High School in Marlborough

Health Care

In the second quarter of 2013, ambulatory care made up 48.9% of the 52,814 health care jobs in MSW



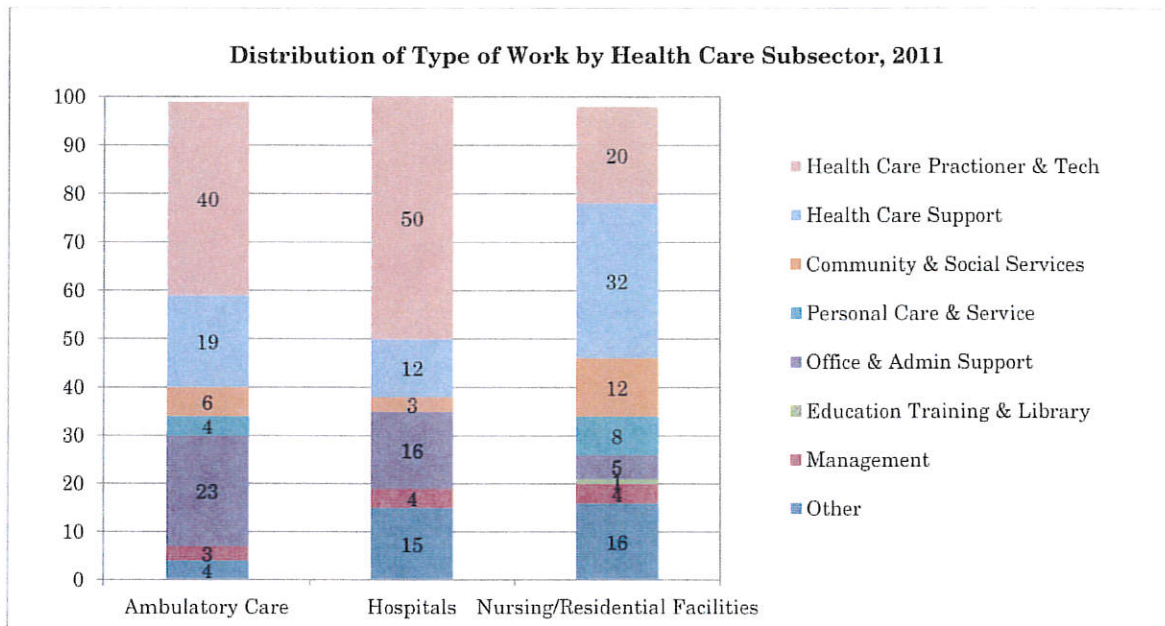
Hospitals include medical, surgical, psychiatric and substance abuse hospitals.

Ambulatory care includes doctor's and dentist's offices, medical and diagnostic labs and home health care.

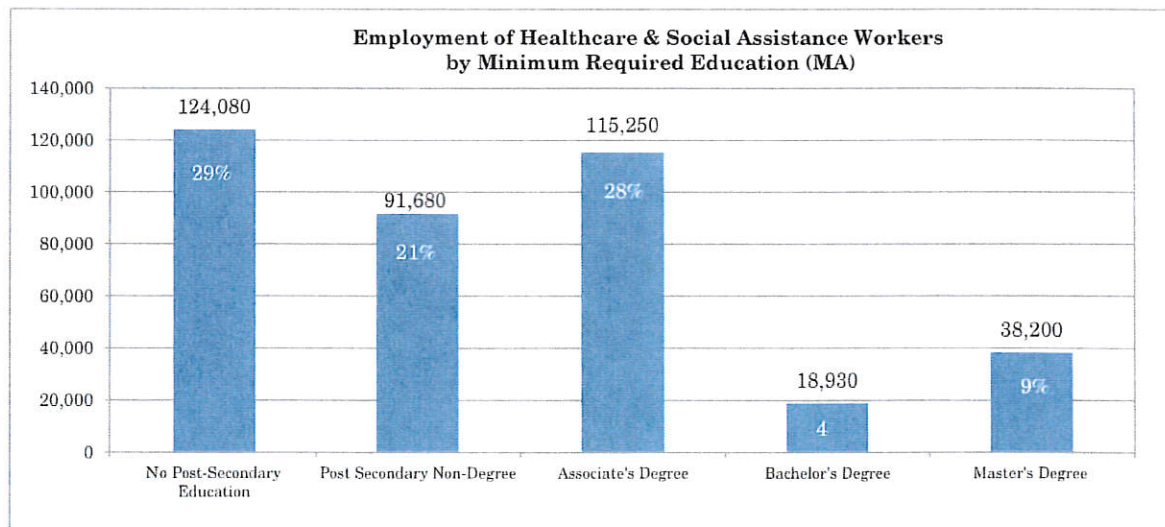
Nursing and residential care include nursing homes, residential mental health facilities, and community care facilities for the elderly.

Occupational distributions vary by health care subsectors

Health care practitioners and technicians make up 40% of the ambulatory care workforce compared to 50% of the hospital workforce and 20% of the nursing and residential care workforce.²⁵



78% of the health care jobs do not require a bachelor's degree.²⁶



These percentages do not sum to 100 because the occupations requiring a Doctorate are omitted.

Health care jobs are a pathway to economic self-sufficiency

Salaries range from \$22,430 for jobs not requiring a post-secondary degree (pharmacy aide) to \$89,960 for jobs requiring a master's degree (physician assistant).²⁷

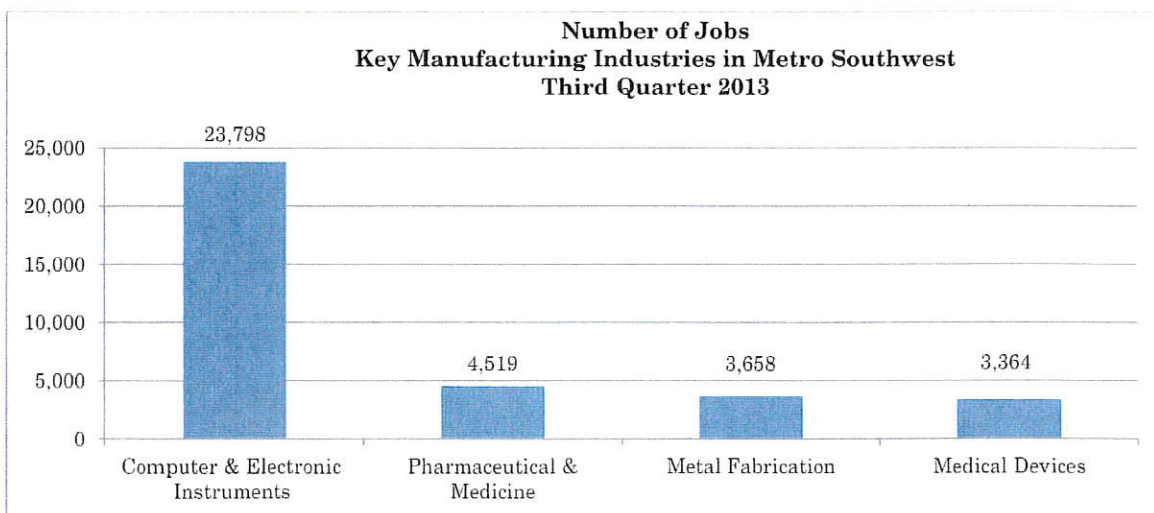
AVERAGE ANNUAL SALARIES BY ACHIEVEMENT	
Education Requirement	Salary Range
No post-secondary education requirement	\$22,430–\$47,480
Certificate required	\$28,480–\$47,480
Associate's degree	\$35,160–\$67,200
Bachelor's degree	\$37,710–\$86,450
Master's degree	\$35,940–\$89,960

Advanced Manufacturing

The majority of MSW manufacturing firms fit the definition of “advanced manufacturing”²⁸

ADVANCED MANUFACTURING
Innovate, turning raw materials into complex products
Compete with high standards, in design, production, delivery and product life cycle management
Pay well for a highly skilled workforce
Participate in a network of scientists, researchers, precision machinists, engineers, financiers, business developers and entrepreneurs
Believe that the network is the strength of innovation and problem solving

Three of the top manufacturing industries in MSW, computers, electronics and pharmaceuticals are classified as “high tech” by the Organization for Economic Cooperation and Development. (The classification is based on the products produced .)²⁹



Manufacturing accounts for almost one in ten jobs in MSW³⁰

MSW manufacturing firms employed 51,929 workers in the second quarter of 2013, down from 55,564 in the first quarter of 2008.³¹

67% of the almost 700 employers surveyed across the state in 2011 reported moderate or severe shortages in skilled production jobs (machinists, craft workers and technicians). Only 8% reported difficulty filling entry-level jobs, down from 43% in 2008.³²

MSW firms report difficulty in filling R&D engineer, chemist and other highly educated specialist jobs.³³

Eleven of the 25 largest medical device companies in the Commonwealth are located in MSW³⁴

LARGEST MEDICAL DEVICE COMPANIES IN MSW	
Thermo Fisher Scientific	Nova Biomedical Corporation
Boston Scientific	HartWare International
Alere, Inc.	Tegra Medical
PerkinElmer	Tanika Therapeutics, Inc.
Hologic, Inc.	TEI Biosciences, Inc.
Insulet Corporation	

Manufacturing firms in MSW hire a greater proportion of professional and technical workers than manufacturing firms in other regions of Massachusetts³⁵

OCCUPATIONAL PROFILE KEY METRO SOUTHWEST MANUFACTURING SECTORS MAY 2011				
Occupation	Pharmaceutical & Medicine	Computers & Electronic Instruments	Metal Fabrication	Medical Devices
Managers	19.0	13.3	7.0	7.8
Business & Financial Occupations	6.7	7.9	1.8	5.3
Computation & Mathematics	2.7	24.1		3.1
Engineers	10.4	20.7	2.9	15.0
Life, Physical & Social Scientists	27.9	0.5		
Sales		4.6		6.8
Office & Administrative Support	9.9	8.4	10.3	11.5
Installation, Maintenance & Repair	23.4	1.5	1.8	4.0
Production		16.0	70.7	41.0
Transportation & Material Moving			3.2	5.0
Miscellaneous		3.0	2.3	0.5
	100.0	100.0	100.0	100.0

Manufacturing workers in MSW are well paid

MEDIAN ANNUAL INCOME KEY METRO SOUTHWEST MANUFACTURING SECTORS MAY 2011			
Industry Sector	Managers	Engineers & Technicians	Production Workers
Pharmaceuticals & Medicine	\$116,301	\$52,572	\$30,625
Computer & Electronic Instruments	\$139,015	\$86,761	\$37,686
Metal Fabrication	\$102,241	N/A	\$30,073
Medical Devices	\$129,841	\$75,087	\$31,756

The majority of manufacturing workers in MSW are well educated

In 2010, 21.9% of MSW workers had some college or an associate's degree. 52.9% had a bachelor's or higher.³⁶

Information Technology

Four subsectors make up the Massachusetts IT industry³⁷

Massachusetts Core Information Technology Sectors & Subsectors

<p>IT Services Systems development & integration Computer support & maintenance Web design & development Training Data hosting & processing, etc.</p>	<p>Software System software Middleware/ integration software Application software Custom computer programming</p>
<p>Hardware Semiconductors & equipment Computer peripherals & devices (including storage) Network hardware Communications equipment & devices (including mobile), etc.</p>	<p>Network Communications Wireline Telephone Cable Wireless Internet service providers (ISPs) Related communications Infrastructure, etc.</p>

IT has moved from hardware development and production to IT services and software over the decade

In 2000, almost 40% of the jobs were in the hardware sector. By 2008 only 32% of the jobs were in hardware. 54.5% of the jobs are now in IT services and software, up from 45.6% in 2000.³⁸

21 of the 70 fastest growing companies ranked by revenue growth between 2009 and 2012 were in information technology firms. Five were in MSW.³⁹

5 FASTEST GROWING TECH FIRMS IN MSW
EchoStor Technologies
Emservop
Solidas Technical Solutions
Syrinx Consulting Corporation
NWN Corporation

Although reduced in size since 2000, IT is still a significant presence in the Commonwealth and in MSW

At its height in 2000, IT firms statewide employed over 240,000 people. In 2008, that number had shrunk to 178,322.⁴⁰

In the third quarter of 2012 there were 27,291 information jobs in MSW, slightly over five percent of all jobs in the region.

There is opportunity for workers with some post-secondary education, but not a bachelor's degree—middle skills jobs

In 2011, there were 153,560 IT middle skills job openings statewide.⁴¹

IT MIDDLE SKILLS JOBS IN MASSACHUSETTS	
Computer Network & Database System Administrators	32,610
IT & User Support	24,732
Web–Internet–Digital Media	21,541
Data & Information Management	20,093

Demand for software developers for network/computer systems is expected to rise by 71.7% between 2010 and 2020.⁴²

SOFTWARE DEVELOPER GROWTH AREAS	
Java/j2EE/Java Developer	SAP
Mobile	SharePoint
NET	Web Developer
Software Developers	Network Engineers
Security	Networking Cloud 900

IT industry salaries are higher than salaries in other industries in Massachusetts⁴³

COMPUTER SYSTEMS DESIGN & RELATED SERVICES		
Occupation	IT Median Annual Wage	Other Industry Median Annual Wage
Management	\$130,760	\$92,880
Computer & Mathematical Occupations	\$78,320	\$75,080
Business & Financial Operations	\$73,050	\$61,700
Office & Administrative Support	\$36,230	\$31,250

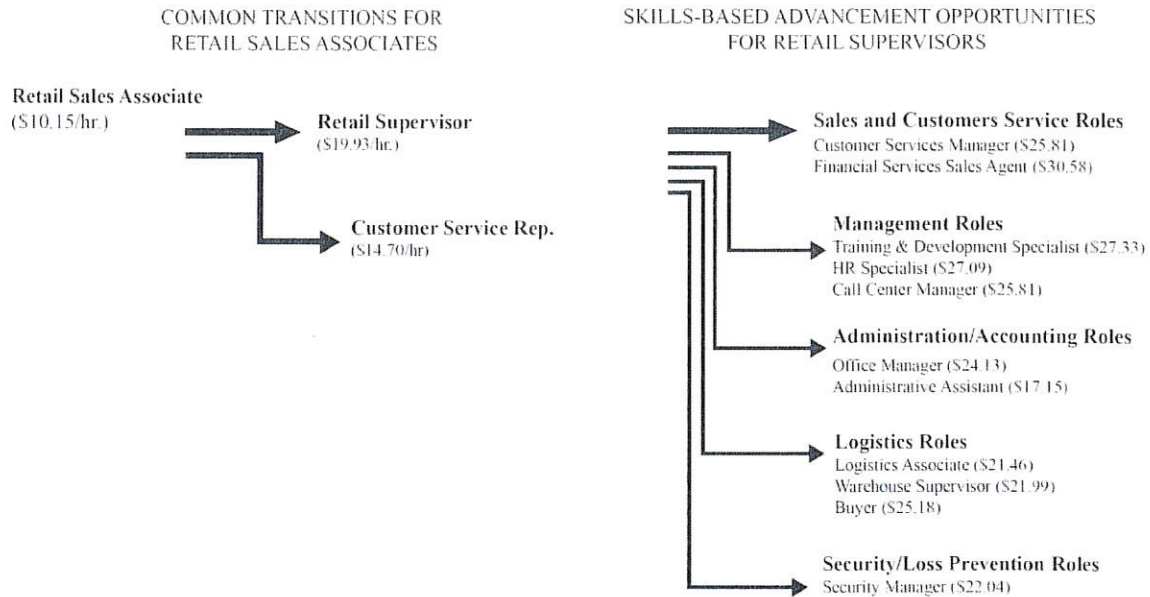
The median salary for software developers specializing in systems design was \$94,570 in 2011. Software application developers were not far behind at \$88,120, while computer systems analysts had a 2011 median salary of \$82,160.⁴⁴

Resale and Wholesale Trade

Trade is a significant presence in Metro Southwest with 86,039 jobs in the fourth quarter of 2014.



Although average weekly wages are low, some sectors may offer career pathways for people with limited education and work experience.



Methodology: Transition pathways are based on the frequency of career transitions observed in millions of resumes and analysis of skill requirements in Burning Glass proprietary database of more than 100 million online job postings. Wage data reflect the mean advertised hourly wage.

Challenges Ahead

With a diverse industry base and a well-educated workforce the region is well positioned to thrive over the next decade. However, there are significant challenges facing policy makers, educators and workforce development organizations. Action must be taken to:

- Ensure that there are an adequate number of people in the workforce by supporting the growth of jobs that are attractive and accessible to people who left the workforce during the recession and maximize the potential of the immigrant population
- Create a job-driven education and training system that re-skills those who are currently unemployed and prepares the workforce of the future by strengthening working relationships between business, industry and education at all levels
- Dramatically expand opportunities for all young people to work and learn through co-op programs, internships and paid work

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- ¹ Clifford, Robert. Labor Market Trends in the Metro South/West Region. Commonwealth Corporation and the New England Public Policy Center of the Federal Reserve Bank of Boston. Boston, MA. June 2012. p. 21.
- ² Clifford, 21.
- ³ Clifford, 39.
- ⁴ Clifford, 17.
- ⁶ Clifford, 19
- ⁷ Clifford, 8.
- ⁸ Clifford, 8–9.
- ⁹ Clifford, 9.
- ¹⁰ Clifford, 10.
- ¹¹ Clifford, 9.
- ¹² US Census Bureau. Quick Facts. 2011.
- ¹³ US Census Bureau, Quick Facts. 2011.
- ¹⁴ US Census Bureau. Quick Facts. 2011.
- ¹⁵ Clifford, 20
- ¹⁶ Clifford, 11.
- ¹⁷ Clifford, 18.
- ¹⁸ Clifford, 9.
- ¹⁹ Clifford, 15.
- ²⁰ Clifford, 15.
- ²¹ Clifford, 15.
- ²² Clifford, 15.
- ²³ Clifford, 16.
- ²⁴ Wikipedia. List of colleges and universities in metropolitan Boston.
- ²⁵ Clifford, 33.
- ²⁶ Blakely and White, 26.
- ²⁷ Blakely and White, 27-31.
- ²⁸ Deloitte Consulting LLP. Reexamining advanced manufacturing in a networked world: Prospects for a resurgence in New England. The New England Council. December 2009.
- ²⁹ Bluestone. 36. Thomas Hatzichronoglou, "Revision of the High-Technology Sector and Product Classification." Paris: Organization for Economic Cooperation and Development.
- ³⁰ EOLWD.
- ³¹ EOLWD.
- ³² Bluestone, Barry, Anna Gartsman, Don Walsh, Russ Eckel, and James Huessy. Staying Power II: A Report Card on Manufacturing in Massachusetts. The Kitty and Michael Dukakis Center for Urban and Regional Policy, School of Public Policy and Urban Affairs, Northeastern University. Boston, MA. 2012.
- ³³ Beville, Sylvia, Kelley French. Manufacturing in Metro Southwest. Partnerships for a Skilled Workforce. Marlborough, MA. 2013.

³⁴ Boston Business Journal. August 16022, 2013.

³⁵ Clifford, 33.

³⁶ Clifford, 28.

³⁷ Goodman.

³⁸ Goodman.

³⁹ Boston Business Journal. Area's Fastest-Growing Private Companies. April 26, 2013.

⁴⁰ Goodman.

⁴¹ BATEC. An Analysis of Information Technology Middle Skill Job Openings 2011. Boston, MA. June 2012.

⁴² Boston Business Journal, August 2-8, 2013.

⁴³ Boston Business Journal, August 2-8, 2013.

⁴⁴ Boston Business Journal, August 2-8, 2013.