

Technology Industry Cluster

Traditional Labor Market
Information View
Winter 2012 - 2013



Technology Industry Cluster:

Employment Analysis

Traditional Labor Market
Information View

Winter 2012 - 2013



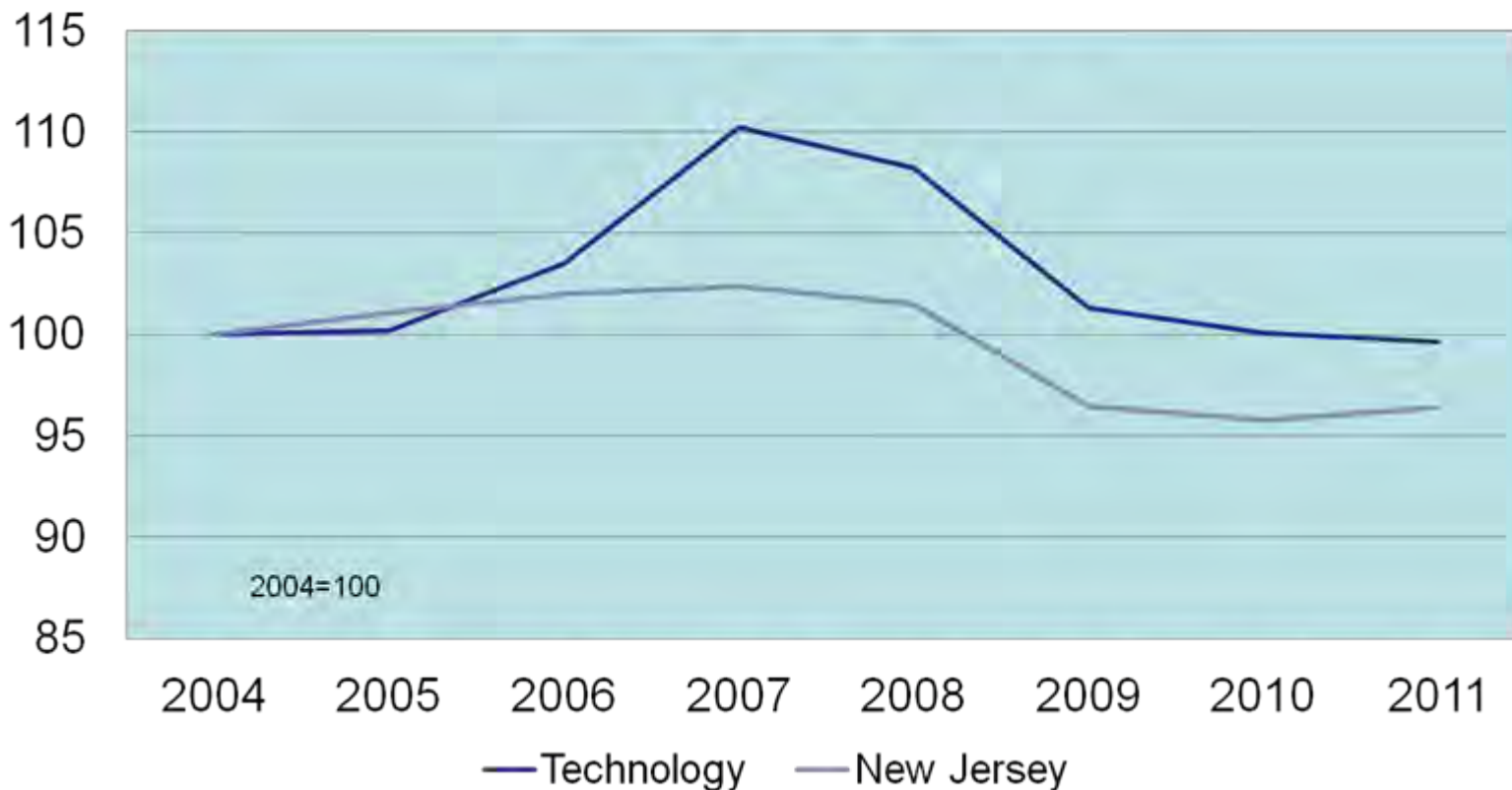
Employment Overview

- In 2011 New Jersey's technology cluster accounted for 311,869 jobs or about 10 percent of the statewide total.
- The Annual Average Wage for the technology cluster was \$103,215 in 2011 or 181 percent of the statewide average (\$56,888) for all industries.
- Industries within the technology cluster can primarily be found within four industry sectors.
 - Utilities
 - Manufacturing
 - Information
 - Professional, scientific and technical service
- Employment in the cluster peaked in 2007 at 345,108 jobs
- Note: Technology Cluster Industries were selected primarily based on an U.S. Bureau of Labor Statistics (BLS) study that defined an industry as high tech based on its high proportion of scientists, engineers and technicians.



Technology sector employment since 2007 has generally followed the statewide trend. Technology employment is currently slightly below 2004 levels (-1,157 jobs) while statewide employment has declined by 3.6%

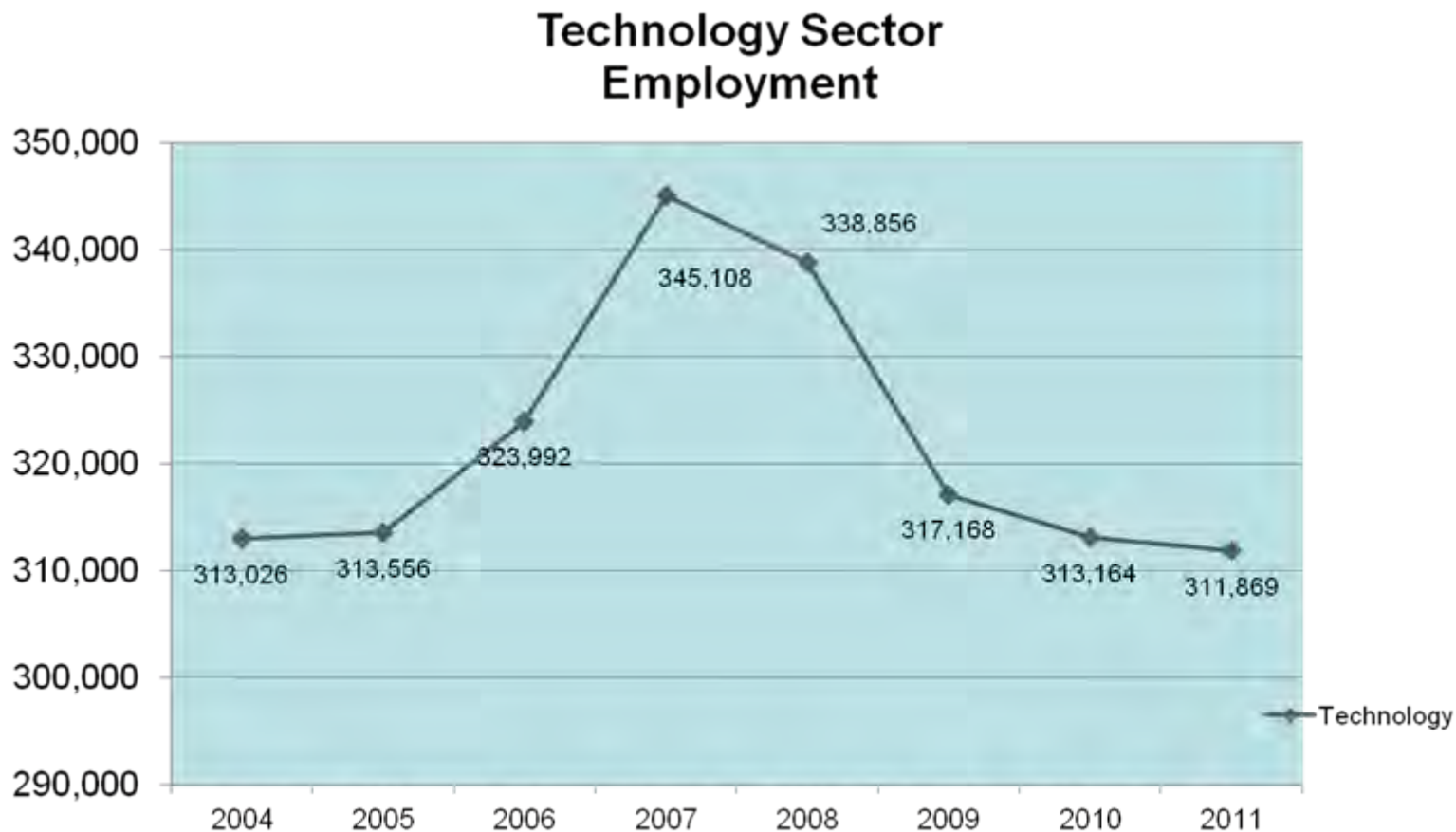
Technology Sector vs. Statewide Employment



Source: NJLWD, Quarterly Census of Employment & Wages, Annual Averages



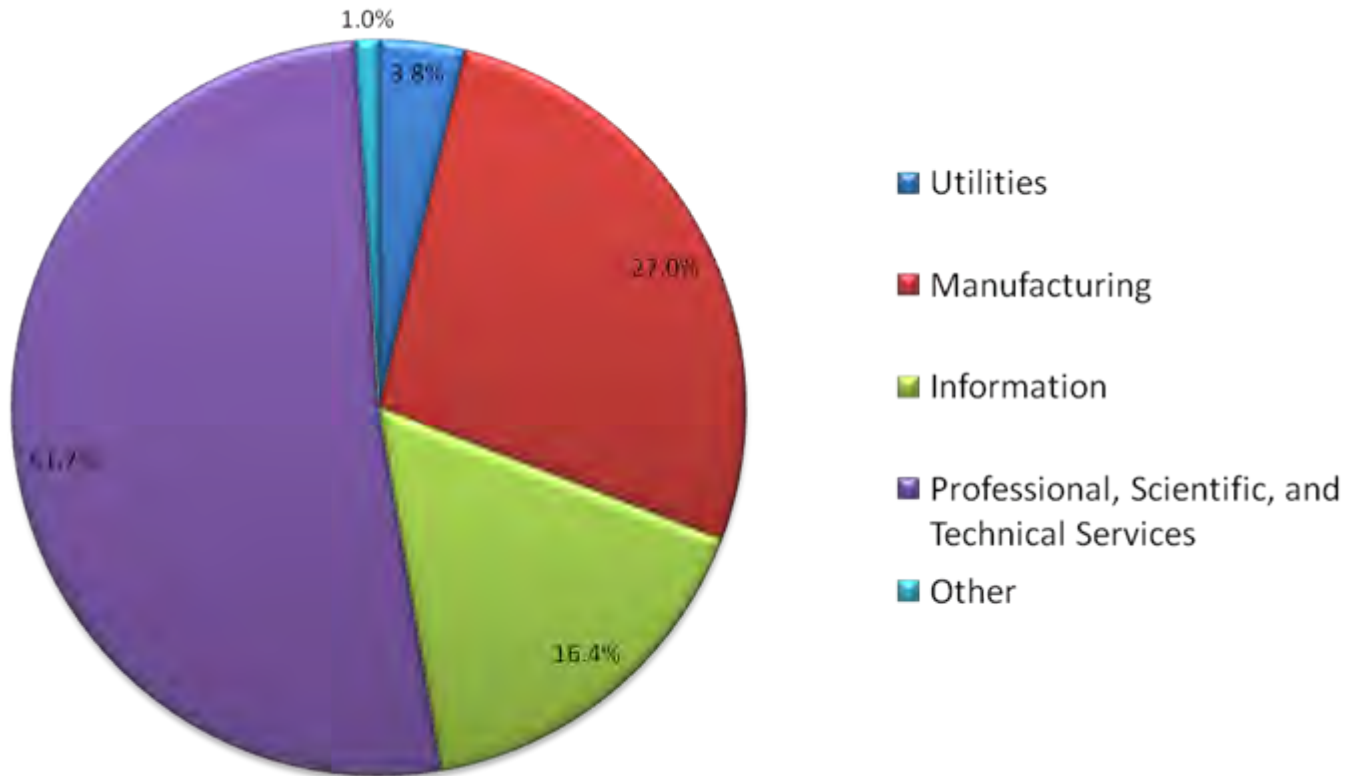
Employment in the Cluster declined by 9.6 percent since 2007



Source: NJLWD, Quarterly Census of Employment & Wages, Annual Averages

Professional, Scientific, and Technical Services industries accounted for more than half of cluster employment in 2011.

Percent Employment by Component Sector



Source: Quarterly Census of Employment & Wages, 2011 Annual Average



Eighty percent of all business establishments in the technology cluster were in the professional, scientific and technical services sector

Technology Cluster: Component Sectors, 2011 Annual Averages

| Industry | Establishments | Employment | Wages | |
|--|-----------------------|-------------------|----------------|-------------------|
| | | Average | Average | Total |
| All Industries | 259,007 | 3,155,405 | \$56,888 | \$179,503,864,608 |
| All Cluster Industries | 25,590 | 311,869 | \$103,215 | \$32,189,409,988 |
| Utilities | 208 | 11,196 | \$111,470 | \$1,248,020,820 |
| Manufacturing | 1,800 | 82,059 | \$109,222 | \$8,962,675,202 |
| Information | 2,568 | 48,504 | \$101,662 | \$4,930,994,018 |
| Professional, Scientific, and Technical Services | 20,473 | 167,091 | \$100,876 | \$16,855,516,557 |

Source: NJLWD, Quarterly Census of Employment & Wages, 2011 Annual Averages

Within the technology cluster over 82 percent of employment was found in only nine industries in 2011

Technology Cluster: Component Sectors, 2011 Annual Averages

| Industry | Establishments | Employment Average | Percent of Cluster Employment | Wages Average |
|---|----------------|--------------------|-------------------------------|------------------|
| All Industries | 259,007 | 3,155,405 | | \$56,888 |
| All Cluster Industries | 25,590 | 311,869 | 100.0% | \$103,215 |
| <i>Largest Ranked by Employment</i> | | | | |
| Computer systems design and related services | 8,757 | 63,666 | 20.4% | \$100,957 |
| Management and technical consulting services | 7,297 | 37,230 | 11.9% | \$85,412 |
| Architectural and engineering services | 3,697 | 35,518 | 11.4% | \$86,153 |
| Scientific research and development services | 722 | 30,677 | 9.8% | \$136,517 |
| Pharmaceutical and medicine manufacturing | 245 | 29,995 | 9.6% | \$145,460 |
| Wired telecommunications carriers | 772 | 25,887 | 8.3% | \$103,979 |
| Electronic instrument manufacturing | 331 | 13,777 | 4.4% | \$92,228 |
| Medical equipment and supplies manufacturing | 431 | 12,342 | 4.0% | \$97,191 |
| Semiconductor and electronic component mfg. | 205 | 8,033 | 2.6% | \$67,816 |
| <i>Smallest Ranked by Employment</i> | | | | |
| Industrial machinery manufacturing | 149 | 2,832 | 0.9% | \$68,468 |
| Other telecommunications | 340 | 2,547 | 0.8% | \$94,848 |
| Wireless telecommunications carriers | 256 | 2,523 | 0.8% | \$75,937 |
| Other electrical equipment and component mfg. | 85 | 2,314 | 0.7% | \$64,406 |
| Aerospace product and parts manufacturing | 28 | 1,558 | 0.5% | \$71,319 |
| Computer and peripheral equipment mfg. | 54 | 636 | 0.2% | \$94,000 |
| Magnetic media manufacturing and reproducing | 28 | 595 | 0.2% | \$59,863 |
| Satellite telecommunications | 22 | 206 | 0.1% | \$83,318 |

Source: NJLWD, Quarterly Census of Employment & Wages, 2011 Annual Averages

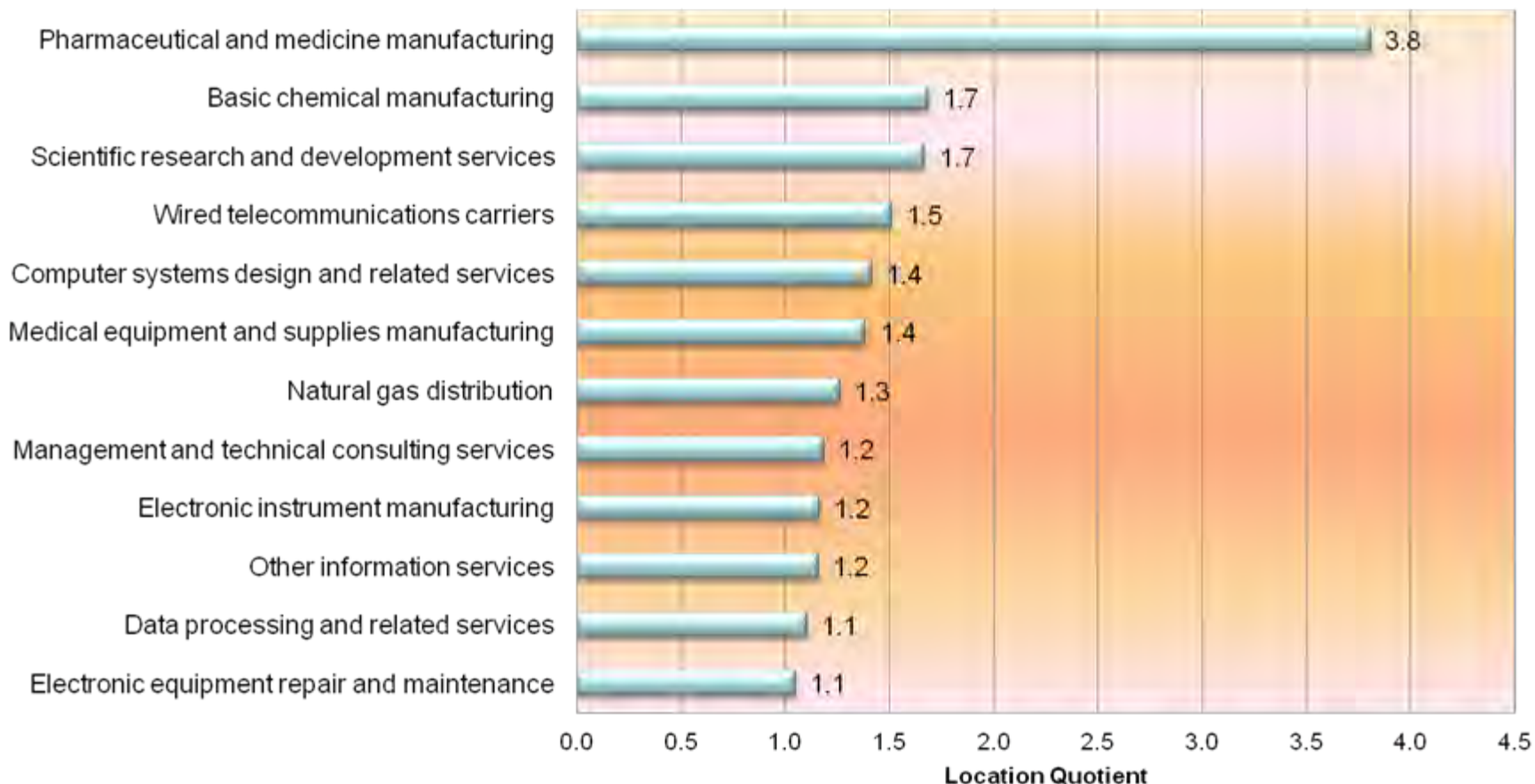


STATE OF NEW JERSEY

DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

New Jersey's technology sector employment share in several key industries was greater than the nation in 2011

2011 Location Quotient's of Selected Technology Cluster Industries

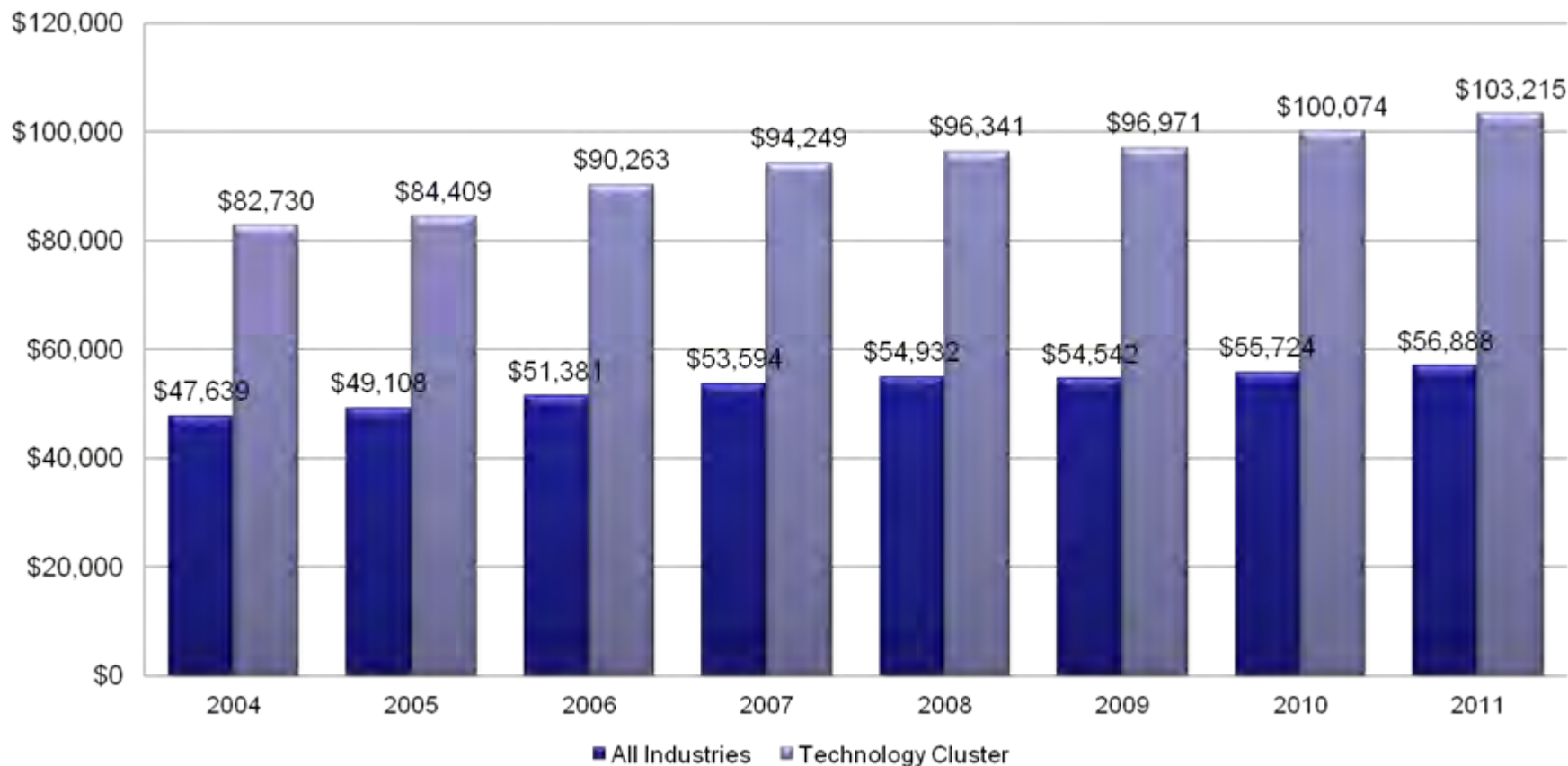


Source: NJLWD, Quarterly Census of Employment & Wages, 2011 Annual Averages



Wages in the Technology Cluster have averaged 176 percent of the statewide annual average wage since 2004

2011 Annual Average Wage: All Industries vs. Technology Cluster



Source: NJLWD, Quarterly Census of Employment & Wages, Annual Averages

Employment in computer systems design and related services was 20 percent of total technology cluster employment

Technology Cluster: Professional, Scientific, and Technical Services Sector, 2011 Annual Averages

| <u>Industry</u> | <u>Establishments</u> | <u>Employment</u> | <u>Wages</u> | |
|---|-----------------------|-------------------|------------------|-------------------------|
| | | <u>Average</u> | <u>Average</u> | <u>Total</u> |
| All Cluster Industries | 25,590 | 311,869 | \$103,215 | \$32,189,409,988 |
| Professional, Scientific, and Technical Services | 20,473 | 167,091 | \$100,876 | \$16,855,516,557 |
| Architectural and engineering services | 3,697 | 35,518 | \$86,153 | \$3,060,005,376 |
| Computer systems design and related services | 8,757 | 63,666 | \$100,957 | \$6,427,575,655 |
| Management and technical consulting services | 7,297 | 37,230 | \$85,412 | \$3,179,934,260 |
| Scientific research and development services | 722 | 30,677 | \$136,517 | \$4,188,001,266 |

Source: NJLWD, Quarterly Census of Employment & Wages, 2011 Annual Averages



Pharmaceutical and medicine manufacturing (36.5%) led the manufacturing component in employment in 2011

Technology Cluster: Manufacturing Sector, 2011 Annual Averages

| Industry | Establishments | Employment | Wages | |
|---|----------------|----------------|------------------|-------------------------|
| | | Average | Average | Total |
| All Cluster Industries | 25,590 | 311,869 | \$103,215 | \$32,189,409,988 |
| Manufacturing | 1,800 | 82,059 | \$109,222 | \$8,962,675,202 |
| Basic chemical manufacturing | 128 | 7,036 | \$104,201 | \$733,200,275 |
| Pharmaceutical and medicine manufacturing | 245 | 29,995 | \$145,460 | \$4,363,125,163 |
| Industrial machinery manufacturing | 149 | 2,832 | \$68,468 | \$193,907,692 |
| Computer and peripheral equipment mfg. | 54 | 636 | \$94,000 | \$59,815,423 |
| Communications equipment manufacturing | 116 | 2,941 | \$102,680 | \$302,006,906 |
| Semiconductor and electronic component mfg. | 205 | 8,033 | \$67,816 | \$544,747,202 |
| Electronic instrument manufacturing | 331 | 13,777 | \$92,228 | \$1,270,613,718 |
| Magnetic media manufacturing and reproducing | 28 | 595 | \$59,863 | \$35,618,329 |
| Other electrical equipment and component mfg. | 85 | 2,314 | \$64,406 | \$149,002,983 |
| Aerospace product and parts manufacturing | 28 | 1,558 | \$71,319 | \$111,126,403 |
| Medical equipment and supplies manufacturing | 431 | 12,342 | \$97,191 | \$1,199,511,108 |

Source: NJLWD, Quarterly Census of Employment & Wages, 2011 Annual Averages

Wages in the information component was 98.5 percent of the technology cluster average.

Technology Cluster: Information Sector, 2011 Annual Averages

| <u>Industry</u> | <u>Establishments</u> | <u>Employment</u> | <u>Wages</u> | |
|--------------------------------------|-----------------------|-------------------|------------------|-------------------------|
| | | <u>Average</u> | <u>Average</u> | <u>Total</u> |
| All Cluster Industries | 25,590 | 311,869 | \$103,215 | \$32,189,409,988 |
| Information | 2,568 | 48,504 | \$101,662 | \$4,930,994,018 |
| Software publishers | 310 | 4197 | \$121,035 | \$508,012,743 |
| Wired telecommunications carriers | 772 | 25887 | \$103,979 | \$2,691,702,168 |
| Wireless telecommunications carriers | 256 | 2523 | \$75,937 | \$191,564,948 |
| Satellite telecommunications | 22 | 206 | \$83,318 | \$17,198,270 |
| Other telecommunications | 340 | 2547 | \$94,848 | \$241,555,388 |
| Data processing and related services | 523 | 7898 | \$101,542 | \$801,998,223 |
| Other information services | 345 | 5246 | \$91,293 | \$478,962,278 |

Source: NJLWD, Quarterly Census of Employment & Wages, 2011 Annual Averages

Technology Industry Cluster:

Occupational Analysis

Traditional Labor Market Information View

Winter 2012 - 2013

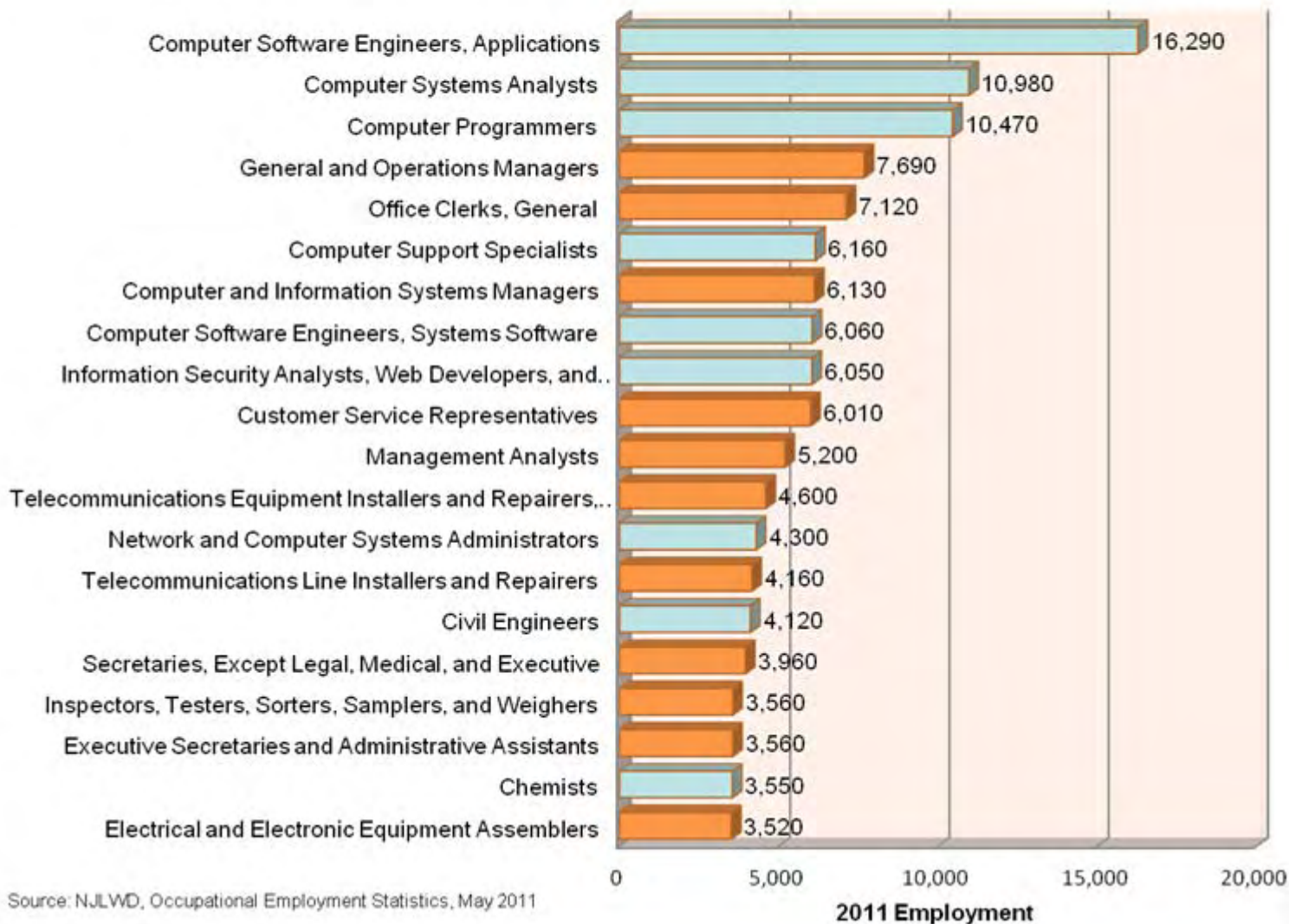


Occupational Overview

- The Technology Cluster overall consists of 313 different occupations (Occupational Employment Statistics, May 2011)
- Cluster occupations had an estimated employment of 311,280 statewide in 2011 or about 8.3% percent of the statewide total occupational employment.
- Science, Technology, Engineering & Mathematics (STEM) occupations within the Technology Industry Cluster accounted for 3.1% of the statewide total occupational employment (2011).
- However, STEM occupations were responsible for 117,490 jobs or 37.7% percent of the employment within the Technology Industry Cluster (2011).



Top Twenty Technology Cluster Occupations accounted 39.7 percent of total cluster occupational employment in 2011



Nine of the top twenty occupations are technology oriented and make-up 22 percent of total cluster employment

Source: NJLWD, Occupational Employment Statistics, May 2011



STATE OF NEW JERSEY

DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

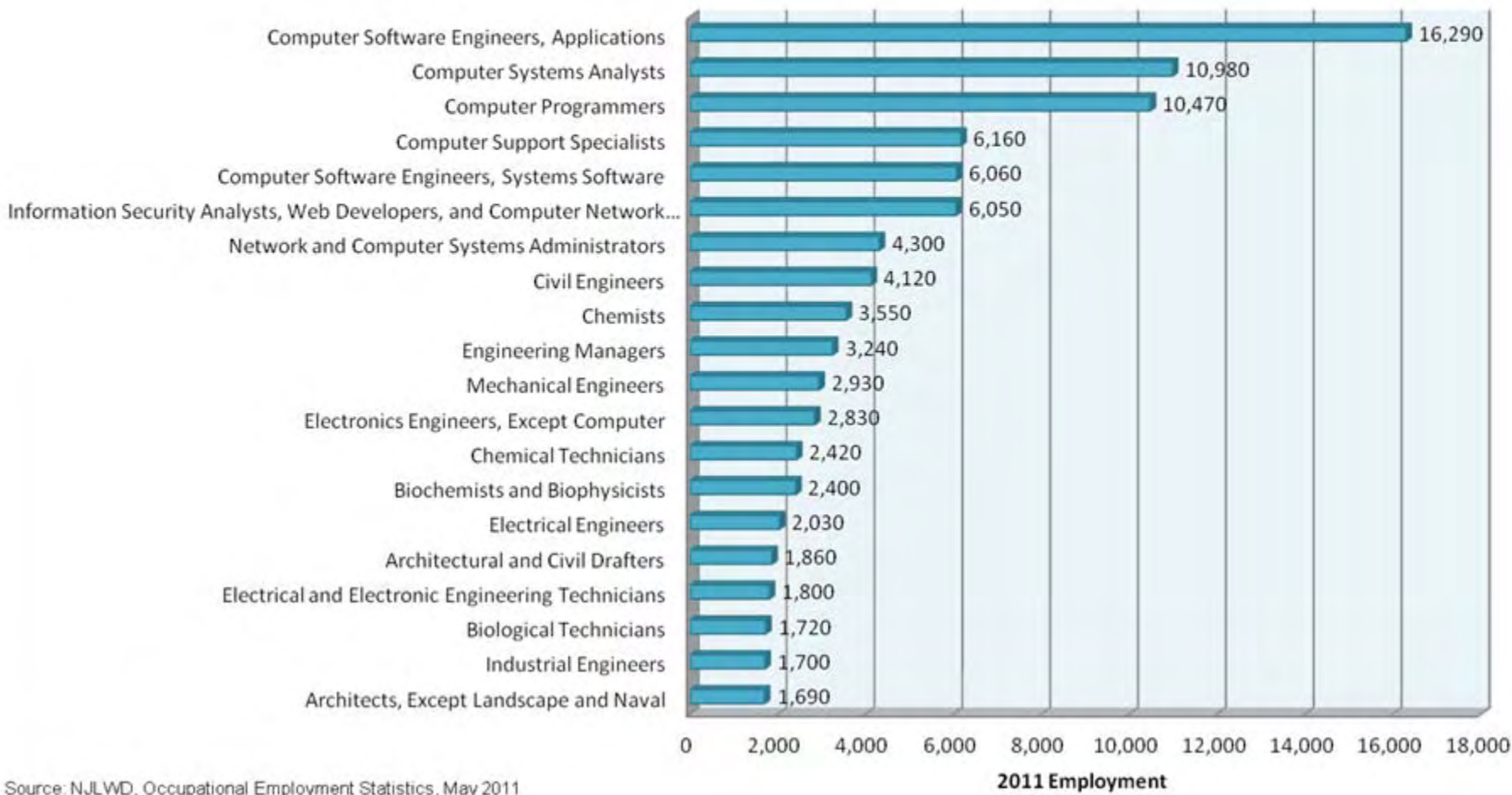
Science, Technology, Engineering and Mathematical (STEM) occupations accounted for 38 percent of cluster occupational employment in 2011

| Technology Industry Cluster: Top Occupational Groups | | | |
|---|------------------------|------------------------------------|----------------------------|
| Occupational Group | 2011 Employment | Percent of Total Employment | 2011 Average Salary |
| Total all occupations | 311,280 | 100.0% | \$77,012 |
| Computer and Mathematical Occupations | 67,380 | 21.6% | \$87,453 |
| Office and Administrative Support Occupations | 41,270 | 13.3% | \$41,174 |
| Management Occupations | 35,420 | 11.4% | \$148,183 |
| Production Occupations | 33,060 | 10.6% | \$41,574 |
| Architecture and Engineering Occupations | 32,280 | 10.4% | \$81,786 |
| Business and Financial Operations Occupations | 30,200 | 9.7% | \$77,126 |
| Installation, Maintenance, and Repair Occupations | 20,360 | 6.5% | \$61,135 |
| Life, Physical, and Social Science Occupations | 17,820 | 5.7% | \$74,189 |
| Sales and Related Occupations | 17,580 | 5.6% | \$78,174 |
| Transportation and Material Moving Occupations | 4,150 | 1.3% | \$36,200 |
| Science, Technology, Engineering, Mathematical Occupations | 117,480 | 37.7% | \$83,884 |

Source: NJLWD, Occupational Employment Statistics, May 2011

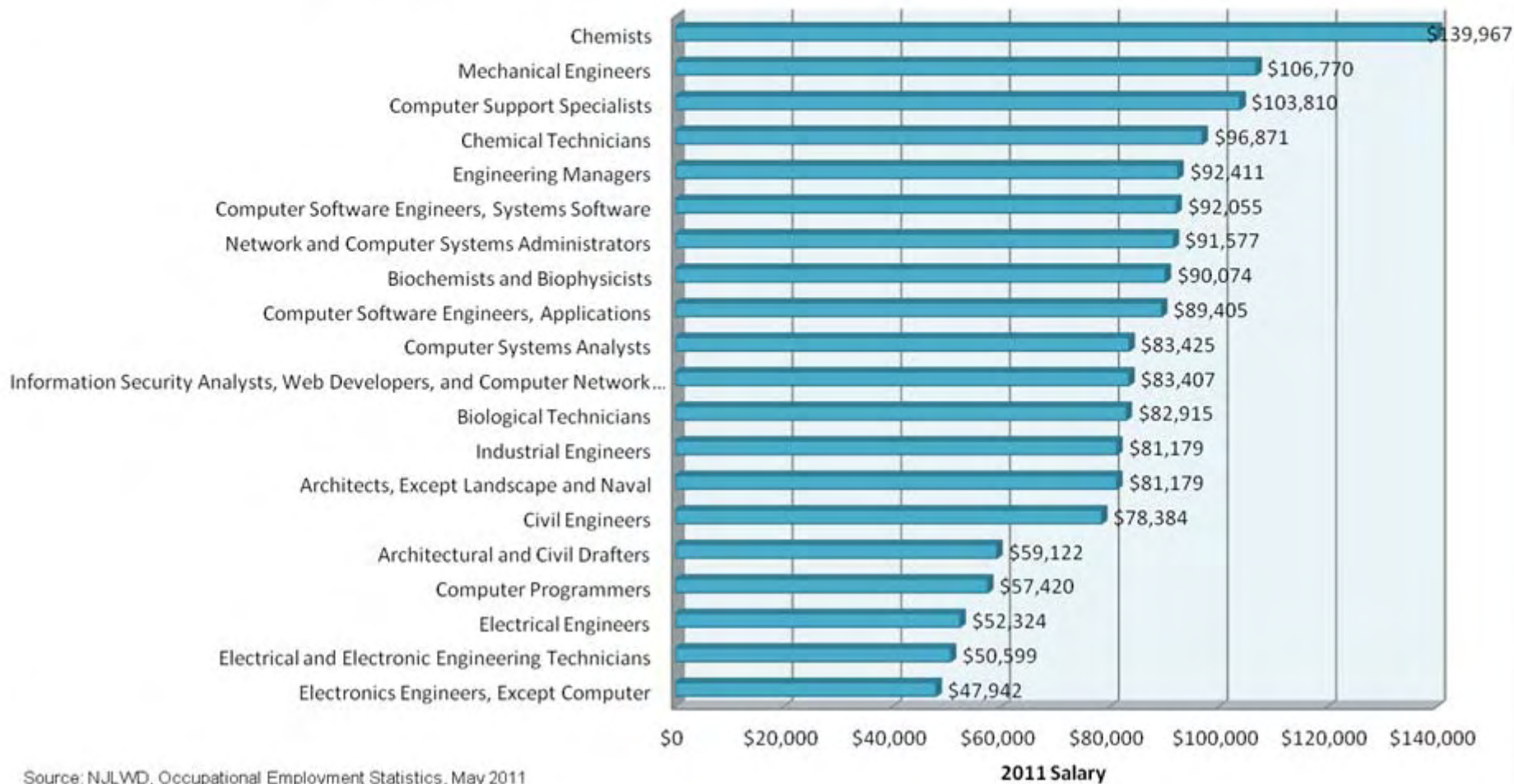
Most of the top STEM occupations are related to computers

Employment by occupation for the largest STEM occupations



Chemists had the highest Average Annual Salary (\$139,967) in 2011

Average Annual Salary for the largest STEM occupations



Source: NJLWD, Occupational Employment Statistics, May 2011



STATE OF NEW JERSEY

DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

Technology Cluster Industries Ranked by 2011 Average Annual Salary

| NAICS4 | Description | 2011 Employment | 2011 Salary | Rank |
|--------|--|-----------------|-------------|------|
| 5417 | Scientific Research and Development Services | 30,860 | \$93,880 | 1 |
| 5415 | Computer Systems Design and Related Services | 63,250 | \$88,500 | 2 |
| 5112 | Software Publishers | 4,090 | \$87,700 | 3 |
| 5172 | Wireless Telecommunications Carriers (except Satellite) | 2,720 | \$84,370 | 4 |
| 5179 | Other Telecommunications | 2,630 | \$83,550 | 5 |
| 5182 | Data Processing, Hosting, and Related Services | 7,790 | \$82,840 | 6 |
| 2211 | Electric Power Generation, Transmission and Distribution | 6,670 | \$77,950 | 7 |
| 3342 | Communications Equipment Manufacturing | 2,850 | \$77,490 | 8 |
| 5171 | Wired Telecommunications Carriers | 26,760 | \$77,460 | 9 |
| 5413 | Architectural, Engineering, and Related Services | 36,240 | \$75,770 | 10 |
| 5416 | Management, Scientific, and Technical Consulting Services | 37,320 | \$74,110 | 11 |
| 3345 | Navigational, Measuring, Electromedical, and Control Instruments Manufacturing | 14,170 | \$72,860 | 12 |
| 3341 | Computer and Peripheral Equipment Manufacturing | 690 | \$69,960 | 13 |
| 2212 | Natural Gas Distribution | 5,090 | \$68,720 | 14 |
| 5191 | Other Information Services | 5,230 | \$67,580 | 15 |
| 3254 | Pharmaceutical and Medicine Manufacturing | 27,510 | \$63,030 | 16 |
| 3364 | Aerospace Product and Parts Manufacturing | 1,290 | \$61,190 | 17 |
| 3391 | Medical Equipment and Supplies Manufacturing | 12,040 | \$57,460 | 18 |
| 3252 | Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing | 1,060 | \$57,220 | 19 |
| 3332 | Industrial Machinery Manufacturing | 2,630 | \$55,230 | 20 |
| 3344 | Semiconductor and Other Electronic Component Manufacturing | 7,960 | \$53,350 | 21 |
| 8112 | Electronic and Precision Equipment Repair and Maintenance | 3,090 | \$52,340 | 22 |
| 3359 | Other Electrical Equipment and Component Manufacturing | 2,310 | \$49,310 | 23 |

Source: NJLWD, Occupational Employment Statistics, May 2011



Technology Industry Cluster:

Occupational Analysis for
Selected Industries

Traditional Labor Market
Information View

Winter 2012 - 2013



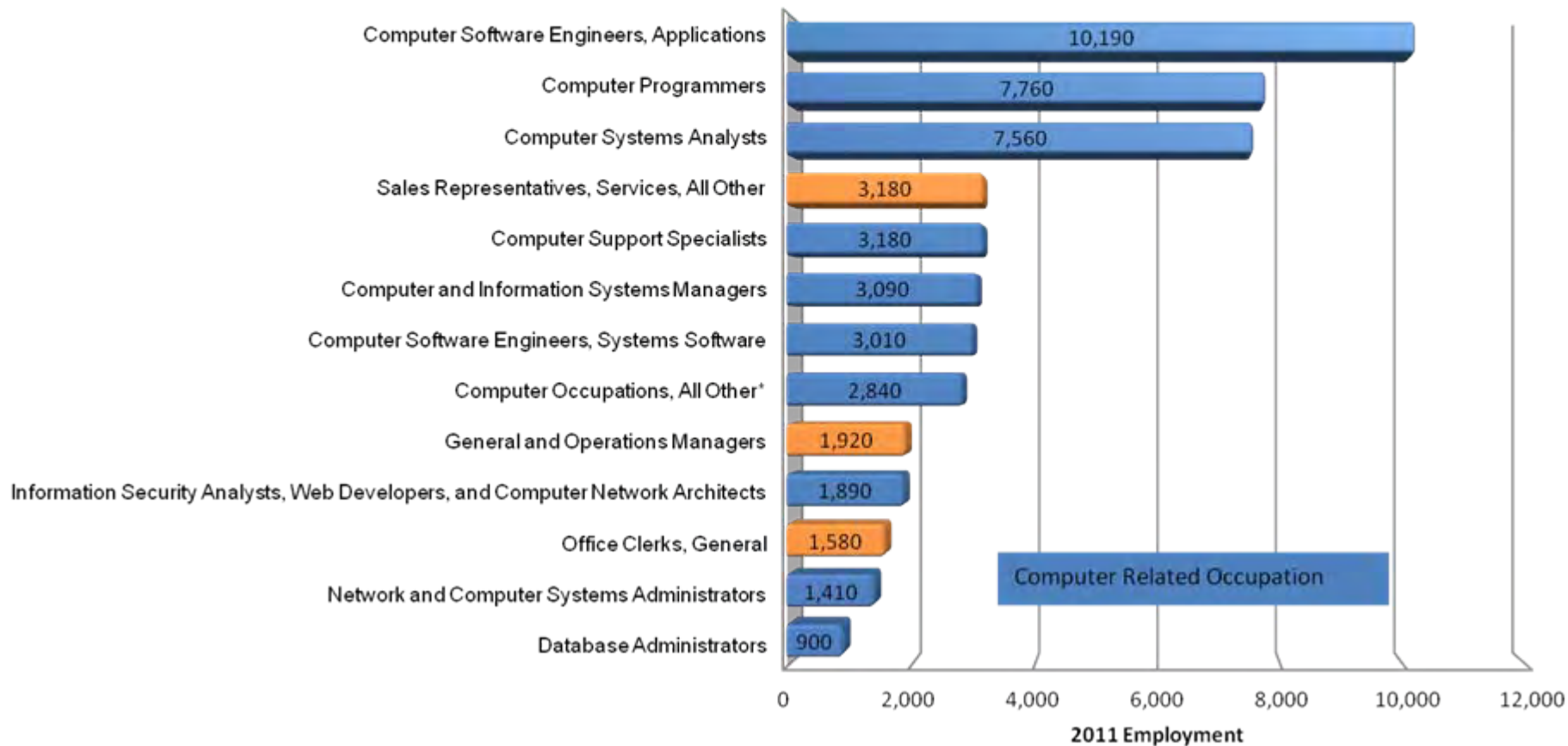
The average salary in Computer Systems Design and Related Services is 115% of the technology cluster average.

| Computer Systems Design and Related Services: Top Occupations | | |
|--|----------------------------|------------------------------------|
| Occupational Title | 2011 Employment | 2011 Average Salary |
| Total all Cluster Occupations | 311,280 | \$77,012 |
| Total all industry occupations | 63,250 | \$88,500 |
| Computer Software Engineers, Applications | 10,190 | \$95,810 |
| Computer Programmers | 7,760 | \$82,010 |
| Computer Systems Analysts | 7,560 | \$88,880 |
| Computer Support Specialists | 3,180 | \$56,270 |
| Sales Representatives, Services, All Other | 3,180 | \$74,000 |
| Computer and Information Systems Managers | 3,090 | \$155,640 |
| Computer Software Engineers, Systems Software | 3,010 | \$103,440 |
| Computer Occupations, All Other* | 2,840 | \$74,150 |
| General and Operations Managers | 1,920 | \$166,870 |
| Information Security Analysts, Web Developers, and Computer Network Architects | 1,890 | \$94,480 |
| Office Clerks, General | 1,580 | \$29,180 |
| Network and Computer Systems Administrators | 1,410 | \$78,230 |
| Database Administrators | 900 | \$82,320 |

Source: NJLWD, Occupational Employment Statistics, May 2011

The top ten occupations in computer systems design and related services make up 70% of total industry employment

Largest Occupations in the Computer Systems and Design and Related Services Industry



Source, NJLWD, Occupational Employment Statistics, May 2011

Occupational employment in the pharmaceutical & medicine manufacturing industry was about 9 percent of the Cluster total

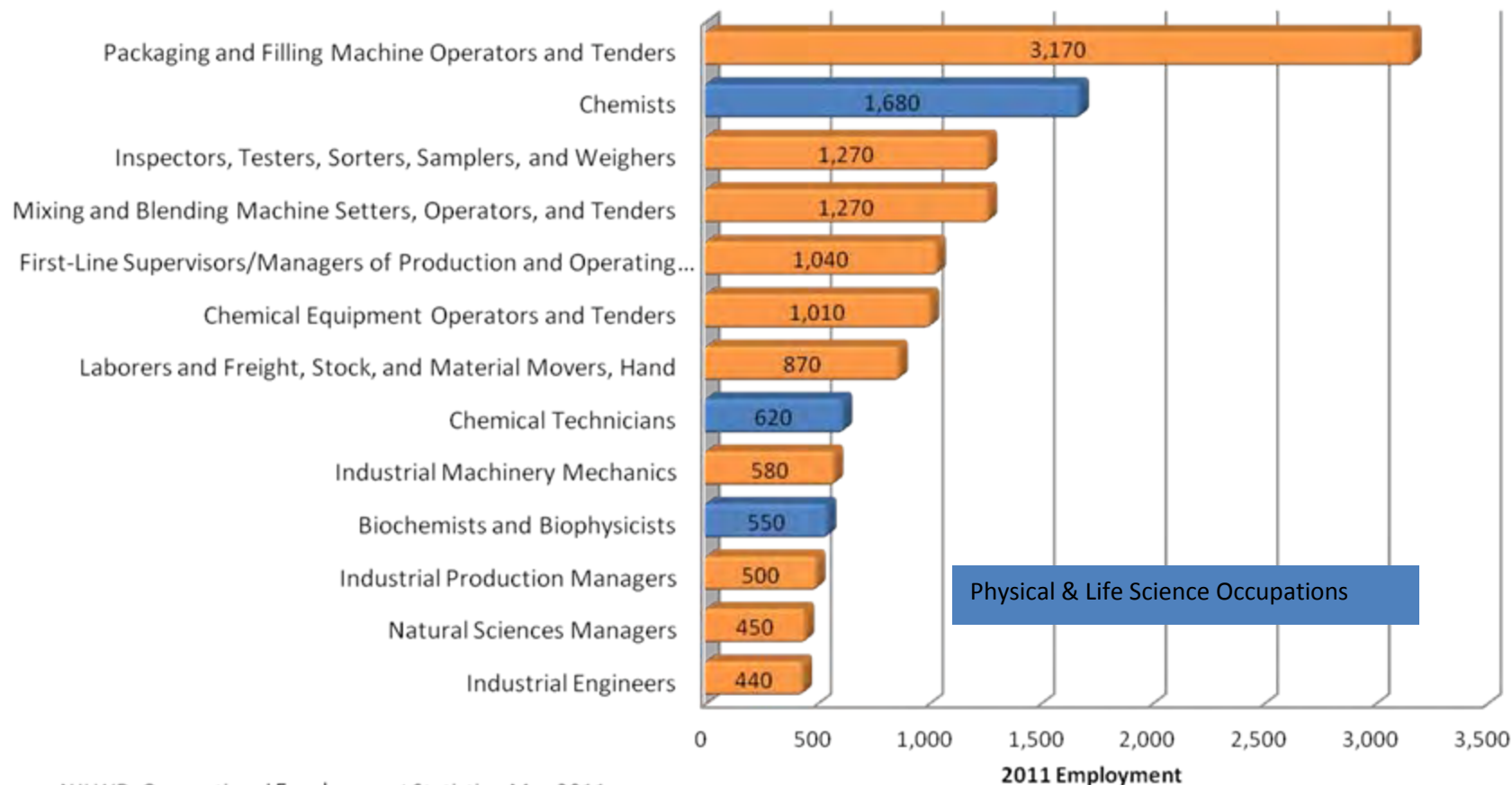
| Pharmaceutical & Medicine Manufacturing: Top Occupations | | |
|---|------------------------|----------------------------|
| Occupational Title | 2011 Employment | 2011 Average Salary |
| Total all Cluster Occupations | 311,280 | \$77,012 |
| Total all occupations | 27,510 | \$63,030 |
| Packaging and Filling Machine Operators and Tenders | 3,170 | \$28,370 |
| Chemists | 1,680 | \$75,040 |
| Mixing and Blending Machine Setters, Operators, and Tenders | 1,270 | \$37,790 |
| Inspectors, Testers, Sorters, Samplers, and Weighers | 1,270 | \$39,780 |
| First-Line Supervisors/Managers of Production and Operating Workers | 1,040 | \$62,820 |
| Chemical Equipment Operators and Tenders | 1,010 | \$39,830 |
| Laborers and Freight, Stock, and Material Movers, Hand | 870 | \$31,900 |
| Chemical Technicians | 620 | \$45,840 |
| Industrial Machinery Mechanics | 580 | \$56,580 |
| Biochemists and Biophysicists | 550 | \$92,910 |
| Industrial Production Managers | 500 | \$131,410 |
| Natural Sciences Managers | 450 | \$163,730 |
| Industrial Engineers | 440 | \$80,070 |

Source: NJLWD, Occupational Employment Statistics, May 2011



Chemists had the second largest occupational employment within the pharmaceutical and medicine manufacturing industry (2011).

Largest Occupations, Pharmaceutical & Medicine Manufacturing Industry



Source: NJLWD, Occupational Employment Statistics, May 2011



Civil Engineers were responsible for 11 percent of the occupational employment in the Architectural, Engineering and Related Services industry

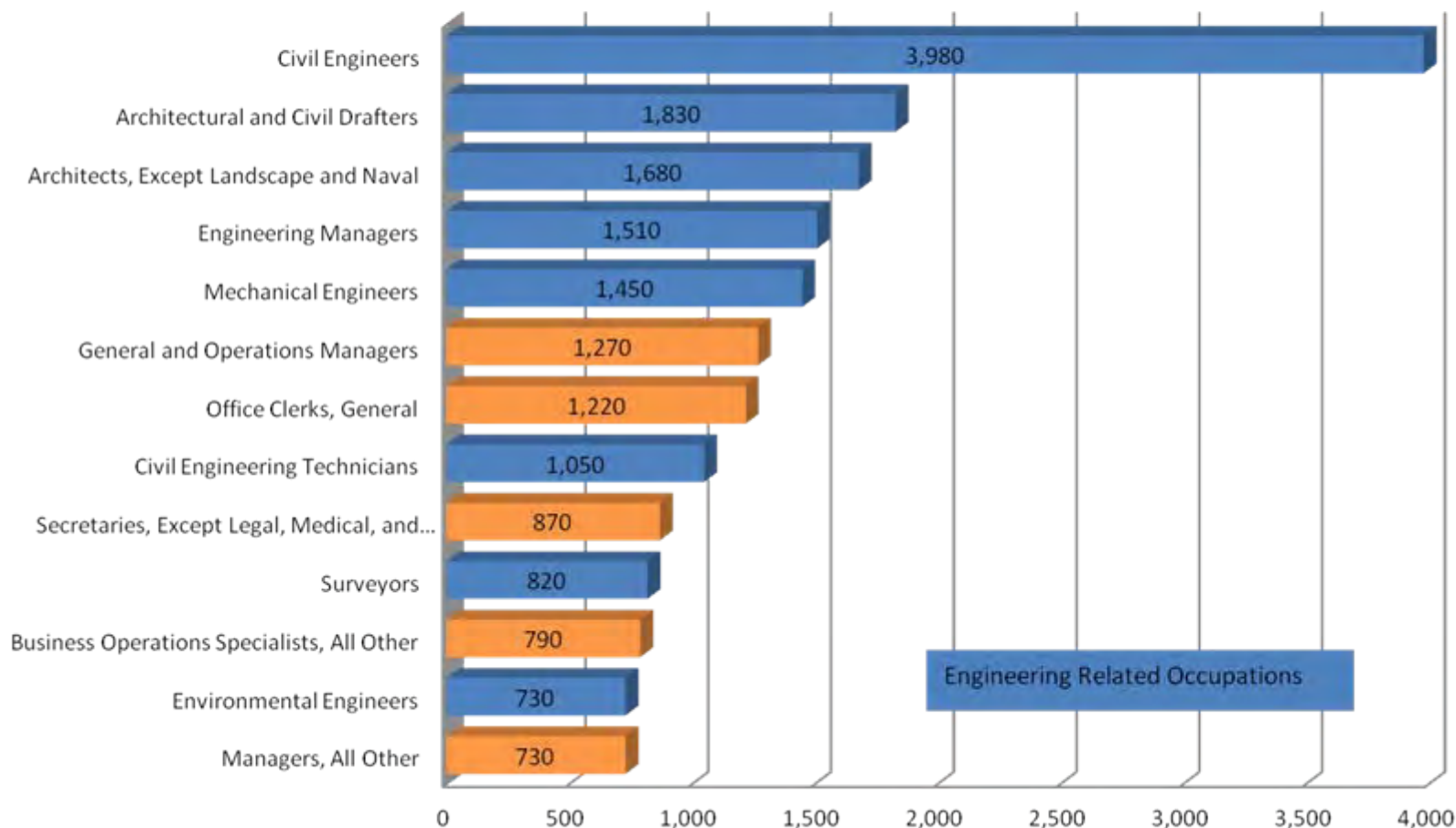
| Architectural, Engineering and Related Services: Top Occupations | | |
|---|------------------------|----------------------------|
| Occupational Title | 2011 Employment | 2011 Average Salary |
| Total all Cluster Occupations | 311,280 | \$77,012 |
| Total all occupations | 36,240 | \$75,770 |
| Civil Engineers | 3,980 | \$91,900 |
| Architectural and Civil Drafters | 1,830 | \$52,260 |
| Architects, Except Landscape and Naval | 1,680 | \$81,160 |
| Engineering Managers | 1,510 | \$136,270 |
| Mechanical Engineers | 1,450 | \$94,950 |
| General and Operations Managers | 1,270 | \$169,890 |
| Office Clerks, General | 1,220 | \$36,280 |
| Civil Engineering Technicians | 1,050 | \$47,370 |
| Secretaries, Except Legal, Medical, and Executive | 870 | \$40,250 |
| Surveyors | 820 | \$62,740 |
| Business Operations Specialists, All Other | 790 | \$63,450 |
| Managers, All Other | 730 | \$104,650 |
| Environmental Engineers | 730 | \$82,720 |

Source: NJLWD, Occupational Employment Statistics, May 2011



The top occupations made – up almost 50 percent of the employment in the Architectural, Engineering & Related Services industry

Largest Occupations in Architectural, Engineering & Related Services



Source: NJLWD, Occupational Employment Statistics, May 2011

Management, Sales and Support occupations are dominant in the Management, Scientific and Technical Consulting Services industry

| Management, Scientific, and Technical Consulting Services: Top Occupations | | |
|---|------------------------|----------------------------|
| Occupational Title | 2011 Employment | 2011 Average Salary |
| Total all Cluster Occupations | 311,280 | \$77,012 |
| Total all occupations | 37,320 | \$74,110 |
| Management Analysts | 3,230 | \$93,460 |
| Customer Service Representatives | 2,110 | \$35,940 |
| Office Clerks, General | 1,930 | \$31,950 |
| General and Operations Managers | 1,870 | \$171,600 |
| Computer Software Engineers, Applications | 1,590 | \$99,320 |
| Sales Representatives, Services, All Other | 1,430 | \$80,340 |
| Market Research Analysts | 1,370 | \$72,820 |
| Stock Clerks and Order Fillers | 1,340 | \$28,070 |
| Business Operations Specialists, All Other | 1,320 | \$74,890 |
| Bookkeeping, Accounting, and Auditing Clerks | 1,090 | \$40,030 |
| Secretaries, Except Legal, Medical, and Executive | 1,030 | \$37,670 |
| Human resources, labor relations, and training specialists, all other | 970 | \$69,010 |
| First-Line Supervisors/Managers of Office and Administrative Support Workers | 800 | \$57,080 |

Source: NJLWD, Occupational Employment Statistics, May 2011

Largest Occupations in Management, Scientific, and Technical Consulting Services Industry



Source: NJLWD, Occupational Employment Statistics, May 2011



STATE OF NEW JERSEY

DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

Technology Industry Cluster:

Occupational Projections and Outlook

Traditional Labor Market
Information View

Winter 2012 - 2013



STEM occupations are projected to grow at a faster rate than Non-STEM occupations

State of New Jersey

Estimated and Projected Employment by STEM and Non STEM Occupations: 2010-2020

| Occupational Title | Employment | | | | Average Annual | | |
|--|------------------|-------------------|------------------|-------------|----------------|---------------|---------------|
| | Actual 2010 | Projected 2020 | Change 2010-2020 | | Job Openings | | |
| | | | Number | Percent | Total | Growth | Replacement |
| Total, All Occupations | 4,155,700 | 4,476,000 | 320,300 | 7.7 | 132,940 | 35,070 | 97,870 |
| STEM Occupations | 250,000 | 276,700 | 26,700 | 10.7 | 7,870 | 2,730 | 5,140 |
| Non-STEM Occupations | 3,905,700 | 4,199,300 | 293,600 | 7.5 | 125,070 | 32,340 | 92,730 |
| STEM Management | 25,100 | 27,600 | 2,500 | 10.0 | 810 | 250 | 560 |
| Computer and Math occupations | 139,500 | 157,100 | 17,600 | 12.6 | 4,320 | 1,790 | 2,530 |
| Engineering and Surveying occupations | 55,300 | 58,900 | 3,600 | 6.5 | 1,670 | 370 | 1,300 |
| Physical and Life Sciences occupations | 30,100 | 33,100 | 3,000 | 10.0 | 1,070 | 320 | 750 |

Source: NJLWD Current Employment Statistics, Occupational Employment Statistics

Technology Outlook

- As technology based industries and occupations continue to evolve New Jersey will remain in a strong position nationally. The state's highly educated workforce is well documented and it includes nearly 240,000 New Jersey residents in science, technology, engineering and mathematics occupations (U.S. Census Bureau, 2010 American Community Survey). The state's nationally recognized universities such as Stevens Institute of Technology, New Jersey Institute of Technology, and Rutgers – The State University of New Jersey continue to supply qualified applicants to the industry. In addition the many current and future technological advances statewide in key industry sectors, including health care, finance and pharmaceuticals particularly in the growing biotech component, all provide continued opportunities for stability and growth in the industry and for a positive outlook in the state.



Contact Information

Frank Ferdetta

Chief, Labor Market Information

New Jersey Department of Labor
and Workforce Development

Phone: (609) 292-7376

E-mail: Frank.Ferdetta@dol.state.nj.us

