

Technology Industry Cluster:

Employment Analysis

Traditional Labor Market Information View Winter 2013

Employment Overview

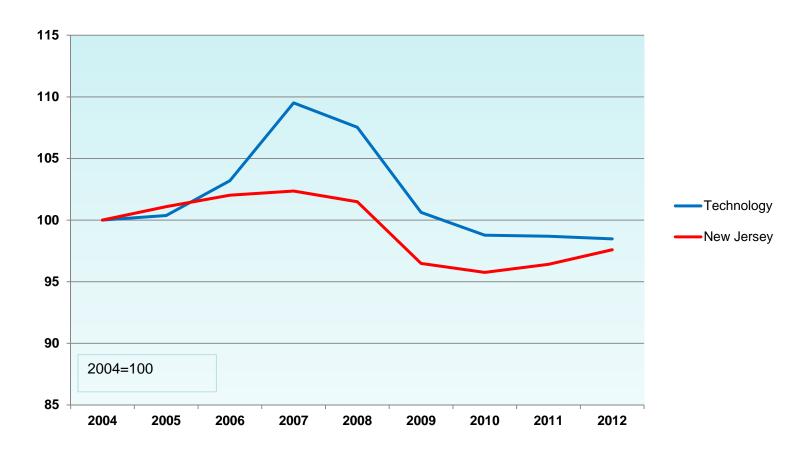
- In 2012 New Jersey's technology cluster accounted for 353,356 jobs or about 11.1 percent of the statewide total. Nationally the sector was responsible for 9.6 percent of all private sector employment.
- The Annual Average Wage for the technology cluster was \$108,252 in 2012 or 186.3 percent of the statewide average (\$58,093) for all industries. Employers in the industry paid over \$38 billion in wages, or about 21 percent of the total wages paid in all industries.
- Industries within the technology cluster can primarily be found within four industry sectors.
 - Professional, scientific and technical service (47.8)
 - Manufacturing (19.9%)
 - Wholesale Trade (15.9%)
 - Information (14.2%)
- Employment in the cluster peaked in 2007 at 392,965 jobs.
- Note: The technology cluster was expanded to reflect the new U.S. Bureau of Labor Statistics definition of technology industries (2013). BLS designated NAICS industries as technology based on concentration levels of Science, Technology, Engineering & Math (STEM) occupations within the industries.

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<u>NAICS</u>	<u>Description</u>
2111	Oil and Gas Extraction
2211	Electric Power Generation, Transmission and Distribution
3241	Petroleum and Coal Products Manufacturing
3251	Basic Chemical Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3254	Pharmaceutical and Medicine Manufacturing
3332	Industrial Machinery Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3341	Computer and Peripheral Equipment Manufacturing
3342	Communications Equipment Manufacturing
3343	Audio and Video Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3346	Manufacturing and Reproducing Magnetic and Optical Media
3353	Electrical Equipment Manufacturing
3364	Aerospace Product and Parts Manufacturing
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers
4242	Drugs and Druggists' Sundries Merchant Wholesalers
4861	Pipeline Transportation of Crude Oil
5112	Software Publishers
5171	Wired Telecommunications Carriers
5172	Wireless Telecommunications Carriers (except Satellite)
5174	Satellite Telecommunications
5179	Other Telecommunications
5182	Data Processing, Hosting, and Related Services
5191	Other Information Services
5211	Monetary Authorities-Central Bank
5413	Architectural, Engineering, and Related Services
5415	Computer Systems Design and Related Services
5416	Management, Scientific, and Technical Consulting Services
5417	Scientific Research and Development Services

Technology sector employment since 2010 has remained virtually flat while statewide employment has begun to increase. Technology employment is currently slightly below 2004 levels (-1.5%).

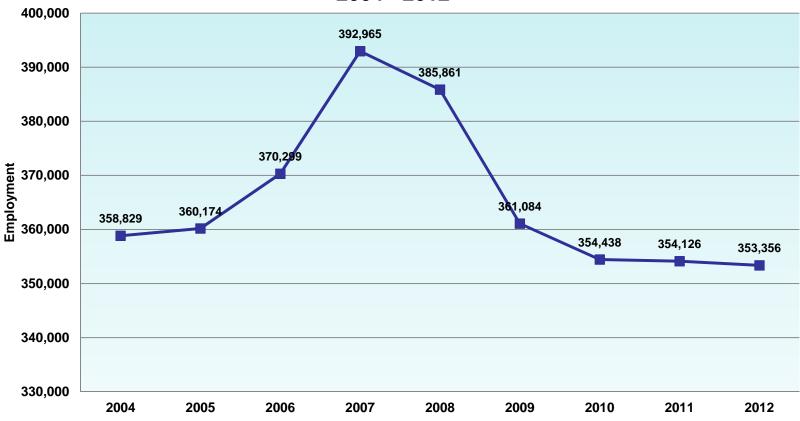
Technology Sector vs. Statewide Employment



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

Employment in the Cluster peaked in 2007 (392,965 jobs) and has declined by 10.1 percent (-39,609 jobs) since.

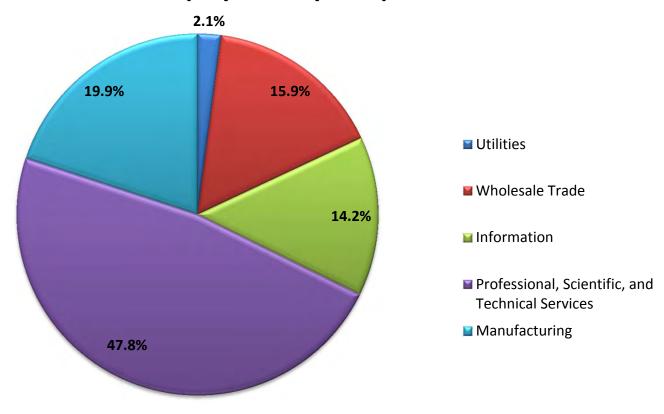
Technology Cluster Employment 2004 - 2012



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

Professional, Scientific, and Technical Services industries accounted for almost half of cluster employment in 2012.

Percent Employment by Componet Sector



Source: Quarterly Census of Employment & Wages, 2012 Annual Average

Over seventy-three percent of all business establishments in the technology cluster were in the professional, scientific and technical services sector

Technology Cluster: Component Sectors, 2012 Annual Averages				
Industry	Units	Employment Average	Average	Wages Total
All Industries	253,000	3,193,972	\$58,093	\$185,548,468,040
All Cluster Industries	26,953	353,356	\$108,252	\$38,251,565,842
Utilities	162	7,447	\$120,910	\$900,418,654
Wholesale Trade	3,024	56,241	\$108,690	\$6,112,856,202
Information	2,457	50,321	\$105,488	\$5,308,246,664
Professional, Scientific, and Technical Services	19,788	168,728	\$118,870	\$18,040,175,848
Manufacturing	1,515	70,486	\$1,285,474	\$7,876,920,061
Other	7	133	\$97,356	\$12,948,413

Source: NJLWD, Quarterly Census of Employment & Wages, 2012 Annual Averages

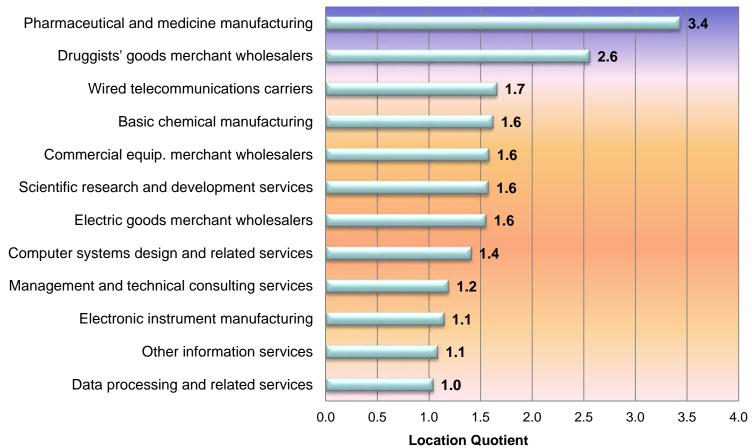
Within the technology cluster over 82 percent of employment was found in only ten industries in 2012.

The four largest industries were in the Professional, Scientific and Technical Services sector

NAICS	Industry	Establishment	Employment Average	Percent of Cluster Employment	Wages Average
	All Industries	253,000	3,193,972		\$58,093
	All Cluster Industries	26,953	353,356	100.0%	\$108,252
	Largest Ranked by Employment				
5415	Computer systems design and related services	8,653	65,883	18.6%	\$103,900
5416	Management and technical consulting services	6,958	38,691	10.9%	\$88,483
5413	Architectural and engineering services	3,477	35,313	10.0%	\$87,857
5417	Scientific research and development services	700	28,841	8.2%	\$161,883
4234	Commercial equip. merchant wholesalers	1,585	28,296	8.0%	\$100,283
5171	Wired telecommunications carriers	704	27,775	7.9%	\$108,982
3254	Pharmaceutical and medicine manufacturing	231	26,715	7.6%	\$152,295
4236	Electric goods merchant wholesalers	923	14,096	4.0%	\$89,048
4242	Druggists' goods merchant wholesalers	516	13,849	3.9%	\$145,859
3345	Electronic instrument manufacturing	317	13,211	3.7%	\$94,605
	Smallest Ranked by Employment				
3341	Computer and peripheral equipment mfg.	49	568	0.2%	\$94,796
3333	Commercial and service industry machinery	80	1,344	0.4%	\$65,476
3364	Aerospace product and parts manufacturing	25	1,653	0.5%	\$69,159
3353	Electrical equipment manufacturing	76	2,013	0.6%	\$68,121
5172	Wireless telecommunications carriers	247	2,476	0.7%	\$80,119
3342	Communications equipment manufacturing	108	2,596	0.7%	\$103,786
3241	Petroleum and coal products manufacturing	68	2,632	0.7%	\$112,525
3332	Industrial machinery manufacturing	136	2,779	0.8%	\$69,210
5112	Software publishers	314	4,364	1.2%	\$123,309
5191	Other information services	335	5,467	1.5%	\$89,974
3251	Basic chemical manufacturing	119	6,694	1.9%	\$105,178
2211	Power generation and supply	154	7,411	2.1%	\$120,898

New Jersey's technology sector employment share in several key industries was greater than the nation in 2012

Location Quotient's of Selected Technology Cluster Industries

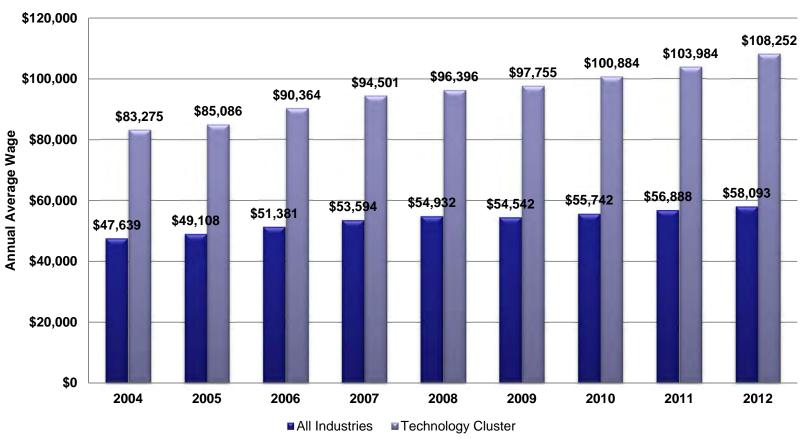


Source: Quarterly Census of Employment & Wages, 2012 Annual Average



Wages in the Technology Cluster have averaged 178 percent of the statewide annual average wage since 2004

2012 Annual Average Wages: All Industries vs. Technology Cluster





Employment in computer systems design and related services was 18.6 percent of total technology cluster employment in 2012.

Technology Cluster: Professional, Scientific and Technical Services, Sector, 2012 Annual Averages

		Employment	W	lages .
Industry	<u>Units</u>	<u>Average</u>	<u>Average</u>	<u>Total</u>
All Cluster Industries	26,953	353,356	\$108,252	\$38,251,565,842
Professional, Scientific, and Technical Services	19,788	168,728	\$118,870	\$18,040,175,848
Architectural and engineering services	3,477	35,313	\$87,857	\$3,102,521,167
Computer systems design and related services	8,653	65,883	\$103,900	\$6,845,231,513
Management and technical consulting services	6,958	38,691	\$88,483	\$3,423,496,216
Scientific research and development services	700	28,841	\$161,883	\$4,668,926,952

Source: NJLWD, Quarterly Census of Employment & Wages, 2012 Annual Averages

Pharmaceutical and medicine manufacturing (37.9%) led the manufacturing component in employment in 2012

		Employment	Wag	es
ndustry	<u>Units</u>	<u>Average</u>	<u>Average</u>	<u>Total</u>
All Cluster Industries	26,953	353,356	\$108,252	\$38,251,565,842
Manufacturing	1,515	70,486	\$1,285,474	\$7,876,920,061
Petroleum and coal products manufacturing	68	2632	\$112,525	\$296,138,044
Basic chemical manufacturing	119	6694	\$105,178	\$704,086,562
Resin, rubber, and artificial fibers mfg.	ND	ND	ND	ND
Pharmaceutical and medicine manufacturing	231	26715	\$152,295	\$4,068,485,796
Industrial machinery manufacturing	136	2779	\$69,210	\$192,321,808
Commercial and service industry machinery	80	1344	\$65,476	\$88,015,671
Turbine and power transmission equipment mfg.	ND	ND	ND	ND
Computer and peripheral equipment mfg.	49	568	\$94,796	\$53,844,232
Communications equipment manufacturing	108	2596	\$103,786	\$269,384,579
Audio and video equipment manufacturing	ND	ND	ND	ND
Semiconductor and electronic component mfg.	195	7734	\$67,893	\$525,075,134
Electronic instrument manufacturing	317	13211	\$94,605	\$1,249,774,660
Magnetic media manufacturing and reproducing	ND	ND	ND	ND
Electrical equipment manufacturing	76	2013	\$68,121	\$137,110,034
Aerospace product and parts manufacturing	25	1653	\$69,159	\$114,296,775

ND: Data for industries with few units or for industries where one employer makes up a significant portion of industry employment have been suppressed.

Source: NJLWD, Quarterly Census of Employment & Wages, 2012 Annual Averages



In 2012 wages in the information component was 97.4 percent of the technology cluster average.

Technology Cluster: Informatio	n, Secto	r, 2012 Annua	l Averages	
		Employment	Wag	ges
Industry	<u>Units</u>	<u>Average</u>	<u>Average</u>	<u>Total</u>
All Cluster Industries	26,953	353,356	\$108,252	\$38,251,565,842
Information	2457	50321	\$105,488	\$5,308,246,664
Software publishers	314	4,364	\$123,309	\$538,172,518
Wired telecommunications carriers	704	27,775	\$108,982	\$3,026,987,599
Wireless telecommunications carriers	247	2,476	\$80,119	\$198,367,198
Satellite telecommunications	ND	ND	ND	ND
Other telecommunications	ND	ND	ND	ND
Data processing and related services	513	7,603	\$105,998	\$805,910,543
Other information services	335	5,467	\$89,974	\$491,862,965

ND: Data for industries with few units or for industries where one employer makes up a significant portion of industry employment have been suppressed. Source: NJLWD, Quarterly Census of Employment & Wages, 2012 Annual Averages

Technology Industry Cluster:

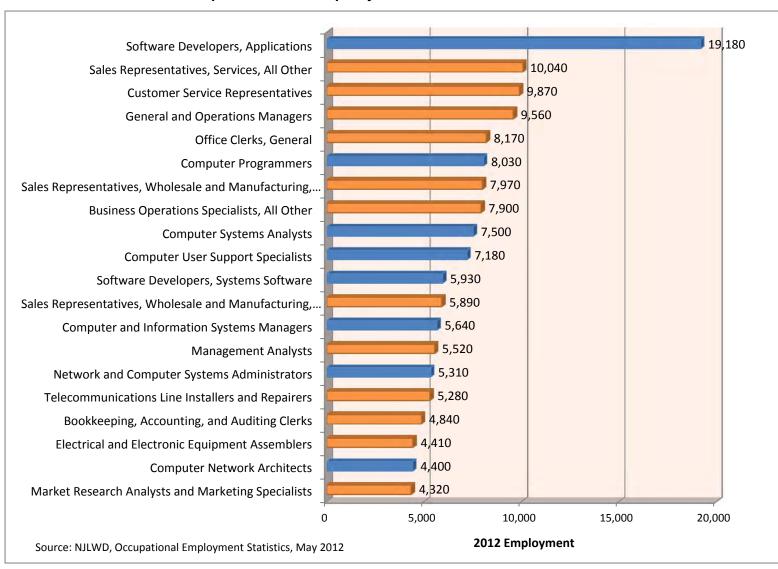
Occupational Analysis

Traditional Labor Market Information View Fall 2013

Occupational Overview

- The Technology Cluster overall consists of 329 different occupations (Occupational Employment Statistics, May 2012)
- Cluster occupations had an estimated employment of 354,540 statewide in 2012 or about 9.3% percent of the statewide total occupational employment.
- Science, Technology, Engineering & Mathematics (STEM) occupations within the Technology Industry Cluster accounted for 3.5% of the statewide total occupational employment (2012).
- However, STEM occupations were responsible for 131,910 jobs or 37.2% percent of the employment within the Technology Industry Cluster (2012).

Top Twenty Technology Cluster Occupations accounted 41.4 percent of total cluster occupational employment in 2012



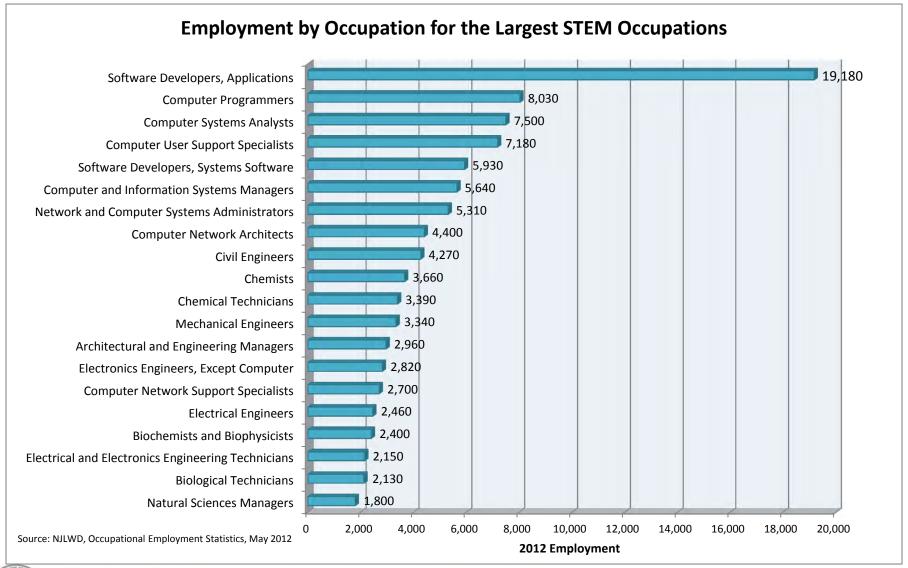
Eight of the top twenty occupations are technology oriented and make-up 18 percent of total cluster employment

Science, Technology, Engineering and Mathematical (STEM) Occupational Groups accounted for 34 percent of cluster occupational employment in 2012

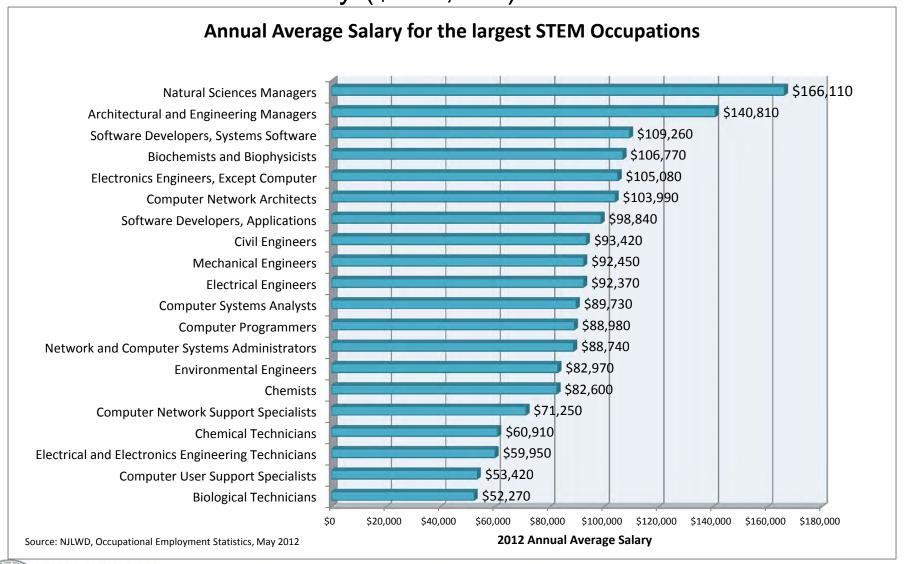
Technology Industry Cluster: Top Occupational	Groups		
Occupational Title	2012 Employment	Percent of Total Employment	2012 Average Salary
Total All Occupations	354,540	100.0%	\$76,770
Computer and Mathematical Occupations	69,640	19.6%	\$89,890
Office and Administrative Support Occupations	54,820	15.5%	\$40,330
Management Occupations	37,750	10.6%	\$149,650
Business and Financial Operations Occupations	35,660	10.1%	\$77,170
Architecture and Engineering Occupations	32,720	9.2%	\$84,280
Production Occupations	32,110	9.1%	\$41,900
Sales and Related Occupations	29,320	8.3%	\$82,510
Installation, Maintenance, and Repair Occupations	20,460	5.8%	\$61,320
Life, Physical, and Social Science Occupations	19,150	5.4%	\$77,740
Science, Technology, Engineering, Mathematical	121,510	34.3%	\$86,465

Source: NJLWD, Occupational Employment Statistics, May 2012

The top eight STEM occupations are related to computers



Natural Science Managers had the highest Average Annual Salary (\$166,110) in 2012



Technology Cluster Industries Ranked by 2012 Average Annual Salary

NAICS4	Description	Estimated Occupational Employment	2012 Average Salary	Rank
				_
5417	Scientific Research and Development Service	29,850	\$94,605	1
5112	Software Publishers	4,400	\$91,085	2
5415	Computer Systems Design and Related Service	66,110	\$90,340	3
5172	Wireless Telecommunications Carriers (except Satellite)	2,280	\$85,924	4
5179	Other Telecommunications	2,440	\$83,398	5
2211	Electric Power Generation, Transmission and Distribution	7,360	\$80,548	6
4242	Drugs and Druggists' Sundries Merchant Wholesalers	13,950	\$78,111	7
5171	Wired Telecommunications Carriers	28,030	\$77,435	8
5182	Data Processing, Hosting, and Related Services	7,690	\$77,040	9
5413	Architectural, Engineering, and Related Services	35,270	\$77,005	10
3341	Computer and Peripheral Equipment Manufacturing	590	\$76,232	11
5416	Management, Scientific, and Technical Consulting Services	38,430	\$74,409	12
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	13,550	\$73,399	13
3342	Communications Equipment Manufacturing	2,730	\$72,208	14
3251	Basic Chemical Manufacturing	6,440	\$71,297	15
3241	Petroleum and Coal Products Manufacturing	2,670	\$71,070	16
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	28,420	\$66,995	17
3364	Aerospace Product and Parts Manufacturing	1,740	\$65,280	18
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	14,090	\$63,917	19
5191	Other Information Services	5,100	\$63,834	20
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	830	\$60,994	21
3332	Industrial Machinery Manufacturing	2,770	\$60,820	22
3333	Commercial and Service Industry Machinery Manufacturing	1,350	\$60,354	23
3254	Pharmaceutical and Medicine Manufacturing	26,680	\$57,228	24
3353	Electrical Equipment Manufacturing	2,000	\$55,808	25
3344	Semiconductor and Other Electronic Component Manufacturing	7,710	\$52,722	26
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1,130	\$48,258	27



Technology Industry Cluster:

Occupational Analysis for Selected Industries

Traditional Labor Market
Information View
Fall 2013

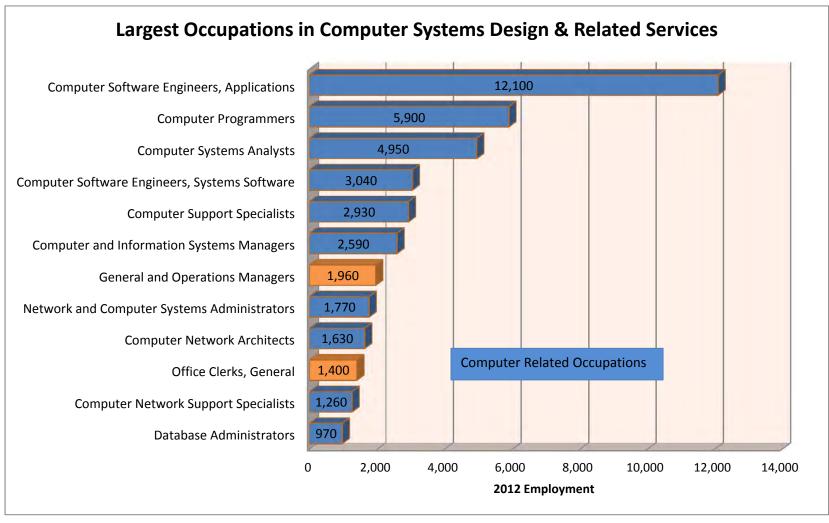
The average salary in Computer Systems Design and Related Services is 117.3% of the technology cluster average.

Computer Systems Design and Related Services: Top Occupations

Occupational Title	2012 Employment	2012 Average Salary
Total all Cluster Occupations	311,280	\$77,012
Total all Industry Occupations	66,110	\$90,340
Computer Software Engineers, Applications	12,100	\$99,664
Computer Programmers	5,900	\$91,073
Computer Systems Analysts	4,950	\$89,041
Computer Software Engineers, Systems Software	3,040	\$108,856
Computer Support Specialists	2,930	\$53,037
Computer and Information Systems Managers	2,590	\$148,287
General and Operations Managers	1,960	\$177,500
Network and Computer Systems Administrators	1,770	\$85,059
Computer Network Architects	1,630	\$102,810
Office Clerks, General	1,400	\$28,968
Computer Network Support Specialists	1,260	\$73,078
Database Administrators	970	\$86,440

Source: NJLWD, Occupational Employment Statistics, May 2012

The top ten occupations in computer systems design and related services make up 61.3% of total industry employment



Source, NJLWD, Occupational Employment Statistics, May 2012

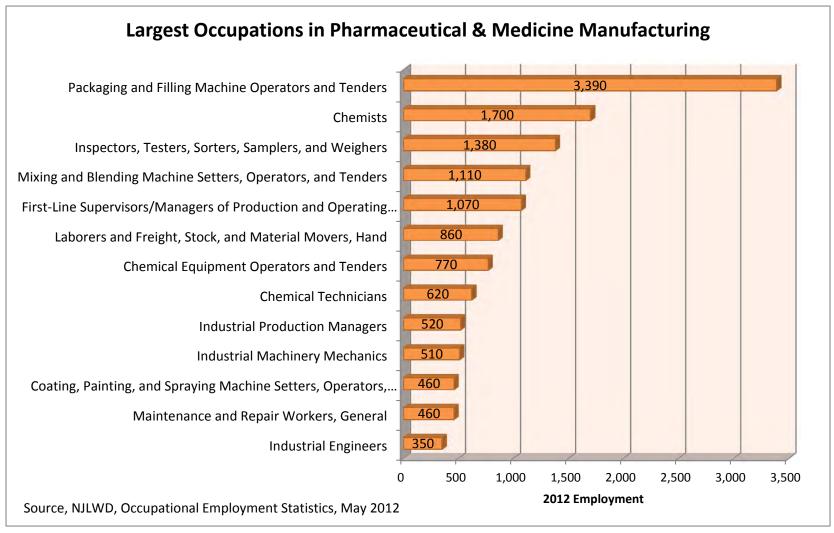
Occupational employment in the pharmaceutical & medicine manufacturing industry was about 9 percent of the Cluster total (2012)

Pharmaceutical & Medicine Manufacturing: Top Occupations

Occupational Title	2012 Employment	2012 Average Salary
Total all Cluster Occupations	311,280	\$77,012
Total all Industry Occupations	26,680	\$57,228
Packaging and Filling Machine Operators and Tenders	3,390	\$26,711
Chemists	1,700	\$82,074
Inspectors, Testers, Sorters, Samplers, and Weighers	1,380	\$39,647
Mixing and Blending Machine Setters, Operators, and Tenders	1,110	\$38,948
First-Line Supervisors/Managers of Production and Operating Workers	1,070	\$62,809
Laborers and Freight, Stock, and Material Movers, Hand	860	\$32,170
Chemical Equipment Operators and Tenders	770	\$39,562
Chemical Technicians	620	\$43,574
Industrial Production Managers	520	\$140,248
Industrial Machinery Mechanics	510	\$58,282
Maintenance and Repair Workers, General	460	\$48,248
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	460	\$36,352
Industrial Engineers	350	\$80,339

Source, NJLWD, Occupational Employment Statistics, May 2012

Chemists had the second largest occupational employment within the pharmaceutical and medicine manufacturing industry (2012).

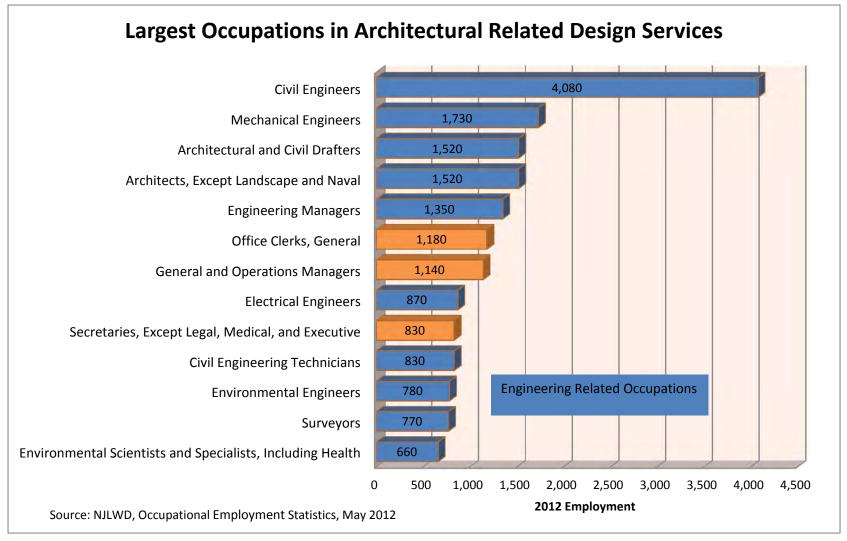


Civil Engineers were responsible for 11.6 percent of the occupational employment in the Architectural, Engineering and Related Services industry (2012)

Architectural, Engineering, and Related Servic	es: Top Occupations	
Occupational Title	2012 Employment	2012 Average Salary
Total all Cluster Occupations	311,280	\$77,012
Total all Industry Occupations	35,270	\$77,005
Civil Engineers	4,080	\$93,807
Mechanical Engineers	1,730	\$94,632
Architects, Except Landscape and Naval	1,520	\$80,634
Architectural and Civil Drafters	1,520	\$50,395
Engineering Managers	1,350	\$142,612
Office Clerks, General	1,180	\$35,633
General and Operations Managers	1,140	\$169,396
Electrical Engineers	870	\$94,811
Civil Engineering Technicians	830	\$44,407
Secretaries, Except Legal, Medical, and Executive	830	\$38,145
Environmental Engineers	780	\$87,047
Surveyors	770	\$64,338
Environmental Scientists and Specialists, Including Health	660	\$69,530

Source: NJLWD, Occupational Employment Statistics, May 2012

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



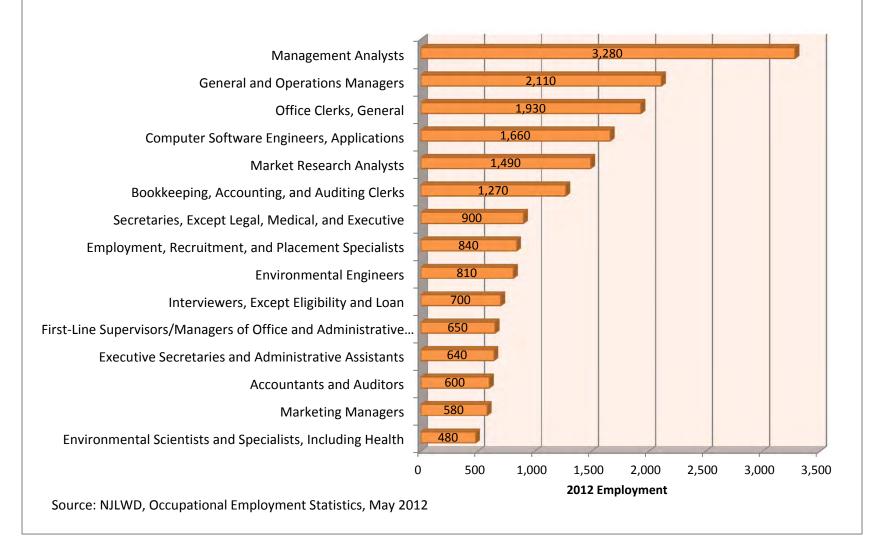
Management & Administrative Support Occupations are dominant in the Management, Scientific and **Technical** Consulting Services industry

Source: NJLWD, Occupational
Employment Statistics, May 2012

Manageme	ent, Scientific, a	and Technical	Consultin	g Services:
Top Occup	oations			

Occupational Title	2012 Employment	2012 Average Salary	
Total all Cluster Occupations	311,280	\$77,012	
Total all Industry Occupations	38,430	\$74,409	
Management Analysts	3,280	\$96,370	
General and Operations Managers	2,110	\$174,881	
Office Clerks, General	1,930	\$31,566	
Computer Software Engineers, Applications	1,660	\$91,740	
Market Research Analysts	1,490	\$71,925	
Bookkeeping, Accounting, and Auditing Clerks	1,270	\$39,746	
Secretaries, Except Legal, Medical, and Executive	900	\$37,159	
Employment, Recruitment, and Placement Specialists	840	\$73,170	
Environmental Engineers	810	\$77,664	
Interviewers, Except Eligibility and Loan	700	\$27,847	
First-Line Supervisors/Managers of Office and Administrative Support Workers	650	\$57,315	
Executive Secretaries and Administrative Assistants	640	\$61,952	
Accountants and Auditors	600	\$80,641	
Marketing Managers	580	\$139,533	
Environmental Scientists and Specialists, Including Health	480	\$62,484	

Largest Occupations in Management, Scientific, & Technical Consulting Services



Technology Industry Cluster:

Occupational Projections and Outlook

Traditional Labor Market Information View Winter 2013

STEM occupations are projected to grow at a faster rate (10.7%) than Non-STEM occupations (7.5%).

State of New Jersey

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

	Employment				Average Annual		
Occupational Title	Actual	Projected Change 2010-2020		Job Openings			
	2010	2020	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.

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