

Florida Innovation Highlights - Facts About Florida's High Tech Workforce

Jobs, Trends & Performance Benchmarks, 2009 - 2014

Prepared By Cherrystone Management Consultants Inc. in
Conjunction with InternetCoast
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About InternetCoast

InternetCoast was founded in 1999 with a mission is to be a proactive forum and catalyst to stimulate innovation and technology driven job creation and economic growth across the State of Florida.

About Cherrystone Management Consultants Inc

Cherrystone provides strategic consulting services, specializing in business development and development of innovative joint ventures and partnerships.

To purchase the full report or obtain a proposal for a customized report, contact Dale Gregory at 561 212 8385 or dgregory@cmci1.com.

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Executive Summary

InternetCoast's Florida Innovation Highlights is a metric driven platform that measures quality, intensity and sustainability of South Florida and Florida job creation, industry diversification, and personal income and economic growth.

Florida Innovation Highlights "Facts about Florida's High Tech Workforce" analyzes Florida's science, technology, engineering, and mathematics (STEM) and high tech industry employment ecosystem. It includes a five year analysis of Florida and U.S. STEM and high tech industry employment and workforce density, including benchmarks comparing Florida with other States.

The source of information for this report is from publically available data from the U.S. Bureau of Labor Statistics, National Science Foundation, U.S. Census Bureau, and Florida's public and private colleges and universities.

Highlights

- Florida has more STEM occupation employment than Massachusetts, North Carolina, Virginia, or Washington
- Florida has more high tech industry employment than Illinois, Maryland, Massachusetts, North Carolina, or Washington
- Florida's STEM employment growth has not kept pace with non-STEM job creation, with STEM employment density declining from 4.6 percent in 2010 to 4.2 percent in 2014.
- Florida's STEM occupation and high tech industry employment density is one of the lowest compared to other States
- In the most recent year where data is available, Florida public and private colleges and universities conferred 63,000 certificates and degrees in the fields of science, engineering, and health
- Only 37 percent of the workforce with STEM bachelor's degrees are employed in STEM or STEM related occupations, according to a report by the U.S. Census Bureau
- 22 percent of tech jobs in tech industries and 44 percent of tech jobs in non-tech industries do not require a bachelor's degree, according to a report about New York City's high tech industry and STEM occupational employment

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Conclusion

High Tech Industries

- There are 26,000 high tech business locations employing 270,000 people in the State of Florida – Florida ranks 3rd in locations and 5th in employment compared to other States.

STEM Talent Gap

- If Florida has a “Gap,” it is likely a small “Gap.” The Florida Department of Economic Opportunity (DEO) has developed an occupation supply and demand report to more accurately define Florida’s talent “Gap.” Hopefully, the DEO report will evolve to be the most accurate source to size the “Gap.”

Industry & STEM Occupation Employment

- Florida High tech industry employment and overall STEM employment across all industries did not change materially between 2010 and 2014.

Economic Development Policy

- Florida’s economic development strategy is a commodity-based business attraction and retention model focusing on land development and construction as the means to create jobs and economic growth.
- The most successful economic development models in the U.S. are based on innovation-driven models focused on new business formation, talent creation, quality jobs, and opportunities for workers. Innovation-driven models seek to leverage existing assets and capabilities to increase the value of advanced industries, foster creation of quality jobs

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What is a STEM Occupation?

There is not a consensus or standards to define a common list of STEM occupations. To enhance comparability across Federal agencies the U.S. Office of Management & Budget (OMB) convened a workgroup to recommend a standard list of STEM occupations. The workgroup included representatives from the Department of Labor, Department of Commerce, Department of Defense, Equal Employment Opportunity Commission, Department of Health and Human Services, Department of Education, and National Science Foundation. The recommendations of the workgroup were approved by OMB in 2012, aligning them with the Department of Labor "Standard Occupational Classification" (SOC) system.

The author sought and received feedback regarding STEM occupations from the Business Development Board of Palm Beach County, Career Source Palm Beach, Consumer Electronics Association, Florida Department of Economic Opportunity, National Science Foundation, and the U.S. Department of Labor. Based on these discussions and other research sources, the definition of STEM occupations reflected in this report are, with a few minor exceptions, the same as the occupations approved by OMB in 2012.

This report defines STEM as occupations in the field of science, engineering, information technology, communications, software and mathematics. It excludes STEM-related professions in health, social sciences, management positions other than managers of STEM occupations, K-12 educators, and higher education professions other those aligned with the STEM occupations included in this report.

Florida STEM Employment 2010 -2014

According to the 2014 OES survey 7.8 million people across the U.S. were employed in STEM occupations, representing 5.8 percent of total U.S. employment. This compares to 7.6 and 7.7 million people in 2012 and 2013. Florida STEM occupation employment was 324,000 in 2014 or 4.1 percent of total U.S. STEM employment.

While the OES survey is designed to analyze employment and wages by occupation and industry, the Bureau of Labor Statistics cautions users that the survey is less reliable when used in a time series analysis. To compensate for potential survey error, this report uses OES survey

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data to compare annual changes in U.S. and State STEM employment and density. Density is defined as the percentage of STEM employment of total employment.

In 2014 the top STEM employment states were California (1.1M), Texas (697K), New York (411K), Florida (324K) and Virginia (314K). Nationwide STEM employment increased from 7 million in 2010 to 7.84 million in 2014, while STEM employment in Florida was stagnant during the same period.

Nationally, STEM employment density is on a positive trend, increasing from 5.5 percent in 2010 to 5.8 percent in 2014. The State of Washington had the highest 2014 STEM employment density at 9 percent, followed by the District of Columbia (8.7%), Virginia (8.6%), Maryland (8.5%), Massachusetts (8.3%), Colorado (7.7%), and California (7.2%).

Florida's STEM employment growth has not kept pace with non-STEM job creation, with STEM employment density declining from 4.6 percent in 2010 to 4.2 percent in 2014. Compared to other States, Florida's STEM employment density has deteriorated from 32nd in 2010 to 37th in 2014.

Florida High Tech Industry Employment 2010 – 2013

The U.S. Census Bureau County Business Patterns (CBP) data base provides annual statistics for businesses with paid employees by State, County, Metropolitan area, and ZIP code levels. County Business Patterns covers most North American Industry Classification System (NAICS) industries excluding crop and animal production; rail transportation; National Postal Service; pension, health, welfare, and vacation funds; trusts, estates, and agency accounts; private households; public administration; and most establishments reporting government employees. CBP also excludes non-employer establishments and self employed individuals.

The following high tech industry sectors are included in this report: telecommunications, data processing, hosting, software, software publishing, Internet service providers and web portals, information technology, engineering, scientific research and development, and scientific and technical consulting services. Future Florida Innovation Highlights analysis will include advanced industry sectors such as pharmaceutical and medicine manufacturing; aerospace product and parts manufacturing; semiconductor and other electronic component manufacturing; and navigational, measuring, electro-medical, and control instruments manufacturing.

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In 2013 U.S. high tech industry employment increased 4 percent to 6 million from 5.8 million in 2012. High tech industry employment in Florida increased by 10,500 jobs to 270,100 an increase of 4 percent from 2012. Eighty-six percent of U.S. high tech employment growth was attributed to the information services sector, compared to 37 percent in Florida.

Florida high tech industry employment of 270,129 ranked fifth compared to other states. California ranked first with high tech industry employment of 858,200, followed by Texas (519k), New York (354k), and Virginia (350k). Florida's high tech employment exceeded high tech rival states such as Massachusetts (239k), Illinois (226k), Washington (219k), Maryland (209k), and North Carolina (160k).

While Florida's high tech industry employment ranked fifth each year from 2009 to 2013, employment density, the percent of total employment in the high tech sector, ranked 29th compared to other States. In fact, high tech employment density has declined from 4 percent in 2009 to 3.8 percent in 2013.

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Talent – STEM & High Tech Industry Employment 2009 – 2014

Talent – STEM & High Tech Industry Employment 2009 - 2014						
	2009	2010	2011	2012	2013	2014
Total Private Sector Employment, Seasonally Adjusted (millions)^a						
U.S.	107.2	108.5	110.9	113.2	115.6	118.7
Florida	6.0	6.1	6.2	6.4	6.6	6.9
% Share of U.S.	5.6%	5.6%	5.6%	5.6%	5.7%	5.8%
Estimated STEM Occupational Employment (thousands)^b						
Total U.S.		7,002	7,173	7,667	7,609	7,837
Florida		325	322	332	322	324
% Share of U.S.		4.6%	4.5%	4.3%	4.2%	4.1%
% STEM of All Occupations						
Total U.S.		5.5%	5.6%	5.9%	5.7%	5.8%
Florida		4.6%	4.5%	4.6%	4.3%	4.2%
Benchmark - STEM Employment Compared To Other States						
All Occupation Employment		4	4	4	4	4
STEM Occupation Employment		4	4	4	4	4
STEM Occupation Density		32	32	35	36	37
<small>^a Florida Department of Economic Opportunity, Bureau of Labor Market Statistics and U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics Program</small>						
<small>^b Occupational Employment Statistics (OES), Bureau of Labor Statistics, U.S. Department of Labor; NOTE: "% STEM of All Occupations" and Benchmark ranking of "All Occupation Employment" is based OES statistics.</small>						

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Talent – STEM & High Tech Industry Employment 2009 - 2014						
	2009	2010	2011	2012	2013	2014
High Tech Employment (thousands)^c						
Total U.S.	5,723	5,639	5,745	5,792	6,025	
Florida	273	261	267	260	270	
% Share of U.S.	4.8%	4.6%	4.6%	4.5%	4.5%	
% High Tech of All Private Sector Employment						
Total U.S.	5.0%	5.0%	5.1%	5.0%	5.1%	
Florida	4.0%	3.9%	4.0%	3.7%	3.8%	
Benchmark - High Tech Employment Compared to Other States						
All Industries	4	4	4	4	4	
High Tech Industry	5	5	5	5	5	
High Tech Density	28	28	22	29	29	
% High Tech Payroll of All Private Sector Payroll						
Total U.S.	9.1%	9.2%	9.3%	9.4%	9.5%	
Florida	7.1%	6.9%	6.8%	6.7%	6.7%	
^c County Business Patterns, U.S. Census Bureau; NOTE: "% High Tech of All Private Sector Employment" and benchmark ranking of "All Industries" is based on County Business Patterns statistics.						