





INFORMATION TECHNOLOGY

Unlike the prior profiles, which are industry-based, this section profiles Information Technology workers. To ensure that the analysis captures the role technology plays in the Tampa Bay economy, the definition expands beyond traditional IT workers (often defined as Computer & Mathematical Occupations, SOC 15-0000) to encompass data-enabled analyst and digital media/design positions in several occupational groups, including Business & Financial Occupations (SOC 13-000) and Arts, Design, Entertainment, Sports, and Media Occupations (SOC 27-0000).

This group of 35 occupations employs nearly 74,000 workers in the Tampa Bay MSA. As a group, they comprise more than 20 percent of the workforce for some of the region’s largest industries, including corporate headquarters (NAICS 55). These “tech-dependent” industries represent nearly 7,800 establishments.

FIGURE 1. OVERVIEW: INFORMATION TECHNOLOGY (IT) WORKERS

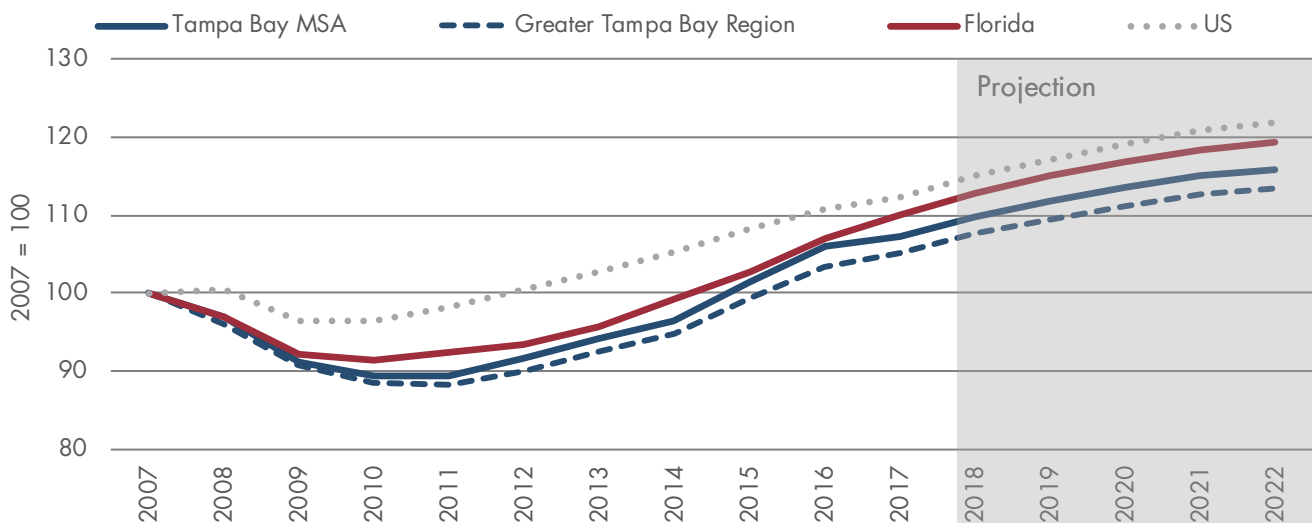
DEFINITION: Information technology continues to impact the operations of companies across a broad range of industries. The definition used for this analysis encompasses 35 occupations

- 
73,908
 Jobs in Tampa Bay MSA, 2017
- 
+7.4%
 Employment change (%) past 10 years
- 
\$62,566
 Median annual earnings, 2017*
- 
7,797
 Tech-dependent payrolled locations, 2017**

CLASSIFICATION USED FOR ANALYSIS:

See list of specific occupations, page 11.

FIGURE 2. EMPLOYMENT TRENDS (HISTORIC & PROJECTED): INFORMATION TECHNOLOGY
 JOB CHANGE RELATIVE TO 2007, WITH COMPARISONS TO TOTAL EMPLOYMENT AND US TRENDS



Source(s): All figures, Emsi 2018.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed
 Note(s): *Median annual earnings area calculated using the median hourly wage for the occupations as a group (\$30.08).
 **“Tech dependent” industries are defined as those for which the identified Information Technology occupations, as a group, comprise 20% or more of total employment.

MAJOR EMPLOYERS. Managed IT firms, or managed service providers (MSPs), offer third-party support services related to the maintenance and security of their customers' IT infrastructure. Global consulting company Accenture is the largest managed IT firm in the Tampa Bay MSA in terms of employment, with an estimated 700 jobs based locally. In terms of revenues, CDW (based in Vernon, IL) was by far the largest, with estimated revenues of nearly \$14 billion in 2016. However revenues were not included for a number of firms, including Accenture.

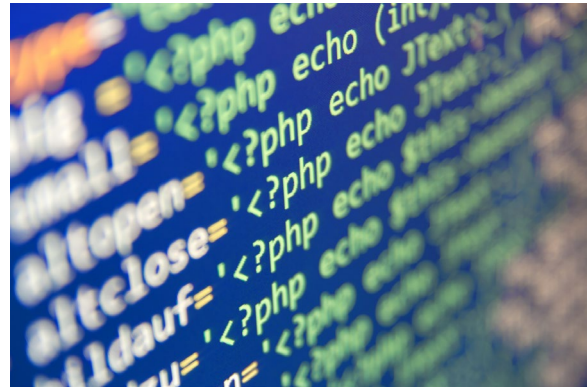


FIGURE 3. LARGEST MANAGED IT FIRMS IN TAMPA BAY MSA
RANKED BY NUMBER OF LOCAL EMPLOYEES

BUSINESS NAME	CITY	LOCAL EMPLOYEES	REVENUE 2016	YEAR FOUNDED LOCALLY
Accenture	St. Petersburg	700	—	NA
SyApps LLC	Tampa	270	—	2008
Vology	Clearwater	254	\$171.02 M	2001
Mastech Digital	Tampa	200	\$161.00 M	1997
Miles Technology Services	Tampa	200	—	NA
Global Convergence Inc. (GCI)	Oldsmar	170	\$155.00 M	2009
IT Authorities Inc.	Tampa	170	\$12.14 M	2007
CDW	Tampa	150	\$13.98 B	2011
Digital Hands	Tampa	150	—	2001
NetWolves Network Services LLC	Tampa	127	\$37.56 M	2000
Hivelocity Hosting	Tampa	62	—	2002
Convergence Consulting Group	Tampa	50	\$15.72 M	2002
Data-Tech	Tampa	50	\$5.50 M	1996
DataComm Networks Inc.	Tampa	45	\$8.60 M	1984
Modern Enterprise Solutions Inc.	Tampa	40	\$18.70 M	2003
SiteREADY	Tampa	40	—	NA
Bayshore Solutions	Tampa	38	—	1996
Cardinal Solutions	Tampa	35	\$4.50 M	2013
Zymphony Technology Solutions	Tampa	35	\$4.25 M	2003
L. Ortega & Associates	Tampa	35	—	NA
Atlas Professional Services	Tampa	31	\$6.90 M	2006
Shield Watch IT Services	Tampa	28	\$3.10 M	1996
The Launch Pad	Oldsmar	26	\$5.99 M	1992
Catapult Systems	Tampa	25	—	2007
NetDirector	Tampa	23	\$5.60 M	2003

Source: Excerpted from "Largest Managed IT Firms in Tampa Bay," *Tampa Bay Business Journal*, November 24, 2017. (Only largest 25 companies in Hernando, Hillsborough, Pasco, and Pinellas counties in employment terms are shown.)

Note(s): Data provided by company representatives.

STAFFING. Inverse staffing patterns were used to show how the Information Technology occupations support the Tampa Bay MSA employment base. Figure 4 (below) shows which industries employ the largest number of workers in this group. Figure 5 (next page) illustrates which industries are most reliant on the identified Information Technology occupations based on the share the group represents of the industry's total employment.

FIGURE 4. LARGEST USERS OF INFORMATION TECHNOLOGY WORKERS (AS DEFINED),
INDUSTRIES WHERE THE OCCUPATIONS REPRESENT AT LEAST 1,000 JOBS (BASED ON STAFFING PATTERNS)

NAICS CODE	INDUSTRY	# JOBS IN INDUSTRY (2017)	CHANGE		AVG. EARNINGS PER JOB	
			2017 JOBS	FROM 2007 LQ		
5415	Computer Systems Design and Related Services	11,701	17,959	+44%	0.97	\$102,550
5511	Management of Companies and Enterprises	5,447	26,467	+57%	1.36	\$104,646
5416	Mgmt., Scientific, and Technical Consulting Svcs.	4,330	21,009	+65%	1.44	\$71,655
9011	Federal Government, Civilian	3,021	23,458	+11%	0.95	\$104,830
5241	Insurance Carriers	2,960	19,997	-0%	1.95	\$92,489
5173	Wired and Wireless Telecommunications Carriers	2,360	10,086	-33%	1.66	\$99,044
5182	Data Processing, Hosting, and Related Services	1,870	3,670	-9%	1.35	\$107,421
5613	Employment Services	1,777	26,356	-70%	0.87	\$44,229
4234	Prof./Commercial Equip. and Supplies Wholesalers	1,659	8,838	+0%	1.65	\$94,202
5112	Software Publishers	1,572	2,642	+49%	0.83	\$113,426
9039	Local Govt., Excluding Education and Hospitals	1,537	43,955	-2%	0.91	\$71,195
5223	Activities Related to Credit Intermediation	1,432	10,631	+21%	3.96	\$82,279
5413	Architectural, Engineering, and Related Services	1,371	14,092	-8%	1.09	\$84,923
4541	Electronic Shopping and Mail-Order Houses	1,293	11,454	+65%	2.96	\$42,527
5419	Other Professional, Scientific, and Technical Svcs.	1,236	11,753	+10%	1.62	\$62,042
5221	Depository Credit Intermediation	1,161	14,911	-8%	1.02	\$83,979
5242	Agencies, Brokerages, and Other Insurance Related	1,138	18,293	+36%	1.62	\$76,331
9036	Education and Hospitals (Local Government)	1,107	55,199	-9%	0.75	\$57,508
5614	Business Support Services	1,041	18,526	+58%	2.21	\$38,037
6221	General Medical and Surgical Hospitals	1,004	43,529	+22%	1.09	\$68,617

Source: Emsi 2018.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed

Note(s): LQs (location quotients) of 1.25 or greater are highlighted. See box (next page) for a discussion of this indicator. Average earnings per job is the total industry earnings for a region divided by number of jobs. It includes wages, salaries, supplements (additional employee benefits), and proprietor income. It is not equivalent to compensation paid directly to workers.

FIGURE 5. "TECH-DEPENDENT" INDUSTRIES IN THE TAMPA BAY MSA
 INDUSTRIES WHERE IT WORKERS (AS DEFINED) COMPRISE 20% OR MORE OF TOTAL EMPLOYMENT

NAICS CODE	INDUSTRY	% OF TOTAL JOBS IN INDUSTRY (2017)	2017 JOBS	CHANGE FROM 2007	LQ	AVG. EARNINGS PER JOB
5415	Computer Systems Design and Related Services	65%	17,959	+44%	0.97	\$102,550
5112	Software Publishers	60%	2,642	+49%	0.83	\$113,426
5182	Data Processing, Hosting, and Related Services	51%	3,670	-9%	1.35	\$107,421
5414	Specialized Design Services	40%	2,447	+15%	1.02	\$37,024
5191	Other Information Services	37%	1,354	+71%	0.55	\$77,732
3341	Computer and Peripheral Equipment Mfg.	36%	654	+29%	0.48	\$68,293
5179	Other Telecommunications	28%	507	+55%	0.70	\$84,271
8112	Electronic/Precision Equip. Repair and Maint.	24%	1,575	-16%	1.46	\$63,409
5173	Wired and Wireless Telecommunications Carriers	23%	10,086	-33%	1.66	\$99,044
5331	Lessors of Nonfinancial Intangible Assets	22%	721	+113%	3.50	\$95,065
5416	Mgmt., Scientific, and Technical Consulting Svcs.	21%	21,009	+65%	1.44	\$71,655
5511	Management of Companies and Enterprises	21%	26,467	+57%	1.36	\$104,646

Source: Emsi 2018.2 – QCEW Employees, Non-QCEW Employees, and Self-Employed
 Note(s): "Tech dependent" industries are defined as those for which the identified Information Technology occupations, as a group, comprise 20% or more of total employment. LQs (location quotients) of 1.25 or greater are highlighted. Average earnings per job is the total industry earnings for a region divided by number of jobs. It includes wages, salaries, supplements (additional employee benefits), and proprietor income. It is not equivalent to compensation paid directly to workers.

ABOUT LOCATION QUOTIENTS (LQS)

Location quotient analysis is a statistical technique used to suggest areas of relative advantage based on a region's employment base. LQs are calculated as an industry's share of total local employment divided by the same industry's share of employment at the national level:

$$\frac{(\text{local employment in industry } x / \text{total local employment -all industries})}{(\text{national employment in industry } x / \text{total national employment -all industries})}$$

If the local industry and national industry are perfectly proportional, the LQ will be 1.00. LQs greater than 1.25 are presumed to indicate a comparative advantage; those below 0.75 suggest areas of weakness but also point to opportunities for expansion or attraction.

FIGURE 6. DEMAND FACTORS: INFORMATION TECHNOLOGY OCCUPATIONS

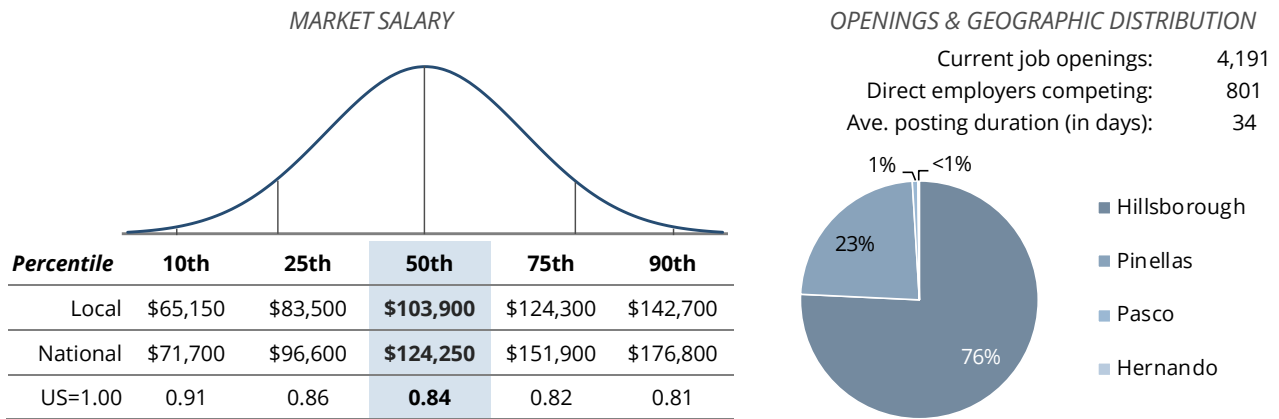
SOC CODE	DESCRIPTION	2017 Jobs	Projected Openings (2017-22)	Net Job Change (2017-2022)	Wage Premium (US=1.00)	% 55-64 Years	% 65+ Years
LOW-SKILL (<i>High school or less</i>)							
43-9022	Word Processors & Typists	415	229	-20	0.68	23% ◀	9%
MIDDLE-SKILL (<i>More than high school, less than four years</i>)							
15-1151	Computer User Support Specialists	7,479	3,350	559	0.53	14%	2%
43-9021	Data Entry Keyers	3,450	2,018	-58	0.67	18%	6%
15-1152	Computer Network Support Specialists	2,443	984	88	0.59	14%	2%
15-1134	Web Developers	1,458	774	234	0.64	8%	2%
49-2011	Computer, ATM, & Office Machine Repairers	679	347	-10	0.64	15%	3%
43-9011	Computer Operators	290	150	-5	1.15	21% ◀	6%
43-9031	Desktop Publishers	65	35	-2	0.92	20% ◀	Insf. Data
HIGH SKILL (<i>Four-year degree or above</i>)							
13-1199	Business Operations Specialists, All Other	13,245	6,738	687	0.95	21% ◀	5%
15-1132	Software Developers, Applications	7,037	3,222	873	1.51	12%	2%
13-1161	Market Research Analysts & Mktng. Specialists	4,861	3,201	730	0.87	12%	4%
15-1121	Computer Systems Analysts	3,485	1,758	575	0.89	17%	3%
15-1142	Network & Computer Systems Admin.	3,367	1,283	219	1.47	12%	2%
15-1143	Computer Network Architects	3,187	1,125	88	1.58	12%	1%
15-1133	Software Developers, Systems Software	3,141	1,366	327	1.06	12%	2%
27-1024	Graphic Designers	2,510	1,333	144	1.54	15%	7%
15-1131	Computer Programmers	2,377	798	11	0.70	16%	3%
15-1199	Computer Occupations, All Other	2,291	934	153	0.73	15%	2%
13-1051	Cost Estimators	2,282	1,290	152	0.91	27% ◀	13% ◀
11-3021	Computer & Info. Systems Managers	2,217	1,185	330	1.10	17%	2%
13-2051	Financial Analysts	2,037	1,083	195	0.98	11%	3%
15-1141	Database Administrators	1,405	549	92	0.86	16%	2%
15-2031	Operations Research Analysts	1,273	625	226	0.80	21% ◀	4%
15-1122	Information Security Analysts	1,047	470	107	1.09	17%	3%
27-1011	Art Directors	414	193	27	1.91	19%	9%
27-3042	Technical Writers	401	221	30	1.43	28% ◀	7%
27-1014	Multimedia Artists & Animators	387	173	19	1.06	15%	7%
15-2041	Statisticians	167	112	44	1.35	15%	Insf. Data
27-4032	Film & Video Editors	152	79	6	0.69	13%	Insf. Data
15-2011	Actuaries	151	77	28	0.89	10%	Insf. Data
43-9111	Statistical Assistants	106	67	0	1.08	19%	Insf. Data
15-1111	Computer & Info. Research Scientists	55	34	14	1.00	Insf. Data	Insf. Data

Source: Emsi 2018.2—QCEW Employees, Non-QCEW Employees, and Self-Employed.

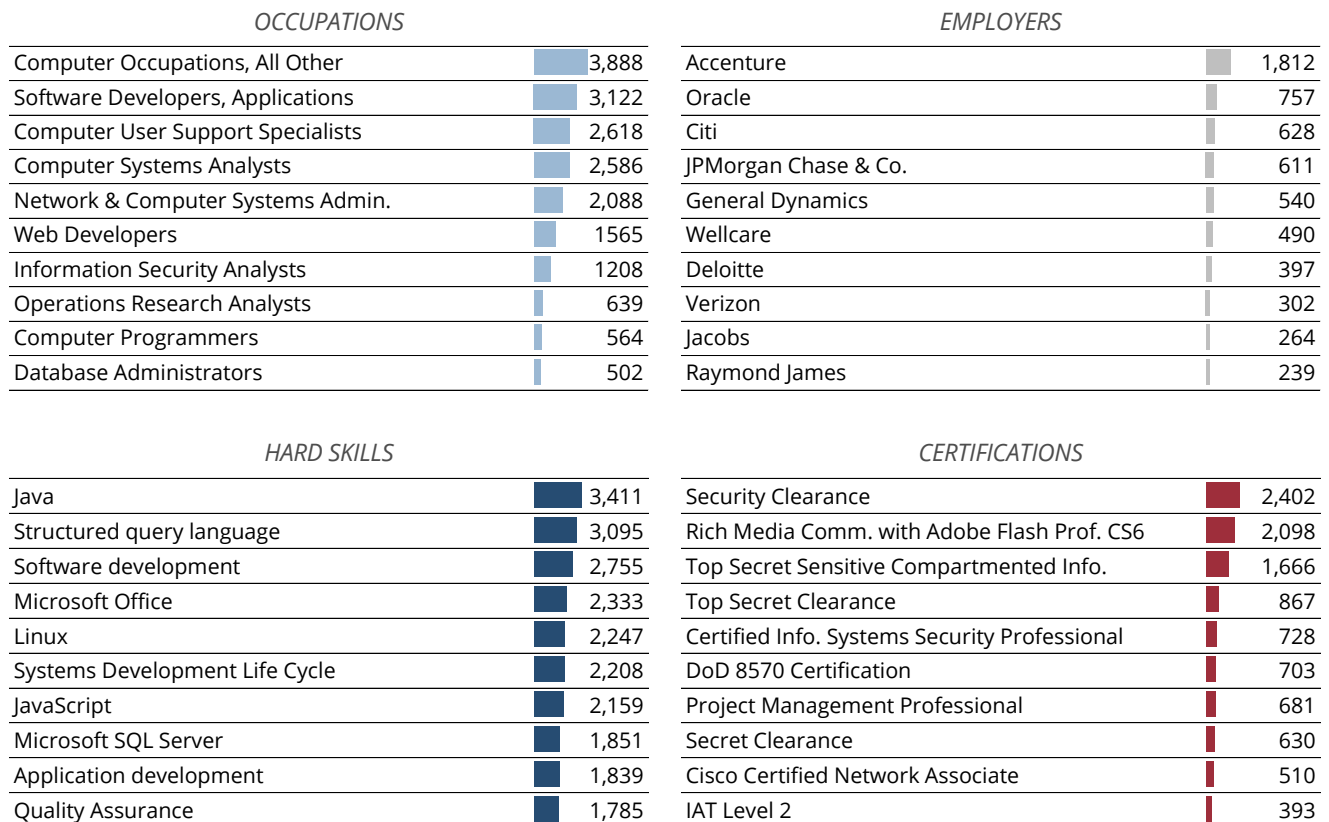
Note(s): Highlights: Wage premium = 10 percent or higher than US wages; 55-64 = 20 percent or higher; 65+ = 10 percent or higher. Excludes three occupations with fewer than 25 jobs in 2017.

HIRING. The following figures use real-time labor market information (LMI) to illustrate the hiring environment in the Tampa Bay MSA for Information Technology and related occupations.

FIGURE 7. REAL-TIME LMI OVERVIEW: COMPUTER & MATHEMATICAL OCCUPATIONS (SOC 15-0000)
JOB POSTINGS IN ALL INDUSTRIES, TAMPA BAY MSA (JAN 1, 2018–JUN 30, 2018)



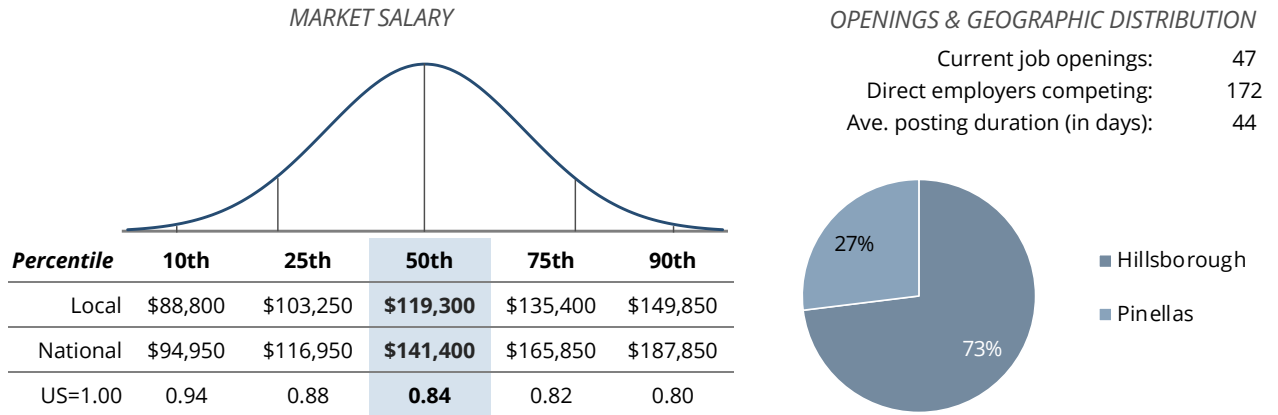
TOP 10 COUNTS (number of postings out of ~19,500 total from Jan 1, 2018–Jun 30, 2018)



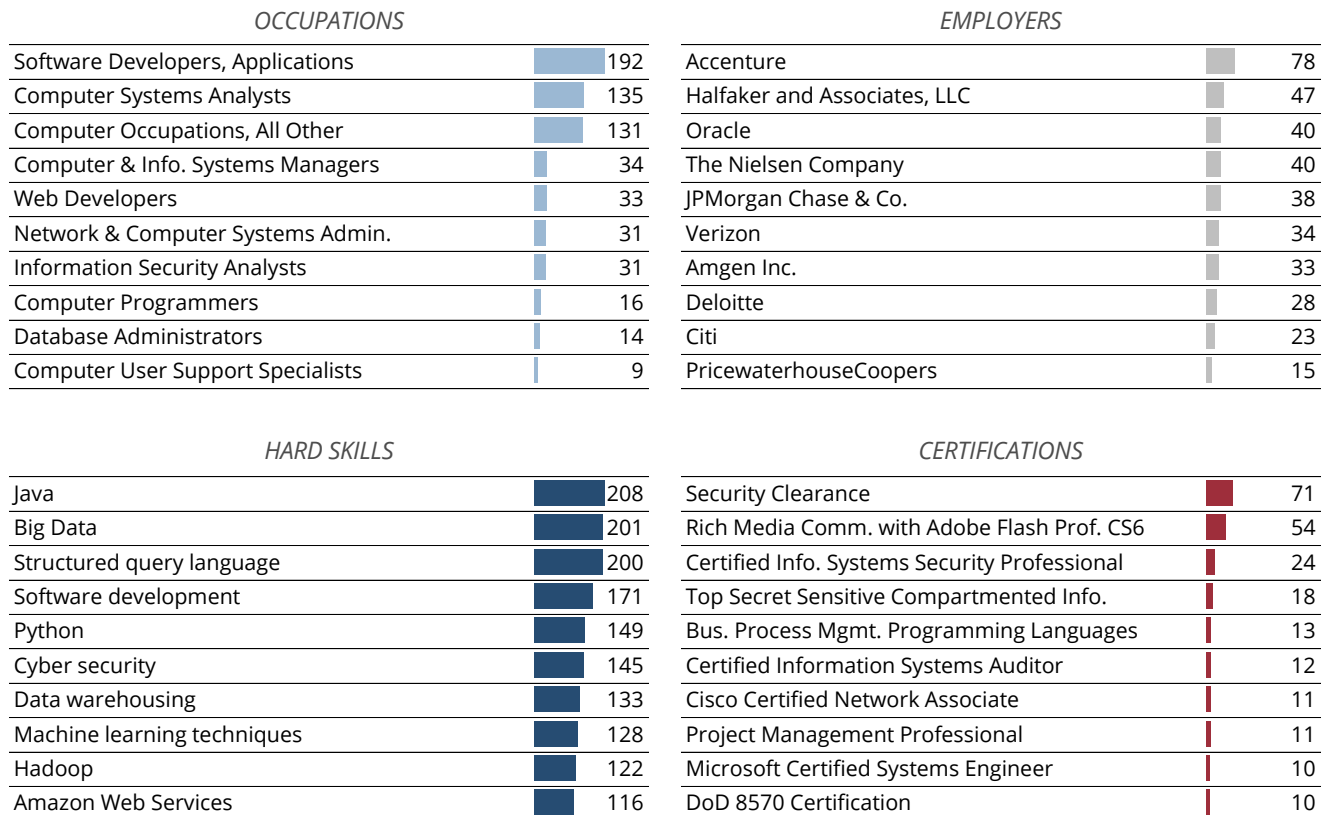
Source: Gartner Talent Neuron (formerly Wanted Analytics)

Note(s): Demand for some occupations (e.g., production or skilled trades workers) and industries (e.g., manufacturing and construction), may be under-stated in job postings data as these positions are somewhat less likely to be filled using on-line job postings.

FIGURE 8. REAL-TIME LMI OVERVIEW: DATA SCIENCE & BUSINESS ANALYTICS (KEYWORD SEARCH)
 JOB POSTINGS IN **INFO. TECHNOLOGY** INDUSTRIES, TAMPA BAY MSA (JAN 1, 2018–JUN 30, 2018)



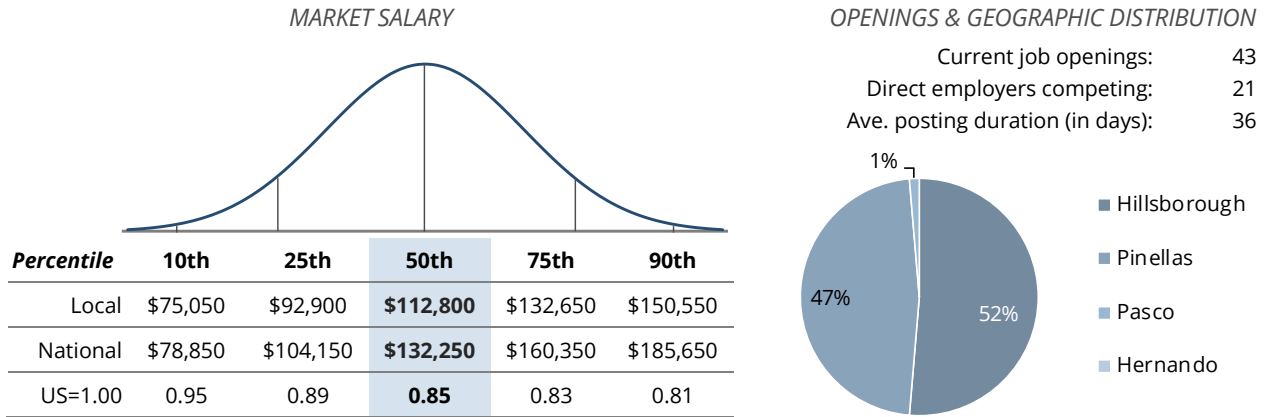
TOP 10 COUNTS (number of postings out of ~625 total from Jan 1, 2018–Jun 30, 2018)



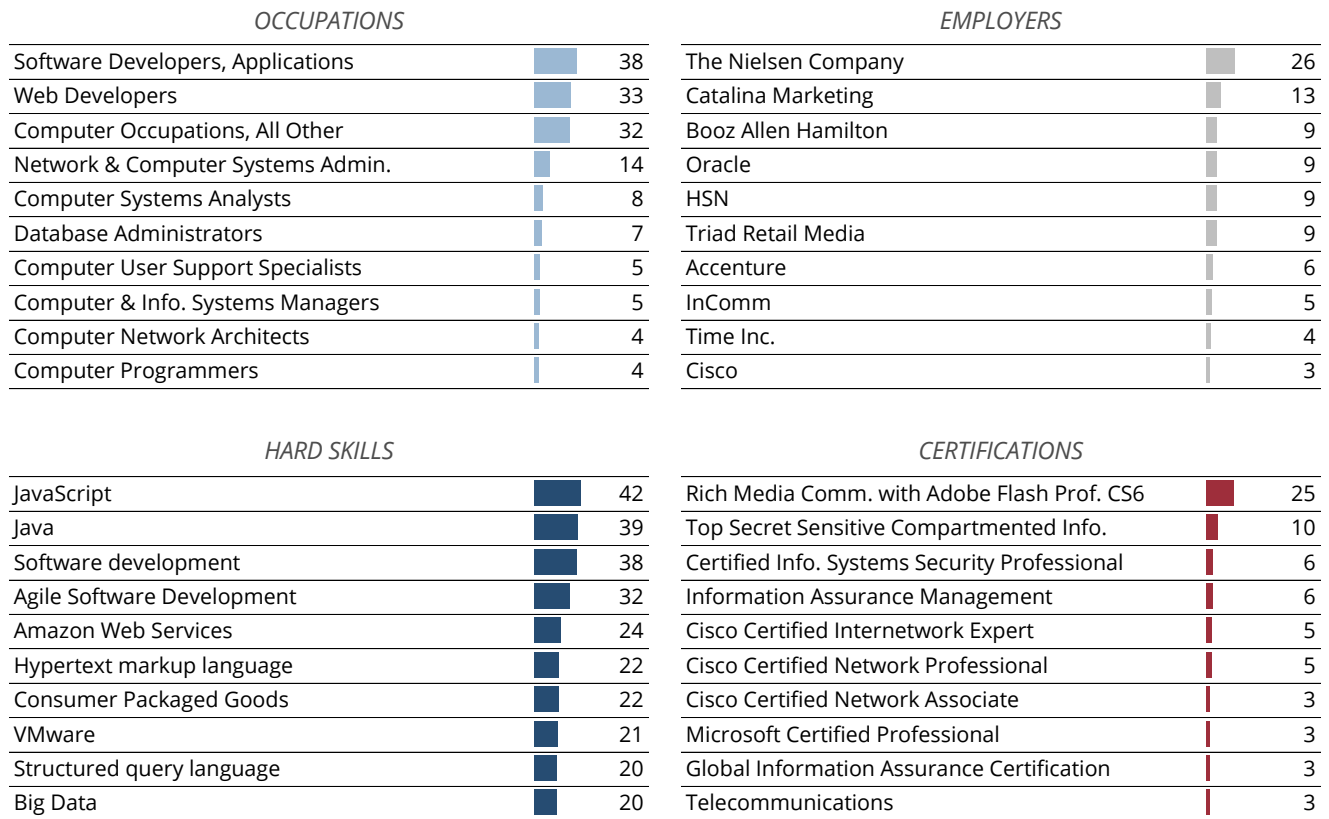
Source: Gartner Talent Neuron (formerly Wanted Analytics)

Note(s): Demand for some occupations (e.g., production or skilled trades workers) and industries (e.g., manufacturing and construction), may be under-stated in job postings data as these positions are somewhat less likely to be filled using on-line job postings.

FIGURE 9. REAL-TIME LMI OVERVIEW: DIGITAL MEDIA & DESIGN (KEYWORD SEARCH)
 JOB POSTINGS IN **INFO. TECHNOLOGY** INDUSTRIES, TAMPA BAY MSA (JAN 1, 2018–JUN 30, 2018)



TOP 10 COUNTS (number of postings out of ~150 total from Jan 1, 2018–Jun 30, 2018)



Source: Gartner Talent Neuron (formerly Wanted Analytics)

Note(s): Demand for some occupations (e.g., production or skilled trades workers) and industries (e.g., manufacturing and construction), may be under-stated in job postings data as these positions are somewhat less likely to be filled using on-line job postings.

TRAINING. Figure 10 through Figure 12 provide an overview of training relevant to the region’s Information Technology workforce. Noncredit offerings are programs that do not lead to a degree. They include certificate programs, continuing education credits, and other types of workforce training programs.

Although some positions in the IT workforce require a four-year degree or higher, there are multiple occupations where a certificate can help workers gain entry to the field. The region has a large number of noncredit offerings among the institutions analyzed. In addition, apprenticeships are offered through multiple organizations, including CareerSource TampaBay and Knight Enterprises.

School districts in the region offer training in areas including game design and animation, web design, and cybersecurity. Related industry certifications associated with these offerings include Adobe products (Photoshop, Illustrator, Flash), Microsoft Technology Associate (MTA), and A+ (an entry-level certification developed by CompTIA).

FIGURE 10. NONCREDIT OFFERINGS BY CAREER PATHWAY FOR SELECTED SCHOOLS

	HCC	PTC	PHSC	SPC
Information Support and Services	●	●	—	●
Network Systems	●	●	—	●
Programming and Software Development	●	●	—	●
Web and Digital Communications	●	●	—	●

FIGURE 11. APPRENTICESHIP PROGRAMS BY CAREER PATHWAY

	NUMBER
TOTAL	5
Information Support and Services	2
Network Systems	2
Programming and Software Dev.	1
Web and Digital Communications	

Sources: TIP Research (Figure 10), US DOL – ETA (Figure 11). Programs were categorized by career cluster and career pathway by TIP using O-Net. Pasco-Hernando State College non-credit courses were not available.

FIGURE 12. DEGREE PROGRAM OFFERINGS: INFORMATION TECHNOLOGY CAREER CLUSTER SELECT REGIONAL INSTITUTIONS DURING THE 2016 ACADEMIC YEAR

PATHWAY	USF-Main	USF-SP	HCC	PHSC	PTC-CW	PTC-SP	SPC
Information Support and Services	●						●
Network Systems	●		●	●	●		●
Programming and Software Development	●	●	●	●	●		●
Web and Digital Communications	●		●	●	●		●

Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS).

Note(s): IPEDS data include only schools eligible to participate in federal financial aid programs. Programs were categorized by career cluster and career pathway by TIP using O-Net.

USF = University of South Florida; HCC = Hillsborough Community College; PHSC = Pasco-Hernando State College; PTC = Pinellas Technical College; SPC = St. Petersburg College.

ASSOCIATIONS & RESOURCES. Tampa Bay has a number of assets and initiatives that support the Information Technology workforce. These include:

- Tampa Bay Tech. Established in 2000, Tampa Bay Tech (formerly known as the Tampa Bay Technology Forum) is Florida's largest technology council. Tampa Bay Tech has three strategic initiatives: Workforce, Marketing & Community.
- Florida Apprenticeship Consortium. St Petersburg College in partnership with Florida State College Jacksonville and Broward College to expand high-quality apprenticeships in information technology.
- Tampa Bay TechHire. Tampa Bay TechHire provides FREE accelerated training and paid work experience opportunities to young adults in high-growth industries and occupations critical to the regional economy –information technology. Training includes tuition, lab and certification fees.
- ExLab. Ex Labs is a highly competitive Accelerator Lab that exposes participants to the latest trends and strategies used in the technology industry. Students from all USFSP majors engage with industry mentors from Tech Data and develop valuable skills in problem solving, leadership, diversity and inclusion, networking, data analytics and more.
- Tampa Bay New Skills at Work. A program to support more IT graduates connecting to Tech Jobs in the Tampa Bay area. Students have access to special instruction and support from leaders in the Tech Industry. Employers have access to top talent in the educational pipeline and motivated students interested in building a career.

FIGURE 13. OCCUPATIONS INCLUDED IN INFORMATION TECHNOLOGY DEFINITION

SOC CODE	DESCRIPTION
11-3021	Computer and Information Systems Managers
13-1051	Cost Estimators
13-1161	Market Research Analysts and Marketing Specialists
13-1199	Business Operations Specialists, All Other
13-2051	Financial Analysts
15-1111	Computer and Information Research Scientists
15-1121	Computer Systems Analysts
15-1122	Information Security Analysts
15-1131	Computer Programmers
15-1132	Software Developers, Applications
15-1133	Software Developers, Systems Software
15-1134	Web Developers
15-1141	Database Administrators
15-1142	Network and Computer Systems Administrators
15-1143	Computer Network Architects
15-1151	Computer User Support Specialists
15-1152	Computer Network Support Specialists
15-1199	Computer Occupations, All Other
15-2011	Actuaries
15-2021	Mathematicians
15-2031	Operations Research Analysts
15-2041	Statisticians
15-2091	Mathematical Technicians
15-2099	Mathematical Science Occupations, All Other
27-1011	Art Directors
27-1014	Multimedia Artists and Animators
27-1024	Graphic Designers
27-3042	Technical Writers
27-4032	Film and Video Editors
43-9011	Computer Operators
43-9021	Data Entry Keyers
43-9022	Word Processors and Typists
43-9031	Desktop Publishers
43-9111	Statistical Assistants
49-2011	Computer, Automated Teller, and Office Machine Repairers