

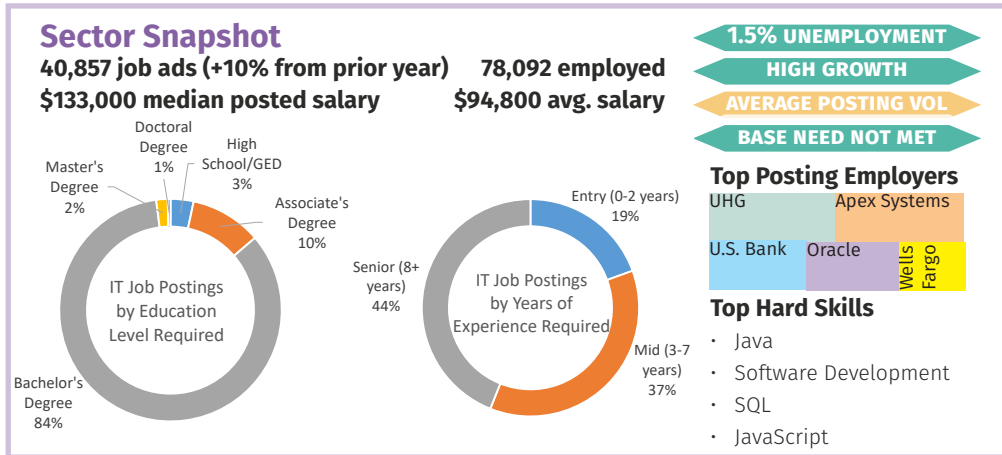
MSP Sector Analysis Information Technology Needs by Career Pathway

Continuing Growth, Expanding Opportunities

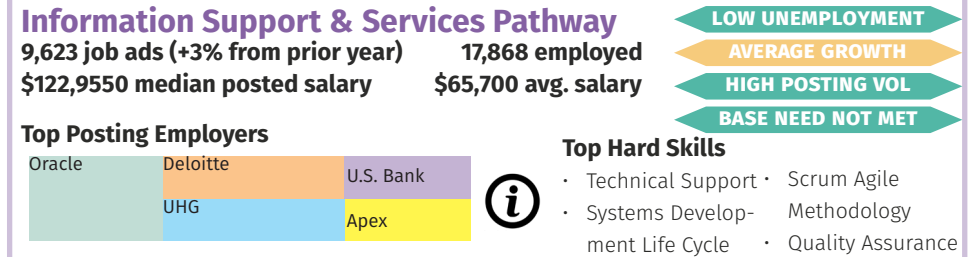
Information Technology continues to be a growing and high-wage sector of great importance to the finance, healthcare, and high tech industries. About 78,092 people are currently employed in IT roles in the 7-county Minneapolis-Saint Paul metro. Employers continue to seek candidates with credentials; 97% of online job postings advertised during the 2nd quarter of 2019 required a certificate or some college education. Sector employment is expected to grow by 1.1% annually through 2025, but if talent shortages are addressed, could rise by about 2%.

Sector Demand in the Minneapolis-Saint Paul Metro, 2019Q2

10,500 POSSIBLE TALENT SHORTAGE BY 2024Q2

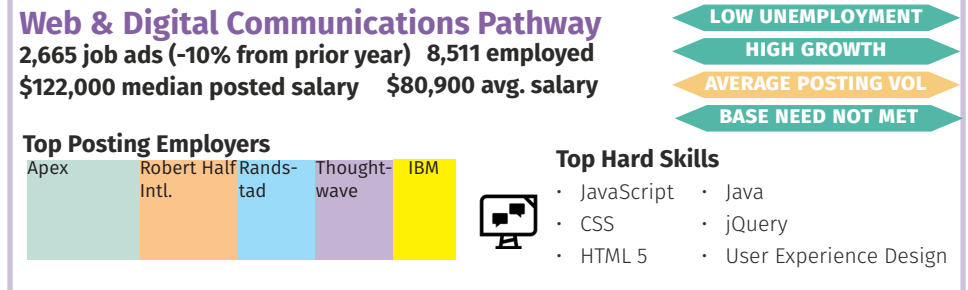
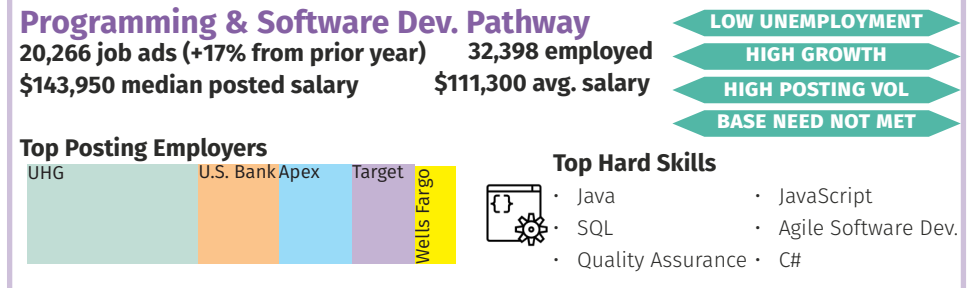


Top Pathways into Information Technology



Summary of Information Technology Occupations

Occupation	Current					History					5-Year Forecast (2024Q2)			Alternative 5-Year
	Empl ¹	Avg Ann Wages ²	Entry Wages	LQ	Unempl Rate	Online Job Ads ³	5-Year Ann %	Change in Demand	Empl Growth	Ann % Growth	Ann % Growth	Ann % Growth	Possible Shortage ⁴	
Software Developers, Applications	15,452	\$98,000	\$64,400	1.37	1.2%	10,398	4.9%	7,275	1,887	2.3%	3.3%	3,180		
Computer Systems Analysts	13,679	\$95,200	\$63,000	1.89	1.0%	4,385	2.1%	4,892	460	0.7%	1.7%	1,739		
Computer User Support Specialists	9,619	\$57,200	\$38,700	1.24	2.2%	3,457	3.4%	4,026	467	1.0%	1.9%	768		
Computer & Info. Systems Managers	6,994	\$149,100	\$101,400	1.46	1.5%	1,697	2.9%	3,001	341	1.0%	1.9%	956		
Software Developers, Systems Software	6,212	\$115,000	\$77,200	1.22	1.2%	713	0.7%	2,221	209	0.7%	1.7%	688		
Network & Computer Systems Admin	5,599	\$88,800	\$61,000	1.26	1.4%	3,037	1.0%	1,871	129	0.5%	1.4%	538		
Computer Occupations, All Other	5,140	\$83,400	\$51,000	1.04	2.4%	8,672	7.0%	2,023	273	1.0%	2.0%	652		
Computer Programmers	3,741	\$89,200	\$51,400	1.25	1.6%	704	-6.4%	938	-174	-0.9%	0.0%	109		
Computer Network Support Specialists	2,798	\$63,600	\$45,100	1.27	2.2%	32	2.5%	1,126	102	0.7%	1.6%	200		
Web Developers	2,445	\$82,900	\$52,300	1.28	1.9%	2,478	4.2%	1,020	126	1.0%	1.8%	310		
Computer Network Architects	2,390	\$111,800	\$81,100	1.29	0.5%	216	2.3%	836	66	0.5%	1.5%	268		
Information Security Analysts	1,983	\$97,600	\$65,200	1.53	2.0%	1,874	6.1%	974	239	2.3%	3.3%	497		
Database Administrators	1,729	\$93,600	\$62,800	1.30	0.8%	761	-0.4%	645	79	0.9%	1.8%	203		
Computer Operators	312	\$54,100	\$51,000	0.70	2.6%	29	-13.0%	104	-38	-2.5%	-1.7%	12		
All IT	78,092	\$94,800	\$62,900	1.36	1.5%	40,857	2.4%	31,021	4,235	1.1%	2.0%	10,500		
Total - All Occupations	1,867,002	\$57,500	\$32,900	1.00	2.7%	118,155	1.5%	1,102,732	67,822	0.7%	1.8%	166,000		



1 - Employment data modeled by JobsDQ based on BLS Occupational Employment Statistics on a four-quarter moving average unless noted otherwise. 2 - Wage data are as of 2018 and represent the average for all covered employment reliant on the BLS Quarterly Census of Employment and Wages in the region. 3 - Data represent online job ads active within the last 30 days in the region, estimated with JobsEQ. 4 - Possible 5-year forecast possible shortage includes current vacancies, occupation gaps modeled by JobsEQ, and alternative employment growth modeling under favorable economic growth conditions. Indicates additional needed talent to maintain historic rates of GDP growth. May not sum due to rounding. Note: Informatics Nurse Specialists and health-specific data management, Data Entry Keyers and other light administrative roles were not included in this IT sector analysis, but may be considered additional starting points for IT.

Developed for the Greater Metropolitan Workforce Council, September 2019.



Bootcamps, Dual Training Programs, & Other IT Credentials

Formal Education Graduate Employment Outcomes

INCREASE GRADUATE OUTPUT

Typical Entry-Level Position: BA Degree / Relevant Experience; 78% Graduates of IT Edu. Programs Remain in MN & Work
Regional Certificate 2-Year, and 4-Year Program Graduates, 2015 (CIP 11)* 30% Graduates of Color

Instructional Program	2014-2015		Employment 2 Years Later (2017)			
	Graduates	Graduates employed in MN	% Grads with reported wages in MN	Full-time year-round median wage	% working full-time & year-round	% working part-time or seasonally
Computer Science	466	304	65%	\$64,026	68%	32%
Computer/IT Administration & Management	359	321	89%	\$41,824	62%	38%
Computer Systems Networking & Telecommunications	180	163	91%	\$46,815	71%	29%
Computer Software & Media Applications	95	71	75%	\$27,968	44%	66%
Computer & Information Sciences, General	172	128	74%	\$73,875	77%	23%
Computer Programming	146	128	88%	\$44,498	62%	38%
Computer Systems Analysis	98	64	65%	\$68,221	81%	19%
Information Science/Studies	43	39	91%	\$55,502	69%	31%
All Computer & Info Sciences & Support Services	1,564 ↓	1,222 ↓	78% ↑	\$50,901 ↓	66% ↑	34% ↓

Network Administrator Cert. & AA Completions, 2017**

POSSIBLE 5-YR SHORTAGE: 538 (ALL LEVELS)

Schools	Cert.	AA/AS	Total
Hennepin Technical College	0	70	70
Minneapolis Community & Tech College	16	30	46
Anoka-Ramsey Community College	7	0	7
National American University	1	4	5
Inver Hills Community College	1	3	4
Dakota County Technical College	2	0	2
Century College	1	0	1
Total	38	125	163

CIP 11.1001

Web Developer Cert. & AA Completions, 2017

POSSIBLE 5-YR SHORTAGE: 310 (ALL LEVELS)

Schools	Cert.	AA/AS	Total
Minneapolis Community & Tech College	27	27	54
Dunwoody College of Technology	0	27	27
Dakota County Technical College	2	5	7
Saint Paul College	4	0	4
Century College	1	2	3
North Hennepin Community College	0	0	0
University of Northwestern - St. Paul	0	0	0
Hennepin Technical College	0	0	0
Total	34	61	95

CIP 11.801

MSP TechHire Training Partners

Typical Entry-Level Position: BA Degree / Relevant Experience; 79% Graduates of Programs Remain in MN & Work

Regional Bootcamps & Training Programs, Graduates and % Placed in Jobs, March 2015-2017

Organization	Total Trained	% Female	% 30+	% POC	Training Types	Grads 2015-2017	% Placed in Jobs
IT Ready	250	29%	45%	63%			
PRIME	500	36%	52%	17%	Help Desk	287	78%
Software Guild	177	30%	38%	7%	Project Mgmt.	13	77%
AIOIC/TAKODA	6	0%	50%	67%	Business Analyst	NEW	
JFCS	31	16%	74%	61%			
York B2E	13	62%	100%	31%			
Total	977	33%	49%	29%			

INCREASE TRAINING OUTPUT

Bootcamp & Training Types

MN Department of Labor & Industry PIPELINE Dual Training Program

134 statewide awards 2015-2018

Priority Applicants: Recent High School/GED graduates; Previous grantees with continuing student/employee populations to complete degrees.

Occupations	Total Completions	% of Total
Service Desk/Front Line	83	62%
Security Analyst	27	20%
Software Developer	19	14%
Web Developer	5	4%
Total	134	

User Support Specialist Cert. & AA Completions, 2017

POSSIBLE 5-YR SHORTAGE: 768 (AA OR LESS)

Schools	Cert.	AA/AS	Total
Hennepin Technical College	12	7	19
American Indian OIC	17	0	17
Anoka-Ramsey Community College	7	0	7
National American University	3	3	6
Inver Hills Community College	1	3	4
Dakota County Technical College	2	0	2
Century College	1	0	0
Total	41	15	56

CIP 11.1006

Computer Programmer Cert. & AA Completions, 2017

POSSIBLE 5-YR SHORTAGE: 109 (ALL LEVELS)

Schools	Cert.	AA/AS	Total
North Hennepin Community College	83	0	83
Minneapolis Community & Tech College	20	21	41
Hennepin Technical College	2	12	14
Dakota County Technical College	3	8	11
Saint Paul College	3	8	11
Minneapolis Business College	0	9	9
Total	111	58	169

CIP 11.02

RealTime Talent Reports: realtimetalent.org/research/reports

*Graduate Employment Outcomes from MN DEED, for Twin Cities IT (CIP 11) graduates from July 2014-June 2015. Only includes data on graduates that had reported wages in MN 2 years after graduation; does not include students that found work out of state, were self-employed, or continued their education. **IPEDS Graduate Awards, 2016-17 school year. Developed by Erin Olson (erin@realtimetalentmn.org). Published 9/28/2019 by RealTime Talent. Sources: TalentNeuron Recruit aggregate online job postings. www.wantedanalytics.com accessed 9/27/2019. Counts of job postings in Q2 2019 by employer were available April 1 - June 30, 2019 in the 7-county Minneapolis-Saint Paul metro. Includes staffing agencies. Percent change in job postings are the change from the same quarter in the prior year. Employment, wage, and education data modeled from IPEDS, OES, and BLS data by JobsEQ. People of color color calculations do not include nonresident aliens (international students) for which race or ethnicity is not determined. Some overlap in counts of graduates from formal education, dual-training, and bootcamps may exist, as some students may have participated in multiple programs.