Minnesota – Information Technology Profile

At the occupational level, Minnesota is home to around 110,000 Information Technology (IT) workers. Sometimes confused for an industry, the IT field is actually better classified as a set of occupations. While focused more heavily in certain sectors, IT employment is spread across every industry, since every industry utilizes some amount of computer technology.

According to DEED's Occupational Employment & Wage Statistics (OEWS) data, the state of Minnesota was home to around 100,000 workers in IT and computer-related occupations, which are formally classified in Standard Occupational Classification (SOC) codes as "Computer & Mathematical Occupations". In addition, there were just under 9,000 people employed as Computer & Information Systems Managers in Minnesota. In sum, these occupations provided about 3.8% of total employment in the state, compared to about 3.7% of total employment nationwide. This means that IT occupations are more concentrated in Minnesota than the nation as a whole, as demonstrated by the higher location quotients in some occupations in comparison to the U.S. (see Table 1).

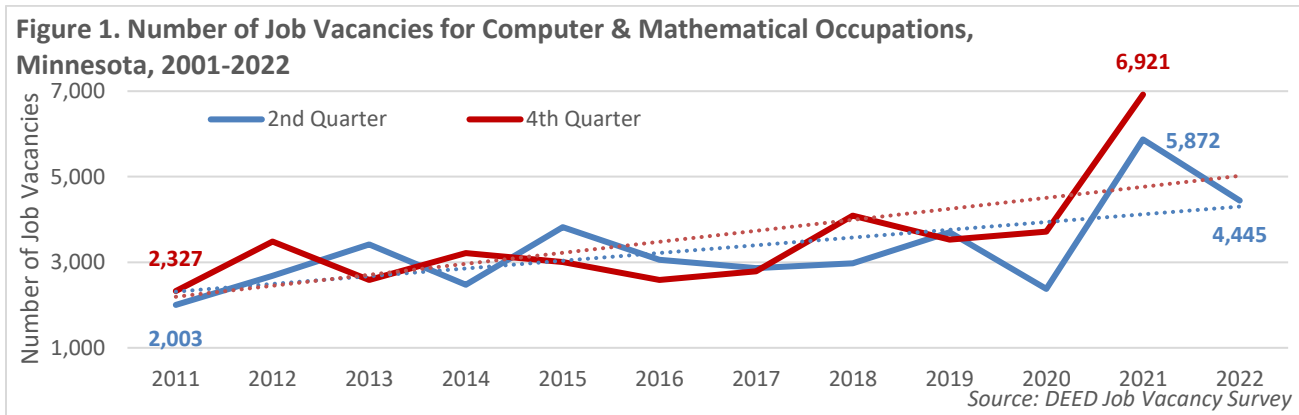| Table 1. Minnesota Information Technology Occupational Statistics, 2023					
SOC Code	SOC Occupational Title	Estimated Statewide Employment	Median Hourly Wage	Location Quotient	U.S. Median Hourly Wage
000000	**Total, All Occupations**	**2,827,310**	**$24.25**	**1.0**	*$23.03*
113021	Computer & Information Systems Managers	8,920	$77.61	0.9	*$80.45*
172061	Computer Hardware Engineers	390	$53.30	0.3	*$66.09*
150000	**Computer & Mathematical Occupations**	**99,250**	**$49.73**	**1.0**	*$50.15*
151211	Computer Systems Analysts	13,380	$52.72	1.4	*$51.04*
151212	Information Security Analysts	2,650	$54.80	0.8	*$55.92*
151221	Computer & Information Research Scientists	40	$55.53	0.1	*$68.21*
151231	Computer Network Support Specialists	6,820	$35.18	2.1	*$33.98*
151232	Computer User Support Specialists	12,980	$30.43	1.0	*$28.90*
151241	Computer Network Architects	2,590	$64.80	0.8	*$63.35*
151242	Database Administrators	1,460	$47.14	0.9	*$49.88*
151243	Database Architects	580	$60.82	0.5	*$67.33*
151244	Network & Computer Systems Administrators	4,610	$44.97	0.7	*$45.19*
151251	Computer Programmers	2,120	N/D	0.8	*$48.83*
151252	Software Developers	36,360	$55.21	1.2	*$63.53*
151253	Software Quality Assurance Analysts	2,070	$49.70	0.6	*$49.73*
151254	Web Developers	2,330	$39.96	1.4	*$39.23*
151255	Web & Digital Interface Designers	1,530	$39.74	0.8	*$41.56*
151299	Computer Occupations, All Other	4,310	$48.49	0.5	*$49.29*
152031	Operations Research Analysts	1,970	$42.89	1.0	*$42.79*
152041	Statisticians	930	$41.72	1.6	*$49.39*
152051	Data Scientists	1,600	$53.39	0.5	*$51.67*
	Source: DEED Occupational Employment & Wage Statistics program				

In addition to the high concentrations, wages for these IT occupations were also relatively high. The median hourly wage for Computer & Mathematical Occupations was $49.73, which was more than double the median across all occupations ($24.25). Over the course of a full-time, year-round work schedule, the median annual wage for computer and mathematical occupations would be $103,438, which would be about $53,000 higher than the total of all occupations.

Median hourly wages ranged from a low of $30.43 per hour for Computer User Support Specialists, which was still at least $6 above the median wage for all occupations; to a high of $77.61 per hour for Computer & Information Systems Managers. Wages were competitive but slightly lower in Minnesota compared to the U.S., with 7 of the 20 computer-related occupations showing higher median hourly wages here than in the rest of the nation.

It is important to note that about 85% of the Computer and Mathematical jobs in the state are located in the 7-County Twin Cities metro area, about 22 percentage points higher than the share of all occupations that are located in the metro. The other 15% of Computer and Mathematical jobs were spread across Greater Minnesota. Wages are also higher in the Twin Cities than in Greater Minnesota.

Occupational Demand

According to DEED's Job Vacancy Survey, steady economic growth in the state has created a steady rise in the number of openings for IT occupations across Minnesota. The 6,921 job vacancies reported by employers for computer occupations in the fourth quarter of 2021 was the highest number on record, before dropping back slightly to 4,445 vacancies in the second quarter of 2022. Trend lines for vacancies have been pointing upward over time, even prior to the onset of the labor market tightness induced by the coronavirus pandemic in 2020 (see Figure 1).

Figure 1. Number of Job Vacancies for Computer & Mathematical Occupations, Minnesota, 2001-2022

Source: DEED Job Vacancy Survey

The median wage offer for these vacancies jumped to $41.17 per hour in the second quarter of 2022 from a recent low of $30.19 in 2020. About 75% of the IT job vacancies required postsecondary education and almost all required at least a year of prior work experience – with wage offers closely tied to experience and training requirements (see Figure 2 and Table 2). Only 16% of posted IT openings in 2022 were part-time, as compared to 37% of vacancies across all occupations.
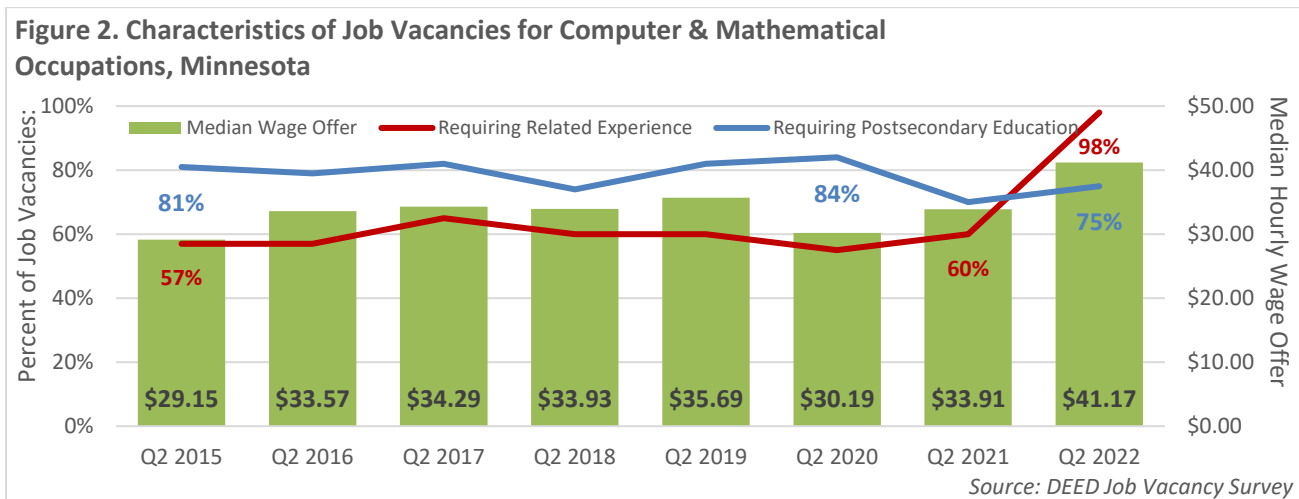

Figure 2. Characteristics of Job Vacancies for Computer & Mathematical Occupations, Minnesota

Source: DEED Job Vacancy Survey

Table 2. Minnesota Information Technology Job Vacancies, 2nd Quarter 2022

SOC Occupational Title	Number of Job Vacancies	Median Wage Offer	Percent Part-time	Percent Requiring Postsecondary Education	Percent Requiring 1+ Years Work Exp.
Total, All Occupations	*184,588*	*$18.32*	*37%*	*32%*	*47%*
Computer & Mathematical Occupations	**4,445**	**$41.17**	**16%**	**75%**	**98%**
Software Developers	2,019	$42.90	16%	72%	99%
Computer User Support Specialists	642	$31.69	6%	65%	97%
Computer Systems Analysts	382	$39.76	29%	84%	98%
Computer & Information Systems Managers	243	$50.40	18%	83%	100%
Network & Computer Systems Administrators	241	$42.13	11%	82%	97%
Web & Digital Interface Designers	179	$46.98	6%	85%	98%
Information Security Analysts	173	$41.22	30%	69%	99%
Operations Research Analysts	156	$39.60	21%	88%	97%
Data Scientists	108	$41.13	23%	91%	100%
Software Quality Assurance Analysts	82	$45.54	17%	85%	94%
Computer & Information Research Scientists	77	$46.20	10%	98%	100%
Database Architects	65	$45.65	39%	75%	100%
Computer Occupations, All Other	56	$43.66	2%	96%	100%
Web Developers	45	$38.24	32%	82%	100%
Computer Hardware Engineers	45	$39.14	40%	97%	93%
Computer Network Architects	44	$36.16	45%	82%	100%
Statisticians	39	$23.75	8%	100%	46%
Computer Programmers	36	$28.74	6%	37%	92%
Database Administrators	32	$41.19	28%	71%	100%
Computer Network Support Specialists	13	$29.96	17%	67%	67%

Source: DEED [Job Vacancy Survey](#)

The vast majority of IT occupations require at least some postsecondary education, with most requiring a bachelor's degree. The lowest requirements were for Computer User Support and Computer Network Support Specialists and Web Designers, where about half required vocational training or an associate degree, making that the most typical requirement for entry into the careers. The rest of the IT positions typically required a bachelor's degree or higher. However, these requirements may be changing along with [national trends](#) which show that roles like Software Developers and Network Administrators are lowering requirements for 4-year degrees (see Table 3).

Table 3. Minnesota Information Technology Occupation Typical Education Requirements

Vocational Training	Associate Degree	
Computer User Support Specialists	Computer Network Support Specialists	Web Developers & Digital Interface Designers
Bachelor's Degree		
Computer & Information Systems Managers	Computer Systems Analysts	Database Administrators & Architects
Computer Network Architects	Network & Computer Systems Administrators	Information Security Analysts
Computer Programmers	Software Developers & Software Quality Assurance Analysts	Computer Occupations, All Other
Computer Hardware Engineers	Advanced Degree	
	Computer & Information Research Scientists	Statisticians

Source: DEED [Minnesota Educational Requirements for Occupations](#)

Occupational Outlook

The increased demand for IT jobs in Minnesota is expected to continue, leading to a projected 5.7% job expansion from 2020 to 2030. The state is expected to have rising demand for IT workers over the next ten years due to new jobs being created and a large number of replacement openings – jobs that become available as existing workers retire out of the labor force or change careers. In sum, there may be as many as 35,000 total openings for IT occupations in the state over the next decade.

Overall, all but one of the state's computer and mathematical occupations are expected to see new job growth from 2020 to 2030, led by Statisticians, Computer and Information Research Scientists, Information Security Analysts, and Data Scientists and Mathematical Science Occupations. In contrast, the only decline is projected for Computer Programmers.

Regardless of growth or decline, every IT occupation is expected to at least have some labor market exit openings from 2020 to 2030. With more than 16,000 total openings, the largest demand is projected for Software Developers and Software Quality Assurance Testers, followed by Computer Systems Analysts, Computer User Support Specialists, and Computer and Information Systems Managers, which are all expected to have over 2,700 total openings in the state. Network and Computer Systems Administrators and Computer Network Architects will also remain in demand due to larger shares of labor market exit openings (see Table 4).

Table 4. Minnesota Information Technology Occupation Projections, 2020-2030						
SOC Code	SOC Occupational Title	Estimated Employ-ment 2020	Projected Employ-ment 2030	*Percent Change 2020-2030*	*Numeric Change 2020-2030*	** Labor Market Exit Openings 2020-2030*
0	**Total, All Occupations**	**2,975,300**	**3,145,200**	***+5.7%***	***+169,900***	***+1,299,528***
113021	Computer & Information Systems Managers	10,996	11,910	*+8.3%*	*+914*	*+1,860*
150000	**Computer & Mathematical Occupations**	**103,199**	**115,793**	***+12.2%***	***+12,594***	***+22,665***
151211	Computer Systems Analysts	18,856	19,910	*+5.6%*	*+1,054*	*+3,782*
151212	Information Security Analysts	2,532	3,267	*+29.0%*	*+735*	*+447*
151221	Computer & Information Research Scientists	228	299	*+31.1%*	*+71*	*+47*
151231	Computer Network Support Specialists	5,305	5,568	*+5.0%*	*+263*	*+1,021*
151232	Computer User Support Specialists	12,466	13,127	*+5.3%*	*+661*	*+2,403*
151241	Computer Network Architects	2,697	2,772	*+2.8%*	*+75*	*+377*
151244	Network & Computer Systems Administrators	6,419	6,615	*+3.1%*	*+196*	*+1,094*
151245	Database Administrators & Architects	2,887	3,126	*+8.3%*	*+239*	*+697*
151251	Computer Programmers	3,994	3,434	*-14.0%*	*-560*	*+740*
151256	Software Developers & Software Quality Assurance	33,284	40,994	*+23.2%*	*+7,710*	*+8,613*
151257	Web Developers & Digital Interface Designers	4,302	4,640	*+7.9%*	*+338*	*+1,037*
151299	Computer Occupations, All Other	4,586	4,931	*+7.5%*	*+345*	*+1,103*
152031	Operations Research Analysts	3,101	3,855	*+24.3%*	*+754*	*+750*
152041	Statisticians	943	1,258	*+33.4%*	*+315*	*+223*
152098	Data Scientists & Mathematical Science Occupations	958	1,206	*+25.9%*	*+248*	*+219*
* = Labor Market Exit Openings are the projected number of workers leaving an occupation and exiting the labor market entirely (most labor force exits are related to workers retiring). Source: DEED Employment Outlook						

IT has traditionally been a male-dominated career field, with males holding about 73% of total jobs according to Census data from 2021. However, the IT field is actually more racially diverse, with just 77% reporting white as their race, compared to 13% Asian or Pacific Islander, 4.2% Black or African American, 4% Hispanic or Latino, and 4% of Two or More Races.