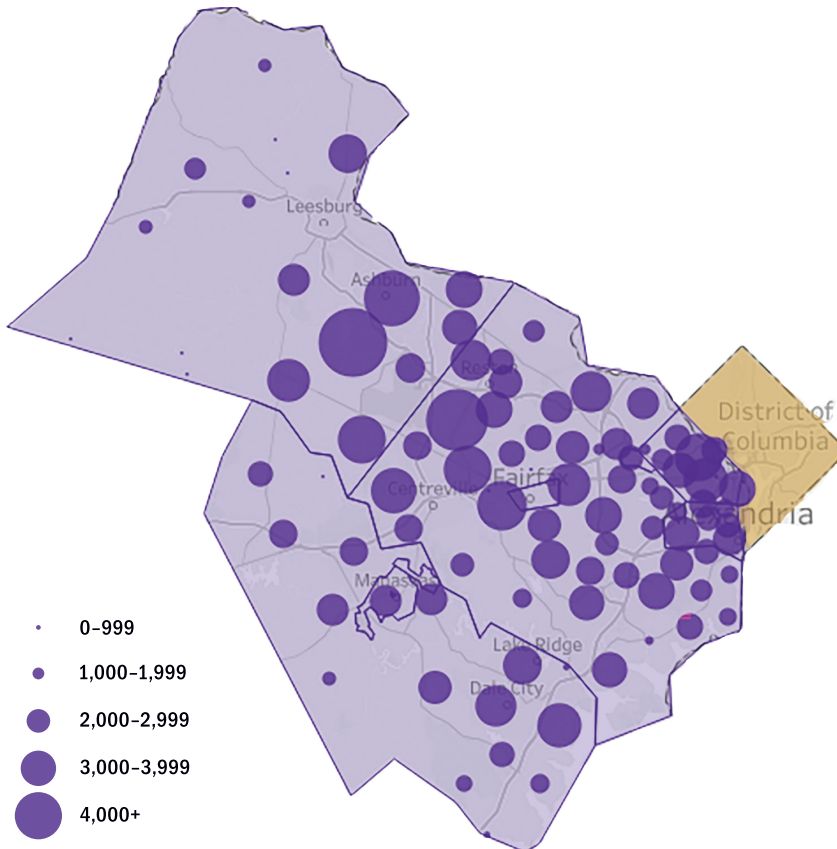# Northern Virginia's
INFORMATION TECHNOLOGY WORKFORCE

2022

As the largest institution of public higher education in Virginia, Northern Virginia Community College (NOVA) acts as a catalyst for economic growth in the capital region by providing access to highly skilled, credentialed, and diverse talent.

NOVA advances this mission by collaborating with employers, economic development organizations, education institutions, community-based organizations, and local governments in the northern Virginia region to address the skills gap and develop a robust talent pipeline.
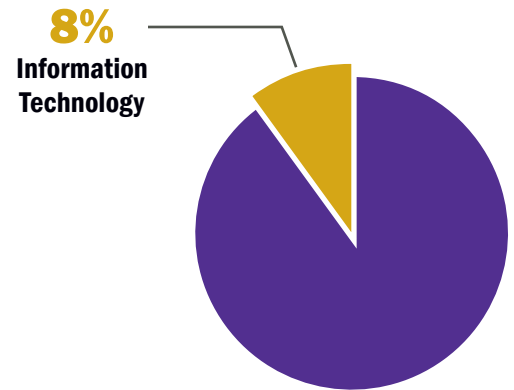
NOVA Regional Workforce

8%
Information Technology

Concentration of IT Workers by ZIP code tabulation area (ZCTA) in Northern Virginia

Leesburg

Ashburn

Reston

Centreville

Fairfax

District of Columbia

Alexandria

Manassas

Lake Ridge

Dale City

- • 0–999
- • 1,000–1,999
- • 2,000–2,999
- • 3,000–3,999
- • 4,000+

Source: U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates.
NOTE: *There is one dot per ZCTA, and the size of the dot represents the number of IT workers in that ZCTA.*

145,165
Total IT jobs in the NOVA region as of 2021

$126,074
Average annual wage of IT workers in the NOVA region

107,898
IT job postings in the NOVA region from Nov. 2021–Oct. 2022

2nd nationally
The Washington, D.C. metropolitan area's ranking nationally for total IT employment

15,661
Total IT degrees & credentials awarded in the Washington, D.C. metropolitan area in 2021

NOVA | Northern Virginia Community College

Overview

Ever since Amazon announced that a major part of its HQ2 operations would be located in Northern Virginia, the region's profile as a national tech hub has skyrocketed. Even before Amazon's announcement, the information technology sector in the Washington, D.C. metropolitan area had been experiencing substantial growth, with Northern Virginia at its core. As Amazon ramps up hiring in the coming years, and as other technology companies inevitably follow in its wake, the challenges associated with finding talent in such a competitive labor market will only continue to grow.[1]

With this in mind, and with an eye towards better understanding NOVA's role in collaborating with employers and community partners to address these challenges as they arise, this brief examines the various facets of the information technology (IT) workforce in order to determine where our region is now, and what the future may look like.

PLEASE NOTE: Employment data in this brief includes all QCEW and non-QCEW employees, as well as the self-employed and extended proprietors, which are defined as labor income for individuals who do not consider the employment a primary job.[2] There are approximately 5,000 extended proprietors across all IT occupations in the NOVA region. The inclusion of extended proprietors helps to capture the gig economy, as well as other incidental IT-related income. The inclusion of extended proprietors is a change from the last iteration of this workforce brief, so comparison of any year-over-year changes between briefs should be avoided. All data, unless stated otherwise, is current as of 2021.

Definitions

Washington D.C. Metropolitan Area (D.C. MSA): The 25 counties (and independent cities) centered around the District of Columbia that are highly integrated economically and socially, as defined by the United States Office of Management and Budget. For the purpose of analysis, we consider four different sub-regions within the MSA:

NOVA Region: The nine jurisdictions served by Northern Virginia Community College, including: Arlington County, Alexandria City, Fairfax County, Fairfax City, Falls Church City, Loudoun County, Manassas City, Manassas Park City, and Prince William County.

Suburban Maryland (MD) and West Virginia (WV): The counties in Maryland and West Virginia that lie within the Washington, D.C. MSA, including: Calvert County, Charles County, Frederick County, Jefferson County (WV), Montgomery County, and Prince George's County.
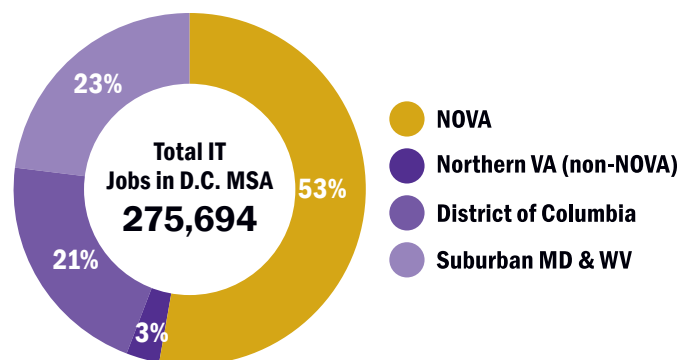
District of Columbia: The city and federal district that lies at the core of the metropolitan area.

Northern Virginia (Non-NOVA): The outlying Virginia counties that compose the remainder of the Washington, D.C. MSA, but are not included in the NOVA Region.

Includes: Clarke County, Culpeper County, Fauquier County, Fredericksburg, Madison County, Rappahannock County, Spotsylvania County, Stafford County, and Warren County.

Information Technology: When thinking of the information technology (IT) workforce, we tend to focus on workers employed by those Silicon Valley tech firms that dominate our modern technological life: Apple, Google, Netflix, etc. However, while these sorts of technology

Figure 1. IT Workforce by D.C. MSA Sub-Region

Total IT Jobs in D.C. MSA
275,694

- 53% NOVA
- 3% Northern VA (non-NOVA)
- 21% District of Columbia
- 23% Suburban MD & WV

Source: Lightcast Analyst (2022.4 release).

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1 Jonathan Capriel, "Lots of job openings, not enough workers and HQ2 on the way has Fairfax County on edge," Washington Business Journal, March 28, 2019, https://www.bizjournals.com/washington/news/2019/03/28/lots-of-job-openings-not-enough-workers-and-hq2-on.html.
2 "Class of Worker (CoW)," Lightcast, accessed January 12, 2023, https://kb.emsidata.com/glossary/class-of-worker-cow/.

companies may be the primary employers of IT workers, IT talent is needed across the entire economy, from financial services and healthcare to higher education and government. As a result, we will primarily be examining the IT workforce in terms of those occupations that require specific technology skills and activities, regardless of the sector in which workers are employed.

The following table contains a full list of the occupations we have considered in this analysis, including the code and title used by the Bureau of Labor Statistics' standard occupation classification (SOC) system to formally define occupational categories for data collection and analysis. Since individual occupations typically encompass a range of related job titles, we have also provided a sampling of alternate titles that employers might use, as found in regional job postings. Finally, we have indicated the total employment for each occupation in the NOVA region as of 2021.

Table 1. IT Occupations in the NOVA Region

SOC Code	SOC Title	Alternate Job Titles	Total Employment
11-3021	Computer and Information Systems Managers	Chief Information/Technology Officer, Director of Software Engineering	8,175
15-1211	Computer Systems Analysts	Systems Analyst, Technical Analysts	13,731
15-1212	Information Security Analysts	Cybersecurity Analyst/Engineer	11,142
15-1221	Computer and Information Research Scientists	Computer Scientist, Research Engineer	1,096
15-1231	Computer Network Support Specialists	Security Systems Administrator, Network Technician, Network Operations Specialist	3,715
15-1232	Computer User Support Specialists	Help Desk Technician/Specialist, Desktop Support Technician	11,689
15-1241	Computer Network Architects	Network Engineer, Cloud Architect	5,947
15-1242	Database Administrators	Data Engineer, Data Center Technician	3,022
15-1243	Database Architects	Database Engineer, Data Modeler, Database Developer	2,843
15-1244	Network and Computer Systems Administrators	Server Administrator, Linux Administrator	8,351
15-1251	Computer Programmers	Programmer	2,697
15-1252	Software Developers	Software Engineer	45,402
15-1253	Software Quality Assurance Analysts & Testers	Test Engineer, Quality Assurance Engineer	6,067
15-1254	Web Developers	Front End Developer, User Interface/Experience (UI/UX) Designer	2,874
15-1255	Web and Digital Interface Designers	Technology Technician	2,469
15-1299	Computer Occupations, All Other	Systems Engineer, Scrum Master, GIS Analyst, IT Project Manager	8,596
15-2031	Operations Research Analysts	Process Improvement Specialist, Decision Support Analyst	3,483
17-2061	Computer Hardware Engineers	Computer Engineer	2,406
43-9021	Data Entry Keyers	Data Entry Specialist	1,459

Source: Lightcast Analyst (2022.4 release).

Occupations

Table 2. Summary – IT Occupation Employment in the NOVA Region

	Current (2021)			Last 5 Years	Next 3 Years			
	Total Employ-ment	Average Annual Wage	Location Quo-tient (LQ)	Average Annual Growth	Total New Demand	Projected Separations*	New Growth	Average Annual Growth
NOVA Region	145,165	$126,074	2.7	0.8%	37,008	31,222	5,786	1.3%
D.C. MSA	275,694	$120,780	2.1	1.4%	73,173	59,625	13,548	1.5%

Source: Lightcast Analyst (2022.4 release).

*Includes projected demand due to individuals exiting the workforce (due to retirements, etc.) or changing careers/occupations (i.e. transfers).

As of 2021, there were just under 150,000 information technology (IT) jobs in the NOVA region, representing over half (53%) of IT jobs in the entire Washington, D.C. metropolitan area (*Figure 1*). Compared to the metropolitan area (MSA) as a whole, IT employment in the NOVA region has been growing a bit slower, on average, and is projected to continue this trend (*Table 2*).
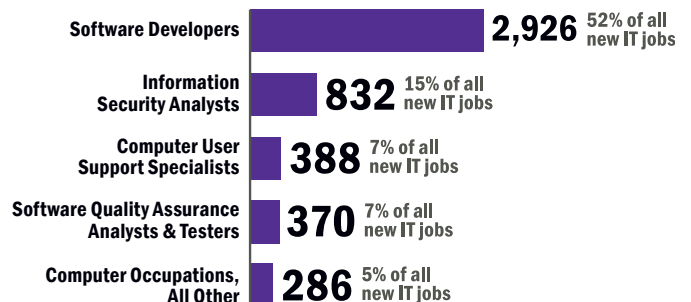
It is important to note that these projections may not fully include potential hiring (either direct or indirect) from Amazon's HQ2. The company has already hired over 5,000 employees for its new headquarters in Arlington, one-fifth of the way to its target of 25,000.[3] The company has indicated that half of these future jobs will be tech-related, with around 35-40% being for software developers and engineers,[4] an occupation area that is already expected to make up over 50% of all new IT occupation growth over the next 3 years (see *Figure 2*). Other high growth occupations are those focused on information security, user support, and quality assurance testing.

In addition to projected growth, another measure of relative demand for an occupation, as well as of its importance in the regional economy, is **Location Quotient (LQ)**, which measures the occupation's concentration in the regional economy (in terms of employment) relative to its concentration nationally. An LQ of 0.8 – 1.2 usually means the occupation makes up a similar proportion of total regional employment as it does nationally, while an LQ higher than 1.2 means that the occupation makes up a greater share of the regional labor market than it does at a national level (and vice-versa for an LQ below 0.8).

Nearly all the IT occupations examined for this brief had an LQ of 2.0 or higher, and collectively had an LQ of 2.7, meaning that IT employment makes up a much larger proportion of the NOVA region's workforce than it does across the whole country. Even with this, a few occupations are especially highly concentrated within the region (see *Table 3*). This includes information security analysts, due to the area's high volume of defense contracting and military intelligence activity. Also included are networking and database occupations, which are critical to the many data centers and cloud computing operations in the region.

In addition to being one of the most highly concentrated occupations, computer network architects are among

Figure 2. IT Occupations Expected to Add the Most New Jobs over the Next 3 Years

Occupation	Jobs	Share
Software Developers	2,926	52% of all new IT jobs
Information Security Analysts	832	15% of all new IT jobs
Computer User Support Specialists	388	7% of all new IT jobs
Software Quality Assurance Analysts & Testers	370	7% of all new IT jobs
Computer Occupations, All Other	286	5% of all new IT jobs

Source: Lightcast Analyst (2022.4 release).

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3 Jo DeVoe, "NEW: Amazon says HQ2 office towers and public park will open this summer," ARLnow, January 11, 2023. https://www.arlnow.com/2023/01/11/new-amazon-says-hq2-office-towers-and-public-park-will-open-this-summer/.

4 Jonathan Capriel, "Amazon exec describes breakdown of future HQ2 workforce," Washington Business Journal, March 7, 2019, https://www.bizjournals.com/washington/news/2019/03/07/amazon-exec-describes-breakdown-of-future-hq2.html.

the IT occupations with the highest annual wages in the area, earning just over $150,000 per year on average (*Table 4*). Among the other highest-paid occupations are computer engineers, software developers, and computer and information systems managers and research scientists. These occupations earn, on average, over $150,000 per year. Support occupations are among those with the lowest wages, but nearly all these jobs make above the average wage for the D.C. MSA ($80,480 as of May 2021).[5]

Table 3. Highest Concentrated IT Occupations in the NOVA Region (2021)

Occupation	LQ	Total Employment
Information Security Analysts	7.4	11,142
Database Architects	6.0	2,843
Operations Research Analysts	3.8	3,483
Computer Network Architects	3.7	5,947
Database Administrators	3.7	3,022

Source: Lightcast Analyst (2022.4 release).

Table 4. IT Occupations with the Highest and Lowest Annual Wages in the NOVA Region

Highest		Lowest	
Occupation	Average Annual Wages	Occupation	Average Annual Wages
Computer and Information Systems Managers	$190,995	Data Entry Keyers	$45,312
Computer Hardware Engineers	$151,904	Computer User Support Specialists	$68,948
Computer Network Architects	$150,592	Web and Digital Interface Designers	$82,602
Computer and Information Research Scientists	$142,623	Computer Network Support Specialists	$93,644
Software Developers	$139,840	Web Developers	$98,851

Source: Lightcast Analyst (2022.4 release).

5 "May 2021 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates," U.S. Bureau of Labor Statistics, last modified March 31, 2022, https://www.bls.gov/oes/current/oes_47900.htm.

Industries

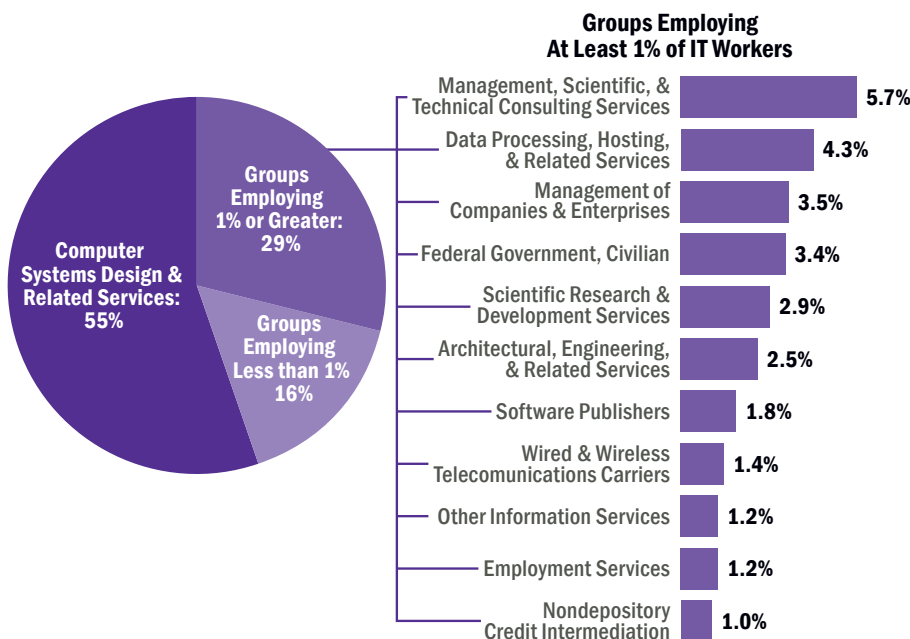**Table 5. Industry Sectors Employing Over 3% of all IT Jobs**

Sector Title	IT Employment	% of IT Jobs Employed in Sector	Annual % Growth (IT Jobs)	Annual % Growth (All Sector Jobs)
Professional, Scientific, and Technical Services	99,708	68.7%	1.5%	1.2%
Information	13,965	9.6%	0.1%	-0.4%
Government	8,524	5.9%	0.9%	0.5%
Management of Companies and Enterprises	5,100	3.5%	0.9%	0.5%
Finance and Insurance	4,519	3.1%	1.1%	0.6%
Total – Top 5 Sectors	131,817	90.8%	1.2%	0.8%
All Other Sectors	13,340	9.2%	1.7%	0.9%

Source: Lightcast Analyst (2022.4 release).

As mentioned above, IT workers are employed across a wide range of industries. Even so, most IT jobs in the NOVA region (69%) lie within the professional, scientific, and technical services sector, which includes computer and systems design firms, as well as other firms primarily engaged in consulting, research, and engineering. Further, just over 90% of all IT jobs in the region lie within this and other professional sectors such as information, government, management, and finance (*Table 5*).

It is also useful to note that projected growth among IT occupations is at least one factor driving growth in the top 5 sectors in which these occupations are employed, with IT job growth in each sector outpacing overall employment growth. So, for example, even though overall employment in the information sector is expected to decline slightly over the next three years in the NOVA region, IT jobs in this sector are expected to continue growing.

Figure 3. Industry Groups Employing IT Workers in the NOVA Region (by % of All IT Employment)

Groups Employing 1% or Greater: 29%
Computer Systems Design & Related Services: 55%
Groups Employing Less than 1% 16%

Groups Employing At Least 1% of IT Workers

Management, Scientific, & Technical Consulting Services	5.7%
Data Processing, Hosting, & Related Services	4.3%
Management of Companies & Enterprises	3.5%
Federal Government, Civilian	3.4%
Scientific Research & Development Services	2.9%
Architectural, Engineering, & Related Services	2.5%
Software Publishers	1.8%
Wired & Wireless Telecomunications Carriers	1.4%
Other Information Services	1.2%
Employment Services	1.2%
Nondepository Credit Intermediation	1.0%

Source: Lightcast Analyst (2022.4 release).

Each industry sector can be further divided into groups of related industries focused on more similar business activities. Examining the concentration of IT jobs across these groups further highlights the unique composition of the regional IT industry and the areas of our economy most reliant on IT jobs. Of course, computer systems design and related services firms—encompassing what we might consider "traditional" IT firms such as Microsoft, Intel, or Cisco—employ over half of all IT jobs in the region (*Figure 3*). Other

groups in the professional services sector—such as management consulting, architecture/engineering, and scientific research—as well as information groups such as data processing, software publishing, and telecommunications, are also prominent among industry groups employing at least 1% or more of the region's IT workers.

Table 6 provides additional detail on the top five of these industry groups, which (combined) employ nearly 3/4 of the region's IT workforce. Again, average annual growth among IT jobs in these industry groups is expected to outpace employment growth across the entire group in nearly every case. The extent to which IT job growth is driving growth in each group depends on the extent to which each group's workforce is made up of IT workers—among these, the federal government has the lowest proportion of IT employees overall.

Those employers in the NOVA region with the largest volume of job postings for IT roles between November 2021 and October 2022 largely reflect those industry groups that employ the largest share of IT workers (*Table 7*). This includes IT, computer systems, and other technical consulting firms such as Booz Allen Hamilton, Leidos, CACI, Perspecta, Accenture, and SAIC, as well as engineering/defense firms (General Dynamics). Not as well represented are those in the federal government sector or those in the information sector (i.e., telecommunications, publishing, etc.).

It is important to note that, while job postings are a useful proxy for labor demand, they are not a perfect measure; for example, some employers may post for a job online simply to gather applications (without any actual open positions) or may post once for multiple identical positions. This may help explain why some sectors that employ relatively significant shares of IT workers do not also show up among those posting most frequently for IT positions.

Table 6. Top 5 Industry Groups Employing IT Workers in the NOVA Region

Industry Group	% of Industry Employed in IT Occupations	Projected Annual Growth (IT Occupations), 2021–2024	Projected Annual Growth (All Occupations) 2021–2024
Computer Systems Design and Related Services	64.1%	1.5%	1.2%
Management, Scientific, & Technical Consulting Services	9.7%	1.7%	2.0%
Data Processing, Hosting, & Related Services	52.6%	1.7%	1.4%
Management of Companies & Enterprises	17.9%	0.9%	0.5%
Federal Government, Civilian	4.8%	0.9%	-0.3%

Source: Lightcast Analyst (2022.4 release).

Table 7. Top Ten NOVA IT Employers by Total Job Postings (November 2021–October 2022)

Employer	Job Postings
Leidos	3,884
General Dynamics	3,178
Amazon	3,094
Booz Allen Hamilton	2,525
SAIC	1,933
CACI International	1,827
Perspecta	1,700
Kforce	1,479
Accenture	1,428
Capital One	1,404

Source: Lightcast Analyst (2022.4 release).

Regional Comparison

In order to best understand the local IT labor market, it is also useful to place the region in context of other similar metropolitan areas, peer cities, and nearby regions. In this case, we compare the NOVA region to the Washington, D.C. metropolitan area (MSA), other national MSAs with prominent IT industries, and two nearby MSAs, Baltimore and Richmond.

The D.C. MSA is second only to New York City in terms of the total number of people employed in IT occupations. This is even more notable when considering that, despite ranking sixth in terms of total population,[6] it still manages to surpass the second most populous metropolitan area in the country (Los Angeles) in terms of total IT employment.

As the IT hub for the D.C. metropolitan area, the NOVA region compares well to other metro areas even on its own, falling just above the number ten ranked MSA for total IT employment, Atlanta, and outpacing all others in the top ten, except for San Jose (i.e., Silicon Valley), in terms of the overall concentration of IT jobs as a percentage of total area employment (*Table 8*).

While the IT workforce in the Baltimore and Richmond MSAs is not nearly as large or concentrated as in either the D.C. MSA or NOVA region, IT occupations still make up an above-average portion of their overall labor market (across all metropolitan and micropolitan areas, IT occupations make up 3% of all employment). That said, the makeup of the IT industry in these two nearby MSAs is significantly different than in the D.C. MSA broadly and the NOVA region specifically.

Figure 4 indicates the extent to which IT occupations are concentrated across various industry groups for the NOVA region, D.C. MSA, and nearby MSAs of Baltimore and Richmond. The concentration of IT

Table 8. Top MSAs by Total IT Employment (in thousands) Compared to the NOVA Region and Nearby MSAs

MSA Rank	Region/ MSA	IT Employment	Total Employment	IT Concentra- tion
1	New York City	378.2	12,068.3	3.1%
2	Washington, D.C.	275.7	4,253.5	6.5%
3	Los Angeles	245.2	8,708.6	2.8%
4	San Francisco	204.8	3,142.9	6.5%
5	Dallas-Ft. Worth	200.6	5,094.0	3.9%
6	Seattle	188.7	2,666.4	7.1%
7	San Jose	174.4	1,383.9	12.6%
8	Chicago	169.6	5,757.3	2.9%
9	Boston	162.6	3,521.5	4.6%
-	NOVA Region	145.2	1,746.8	8.3%
10	Atlanta	141.9	3,814.8	3.7%
18	Baltimore	81.8	1,759.6	4.6%
39	Richmond	28.3	825.6	3.4%

Source: Lightcast Analyst (2022.4 release).

occupations by group at the national level is also provided for reference, and the five groups analyzed are those that have the highest concentration of IT workers at the national level.

IT jobs are most highly concentrated in computer systems design and related services, regardless of location; however, IT jobs in the NOVA region are twice as concentrated in these firms compared to the nation on average. IT workforce concentration in computer systems design is lower than average for Richmond, while a higher-than-average concentration of that region's IT jobs are in firms responsible for the management of companies. IT jobs in the Baltimore area are more like the NOVA region and D.C. MSA, although the five industry groups considered employ a smaller combined percentage of Baltimore's IT workers by comparison. Also, smaller percentages of IT jobs in the Baltimore and Richmond MSAs are employed in data processing/hosting and technical/scientific consulting
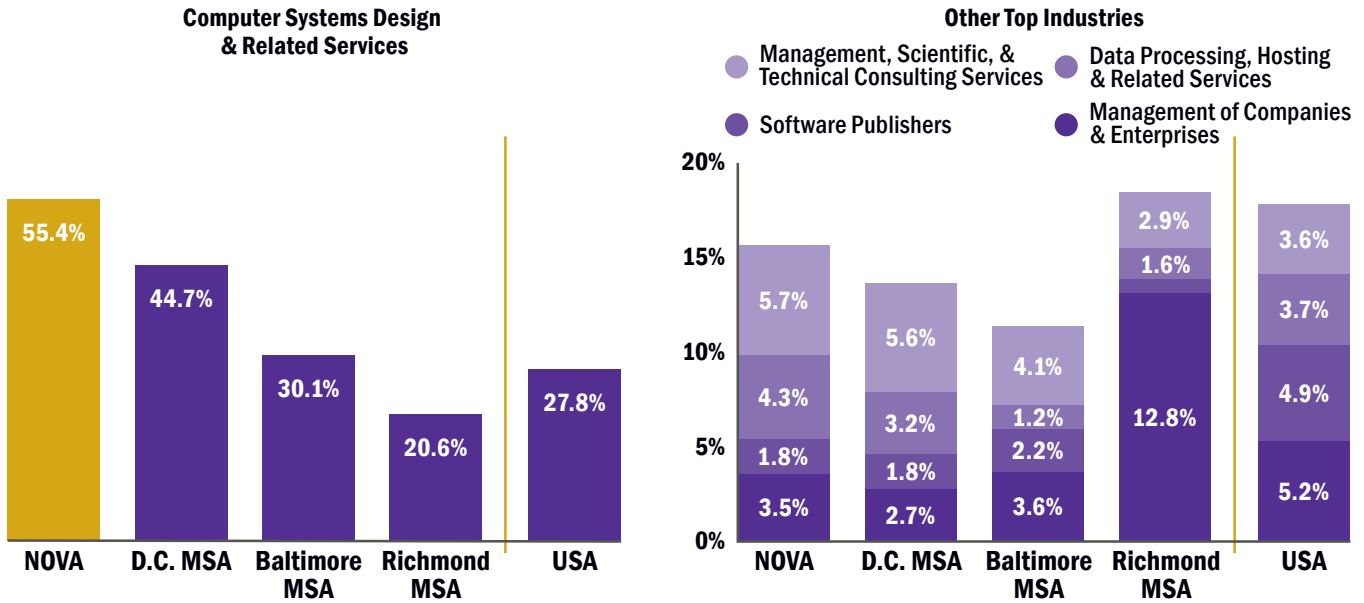
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6 "Metropolitan and Micropolitan Statistical Areas Population Totals and Components of Change: 2020-2021," U.S. Census Bureau, last revised February 24, 2022, https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-metro-and-micro-statistical-areas.html.

firms than in the NOVA region.

This just serves to highlight that, even within relatively close proximity, the nature and activities of the IT workforce—and thus, skill and talent needs—may differ meaningfully across local regions. While IT employment in the NOVA region is even more heavily focused on computer systems design than even the surrounding D.C. MSA, IT in other nearby metro areas such as Baltimore and Richmond is more focused on management and administrative functions across other industry areas.

Figure 4. Concentration of IT Jobs by Industry Group for NOVA, D.C. MSA, and Other Nearby Regions

Computer Systems Design & Related Services

Region	Value
NOVA	55.4%
D.C. MSA	44.7%
Baltimore MSA	30.1%
Richmond MSA	20.6%
USA	27.8%

Other Top Industries

- Management, Scientific, & Technical Consulting Services
- Data Processing, Hosting & Related Services
- Software Publishers
- Management of Companies & Enterprises

	NOVA	D.C. MSA	Baltimore MSA	Richmond MSA	USA
Management, Scientific, & Technical Consulting Services	5.7%	5.6%	4.1%	2.9%	3.6%
Data Processing, Hosting & Related Services	4.3%	3.2%	1.2%	1.6%	3.7%
Software Publishers	1.8%	1.8%	2.2%	12.8%	4.9%
Management of Companies & Enterprises	3.5%	2.7%	3.6%		5.2%

Source: Lightcast Analyst (2022.4 release).

In general, the NOVA region has much higher levels of education than the rest of the country, with 71% of the high-school graduate population (aged 25 and up) holding some sort of 2-year, 4-year, or post-graduate degree compared to 47% nationally. Degree holders are also slightly more concentrated in the NOVA region than across the entire D.C. MSA, where roughly 63% of the same population holds an associate's degree or higher (*Figure 5*). Given the region's high level of overall educational attainment, then, it is not surprising that the vast majority of IT job postings in the region request some sort of degree as an educational requirement, typically a bachelor's or higher (*Figure 6*).

Figure 5. Educational Attainment of Population Aged 25+, High School Degree & Above

Source: U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates.
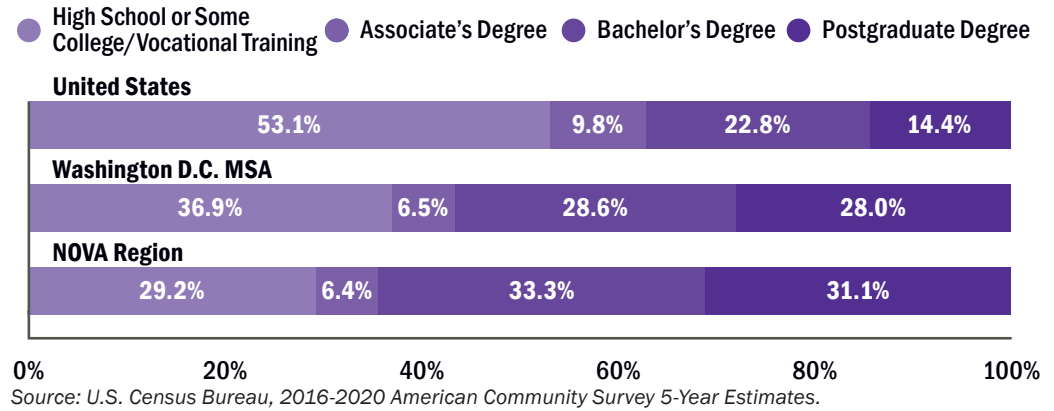
Figure 6. Educational Attainment & Job Posting Education Requirements for NOVA IT Jobs

Source: Lightcast Analyst (2022.4 release); U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, Public Use Microdata Sample.

Even so, there are some IT occupations that may not typically require a 4-year degree or above, as determined by the Bureau of Labor Statistics (*Table 9*). In particular, entry-level support occupations such as a help desk technician may only require some sort of postsecondary certification or technical training, and data entry keyers typically only need a high school diploma or GED. Network support specialists will likely require greater education, resulting in average annual wages that are higher than the average wage for all occupations in the D.C. MSA (about $80,000[7]).
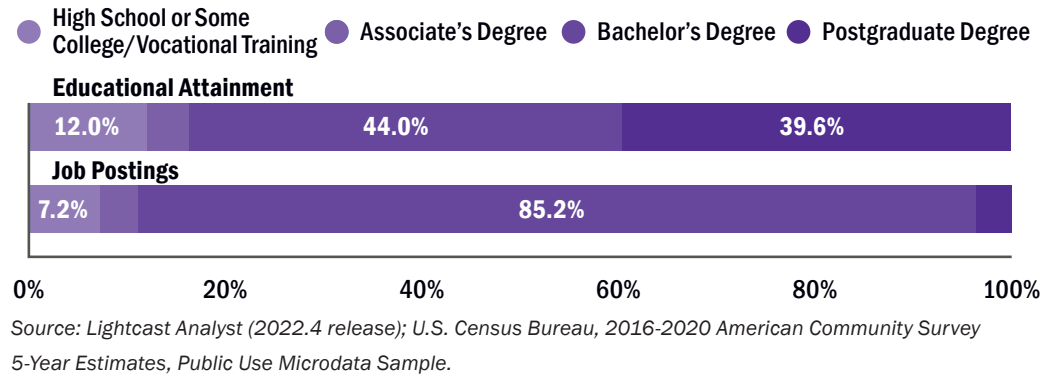
Table 9. IT Occupations Typically Requiring Less Than a Bachelor's Degree, More Than a High School Diploma (by total employment)

| SOC Title	Total Employment (2021)	Typical Education (via BLS EP)	Average Annual Wage	Job Postings (Nov. 2021–Oct 2022)
Computer User Support Specialists	**11,689**	**Some college, no degree**	**$68,948**	**5,951**
Computer Network Support Specialists	**3,715**	**Associate's degree**	**$93,644**	**562**
Data Entry Keyers	**1,459**	**High school diploma or equivalent**	**$45,312**	**409**

Source: Bureau of Labor Statistics, Employment Projections program (EP); Lightcast Analyst (2022.4 release).

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7 "May 2021 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates," U.S. Bureau of Labor Statistics, last modified March 31, 2022, https://www.bls.gov/oes/current/oes_47900.htm.

However, our region is likely not producing enough workers locally with the education necessary to fill these jobs. Looking across the entire metropolitan area, only 244 certificates and 2-year degrees were awarded in 2021 from programs directly preparing individuals for help desk and computer support roles (*Figure 7*).

Of course, not all these openings will need to be filled by new graduates. At least some will be filled by individuals transferring from similarly skilled IT occupations, or from occupations/positions where they have built the necessary skills on top of existing education; others may be filled by individuals with the necessary skills moving into the region.

Figure 7. IT Credentials Awarded by Program Area and Level (D.C. MSA, 2021)
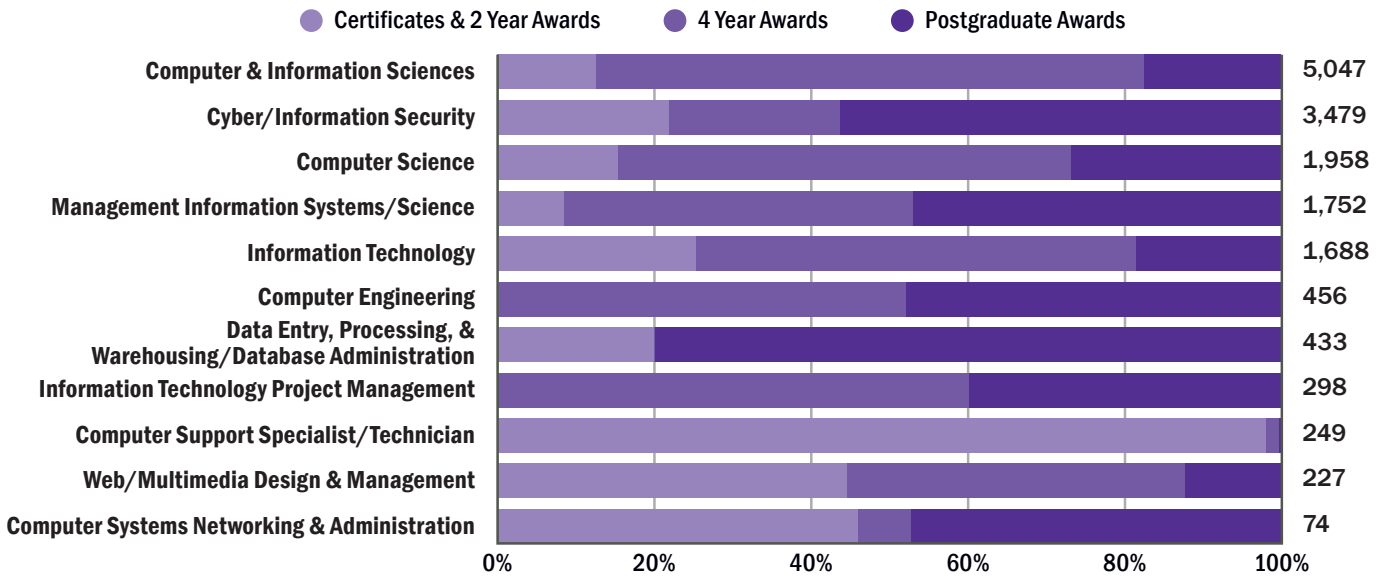
Source: Lightcast Analyst (2022.4 release).

Skills and Certifications

Table 10. Top Skills Listed on NOVA IT Job Postings

Software & Programming Skills		Technical Skills		Baseline Skills	
Skill	**% of All Postings**	**Skill**	**% of All Postings**	**Skill**	**% of All Postings**
Amazon Web Services	**20.9%**	**Computer Science**	**27.3%**	**Communication Skills**	**34.8%**
Python	**18.5%**	**Agile Methodology**	**25.1%**	**Management**	**29.5%**
Java	**17.9%**	**Software Development**	**15.9%**	**Operations**	**24.3%**
SQL	**15.4%**	**Automation**	**15.0%**	**Troubleshooting**	**19.9%**
Linux	**14.2%**	**Systems Engineering**	**14.7%**	**Leadership**	**19.4%**
JavaScript	**13.5%**	**Software Engineering**	**13.7%**	**Planning**	**16.6%**
Microsoft Azure	**10.7%**	**Scripting**	**11.6%**	**Problem Solving**	**16.5%**
Operating Systems	**9.9%**	**DevOps**	**11.1%**	**Writing**	**15.4%**
Application Programming Interface (API)	**9.5%**	**Cyber Security**	**10.8%**	**Research**	**13.0%**
JIRA	**8.9%**	**Scrum**	**10.0%**	**Information Technology**	**12.8%**

Source: Lightcast Analyst (2022.4 release).

In order to develop education and training opportunities that truly meet the demand among IT employers for well-qualified talent, however, it is critical to understand which skills they are looking for within the workforce.

Table 10 indicates the most in-demand skills for all IT occupations in the NOVA region based on the percentage of postings requesting the skills. These are further split into three categories, software and programming skills—encompassing specific software, operating systems, and programming languages—baseline/ "soft" skills, and technical skills, which are skill sets that are specific to individual roles (as opposed to baseline skills, which can be applied in most work contexts).

Among the most-frequently requested technical skills in IT job postings are those focused on software development, as well as project management and related frameworks such as Scrum and Agile Methodology. Similarly, project management certification (such as the Project Management Professional credential) was among the top certifications requested in job postings, emphasizing the importance of project management skills in IT jobs (*Table 11*).

Otherwise, the most frequently requested industry certifications were those focused on information security (Security Clearance, Security+, and CISSP), which reflects the region's strong focus on cybersecurity, as well as the high level of employment at security and defense-related firms. Networking certifications such as CCNA were also prominent, reflecting the demand for networking and

Table 11. Top Certifications Listed on NOVA IT Job Postings

Certification	% of Postings
Security Clearance	**56.2%**
CompTIA Security+	**8.1%**
Certified Information Systems Security Professional (CISSP)	**4.9%**
IAT Level II Certification	**4.8%**
GIAC Certifications	**3.5%**
Project Management Professional Certification	**2.6%**
Counter Intelligence Polygraph (CI Clearance)	**2.5%**
Cisco Certified Network Associate (CCNA)	**2.1%**
Systems Security Certified Practitioner	**1.9%**
GIAC Security Essentials Certification (GSEC)	**1.8%**

Source: Lightcast Analyst (2022.4 release).

Data Sources

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