

RESEARCH BRIEF

**Employment Outcomes of NOVA Graduates:
Information Technology, A.S. Program**

Introduction

This Research Brief presents the employment outcomes of 1,335 NOVA graduates of the Information Technology, A.S. program from 2007 through 2017 (Section I) and provides employment data for Information Technology (A.S. and B.S.) graduates (Section II).¹ The employment data includes target occupations, job postings, companies hiring, and highly desired job skills and qualifications for Information Technology (A.S. and B.S.) graduates in the NOVA region during the specified period.²

Data were extracted utilizing the Economic Modeling Specialists International (EMSI) product, which provides employment data derived from government sources, online job posting activity, and professional networking profiles (e.g., LinkedIn) and résumés. EMSI employment data were also used to determine the employment outcomes and workforce credentials of NOVA graduates.³

Key Findings

- Seventy-three percent of NOVA Information Technology, A.S. graduates are employed in their field.
- The employment opportunities for Information Technology (A.S. and B.S.) graduates in the NOVA region are favorable for target occupations including Software Developers of Applications, Software Developers of Systems Software, and Computer Systems Analysts.
 - Regionally, these target occupations have frequent job postings, expected job growth, and median hourly earnings higher than national median hourly earnings for these occupations.
- Booz Allen Hamilton Holding, Leidos Holdings, General Dynamics, Mantech International, and Science Applications International are the top five companies hiring Information Technology (A.S. and B.S.) graduates in the NOVA region.

¹ Graduates may have earned additional degrees beyond the Information Technology A.S.

² Job postings comprise both full-time and part-time positions.

³ Economic Modeling Specialists International (EMSI): <https://www.economicmodeling.com/>

Section I. Employment Outcomes of NOVA Graduates

This section provides recent (2019) employment outcomes information for 1,335 NOVA graduates of the Information Technology, A.S. program who graduated from 2007 through 2017.⁴ Of these graduates, nearly three-fourths (73 percent) were employed in an Information Technology-related occupation, and 69 percent resided within the NOVA region.⁵ The average estimated annual salary among these graduates was \$71,857—8 percent higher than the average estimated annual salary among *all* NOVA graduates (\$66,652) from 2007 through 2017 (Figure 1).

**Figure 1. Employment Outcomes of NOVA Information Technology (A.S.)
Graduates: 2007 through 2017**



*The average estimated annual salary among *all* NOVA graduates from 2007 through 2017 was \$66,652.

Alumni Occupations

The top occupations of NOVA’s Information Technology, A.S. program graduates were Computer User Support Specialist (13 percent) and Network and Computer Systems Administrators (7 percent) (Table 1).

**Table 1. Occupations among NOVA Information Technology (A.S.)
Graduates: 2007 through 2017**

Occupations	SOC Code**	Graduates	
		#	%
Computer User Support Specialists	15-1151	171	12.8
Network and Computer Systems Administrators	15-1142	99	7.4
Retail Salespersons*	41-2031	62	4.6
Information Security Analysts	15-1122	53	4.0
Customer Service Representatives	43-4051	44	3.3
Software Developers of Applications	15-1132	41	3.1
Computer Occupations (non-specific)	15-1199	34	2.6
Secretaries and Admin. Assistants (excluding Legal, Medical, and Executive)	43-6014	32	2.4
Computer Systems Analysts	15-1121	28	2.1
Web Developers	15-1134	28	2.1
Cashiers*	41-2011	26	2.0
Management Analysts	13-1111	23	1.7
Waiters and Waitresses*	35-3031	22	1.7
First-Line Supervisors of Office and Administrative Support Workers*	43-1011	21	1.6
<i>Unclassified Occupation*</i>	99-9999	81	6.1

*Occupations classified as out-of-field and not related to the Information Technology program of study.

**Standard Occupational Classification (SOC) is a U.S. Bureau of Labor Statistics occupational coding standard (<https://www.bls.gov/soc/>)

Note: Occupations with percentages less than 1.5% are not included in the table.

⁴ Graduates may have earned additional degrees beyond the Information Technology (A.S.).

⁵ The NOVA region refers to Arlington County, Fairfax County, Loudoun County, Prince William County, Alexandria City, Fairfax City, Falls Church City, Manassas City, Manassas Park City, and Washington, D.C.

Employers and Job Titles of Alumni

The top employers of NOVA's Information Technology, A.S. program graduates included Northern Virginia Community College (2 percent), Navy Federal Credit Union (2 percent), General Dynamics Corporation (1 percent), and George Mason University (1 percent) (Table 2).

**Table 2. Top 20 Employers of NOVA Information Technology (A.S.)
Graduates: 2007 through 2017**

Employers	Graduates	
	#	%
Northern Virginia Community College	30	2.3
Navy Federal Credit Union	22	1.7
General Dynamics Corporation	19	1.4
George Mason University	13	1.0
Verizon Communications Inc.	12	0.9
Best Buy Co., Inc.	11	0.8
Accenture, Inc.	9	0.7
Bank of America Corporation	7	0.5
Caci International, Inc.	7	0.5
The Home Depot, Inc.	7	0.5
Wegmans Food Markets, Inc.	6	0.5
CSRA, Inc.	6	0.5
Sears Holdings Corporation	6	0.5
Booz Allen Hamilton Holding Corporation	6	0.5
Federal Home Loan Mortgage Corporation	5	0.4
CVS Health Corporation	5	0.4
Fairfax County Public Schools	5	0.4
Giant Food Stores, LLC	5	0.4
Staples, Inc.	4	0.3
CGI, Inc.	4	0.3

The most popular job titles among NOVA's Information Technology, A.S. program graduates were IT Help Desk Specialist (4 percent), Retail Sales Associate (3 percent), Customer Service Representative (2 percent), Software Engineer (2 percent), and Systems Administrator (2 percent) (Table 3).

**Table 3. Job Titles of NOVA Information Technology (A.S.)
Graduates: 2007 through 2017**

Job Titles	Graduates	
	#	%
IT Help Desk Specialist	51	3.8
Retail Sales Associate	40	3.0
Customer Service Representative	30	2.3
Software Engineer	21	1.6
Systems Administrator	21	1.6
Administrative Assistant	18	1.4
Information Security Analyst	16	1.2
Network Engineer	16	1.2
Support Specialist	15	1.1
Cashier	14	1.1
IT Support Analyst	13	1.0
IT Support Engineer	13	1.0

Note: Job titles with percentages less than 1.0% are not included in the table.

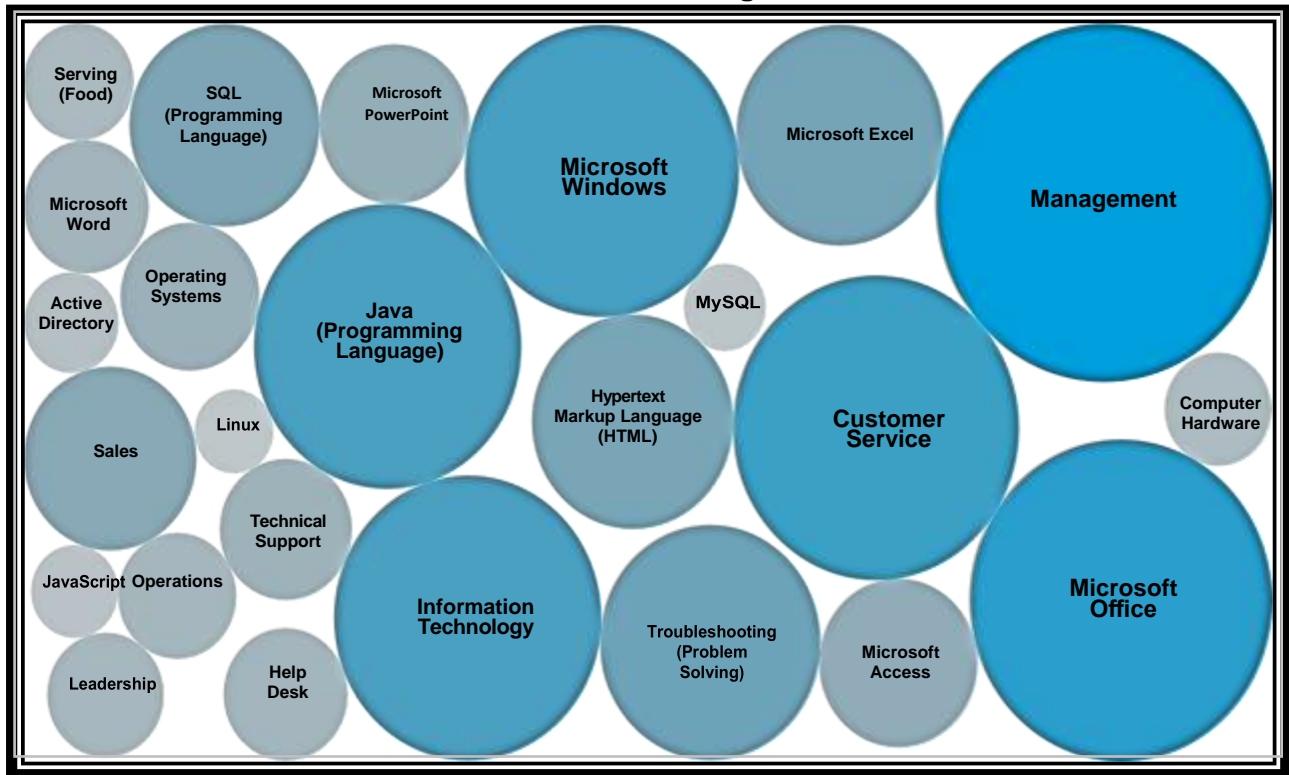
Alumni Skills

The top hard and common skills of NOVA's Information Technology, A.S. program graduates included management (35 percent), Microsoft Office (32 percent), customer service (30 percent), and Microsoft Windows (29 percent) (Table 4 and Figure 2, below).⁶

Table 4. Top 10 Hard and Common Skills of NOVA Information Technology (A.S.) Graduates: 2007 through 2017

Hard and Common Skills	Graduates	
	#	%
Management	468	35.1
Microsoft Office	422	31.6
Customer Service	400	30.0
Microsoft Windows	384	28.7
Information Technology	375	28.1
Java (Programming Language)	375	28.1
Troubleshooting (Problem Solving)	312	23.3
Microsoft Excel	294	22.0
Hypertext Markup Language (HTML)	286	21.4
SQL (Programming Language)	271	20.3

Figure 2. Hard and Common Skills of NOVA Information Technology (A.S.) Graduates: 2007 through 2017



⁶ Hard skills are defined as technical or specialized skills often acquired through formal education, while common skills refer to soft and transferable skills broadly utilized in various professions.

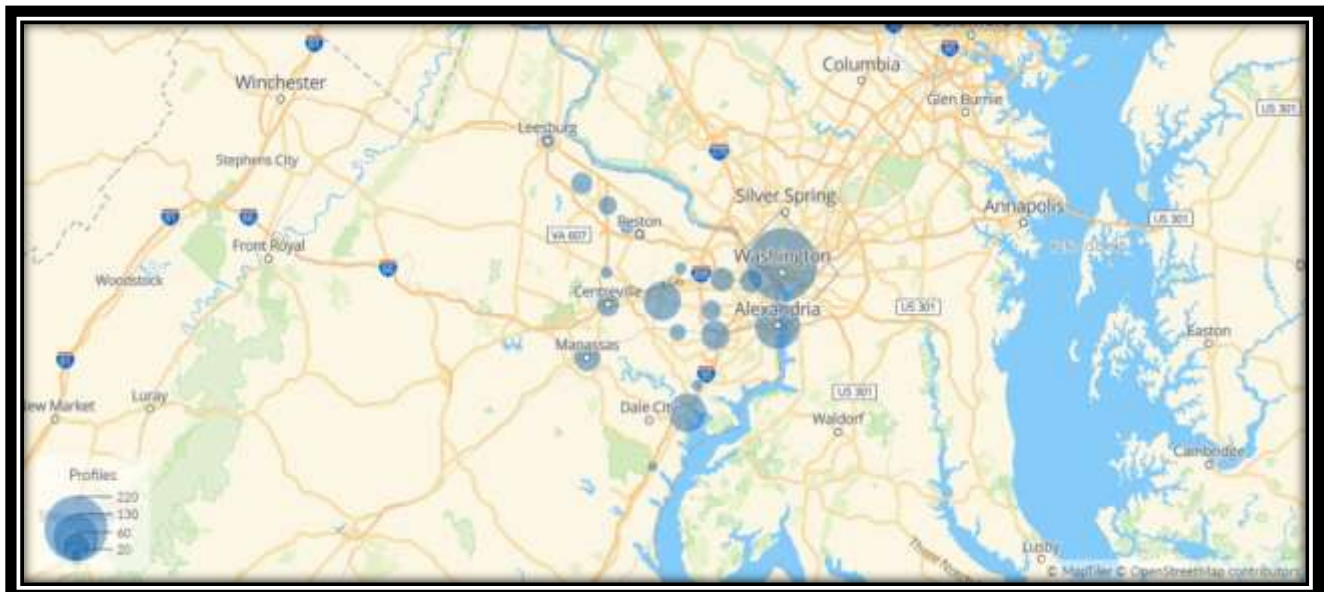
Alumni Locations

The top locations where NOVA's Information Technology, A.S. program graduates resided included Washington, D.C. (20 percent), Alexandria, VA (9 percent), Woodbridge, VA (7 percent), and Fairfax, VA (7 percent)—72 percent resided in the state of Virginia (Table 5 and Figure 3, below).

**Table 5. Top 20 Locations of NOVA Information Technology (A.S.)
Graduates: 2007 through 2017**

Locations	Graduates	
	#	%
Washington, DC	269	20.2
Alexandria, VA	126	9.4
Woodbridge, VA	94	7.0
Fairfax, VA	93	7.0
Springfield, VA	60	4.5
Manassas, VA	54	4.0
Falls Church, VA	45	3.4
Centreville, VA	44	3.3
Arlington, VA	44	3.3
Ashburn, VA	40	3.0
Annandale, VA	36	2.7
Sterling, VA	33	2.5
Burke, VA	28	2.1
Leesburg, VA	24	1.8
Herndon, VA	22	1.7
Vienna, VA	19	1.4
Chantilly, VA	19	1.4
Lorton, VA	18	1.4
Reston, VA	17	1.3
Dumfries, VA	16	1.2

**Figure 3. Locations of NOVA Information Technology (A.S.)
Graduates: 2007 through 2017**



Section II. Regional Employment Opportunities for NOVA Graduates

This section presents regional employment opportunities data and provides job postings for target occupations within the NOVA region for Information Technology (A.S. and B.S.) graduates.

Target Occupations

In 2018, regionally, there were about 53,000 jobs and 4,400 job openings in target occupations for Information Technology (A.S. and B.S.) graduates.⁷ Among these target occupations, median hourly earnings were \$55.58—17 percent higher than the \$47.33 national median hourly earnings for these target occupations. The projected job growth among these target occupations is 8 percent from 2018 to 2023—4 percentage points fewer than the projected national growth for target occupations (12 percent). Annual job openings for target occupations for Information Technology (A.S. and B.S.) graduates were greatest for Software Developers of Applications (1,523 openings) (Table 6).

Table 6. NOVA Region Job Openings, Earnings, and Growth of Target Occupations: 2018

Target Occupations	# of Jobs	# of Job Openings	Median Hourly Earnings	% Job Growth (2018 – 2023)	Location Quotient*
Software Developers of Applications	15,455	1,523	\$56.09	15.4%	1.9
Software Developers of Systems Software	12,603	893	\$58.56	2.8%	3.4
Computer Systems Analysts	11,050	830	\$50.64	4.9%	2.0
Information Security Analysts	6,488	594	\$55.51	11.0%	6.6
Computer Network Architects	3,843	262	\$62.76	0.8%	2.8
Web Developers	2,508	228	\$42.82	9.3%	1.4
Computer and Information Research Scientists	751	56	\$65.72	3.1%	4.0

*Location Quotient = the ratio of an occupation's share of employment in a given area to that occupation's share of employment in the U.S. as a whole. For example, an occupation that makes up 10 percent of employment in a specific metropolitan area compared with 2 percent of U.S. employment would have a location quotient of 5 for the area (signifying the occupation is roughly 5 times more concentrated regionally than nationally).

From January 2018 through December 2018, on average, there were 3,600 Information Technology graduates hired monthly for target occupations in the NOVA region.⁸ The top average monthly job hires were for Software Developers of Applications (1,052 hires) and Software Developers of Systems Software (854 hires) (Table 7, below, and Figure 4, next page).

Table 7. NOVA Region Top Job Hires in Target Occupations: 2018

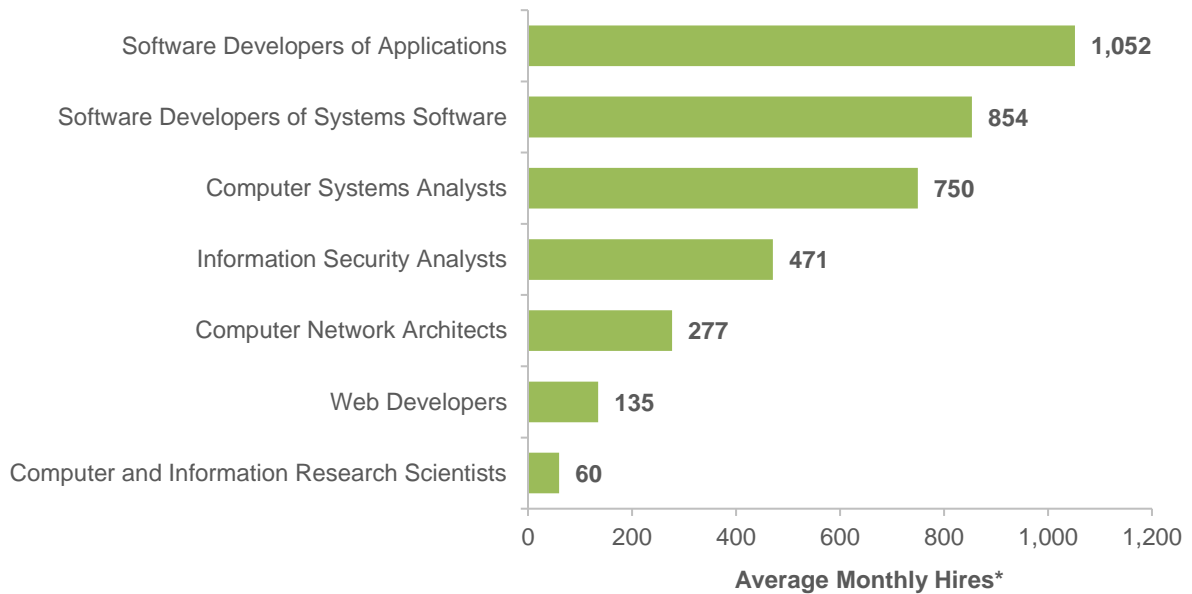
Target Occupations	Average Monthly Hires*
Software Developers of Applications	1,052
Software Developers of Systems Software	854
Computer Systems Analysts	750
Information Security Analysts	471
Computer Network Architects	277
Web Developers	135
Computer and Information Research Scientists	60

*Average monthly hires include Information Technology graduates with an A.S., B.S., or post-baccalaureate degree.

⁷ The Information Technology A.S. and B.S. were the minimum degree qualifications in these job postings.

⁸ Includes Information Technology graduates with an A.S., B.S., or post-baccalaureate degree

Figure 4. NOVA Region Top Job Hires in Target Occupations: 2018



*Average monthly hires include Information Technology graduates with an A.S., B.S., or post-baccalaureate degree.

From January 2018 through December 2018, the top job postings website sources for target occupations for Information Technology (A.S. and B.S.) graduates in the NOVA region were Nexxt.com (33,933 postings), Dice.com (18,587 postings), My.jobs (18,375 postings), Jobserve.com (17,134 postings), and Employmentcrossing.com (16,599 postings) (Table 8).

Table 8. Top 20 Job Posting Sources for Target Occupations in NOVA Region: 2018

Website	# of Target Job Postings on Website
Nexxt.com	33,933
Dice.com	18,587
My.jobs	18,375
Jobserve.com	17,134
Employmentcrossing.com	16,599
Clearancejobs.com	16,562
Virginiajobnetwork.com	14,134
Careerboard.com	13,022
Geebo.com	12,805
Bluecollarcrossing.com	8,914
Careerbuilder.com	8,276
Jobs.net	8,056
Monster.com	7,609
Beyond.com	7,425
Recruitenetworks.com	6,561
Resume-library.com	6,436
Jobing.com	6,240
Washingtonpost.com	5,934
Americasjobexchange.com	4,755
Glassdoor.com	4,241

Job Postings in NOVA Region

Companies in the NOVA region with the most job postings from January 2018 through December 2018 for Information Technology (A.S. and B.S.) graduates included Booz Allen Hamilton Holding Corporation (6,965 postings) and Leidos Holdings (4,191 postings) (Table 9 and Figure 5, below).

Table 9. Top 20 Companies Posting Jobs in the NOVA Region: 2018

Company Name	# of Unique Job Postings	Median Duration of Job Posting (# of days)
Booz Allen Hamilton Holding Corporation	6,965	43
Leidos Holdings, Inc.	4,191	22
General Dynamics Corporation	2,905	46
Mantech International Corporation	2,401	23
Science Applications International Corporation	2,256	40
Oracle Corporation	2,193	64
Caci International, Inc.	1,814	73
Anthem, Inc.	1,680	23
Deloitte, LLP	1,410	53
Capital One Financial Corporation	1,408	45
Perspecta, Inc.	1,127	9
BAE Systems, PLC	1,068	51
Vencore, Inc.	1,027	59
Northrop Grumman Corporation	970	49
Raytheon Company	964	58
Cleared People, LLC	934	59
Engility Holdings, Inc.	918	47
Capital Markets Placement, Inc.	834	6
Workbridge Associates	714	169
Unisys Corporation	702	44

Figure 5. Top 20 Companies Posting Jobs in the NOVA Region: 2018



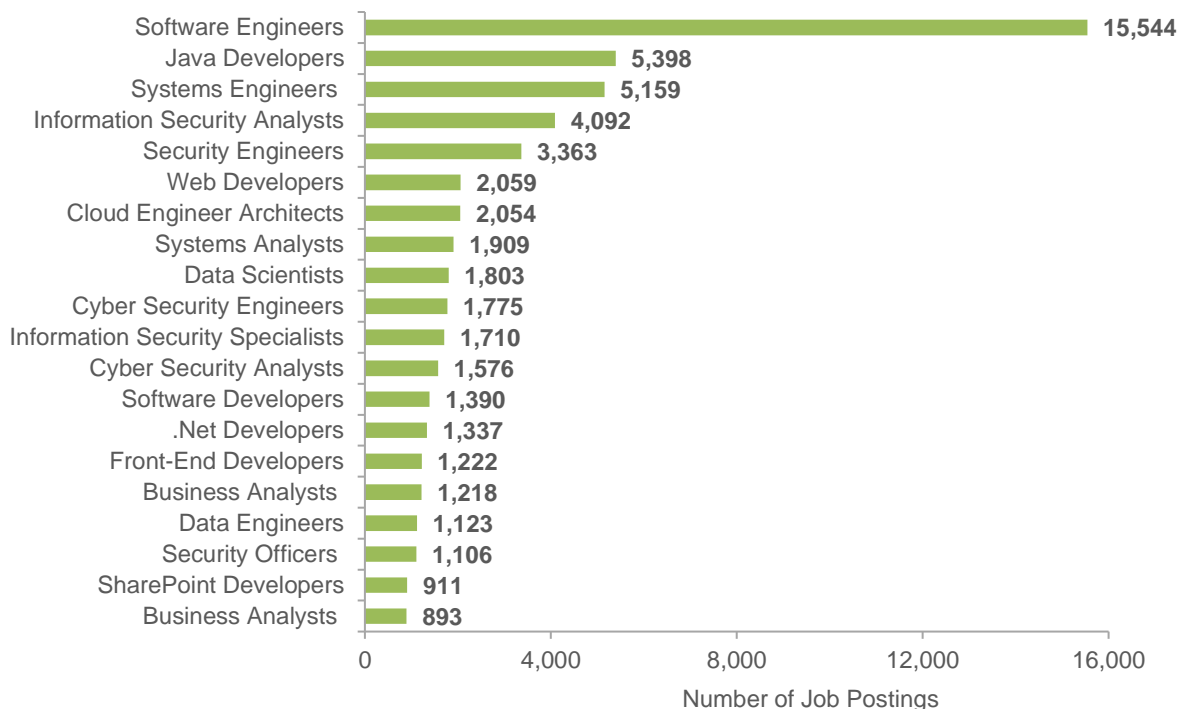
Job Titles in NOVA Region

From January 2018 through December 2018, the most frequently posted job titles for Information Technology (A.S. and B.S.) graduates in the NOVA region were for Software Engineers (15,544 postings) and Java Developers (5,398 postings) (Table 10 and Figure 6, below).

Table 10. Top 20 Posted Job Titles in the NOVA Region: 2018

Job Title	# of Unique Job Postings	Median Duration of Job Posting (# of days)
Software Engineers	15,544	37
Java Developers	5,398	36
Systems Engineers (Computer and Mathematical)	5,159	42
Information Security Analysts	4,092	45
Security Engineers	3,363	40
Web Developers	2,059	41
Cloud Engineer Architects	2,054	36
Systems Analysts	1,909	40
Data Scientists	1,803	40
Cyber Security Engineers	1,775	42
Information Security Specialists	1,710	45
Cyber Security Analysts	1,576	45
Software Developers	1,390	46
.Net Developers	1,337	38
Front-End Developers	1,222	35
Business Analysts (Computer and Mathematical)	1,218	30
Data Engineers	1,123	29
Security Officers (Computer and Mathematical)	1,106	37
SharePoint Developers	911	40
Business Analysts (Business and Financial Operations)	893	32

Figure 6. Top 20 Posted Job Titles in the NOVA Region: 2018



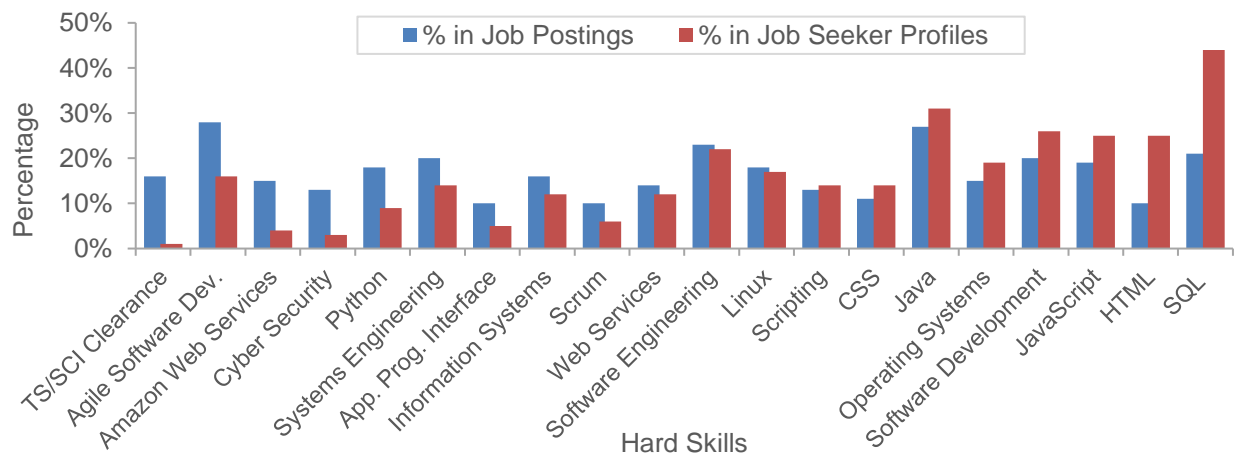
Desired Hard Skills

Table 11 and Figure 7 (below) show disproportions between the top *hard* skills that NOVA region employers sought among their job applicants and the hard skills that Information Technology (A.S. and B.S.) graduates mentioned in their job-seeker profiles from January 2018 through December 2018.⁹ Agile Software Development, Amazon Web Services, and Cyber Security were among the most desired hard skills in job postings that were disproportionately mentioned in job-seeker profiles. These differences represent potential areas in which job applicants could align their hard skills more closely with their prospective employers' desired skills.

Table 11. Top 20 Desired Hard Skills for Information Technology Graduates: 2018

Hard Skills	% of Job Postings Mentioning Skill	% of Job Seeker Profiles Mentioning Skill	Difference in Percentage
Top Secret-Sensitive Compartmented Info. (TS/SCI Clearance)	16	1	-15
Agile Software Development	28	16	-12
Amazon Web Services	15	4	-11
Cyber Security	13	3	-10
Python (Programming Language)	18	9	-9
Systems Engineering	20	14	-6
Application Programming Interface	10	5	-5
Information Systems	16	12	-4
Scrum (Software Development)	10	6	-4
Web Services	14	12	-2
Software Engineering	23	22	-1
Linux	18	17	-1
Scripting	13	14	1
Cascading Style Sheets (CSS)	11	14	3
Java (Programming Language)	27	31	4
Operating Systems	15	19	4
Software Development	20	26	6
JavaScript (Programming Language)	19	25	6
Hyper-Text Markup Language (HTML)	10	25	15
SQL (Programming Language)	21	44	23

Figure 7. Top 20 Desired Hard Skills for Information Technology Graduates: Percentage Mentioned in Job Postings and Job Seeker Profiles: 2018



⁹ Hard skills are defined as technical or specialized skills often acquired through formal education.

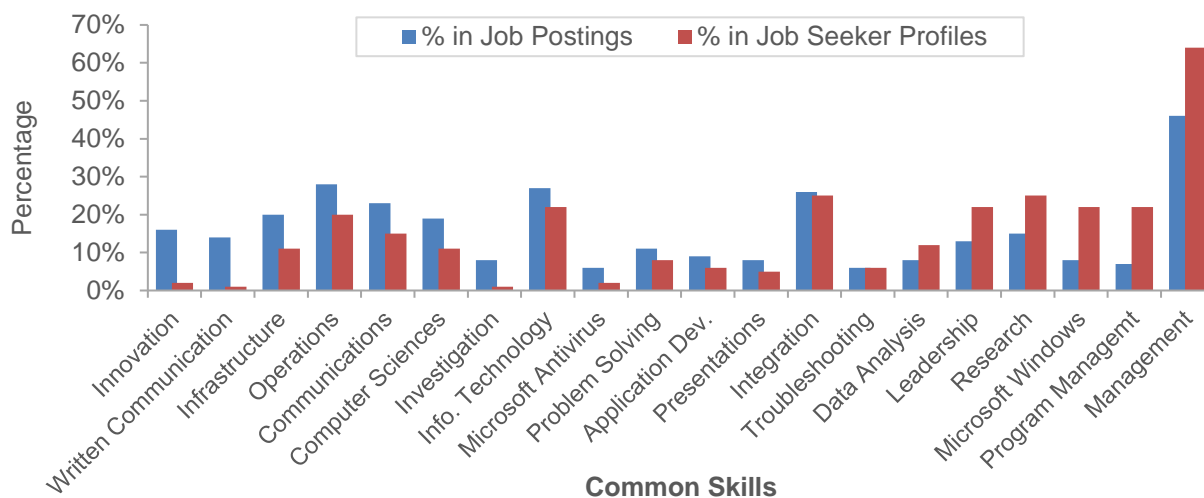
Desired Common Skills

Table 12 and Figure 8 (below) show disproportions between the top *common* skills that NOVA region employers sought among their job applicants and the common skills that Information Technology (A.S. and B.S.) graduates mentioned in their job-seeker profiles from January 2018 through December 2018.¹⁰ Innovation, written communications, and infrastructure were among the most desired common skills in job postings that were disproportionately mentioned in job-seeker profiles. These differences represent potential areas in which job applicants could align their common skills more closely with their prospective employers' desired skills.

Table 12. Top 20 Desired Common Skills for Information Technology Graduates: 2018

Common Skills	% of Job Postings Mentioning Skill	% of Job Seeker Profiles Mentioning Skill	Difference in Percentage
Innovation	16	2	-14
Written Communication	14	1	-13
Infrastructure	20	11	-9
Operations	28	20	-8
Communications	23	15	-8
Computer Sciences	19	11	-8
Investigation	8	1	-7
Information Technology	27	22	-5
Microsoft Antivirus	6	2	-4
Problem Solving	11	8	-3
Application Development	9	6	-3
Presentations	8	5	-3
Integration	26	25	-1
Troubleshooting (Problem Solving)	6	6	0
Data Analysis	8	12	4
Leadership	13	22	9
Research	15	25	10
Microsoft Windows	8	22	14
Program Management	7	22	15
Management	46	64	18

Figure 8. Top 20 Desired Common Skills for Information Technology Graduates: Percentage Mentioned in Job Postings and Job Seeker Profiles: 2018



¹⁰ Common skills refer to soft and transferable skills broadly utilized in various professions.

Desired Qualifications

The top desired qualifications for Information Technology (A.S. and B.S.) graduates in NOVA region job postings from January 2018 through December 2018 included Certified Information Systems Security Professional (11,563 postings) and CompTIA Security+ (6,302 postings) (Table 13 and Figure 9, below).

Table 13. Top 20 Desired Qualifications for Information Technology Graduates: 2018

Job Qualifications	# of Job Postings
Certified Information Systems Security Professional	11,563
CompTIA Security+	6,302
GIAC Certifications	5,522
Certified Ethical Hacker	3,805
Certified Information Security Manager	3,024
IAT Level II Certification	2,755
Certified Information System Auditor (CISA)	2,457
GIAC Certified Incident Handler	1,913
GIAC Security Essentials Certification	1,648
Cisco Certified Network Associate	1,636
Microsoft Certified Systems Engineer	1,584
Systems Security Certified Practitioner	1,499
ITIL Certifications	1,365
Project Management Professional Certification	1,286
Cisco Certified Network Professional	1,150
Cisco Certified Network Associate Security (CCNA Security)	1,143
CompTIA Advanced Security Practitioner	1,101
Certified Benefits Professional	1,088
IAT Level III Certification	1,077
GIAC Certified Intrusion Analyst	974

Figure 9. Top 20 Desired Qualifications Posted for Information Technology Graduates: 2018

