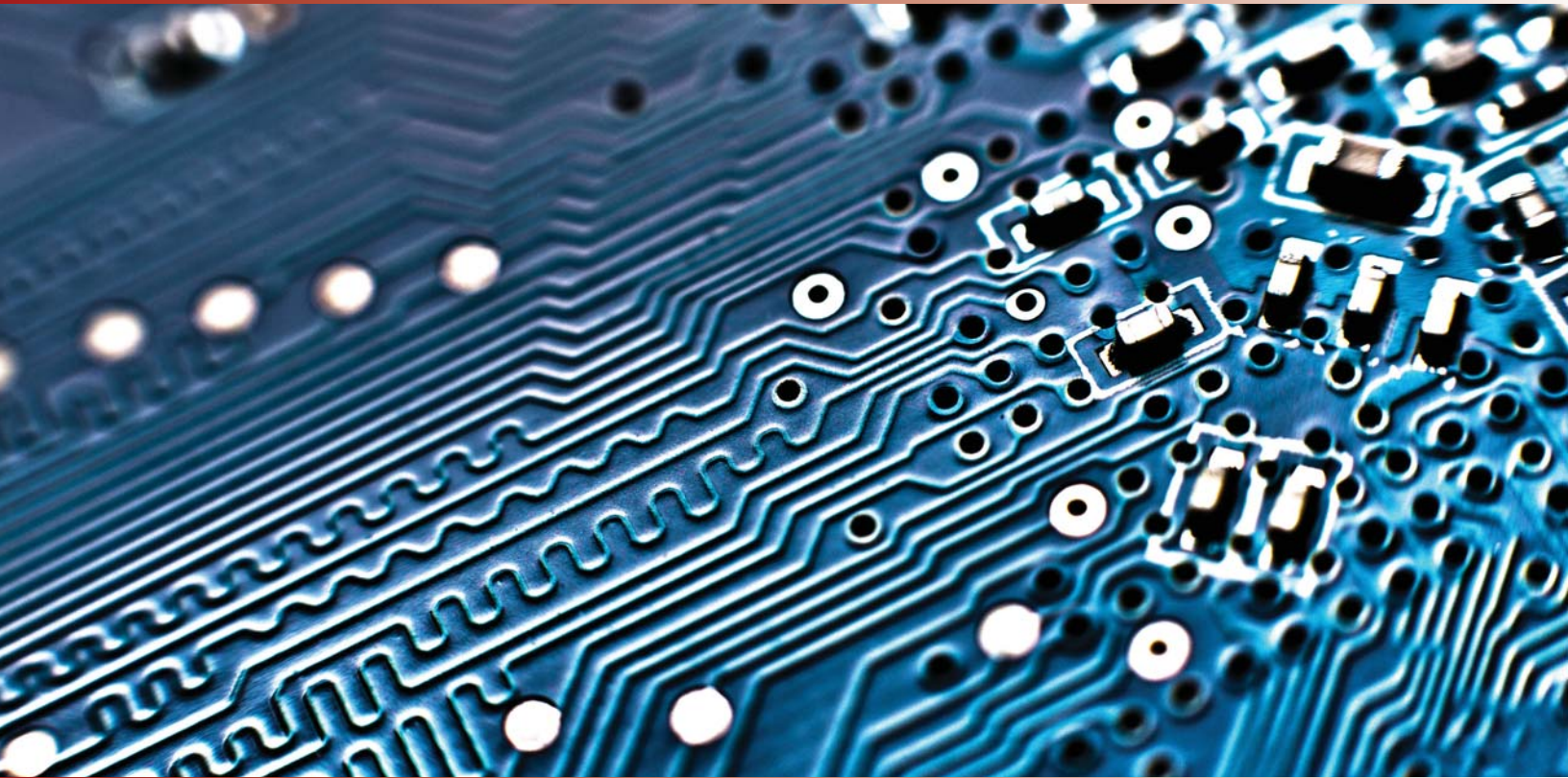


Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings



Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Introduction to Real-Time Labor Market Information

Real-time labor market information is derived from online job postings. Details included in online job postings can provide information such as the type of jobs employers are most frequently seeking or the skills currently requested by employers.

One advantage of real-time data is that it is updated daily, while traditional labor market information lags anywhere from a month to six months or longer, depending on the source of the data. Details extracted from online job postings provide insight into the skills that employers are currently seeking in job candidates.

Analysis of information extracted from online job postings can potentially provide resources for multiple audiences:

- Job Seekers — career counselors could use analysis of details extracted from online job postings to direct job seekers toward new skills and training that they may choose or need to attain to qualify or be more competitive for positions.
- Educators and Training Program Developers — details provided through analysis of job postings can allow educators to evaluate the significance of programs offered by the institution. It can also highlight new skills or areas of study for which training programs or curricula may need to be developed.
- Employers/Business Community — analysis allows businesses to gauge what skills their competitors are seeking compared to their own preferences.

However, not all employers utilize online postings to attract talent. Further, geography can also play a role in the examination of online job postings. Online postings from employers in a small geographic area would have a smaller volume of postings, whereas a nationwide data set may be better suited to identify trends. While a small area – such as the state of New Hampshire – can be selected, there is a much smaller pool of job postings to examine.

The potential for real-time labor market data is still somewhat unexplored and users should understand the limitations of online job postings. While online job postings provide an insight to the current job market, job postings are not a one-for-one measure of employer demand for labor.

Burning Glass Occupational Classification versus Standard Occupational Classification (SOC)

Data for this analysis were extracted from Burning Glass Technologies' Labor/Insight Jobs application. To allow better assessment of job posting content as a labor market indicator, Burning Glass Technologies derived its own occupational classification system.¹ This classification system is based on the Standard Occupational Classification (SOC), supplemented with analysis of job titles along with skills and education requirements extracted from online job postings, and adapted to the SOC taxonomy to more accurately reflect their content.

Traditional labor market information compiled using a standard occupational taxonomy is comparable over time and geography. However, updating classifications requires a substantial amount of time, particularly classifications authorized by the federal government. While Burning Glass Occupations, or BGOCCs are based on a standard taxonomy, the inclusions of details from real-time job postings provides more flexibility, as well as the ability to gain insight into new and emerging occupations.

¹ Labor/Insight Jobs (Burning Glass Technologies)

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Job Postings in Computer and Information Technology

Computer and information technology (IT) jobs are constantly evolving and expanding to coincide with new technologies as they develop. In such an environment, it can be challenging for occupational taxonomies to keep pace with new and evolving occupations and skills. Occupational classifications established in traditional labor market information include basic job descriptions and characteristics to provide a method of comparison. These classifications are not updated frequently enough to capture the rapid changes in computer and information technology occupations.

Computer and information technology (IT) positions are well represented among online job postings, providing a reasonable sample of postings to be examined.

For the 60-day period from November 7, 2014 through January 5, 2015 there were 989 online computer and information technology job postings by New Hampshire employers. They accounted for roughly nine percent of all job postings.

- Of these 989 job postings, over 35 percent were classified as Computer Programmer (SOC 15-1131). Based on Burning Glass' occupational coding, this included jobs titled Computer Programmer as well as the two additional job titles, Software Developers/Engineers and Mobile Applications Developers.
- Almost 25 percent of the job postings were classified as Computer Occupations, All Other (SOC 15-1199). Job titles that are not easily categorized into a specific occupation are designated as "all other." These "all other" job titles are representative of new and emerging computer and information technology occupations. The job titles classified based on Burning Glass' occupational coding as "all other" included:
 - Software QA Engineer/Tester
 - Network Engineer/Architect
 - Webmaster/Administrator
 - Geographer/GIS Specialist
 - Data Architect
 - Data Warehousing Specialist
 - Search Engine Optimization Specialist
 - Document Control/Management Specialist
 - Data/Data Mining Analyst
 - Business Intelligence Analyst
 - Business Intelligence Architect/Developer
 - IT Project Manager
- Computer Support Specialist (SOC 15-1151) had 10.8 percent of the job postings.
- Network/Systems Administrators (SOC 15-1142) represented just over six percent of the job postings.

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

SOC Code	Burning Glass Occupational Code	Posting Job Title
11-3021	11302100	Chief Information Officer / Director of Information Technology
15-1111	15111100	Computer Scientist
15-1121	15112100	Systems Analyst
15-1122	15112200	Cyber / Information Security Engineer / Analyst
15-1131	15113100	Software Developer / Engineer
15-1131	15113191	Computer Programmer
15-1131	15113192	Mobile Applications Developer
15-1133	15113300	Computer Systems Engineer / Architect
15-1134	15113491	Web Designer
15-1134	15113492	Web Developer
15-1134	15113493	UI / UX Designer
15-1141	15114100	Database Administrator
15-1142	15114200	Network / Systems Administrator
15-1143	15114301	Telecommunications / VOIP Engineer
15-1151	15115100	Computer Support Specialist
15-1152	15115200	Network / Systems Support Specialist
15-1199	15119900	Computer Occupations, All Other
15-1199	15119901	Software QA Engineer / Tester
15-1199	15119902	Network Engineer / Architect
15-1199	15119903	Webmaster / Administrator
15-1199	15119904	Geographer / GIS Specialist
15-1199	15119906	Data Architect
15-1199	15119907	Data Warehousing Specialist
15-1199	15119910	Search Engine Optimization Specialist
15-1199	15119912	Document Control / Management Specialist
15-1199	15119991	Data / Data Mining Analyst
15-1199	15119993	Business Intelligence Analyst
15-1199	15119994	Business Intelligence Architect / Developer
15-1199	15119995	IT Project Manager
15-2041	15204102	Clinical Data Manager
29-2071	29207198	Clinical Software Applications / Systems Specialist
43-9011	43901100	Computer Operator

Blue text indicate job codes that would be roughly classified under the same Standard Occupational Title (SOC)

Source: Labor/Insight (Burning Glass Technologies)

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Distribution of Computer and Information Technology Job Postings in New Hampshire and the Nation

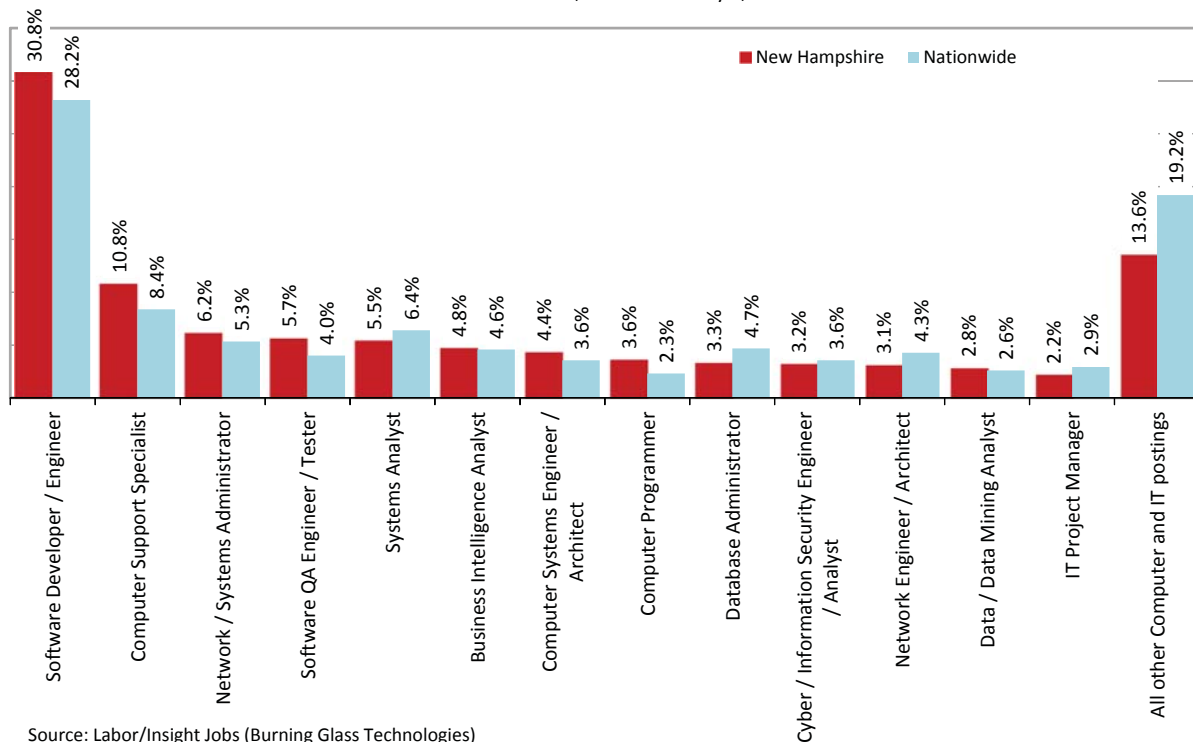
Based on the job postings, there appears to be a substantial need for workers in New Hampshire with specific skills in computer technology.

The distribution of computer and information technology job postings varied only slightly between New Hampshire and the nation, indicating that business needs in the state are not significantly different than those nationwide. The share of postings for seven job titles was slightly higher for New Hampshire than the nation:

- Software Developer/Engineers
- Computer Support Specialists
- Network/Systems Administrators
- Software QA Engineer/Tester
- Business Intelligence Analysts
- Computer Systems Engineer/Architect
- Computer Programmers

Computer and IT Job Postings

November 7, 2014 to January 5, 2015



Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Computer Languages Most Frequently Found in Online Job Postings

Roughly 44 percent of the computer and information technology job postings specifically mentioned a preferred program skill or computer language knowledge. In many cases, more than one preferred skill or language was listed in a single job posting.

Nine computer languages were specified most frequently. These included:

i) Database languages:

(a) SQL

(b) Oracle

ii) Web languages:

(a) JAVA

(b) JavaScript

(c) Hyper Text Markup Language (HTML)

(d) .NET

(e) Cascading Style Sheets (CSS) for web pages

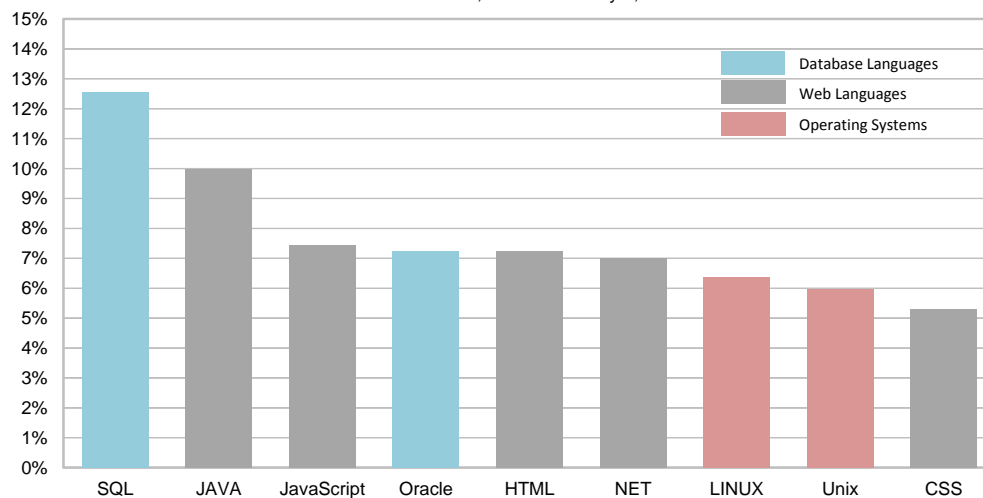
iii) Operating Systems:

(a) LINUX

(b) UNIX

Select Computer Languages Most Frequently Mentioned in New Hampshire Computer and IT Job Postings

November 7, 2014 to January 5, 2015



Source: Labor/Insight Jobs (Burning Glass Technologies)

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Top Job Titles and Computer Language Preference

Job postings are based on business needs and posting details express the tasks and functions expected for the job.

Details included in job postings, especially for computer and information technology job postings, provide information on the computer languages or different skills most frequently requested by local employers. Job seekers may be able to use this type of information to home in on additional skills they may need to acquire to meet employer needs.

The majority of job postings indicated the need for more than one specific skill set. Job seekers need to evaluate how they are marketing themselves, as a generalist or a specialist. A generalist can distinguish themselves in the current competitive market by obtaining proficiency in at least one web-based language, one desktop-based programming language, and one mobile platform. A specialist would be proficient in specific skills the employer is seeking. For example, a specialist in a web-based job would likely need to be proficient in multiple web-based languages.

Specific Skills and Computer Languages Found in Computer and Information Technology Job Postings in New Hampshire

(November 7, 2014 through January 5, 2015)

	Database or General Programming	Web	Operating Systems	Ajax	Apache	ASP	C#	C++	CSS	HTML	Java	JavaScript	Linux	.Net	Oracle	Perl	PHP	Python	Ruby	SQL	UNIX	Visual Basic	
Software Development Engineer				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Software Developer						•	•	•	•	•	•	•	•	•	•		•	•			•	•	•
Release Engineer					•	•	•				•	•	•	•	•	•	•	•			•	•	
Java Software Developer				•	•				•	•	•	•	•	•	•						•	•	
Senior Test Engineer				•				•	•	•	•	•	•	•	•	•	•					•	
Applications Developer						•	•	•	•	•	•	•	•	•	•						•	•	
Systems Analyst											•		•	•	•	•	•	•			•	•	
.Net Developer				•		•	•		•	•		•	•	•							•	•	•
Php Developer				•		•			•	•		•	•	•			•					•	•
Asp .Net Developer						•	•			•	•	•	•	•							•	•	•
Information Technology Security Analyst					•						•		•		•	•	•	•	•			•	
Quality Assurance Engineer				•			•	•			•	•	•	•							•	•	
Chief Technology Officer								•	•	•	•	•	•	•					•	•		•	
Senior Support Engineer						•			•	•		•	•	•			•				•	•	
Systems Engineer					•			•					•		•	•		•	•			•	
Applications Analyst							•	•					•	•	•						•	•	•
Applications Architect											•		•	•	•		•	•	•		•	•	
Front End Developer				•					•	•	•	•	•	•								•	•
Infrastructure Engineer					•								•		•	•		•				•	
Junior Developer							•	•					•	•	•						•	•	•
Junior Software Engineer							•	•	•	•	•		•	•	•						•	•	•
Performance Engineer								•			•		•	•							•	•	
Quality Assurance Tester											•		•		•						•	•	•
Senior Build Engineer											•	•	•	•		•						•	
Sharepoint Solutions Lead						•	•		•	•			•	•							•	•	
Technical Support Engineer						•	•		•	•		•	•	•								•	
Web Developer				•					•	•	•	•	•	•			•					•	

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Top Employers and Computer Language Preference

The employer with the largest number of different computer languages included in the job postings was Fidelity Brokerage Services. At least 15 different computer languages or skills were specified among the job postings for this employer.

The 24 employers with the most job postings listed from five to 15 different languages. SQL, Java and JavaScript were specified most frequently. Oracle, HTML, CSS, and .Net were also frequently specified in postings.

Variety of Specific Skills and Computer Languages by Employers Found in Computer and Information Technology Job Postings in New Hampshire

(November 7, 2014 through January 5, 2015)

	Database or General Programming			Web			Operating Systems			Other			Visual Basic						
	Ajax	Apache	ASP	C#	C++	CSS	HTML	Java	JavaScript	Linux	.Net	Oracle	Perl	PHP	Python	Ruby	SQL	UNIX	Visual Basic
Fidelity Brokerage Services	•	•		•	•	•	•	•	•	•		•	•	•	•		•	•	
Alexander Group Incorporated			•	•					•	•	•	•	•	•	•	•	•	•	
IBM	•	•				•	•	•	•	•	•	•				•		•	
Oracle		•					•	•	•	•		•	•	•	•	•	•	•	
Iconma		•						•	•	•		•	•	•	•			•	•
BAE Systems				•	•			•	•	•	•		•		•			•	•
Abridge Info Systems	•		•	•		•	•	•	•	•	•						•	•	•
JP Morgan Chase Company						•	•	•	•	•	•	•					•	•	•
Net2Source Inc								•	•	•		•	•				•	•	•
Silvertech	•		•	•		•	•	•	•	•	•				•		•	•	•
Navico Incorporated				•	•	•	•		•	•	•						•	•	•
Norfolk Southern		•			•			•		•	•				•			•	•
Dell		•		•	•			•		•					•			•	•
Kentico Software, Llc			•			•	•		•	•	•			•			•	•	•
Liberty Mutual			•	•		•	•		•	•	•		•				•	•	•
Scribl.Com (Scribliotech, Inc					•	•	•	•	•	•					•	•			•
Ved Software Services, Inc					•			•		•		•	•				•	•	•
Bottomline Technologies					•			•	•	•	•			•			•	•	•
Citizens Financial Group								•		•		•	•				•	•	•
Dartmouth College						•	•	•	•	•				•	•			•	•
Dyn Corporation										•			•	•	•	•		•	•
Ektron			•	•		•	•		•	•	•							•	•
Global Information Systems Incorporated								•		•		•	•					•	•
Kaizen Technologies Incorporated						•	•	•	•	•		•						•	•

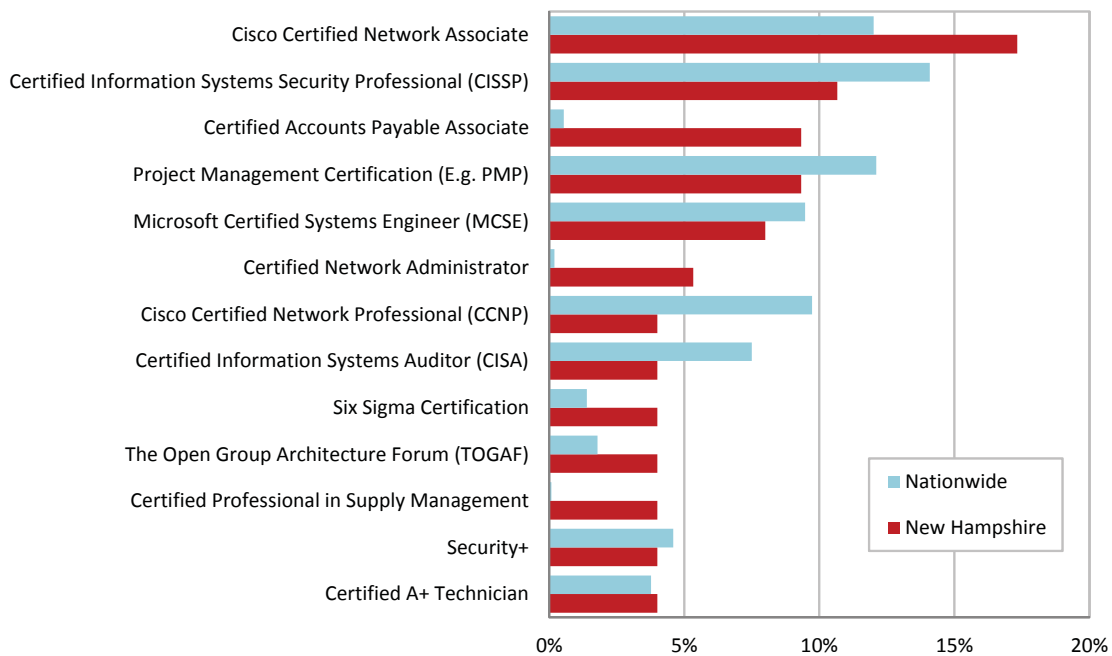
Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Certifications Most Frequently Specified Computer and Information Technology in Job Postings for New Hampshire

Eight percent (75) of the computer and information technology job postings included specific certifications sought by employers. These details about New Hampshire job postings, as well as a comparison of specific certifications sought in New Hampshire compared with the nation, can assist career counselors to determine what additional training job seekers might need in order to qualify for jobs posted.

Certifications Requested in Computer and Information Technology Job Postings



Note: Certifications are not correlated to specific languages but to the computer and information technology occupational group as a whole.

Real-Time Labor Market Information

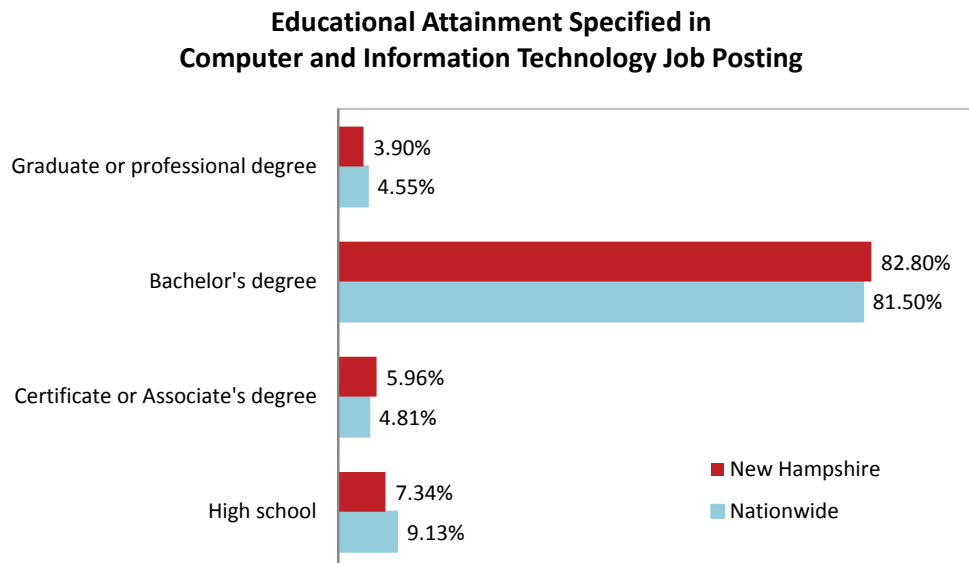
New Hampshire Computer and Information Technology Job Postings

Educational Preferences Specified in Job Postings

It is not mandatory that a preference for educational attainment be included in a job posting. In many cases, an assumption is made that a job requires a minimum level of educational attainment, so it is not necessary to specify it in the job posting. In other cases, employers may have no preference for educational attainment. Among computer and information technology occupations, 56 percent of postings for New Hampshire and 49 percent nationwide did not specify a preferred educational attainment; when specified, the largest portion by far indicated a Bachelor's degree.

There were some very slight differences between New Hampshire and the nationwide distribution of minimum educational requirements specified in the job postings. Postings indicating a preference for a Bachelor's degree or a certificate or Associate's degree were slightly higher in New Hampshire than nationwide. At the same time, New Hampshire had smaller shares of job postings specifying a high school diploma or a graduate or professional degree.

Details about educational attainment required can potentially be used by training program and job developers to evaluate if the educational attainment they recommend is sufficient compared to current employer preferences.



Source: Labor/Insight Jobs (Burning Glass Technologies)

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

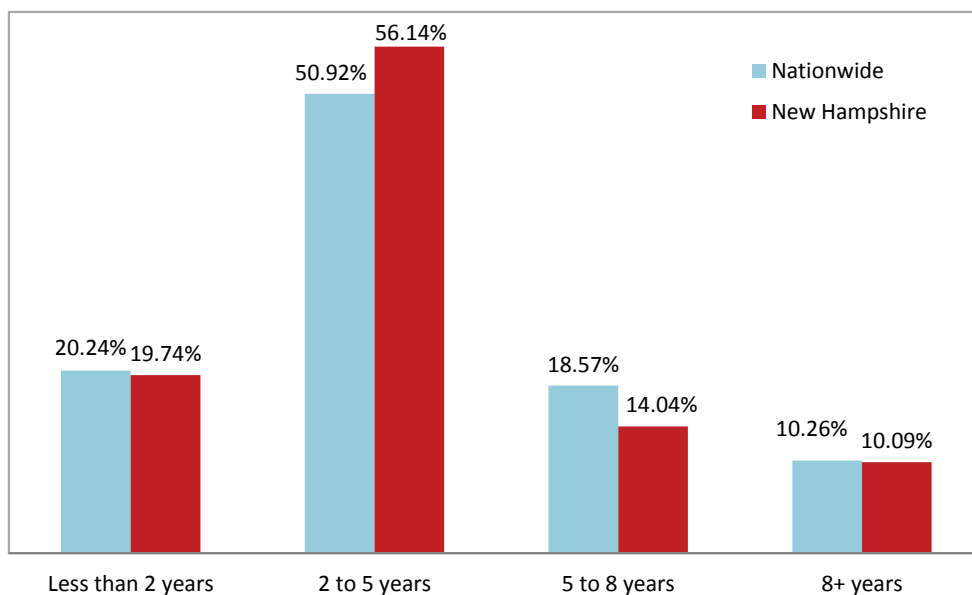
Work Experience Listed in Job Postings

Some employers may prefer candidates with work experience along with – and sometime in lieu of – formal education. Among computer and information technology job postings for New Hampshire, 54 percent did not include a specific work experience, compared to 42 percent nationwide.

Of those postings that specified a preferred experience level, over half desired 2 to 5 years of experience. New Hampshire had a higher share of postings specifying 2 to 5 years of experience than among postings nationwide. On the other hand, New Hampshire had had a smaller share of job postings specifying 5 to 8 years of experience.

Preferred Experience of Computer and IT Job Postings

(November 7, 2014 through January 5, 2015)



Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Other Hiring Conditions Found in Job Postings

Businesses sometimes specify other pre-hire conditions. The three conditions most frequently found among computer and information technology job postings were: temporary status, background check or security clearance, and drug screening.

The share of postings for New Hampshire specifying a drug test or screening were lower than the share nationwide. The share specifying a background check or security clearance, and the share indicating that a job was a temporary assignment were about the same for New Hampshire as nationwide.

	New Hampshire	Nationwide
Temporary/ Temp agency or assignment	3.9%	3.7%
Background check/ Security clearance	24.8%	25.3%
Drug test/ screening	2.7%	4.8%

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Summary

Real-time job postings data do not follow the same conventions as traditional labor market information. Online job postings provide a glimpse into current expectations and needs of the business community in real time. Although details may not be available in all job postings, they do serve as an avenue for evaluation.

An in-depth look at jobs classified as “all other” helped identify new and emerging occupations. This is particularly applicable among occupations associated with computer and information technology because the field is growing and evolving so quickly other taxonomies have difficulty keeping pace with the rapid changes. Some new job titles listed under the default “all other” occupational category included:

- Software QA Engineer/Tester
- Network Engineer/Architect
- Webmaster/Administrator
- Geographer/GIS Specialist
- Data Architect
- Data Warehousing Specialist
- Search Engine Optimization Specialist
- Document Control/Management Specialist
- Data/Data Mining Analyst
- Business Intelligence Analyst
- Business Intelligence Architect/Developer
- IT Project Manager

Details frequently listed in job postings highlighted specific skills currently requested by businesses. In the constantly changing field of computer and information technology these details included the computer languages currently in demand, and the combination of computer language skills needed by employers. This analysis found that Java, JavaScript, .Net, and CSS were the top web based languages. SQL and Oracle were the top database languages specified in job postings.

Among computer and information technology job postings for New Hampshire, some businesses requested specific certifications to fit their needs. Cisco Certified Network Associate and Certified Information Systems Security Professional (CISSP) were indicated in over ten percent of job postings that included specific certifications.

While job postings data are not readily available to the public, analysis of details included in online job postings can provide insight for training program developers and educators in determining if their institutions are teaching skills in current demand. The analysis is also useful for career counselors and job seekers in evaluating if skills are adequate to meet the current specifications of businesses.

Real-Time Labor Market Information

New Hampshire Computer and Information Technology Job Postings

Limitations of “Real Time” Data

Real-time labor market data are based on online job postings that are ‘scraped’ from the Internet on a daily basis. The content of these job postings provide a current point-in-time perspective on the occupations and specific skill sets that employers are seeking. Some job postings include additional details, such as the preferred level of education and experience, or specific pre-hire conditions, such as a background check or security clearance.

While real-time data are relevant and help provide up-to-date job information, there are intrinsic limitations to the data. The primary intent of a job posting is to reach as many job seekers as possible, so in many cases the job posting is available through multiple web sites. As a result, job postings extracted from the Internet tend to include multiple iterations of a posting. Vendors who compile job postings data have developed practices that greatly reduce the number of duplicated job postings; however, due to the variety and volume of data produced on a daily basis, it is not possible to completely eliminate duplication. Job postings are predominantly a recruiting tool to search for possible candidates, and are not a clean statistical database with consistent contents.

A job posted online by an employer expresses an interest in applicants for a specific position which may — or may not — currently exist. The purpose of posting a job may be to gauge if there is adequate talent or interest in the area, it may be to find applicants for a newly-created position, or replace a departing worker in an existing position. It must be clearly understood that a job posting is not equal to a job opening. For that reason, job postings are not a direct measure of labor demand as much as they are a search for talent, or a measure of interest in applicants for specific occupations and job skills.

Multiple businesses may have postings for the same occupation, but each employer may use a different job title based on business practices. The differences in job titles can make direct comparisons difficult. Employers typically include job-specific details in the posting according to their needs and purpose, but there is no mandate directing that specific information be included in every posting. As such, the details accumulated from job postings, while informative, are unlikely to be statistically representative of all postings.

Online job postings data also reflect current business hiring practices. Not all industries are equally represented in online postings. Businesses needing workers with specific skills, such as computer and information technology skills, are strongly represented among online job postings. Large employers and corporations are more likely to post online, while smaller employers are more likely to only post online for management or executive positions. Construction and retail jobs are not well represented in online job postings. Employers in these industries are more likely to advertise locally, such as on a marquee or window sign.

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