

VERMONT DEPARTMENT OF LABOR
REPORT
Technology in Vermont (2018 Edition)

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Executive Summary

The impact of technology is ubiquitous, generating new products and production processes that transform the way households and companies operate. The labor market is constantly evolving due to the impact of technology.

Serving as a replacement of The Vermont Department of Labor's 2015 report, *Tech in Vermont*, the following summary defines and outlines the extent of tech-related employment in Vermont. This edition also includes data specific to the Burlington – South Burlington NECTA. See below for a review of definitions and concepts.

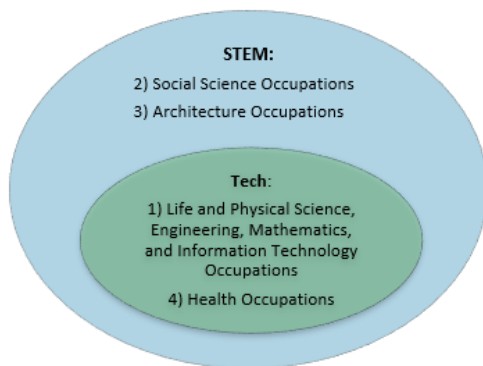
Definitions

STEM: an acronym used to refer to the interdisciplinary fields of Science, Technology, Engineering, and Mathematics¹.

STEM Core vs. STEM Health: According to the 2012 Standard Occupational Classification (SOC) Policy Committee, STEM fields can be categorized into four broad domains:

- 1) Life and Physical Science, Engineering, Mathematics, and Information Technology Occupations
- 2) Social Science Occupations
- 3) Architecture Occupations
- 4) Health Occupations

Consistent with national research, occupations within STEM Core (subdomain 1) and STEM Health (subdomain 4) best represent the definition of a tech occupation.



Occupation vs. Industry: An industry is the primary activity of a person's place of work. In contrast, an occupation is the specific type of work a person performs. As an example, a firm's primary business activity might be construction (their industry is construction) while someone working for the firm might perform tasks associated with accounting (the person's occupation is an accountant)

Tech Occupation: Tech occupations are scientific, engineering, mathematics, technician, and computer programming occupations that require an in-depth knowledge of the theories and principles of science, engineering, or mathematics underlying technology. These occupations require specialized education ranging from a vocational certificate or an associate degree to a doctorate.

Tech Industry: Using the definition adopted by the Workforce Information Council, the VT Dept. of Labor defines tech industries by the concentration of tech occupations within them. An industry that employs at least 2.5 times the national average of tech occupations is considered a tech industry. In 2017, the national averages were 6.1% for STEM Core and 6.4% for STEM Health. Therefore, industries with a concentration of at least 15.4% tech occupations and 16.0% tech occupations, are classified as STEM Core and STEM Health, respectively.

Introduction

For this analysis, technology employment is investigated in two manners: industry employment and occupational employment. Industry employment measures the number of workers (tech and non-tech) in tech-concentrated industries. Occupational employment examines the number of workers in tech-specific occupations. In 2017, tech industry employment was estimated at 64,788, accounting for 20.9% of total statewide industry employment. Tech occupational payroll employment was estimated to be 37,113 (12.2%). When approximated self-employed tech occupations (2,821 or 0.9%) are included, total tech occupational employment increases to 39,934 (13.1%). Figure 1 illustrates these interrelated metrics.

¹ It is important to note that STEM is not synonymous with tech. Tech is a subdomain of STEM.

Figure 1

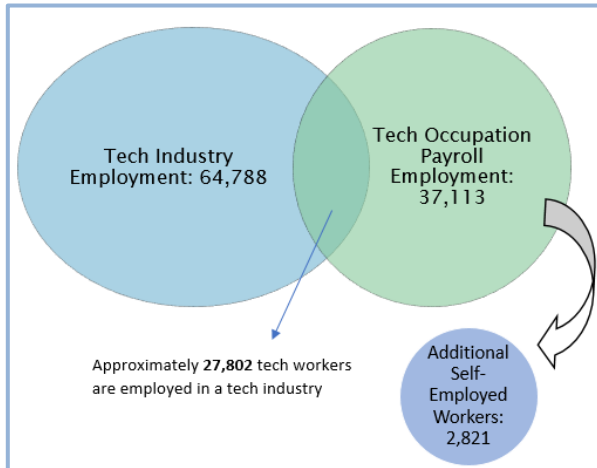
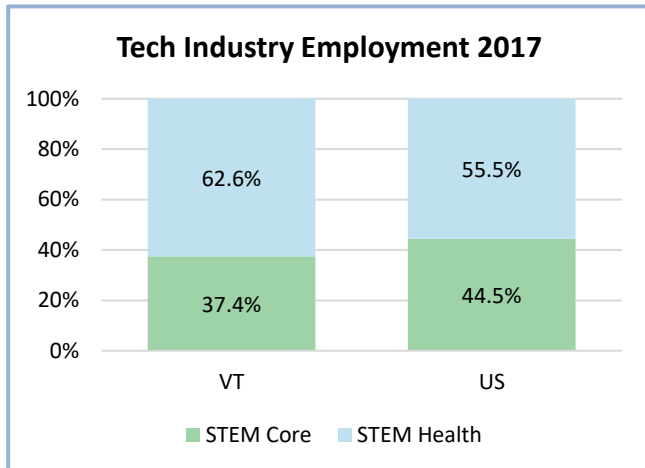


Figure 2



As of 2017, 24,296 Vermonters were employed in STEM Core industries and 40,492 were employed in STEM Health industries. Compared to the U.S. as a whole, a larger share of Vermont’s Tech employment is in STEM Health. 62.6% of Vermonters who are employed in a tech industry work in STEM Health while 55.5% of Americans who are employed in a tech industry work in STEM Health. See Figure 2 for a breakdown of tech industry employment.

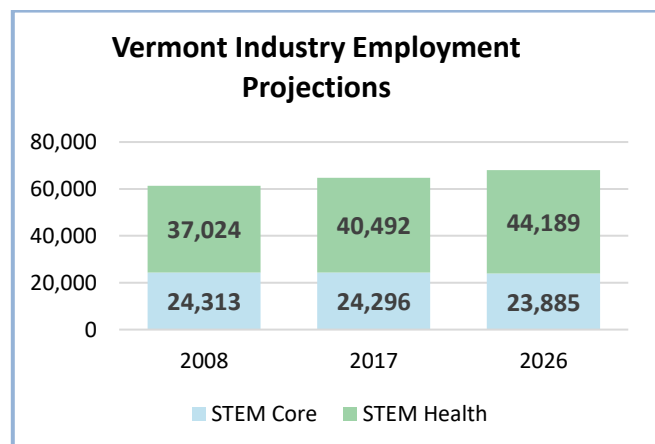
Tech Industry Employment Trends in Vermont

Between 2008 and 2017, tech industry employment increased by 3,451, an average annual increase of 0.6%. This rate exceeds the growth rate of total industry employment in Vermont (+0.2%) over the same time period (see Table 1). This annual growth rate is expected to hold at 0.6% with an estimated increase of 3,286 tech industry jobs in Vermont between 2017 and 2026. Employment in STEM Core industries is projected to decline by 411 jobs over the period while employment in STEM Health industries is projected to increase by 3,697 jobs. This trend is consistent with statewide trends over the past decade: An increase in STEM Health employment from 37,024 to 40,492 between 2008 and 2017 and a slight decline in STEM Core employment from 24,313 to 24,296 over the same period (see Figure 3).

Table 1

| Year | VT Tech Industry Employment | % Change by Year | VT Total Employment | OTY % Change |
|--------------------------------|-----------------------------|------------------|---------------------|--------------|
| 2008 | 61,337 | | 302,648 | |
| 2009 | 60,155 | -1.9% | 292,370 | -3.4% |
| 2010 | 60,899 | 1.2% | 293,088 | 0.2% |
| 2011 | 61,543 | 1.1% | 295,540 | 0.8% |
| 2012 | 62,834 | 2.1% | 299,530 | 1.4% |
| 2013 | 63,229 | 0.6% | 301,614 | 0.7% |
| 2014 | 63,088 | -0.2% | 304,554 | 1.0% |
| 2015 | 63,823 | 1.2% | 307,096 | 0.8% |
| 2016 | 64,101 | 0.4% | 308,061 | 0.3% |
| 2017 | 64,788 | 1.1% | 309,326 | 0.4% |
| Average Annual % Change | | 0.6% | | 0.2% |

Figure 3



Tech Occupation Wages in VT

On average, tech jobs earn 88% more in annual averages wages than the state

Figure 4

average exclusive of tech jobs (\$81,675 vs. 43,474). STEM Health workers earned \$86,117 per year, which is 13% more than their STEM Core counterparts who averaged \$76,098 per year (see Figure 4). These high wages make tech jobs a lucrative career path. Table 2 outlines the top 5 highest- and lowest-paying occupations in Vermont. Unsurprisingly, doctors dominate the highest paying STEM Health occupations. The highest-paying STEM Core occupations are dominated by various types of Engineers. The lowest-paying occupations in both STEM Core and STEM Health tend to be Technician positions which typically require less formal education than other STEM positions. Most technician occupations require less than a 4-year degree.

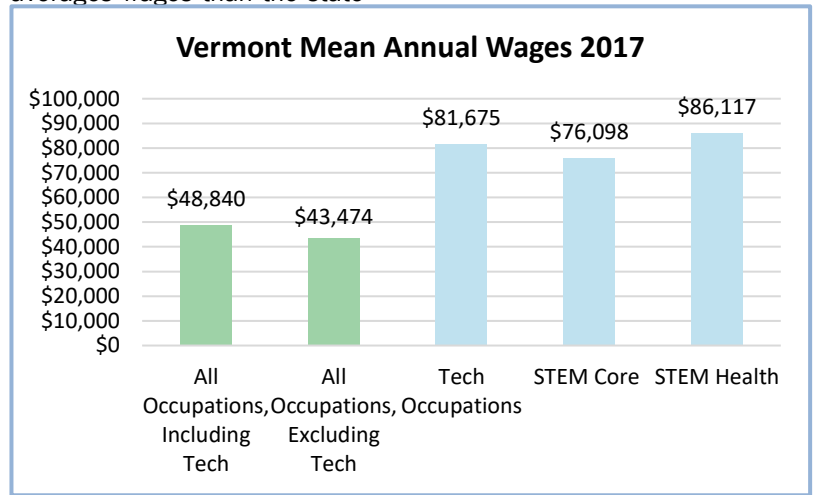


Table 2

| Top 5 Highest Paying STEM Core Occupations | |
|--|------------------|
| Occupation Title | Mean Annual Wage |
| Architectural and Engineering Managers | \$136,330 |
| Computer and Information Systems Managers | \$128,700 |
| Nuclear Engineers | \$124,020 |
| Electronics Engineers, Except Computer | \$102,940 |
| Electrical Engineers | \$101,950 |
| Top 5 Lowest Paying STEM Core Occupations | |
| Occupation Title | Mean Annual Wage |
| Forest and Conservation Technicians | \$42,010 |
| Biological Technicians | \$43,890 |
| Environmental Science & Protection Technicians, Including Health | \$45,220 |
| Architectural and Civil Drafters | \$45,450 |
| Agricultural and Food Science Technicians | \$47,170 |

Table 3

| Top 5 Highest Paying STEM Health Occupations | |
|--|------------------|
| Occupation Title | Mean Annual Wage |
| Anesthesiologists | \$277,620 |
| Surgeons | \$274,440 |
| Obstetricians and Gynecologists | \$236,160 |
| Internists, General | \$202,650 |
| Physicians and Surgeons, All Other | \$201,210 |
| Top 5 Lowest Paying STEM Health Occupations | |
| Occupation Title | Mean Annual Wage |
| Dietetic Technicians | \$30,470 |
| Pharmacy Technicians | \$33,270 |
| Veterinary Technologists and Technicians | \$34,420 |
| Emergency Medical Technicians and Paramedics | \$35,530 |
| Psychiatric Technicians | \$37,780 |

Tech Employment in Burlington-South Burlington NECTA:

Tech industry employment in the Burlington-South Burlington New England City and Town Area (NECTA) was approximately 31,353 in 2017, accounting for 26% of the NECTA's overall industry employment and 48% of all tech industry employment in the Vermont. Tech occupational payroll employment was approximately 18,498 in the NECTA in 2017. This constitutes 15% of NECTA occupational employment and 47% of Vermont tech occupational employment.

Between 2008 and 2017, NECTA tech industry employment increased by 2,271, an average annual increase of 0.8%. Total employment in the NECTA grew at the same 0.8% rate .

Table 4

| Year | NECTA Tech Industry Employment | % Change by Year | NECTA Total Employment | % Change by Year |
|------------------------------|--------------------------------|------------------|------------------------|------------------|
| 2008 | 29,082 | | 113,303 | |
| 2009 | 28,370 | -2.4% | 110,049 | -2.9% |
| 2010 | 28,536 | 0.6% | 111,384 | 1.2% |
| 2011 | 28,885 | 1.2% | 113,509 | 1.9% |
| 2012 | 29,727 | 2.9% | 116,620 | 2.7% |
| 2013 | 30,082 | 1.2% | 117,885 | 1.1% |
| 2014 | 29,827 | -0.8% | 118,935 | 0.9% |
| 2015 | 30,107 | 0.9% | 120,728 | 1.5% |
| 2016 | 30,885 | 2.6% | 121,481 | 0.6% |
| 2017 | 31,353 | 1.5% | 121,703 | 0.2% |
| Annual Average Change | | 0.8% | | 0.8% |

Tech wages in the Burlington-South Burlington NECTA

Tech occupations in the Burlington-South Burlington NECTA exhibit a similar mean wage distribution as statewide estimates. As shown in Figure 5, tech jobs in the Burlington-South Burlington NECTA earn, on average, 82% more in annual averages wages than the Burlington-South Burlington NECTA average. Tech occupations in the Burlington-South Burlington NECTA earn 3.5% more than the average statewide tech occupation.

Figure 5

