



STEMconnector

State of STEM Data Series

This series provides short, easily digestible sets of answers to the STEM talent data questions that our members face from inside and outside their organizations.

What percentage of jobs count as STEM jobs?

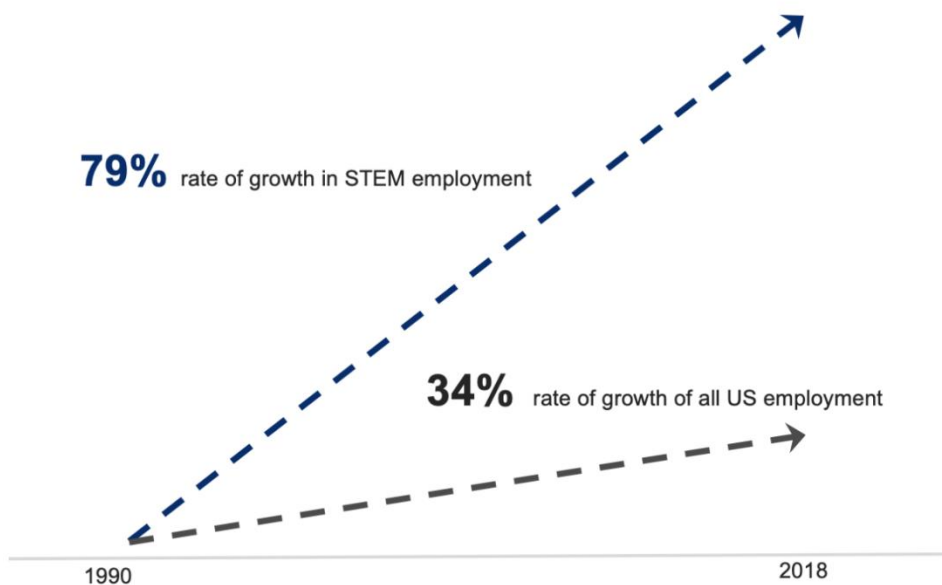
According to the Bureau of Labor Statistics, 6% of all jobs in the U.S are considered STEM jobs.ⁱ Yet, employers across industries consistently report a STEM talent crisis. If STEM is such a small portion of the U.S. economy, how many jobs are actually STEM, and is there really a STEM talent crisis?

First, we have a definitional challenge.

There is a definitional issue that comes with this analysis. There is no single definition of a “STEM job”. Some experts include healthcare sciences and information technology in estimates of STEM jobs, while others only include those jobs that require a college degree in a STEM field. This lack of consensus on the definition of a “STEM job” means estimates of the U.S. STEM workforce can range anywhere from 6% to 33% of the total workforce.ⁱⁱ

Second, we have a growth challenge.

We know that STEM employment is growing faster than the total rate of U.S. employment. From 1990 to 2018, STEM employment has grown by 79%, whereas total U.S. employment growth has only grown by 34%.ⁱⁱⁱ



Employment growth within the STEM field varies dramatically by occupation. Over the last 10 years, the share of vacancies for STEM positions requesting machine learning/ artificial intelligence skills have grown by 460%.^{iv} Employment in computer occupations has grown 338% since 1990.^v

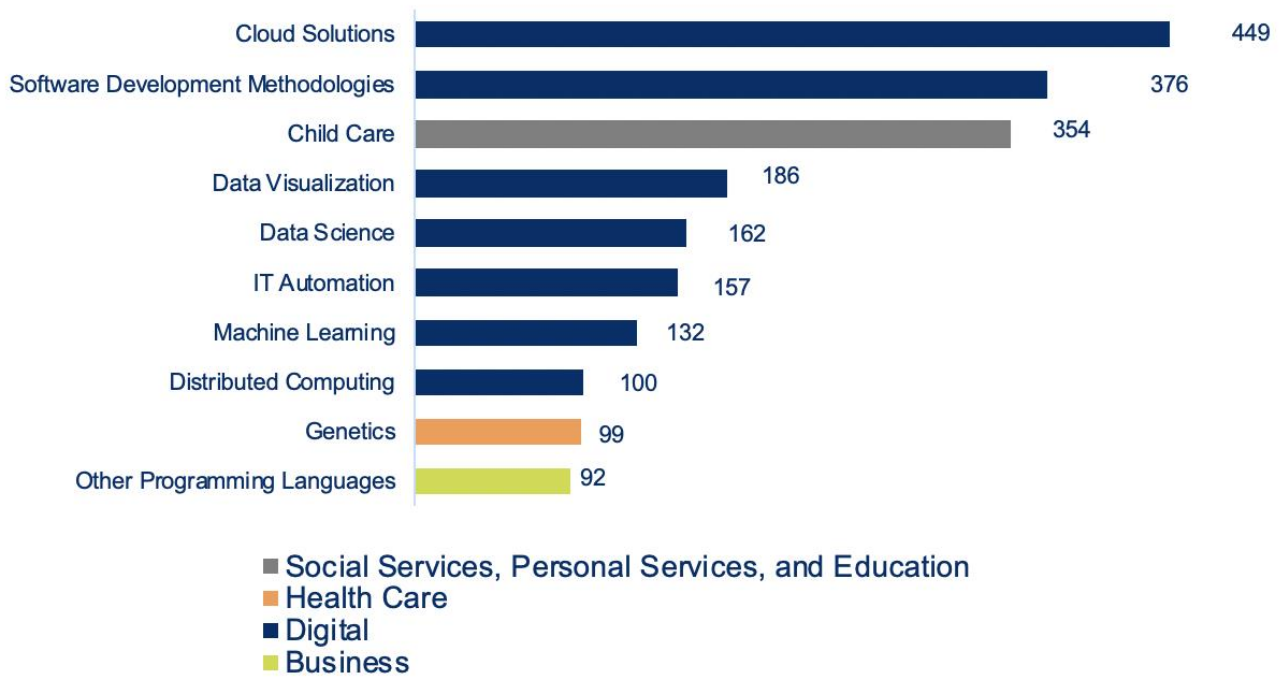
The only exceptions to the growth in STEM jobs exist in pure math occupations and some physical sciences, both of which have seen some decline in employment.^{vi}



Third, we have a skills demand challenge.

While STEM occupations are growing, so is the demand for STEM skills across all occupational categories. Once niche technologies and the skills associated with STEM are becoming mainstream. For example, digital skills make up around 70% of all fast-growing skills, and on average, more than 20% year-over-year growth in the number of job requirement mentions.^{vii} Skills like machine learning and data visualization are showing up in a range of listings for roles such as marketing managers, not just in tech and big data roles.^{viii}

Top Fast-Growing Skills Ranked by Mentions in Online Job Postings ^{ix}



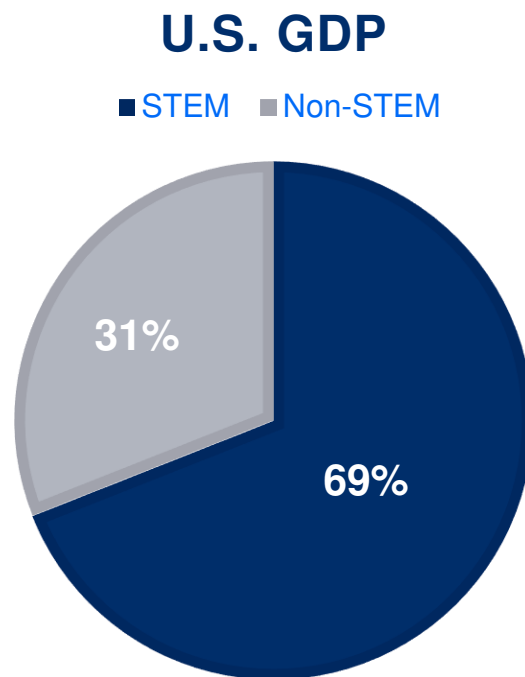
Newer technologies typically diffuse first through STEM occupations, however, they then spread out to the rest of the mainstream economy. Demand for “traditional” digital skills is growing rapidly and spreading across all occupations such as software engineers, data scientists, product managers, and business development managers.

General STEM skills can be defined as*:

- Numeracy and the ability to generate, understand and analyze empirical data.
- An understanding of scientific and mathematical principles.
- The ability to assess and solve complex problems by putting theoretical knowledge to practice.
- Ingenuity, logical reasoning, and practical intelligence.
- The ability to effectively communicate scientific issues.



When you consider definitions, job growth, and skills, you get a more complete picture of the impact of STEM jobs in our economy, and the reason for concern among so many employers, as seen in the below graph^{xi}:



- Direct STEM employment accounted for 69% of the U.S. GDP in 2017.^{xii}
- STEM supports 2 out of 3 workers in the U.S.^{xiii}

In sum, instead of asking “what percentage of jobs count as STEM jobs,” we should be asking:

- How can we **identify** critical STEM skills and **raise awareness** of them across the STEM talent ecosystem?
- How can we ensure that **students** are equipped with these skills as they transition to the future workforce?
- How can we equip **current workers** with more of these skills so that they can participate fully in the STEM economy?

*If you are interested in learning more and accessing additional research,
please visit STEMconnector’s website <www.stemconnector.com>*



References

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- ⁱⁱ STEM and the American Workforce (2020). AAAS. <https://medium.com/@SciencelsUS/stem-and-the-american-workforce-f5c36be6874e>
- ⁱⁱⁱ Women and Men in STEM Often at Odds Over Workplace Equity (2018). Pew Research Center. <https://www.pewsocialtrends.org/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/>
- ^{iv} STEM Careers and the Changing Skill Requirements of Work (2019). National Bureau of Economic Research. <https://www.nber.org/papers/w25065.pdf>
- ^v Women and Men in STEM Often at Odds Over Workplace Equity (2018). Pew Research Center. <https://www.pewsocialtrends.org/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/>
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- ^x Second Report: Higher education in Science, Technology, Engineering and Mathematics (STEM) subjects. (2012). UK Parliament, Science and Technology Committee. https://skillspanorama.cedefop.europa.eu/sites/default/files/EUSP_AH_STEM_0.pdf
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- ^{xii} STEM and the American Workforce (2020). AAAS. <https://medium.com/@SciencelsUS/stem-and-the-american-workforce-f5c36be6874e>
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