



Software: Growing US Jobs and the GDP

UNITED STATES¹



EMPLOYMENT

Software creates jobs for a wide variety of professionals in today's workplaces — everything from software developers and web designers to project coordinators, administrative assistants, and accountants. The number of jobs created directly by the software industry has increased 7.3 percent since 2016. This report, from Software.org: the BSA Foundation and conducted in 2019 by The Economist Intelligence Unit (EIU), captures the growth of the software industry in the United States and the sweeping economic impact it is making at state and national levels.

Total
14.4 million jobs
(includes indirect and induced impacts)

Direct
3.1 million jobs



WAGES

Average Annual Wage for Software Developers
\$114,000³

A software developer's wage is more than twice the average annual wage for all US occupations, which was \$51,960 in 2018.⁴



RESEARCH & DEVELOPMENT

R&D Investment by Software Companies
\$82.7 billion⁵
22.1% of All Domestic Business R&D in United States⁶



GDP

Software is so much more than your desktop at work. Software is apps. Software is data. Software is cloud computing. It creates breakthroughs and drives growth in nearly every industry. Software empowers countless people and American businesses and improves our lives each day in ways big and small. Along with all this progress comes the dramatic, positive impact software has on our national economy each year.

Total
Value-Added GDP
\$1.6 trillion
(includes indirect and induced impacts)²

Direct
Value-Added GDP
\$845 billion

¹ All data is from 2018 unless otherwise indicated.

² For definitions of "indirect" and "induced," see www.software.org/softwarejobs.

³ US Department of Labor, Bureau of National Statistics, Occupational Employment Statistics.




⁴ Ibid.

⁵ National Science Foundation/National Center for Science and Engineering Statistics and US Census Bureau, Business R&D and Innovation Survey, 2016 Industry breakdown.

⁶ Ibid.






STATE ECONOMIC IMPACT

State	 EMPLOYMENT		 GDP	 SOFTWARE R&D	
	Direct (Jobs)	Total (Jobs)	Direct Contribution (\$million)*	Investments (\$million)	Percentage of Total Business R&D
United States	3,119,903	14,387,394	\$845,001	\$82.7	22.1%
Alabama	28,469	62,707	\$4,566	\$204	23.5%
Alaska	1,467	3,140	\$327	\$5	18.5%
Arizona	52,414	125,805	\$9,637	\$417	8.8%
Arkansas	11,676	17,238	\$1,975	\$96	28.2%
California	557,657	1,798,627	\$227,636	\$39,979	37.8%
Colorado	90,283	194,697	\$20,431	\$1,012	28.6%
Connecticut	34,723	126,456	\$8,354	\$224	3.7%
Delaware	6,315	18,812	\$1,484	\$86	5.9%
District of Columbia	28,075	57,715	\$7,070	\$73	31.7%
Florida	135,303	293,876	\$29,372	\$936	21.1%
Georgia	105,453	213,451	\$23,542	\$958	22.4%
Hawaii	5,791	18,663	\$1,069	\$20	17.5%
Idaho	6,373	21,285	\$1,388	\$29	2.1%
Illinois	116,585	411,674	\$31,010	\$770	6.5%
Indiana	33,933	72,097	\$5,983	\$92	1.8%
Iowa	17,665	36,717	\$3,872	\$97	4.4%
Kansas	22,842	50,442	\$4,080	\$349	23.8%
Kentucky	20,255	30,842	\$3,169	\$35	4.7%
Louisiana	13,609	29,031	\$2,226	\$39	17.1%
Maine	6,162	17,840	\$1,287	\$32	12.3%
Maryland	86,940	184,299	\$16,672	\$472	14.2%
Massachusetts	136,361	495,986	\$38,704	\$4,155	23.0%
Michigan	69,066	182,395	\$14,007	\$413	2.4%
Minnesota	53,929	102,141	\$13,796	\$761	11.5%
Mississippi	6,665	9,793	\$1,130	\$19	9.6%

*Bolted GDP figures indicate an increase of more than 10 percent since 2016.



STATE ECONOMIC IMPACT

State	 EMPLOYMENT		 GDP	 SOFTWARE R&D	
	Direct (Jobs)	Total (Jobs)	Direct Contribution (\$million)*	Investments (\$million)	Percentage of Total Business R&D
Missouri	57,334	146,587	\$11,676	\$693	20.0%
Montana	5,530	10,797	\$848	\$40	33.1%
Nebraska	19,375	26,165	\$3,860	\$240	48.9%
Nevada	12,020	45,461	\$4,089	\$73	17.7%
New Hampshire	18,695	45,540	\$3,891	\$214	27.9%
New Jersey	92,446	311,947	\$26,600	\$795	6.2%
New Mexico	6,234	12,006	\$1,062	\$29	9.0%
New York	185,445	800,937	\$76,446	\$4,081	30.3%
North Carolina	89,699	205,813	\$18,772	\$2,183	30.2%
North Dakota	5,137	6,403	\$876	\$81	34.2%
Ohio	84,299	218,202	\$16,062	\$433	6.8%
Oklahoma	11,657	28,847	\$2,210	\$50	7.8%
Oregon	35,156	106,780	\$8,133	\$677	10.7%
Pennsylvania	93,502	304,017	\$20,806	\$828	7.4%
Rhode Island	8,526	20,898	\$1,676	\$17	2.1%
South Carolina	22,660	45,377	\$4,041	\$229	20.0%
South Dakota	2,960	4,877	\$536	\$19	14.1%
Tennessee	30,210	70,074	\$6,485	\$97	7.0%
Texas	244,830	491,953	\$50,698	\$2,728	18.3%
Utah	46,879	129,021	\$8,350	\$593	20.6%
Vermont	5,715	14,319	\$1,099	\$70	30.4%
Virginia	188,939	551,492	\$37,021	\$738	32.9%
Washington	152,663	494,476	\$55,871	\$11,841	62.3%
West Virginia	5,288	11,025	\$983	\$9	5.7%
Wisconsin	47,105	81,942	\$9,796	\$809	18.4%
Wyoming	1,081	3,838	\$327	\$5	3.0%

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Executive Summary

The growing benefits of software innovation can be seen almost everywhere — particularly in the way software contributes to the economy, grows jobs, boosts wages, and helps propel the United States toward a more prosperous future. To quantify the size and rate of growth of software's impact, Software.org has updated its economic analysis of the link between software innovation and economic growth.

And once again the results of the study show how strong a role software plays in the US economy. Software's jobs and GDP growth far surpassed the overall rates from 2016 to 2018.

This is our third report working with researchers at The Economist Intelligence Unit (EIU) to quantify software's economic impact on the US economy. Twice before, in 2014 and 2016, the EIU explored the state of the industry, and demonstrated the enormous impact the software industry was generating throughout the country in both scale and scope. In this 2019 update, the EIU builds upon its earlier work with an analysis of the most recent data (from 2018) to quantify the breadth and depth of software's impact, and to show the rate at which these software opportunities are growing over time.

Researchers from the EIU sought to quantify this economic impact of software by measuring:

1. Direct contributions: The breadth of the software industry's impact as a direct driver of economic gains.
2. Indirect impacts: The impact the software industry indirectly produces throughout other industries in the economy.
3. Induced impacts: Identifying the additional economic activity that comes from the increased general demand due to higher total wages paid to people in the software industry and to people in industries that supply to the software industry.

The research demonstrates the software industry's profound impact — one that ripples throughout the economy, creating valuable new jobs, boosting wages, improving productivity, increasing exports, and expanding our economic potential across numerous sectors benefitting all 50 states.

For more information on the report and a full discussion of the methodology, please visit software.org/softwarejobs

Key Findings

Software continues to be a powerful job creator — **supporting more than 14.4 million total jobs** — up nearly 19 percent in the last two years.

The software industry directly employs **3.1 million people** — up 7.3 percent since 2016. This is more than double the growth rate of overall US employment (3 percent).

Software contributed more than **\$1.6 trillion** to total US value-added GDP in 2018 — a 19.1 percent increase in two years.

The industry directly contributed **\$845 billion** to the US economy in 2018 — a 20.8 percent increase since 2016.

Software drives economic growth all across the country. In 2018, the software industry in 39 of the 50 states and Washington, DC, experienced double-digit growth with four states — Nevada, Washington, South Dakota, and Wyoming — up more than 30 percent.

The software industry supports continued strong growth by investing **more than \$82.7 billion in R&D in 2016**. That is 22.1 percent of all domestic business R&D in the United States.