

GERMANY

Europe's largest economy, Germany is the continent's manufacturing powerhouse and recognised worldwide for its motor industry, precision engineering, and chemicals expertise. The German economy isn't just driven by global names like Siemens, Daimler, and BASF, but also the wide range of SMEs that supply them, or are world leaders for a specific niche product, known as the *Mittelstand*.

These smaller companies are increasingly using software to improve manufacturing techniques, integrate their products with the internet of things (IoT), or just make more effective use of data for a better customer experience.⁶

Germany is also home to major software companies like SAP, Maxon, and Software AG. The software industry directly contributed €66 billion to the German economy in 2016, up 6 percent from 2014. Within the EU, it is second only to the UK in terms of this metric. Germany spent €2.9 billion on R&D in 2015, the latest available data. In addition, Germany's software industry paid the highest direct annual wages from the countries surveyed.

Total⁷ Value-Added GDP:
€159.7 billion

Up 4.6% from 2014

Direct Value-Added GDP:

€66 billion

Up 6.0% since 2014



EMPLOYMENT

Direct:

693,804 jobs

Up 7.6% from 2014 • 1.6% of total German jobs

Total⁸:

2 million jobs

Up 4.1% from 2014

While most jobs are concentrated in computer programming, Germany saw an increase in direct jobs in data processing, hosting, and related activities of 12.1 percent since 2014.



WAGES

Total annual Germany wages paid by the software industry:

€39.4 billion

Up 12.4% from 2014

Total direct wages paid by the software industry are the highest in Germany, followed by the UK and France.

⁶ "Germany's Mittelstand Adds New Data to Old Technology," *Financial Times*, October 24, 2016, available at <https://www.ft.com/content/fe0e97fc-690d-11e6-a0b1-d87a9fea034f>.

^{7,8} Direct, indirect, and induced.

METHODOLOGY

To estimate the total contributions of the software industry to the EU economy, the EIU analyzed the direct contributions and estimated indirect and induced impacts using various economic multipliers:

(1) *Direct contributions*: the levels of output, employment, or wages of the industry in question;

(2) *Indirect impacts*: the inter-industry economic activity resulting from the direct contributions (e.g., purchases of inputs);

(3) *Induced impacts*: the additional economic activity supported by spending on goods and services by households whose income was affected by the direct contributions and indirect impacts.

Data sources include the EIU itself, Eurostat, the European Central Bank, OECD, and the World Input-Output Database.

EUROPEAN UNION¹

Software changes lives. The way we work, play, and move is being transformed by new software — not just on your computer, but by apps, big data, and access to the cloud. From [optimizing plane routes](#) to [improving life for people with Parkinson's disease](#), innovation is happening at every level. To understand the impact of this, Software.org: the BSA Foundation commissioned the experts at The Economist Intelligence Unit (EIU) to examine the software industry's economic role. They studied the European Union (EU) and seven member states: France, Germany, Italy, the Netherlands, Poland, Sweden, and the United Kingdom. The research shows which countries are seeing the biggest benefits from software's growth — and how others can share in that success.

The stakes are high: All in, software was responsible for €1 trillion of total EU value-added GDP in 2016.² That's an increase of 9.9 percent from 2014, compared to overall GDP growth of 6.0 percent over the same period. And software supports other sectors, too — think of it as double-clicking on growth.

Total³ Value-Added GDP:

€1 trillion

Up from €910 billion in 2014, a **9.9% increase**

Direct Value-Added GDP:

€304 billion

Up from €249 billion in 2014, a **22.4% increase**



EMPLOYMENT

Direct:

3.6 million jobs

Up from 3.1 million in 2014, a **16.5% increase**

Total⁴:

12.7 million jobs

11.6 million in 2014

It's not just about coders. The software industry provides jobs in every field, from disaster recovery services to data processing and accounting. As Europe closes the digital skills gap,⁵ companies are hiring for jobs that simply didn't exist a decade ago — roles like strategic cloud data engineer, big data product specialist, and futurist. Across the EU, work supported by the software industry through direct, indirect, and induced contributions represents 12.7 million jobs.



WAGES

Average Annual Salary for Software Industry:

€45,307

Total Annual Salaries Paid by Software Industry:

€162.1 billion

The total direct wages paid by the software industry for all 28 EU member states grew to €162.1 billion from €139.2 billion in 2014, an increase of 16.4 percent. Wage growth in smaller countries is particularly impressive: total salaries paid by the sector in Sweden grew 31.4 percent over the two years to 2016, and by 30.4 percent over the same period in Poland.

¹ All data is from 2016 and was provided by The EIU unless stated otherwise.

² Includes indirect and induced effects. Indirect effects stem from purchases of inputs by the software industry, whereas induced effects stem from the spending of income by employees affected by those direct and indirect effects.

^{3,4} Direct, indirect, and induced.

⁵ "The Digital Skills Gap in Europe," EU Commission Factsheet, October 19, 2017, available at <https://ec.europa.eu/digital-single-market/en/news/digital-skills-gap-europe>.