

THE ECONOMIC IMPACT OF SOFTWARE

EUROPEAN UNION¹

Software is ubiquitous. It is at the heart of every aspect of modern life. We depend on software at the office, at school, at home, in our leisure time, when we travel, and when we communicate. Software helps us be more effective, more creative, and more efficient. BSA | The Software Alliance has commissioned this expert analysis by The Economist Intelligence Unit (EIU) on the economic contributions of the software industry in both the EU28 and its five biggest Member States: France, Germany, Italy, Spain, and the United Kingdom. The research findings provide important insights on how the European Union (EU) can take advantage of software's potential.

Software delivers a total value-added (direct, indirect, and induced)² GDP of €910 billion — over 7 percent of the EU28 total GDP. This contribution comes from all sectors and all levels of the economy: farming, manufacturing, services, education, and health care.

Total* Value-Added GDP:
€910 billion

7.4% of GDP

Direct Value-Added GDP:
€249 billion

2% of GDP



EMPLOYMENT

Direct:
3.1 million jobs
1.4% of total EU jobs

Total:*
11.6 million jobs
5.3% of total EU jobs

From software developers and web designers to futurists, project coordinators, administrative assistants, and accountants, software creates jobs for a wide variety of professionals in today's workplaces. These numbers capture jobs created directly by the software industry, as well as jobs the software industry supports through indirect and induced impacts.



WAGES

Average Annual Wage
for Software Industry:
€45,333

by comparison... All industries: €33,790³ Service sector: €25,214⁴

The EU average wage for the software industry is 34 percent higher than the EU average wage and 80 percent higher than the EU average wage for the services sector.

Total annual wages paid by the software industry:
€139.2 billion



R&D

€12.7 billion
Software R&D expenditures⁵

7.3% of R&D expenditures
by business enterprise⁶

Software companies in the EU invest strongly in software R&D — almost €12.7 billion in 2013.

* direct, indirect, induced

¹ All data are from 2014 and were provided by EIU unless otherwise indicated.

² EU GDP data from Eurostat.

³ Eurostat: Mean annual earnings, Structure of earnings survey 2014.

⁴ Eurostat: Annual detailed enterprise statistics for services 2014.

⁵ Software R&D expenditures by business enterprise in 2013.

⁶ Software R&D expenditures by business enterprise in 2013, compared to total R&D expenditures by business enterprise.

GERMANY⁷

Germany is the most populous country in the EU and has the largest economy. It boasts a modern, efficient manufacturing and engineering sector, with particular strengths in automobiles, electrical equipment, and chemicals. These sectors increasingly rely on software to optimise production, improve products, and remain competitive. For example, German car manufacturers are developing software to run a growing number of core functions in modern cars as well as maintenance and repair analytics tools. Germany is also home to some of Europe's largest software companies like SAP and Software AG.

The software industry directly contributed €62.3 billion to German economy — second only to the UK within the EU.

The software industry makes a higher relative contribution to Germany's GDP than in Spain and Italy, but less than the UK or France.

Total* Value-Added GDP:
€152.6 billion

5.2% of German total

Direct Value-Added GDP:
€62.3 billion

2.1% of German total



EMPLOYMENT

Direct:
644,557 jobs

1.5% of total German jobs

Total:*
1,915,787 jobs

4.5% of total German jobs

The software industry's contribution to total jobs is higher in Germany than in most of the other major EU countries analysed in this study; only the software sectors in the UK and France account for a greater share.



WAGES

Average Annual Wage
for Software Industry:

€54,310

by comparison...

All industries:
€40,931⁸

Service sector:
€25,773⁹

Software wages in Germany are the highest in the EU, 33 percent higher than average wage paid in the country and more than double the average wages in the services sector.

Total annual German wages paid by the software industry:
€35 billion



R&D

€2.8 billion

Software R&D expenditures¹⁰

5.2% of R&D expenditures¹¹
by business enterprise

In relative terms, the software industry's R&D investment in Germany is the lowest of all countries covered in the report. In absolute terms it is higher than in any of the other "Big Five" countries examined in this report.

* direct, indirect, induced

⁷ All data are from 2014 and were provided by EIU unless otherwise indicated.

⁸ Eurostat: Mean annual earnings, Structure of earnings survey 2014.

⁹ Eurostat: Annual detailed enterprise statistics for services 2014.

¹⁰ Software R&D expenditures by business enterprise in 2013.

¹¹ Software R&D expenditures by business enterprise in 2013, compared to total R&D expenditures by business enterprise.

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.