

# THE ECONOMIC IMPACT OF SOFTWARE

## EUROPEAN UNION<sup>1</sup>

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)<sup>2</sup> 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:  
€33,790<sup>3</sup>

Service sector:  
€25,214<sup>4</sup>

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 expenditures<sup>5</sup>

7.3% of R&D expenditures  
by business enterprise<sup>6</sup>

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

\* direct, indirect, induced

<sup>1</sup> All data are from 2014 and were provided by EIU unless otherwise indicated.

<sup>2</sup> EU GDP data from Eurostat.

<sup>3</sup> Eurostat: Mean annual earnings, Structure of earnings survey 2014.

<sup>4</sup> Eurostat: Annual detailed enterprise statistics for services 2014.

<sup>5</sup> Software R&D expenditures by business enterprise in 2013.

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

SPAIN<sup>7</sup>

Spain is the EU's fifth-largest economy. Although its main industrial sectors are automotive; renewable energy, including wind and solar power; agribusiness; and a large tourism sector, the software industry directly contributed €12 billion to Spain's economy.

The software industry in Spain directly contributed €12.9 billion to the economy — 1.2 percent of Spain's GDP.

At 3.4 percent, the software industry's added-value GDP in Spain was slightly higher than in Italy and about half of the percentage of the software industry's contribution to EU GDP.

Total\* Value-Added GDP:  
**€35.8 billion**

3.4% of Spanish total

Direct Value-Added GDP:  
**€12.9 billion**

1.2% of Spanish total



## EMPLOYMENT

Direct:  
**219,234 jobs**

1.3% of total Spanish jobs

Total:\*  
**624,471 jobs**

3.7% of total Spanish jobs

At 3.7 percent of the workforce, the Spanish software sector is small compared to other major EU countries and is only two-thirds of the percentage of workers employed by the software sector across the EU.



## WAGES

Average Annual Wage  
for Software Industry:

**€35,709**

by comparison...

All industries:  
€27,390<sup>8</sup>

Service sector:  
€22,549<sup>9</sup>

Software sector wages in Spain are significantly higher than service sector wages or the national average wage. They are however below the EU average wage for the software sector — roughly 21 percent lower — and only marginally higher than Italy.

Total annual Spanish wages paid by the software industry:  
**€7.8 billion**



## R&amp;D

**€670 million**

Software R&D expenditures<sup>10</sup>

9.7% of R&D expenditures<sup>11</sup>  
by business enterprise

Spain and the UK have the highest software industry-related R&D expenditure as a percentage of total R&D spending of all countries in the report, and the only ones to exceed the EU average.

\* direct, indirect, induced

<sup>7</sup> All data are from 2014 and were provided by EIU unless otherwise indicated.

<sup>8</sup> Eurostat: Mean annual earnings, Structure of earnings survey 2014.

<sup>9</sup> Eurostat: Annual detailed enterprise statistics for services 2014.

<sup>10</sup> Software R&D expenditures by business enterprise in 2013.

<sup>11</sup> 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.