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# Training on
# Corporate Innovation Management System
## for Competitiveness

GUIDEBOOK

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# AUTHORSHIP OF THE GUIDEBOOK

**Zsófia Bulla, Andrea Kövesd, Péter Kövesd**

*TREBAG Intellectual Property- and Project Manager Ltd. (TREBAG), Hungary*

**Nataša Urbančíková, Kristína Zgodavová**

*ASTRA – Zdruzenie pre inovacie a rozvoj (ASTRA), Slovakia*

**Piotr Maczuga, Marta Mazur**

*Nowoczesna Firma S.A. (NA), Poland*

**Steluța Racolța**

*The Employers Association of Professional Training Providers from Romania (EAPTP), Romania*

**Ana Pantea, Monica A. Zaharie**

*Universitatea Babes Bolyai (UBB), Romania*

**Csaba Mullik, Viola Tóthné Borbély**

*Magyar Suzuki Corp. (MSC), Hungary*

# CONTACT DETAILS

**Coordinator:**

Andrea Kövesd (andrea.kovesd@trebag.hu), TREBAG

**Partners:**

Natasa Urbancikova (Natasa.Urbancikova@tuke.sk), ASTRA

Piotr Maczuga (piotr.maczuga@nf.pl), NA

Steluța Racolța (steluta.racolta@rsc-consulting.ro), EAPTP

Ana Pantea (anapantea@yahoo.com), BBU

Viola Tóthné Borbély (vtoth@suzuki.hu), MSC

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# 01

# INTRODUCTION, THE STRUCTURE OF THE GUIDE

One of the chief driving forces for businesses in the knowledge based society is knowledge itself, which is the key basis to ensure competitiveness. Every object surrounding us is the result of smaller or bigger developments. Innovation for intellectual outputs is the essential driving force of economy. Nowadays, as developments have accelerated, highlight is on innovation.

Companies develop new products, introduce new solutions, which facilitates not only their own progress but the progress of the national economy.

It is the responsibility of the government to support this process by either direct or indirect aids like tax benefits, establishing frameworks for capital market solutions, operating tender systems, etc.

Horizon 2020, the Framework Programme for Research and Technological Development for the period of 2014-2020 financed by the European Commission has planned to have bigger financial resources for these goals than those of the previous periods. Hungary as well plans to spend tenth of the resources coming from Structural and Cohesion Funds on research, development and innovation.

Europe 2020 is the European Union's ten-year jobs and growth strategy. It was launched in 2010 to create the conditions for smart, sustainable and inclusive growth.

"The Europe 2020 strategy is about delivering growth that is smart, through more effective investments in education, research and innovation; sustainable, thanks to a decisive move towards a low-carbon economy; and inclusive, with a strong emphasis on job creation and poverty reduction. The strategy is focused on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate/energy."[1]

Some fields of improvement recognized by the Innovation Union initiative are:

- Reach an internal market for innovation
- Ensure territorial and social cohesion throughout Europe
- Pool resources in research and innovation.

[1] CEN/TC 389 Business Plan: p2.

The strategy has 3 pillars with 7 flagship initiatives:

| SMART GROWTH | SUSTAINABLE GROWTH | INCLUSIVE GROWTH |
|---|---|---|
| **Innovation Union** improving R&D conditions | **Resource efficient Europe** enery and environment | **An agenda for new skills and jobs** modernizing labour market, lifelong learning |
| **Digital agenda for Europe** spreading internet access | **An industrial policy for the globalisation era** improving bussiness conditions | **European platform against poverty** ensuring societal and territorial cohesion |
| **Youth on the move** improving educational performance | | |

"Europe's global economic ranking is changing rapidly. By 2050, Europe's share of world GDP is likely to be half of today's 29%. So far, Europe has been able to keep its share of world exports (20%), and in that respect, our performance is better than that of other advanced economies. But China, India and Brazil, among others, have started to catch up with the EU by improving their economic performance faster than the EU has, year-on-year, over the last five years."[2]

Horizon 2020 aims to increase significantly R&D resources within European Union's measures. While framework 7 – which terminated in 2013 – had a source of 53 billion EUR, this sum can be increased to reach 81 billion EUR by the end of the programme period.

This would mean not only the increase of the R&D supports, but also harmonization of the innovation policy tools as a goal.

Implementation of the strategy of the Horizon 2020 of the EU would lead to significant consequences in EU member states too, and defines the frameworks of national R&D&I policy for 7 years.

The new standard on innovation management, which motivates businesses to establish their innovation management systems, was born in this economic environment.

We aim to develop an educational material for establishing an innovation management system based on the CENT/TS 16555 standard, which was issued in 2013.

This Guide was elaborated in cooperation by the members of the consortium of the project InnoMe ("Training on Corporate Innovation Management System for Competitiveness",

[2] CEN/TC 389 Business Plan: p3.

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Members of the consortium:

- TREBAG Intellectual Property- and Project Manager Ltd.
- ASTRA – Zdruzenie pre inovacie a rozvoj
- Nowoczesna Firma S.A.
- The Employers' Association of Professional Training Providers from Romania
- Universitatea Babes Bolyai
- Magyar Suzuki Zrt.

The main aim of the Guide is to support the implementation, improvement and maintenance of an innovation management system based on the CEN/TS 16555-1 "Innovation Management System" European standard.

The Guide includes seven chapters and two annexes:

1. Introduction, the structure of the Guide
2. Innovation in the European Union
3. Innovation Policy in Hungary, Poland, Romania and Slovakia
4. The birth of Standard CEN/TS 16555
5. The CEN/TS 16555-1 "Innovation Management System" standard
6. Audit of the organization's innovation management system
7. An example on how to start implementing CEN/TS 16555-1 "Innovation Management System" European standard

**Annex I.:** General report on the competence profile of the innovation manager

**Annex II.:** Sample of questionnaire

In Annex I., the report outlines the findings of data analysis that has been performed as part of the InnoMe research conducted in February – May 2016 in four countries [Poland, Romani, Hungary and Slovakia], and consisted in 450 online questionnaires and 32 interviews. In our analysis, we reveal the general profile of the innovation manager, who is the person responsible for establishing and maintaining an innovation management system in any company or organization.

In Annex II. a few sample questions per chapters of the CEN/TS 16555-1 standard are listed from the question tool assembled by the INNOME consortium.

**IMPORTANT**

**To be able to apply the CEN/TS 16555-1 standard you will have to buy it. In countries where the standard was translated to the local language, you can buy it in respective shops or webshops.** In the places where the standard has not been translated, you can buy the English version in shops or webshops.

02

# INNOVATION IN THE EUROPEAN UNION

One of the five key targets of the Europe 2020 strategy is the objective for the EU to devote 3% of gross domestic product (GDP) to R&D activities. In this chapter, we are going through the most relevant statistical findings measuring innovation activity at a European level.[1]

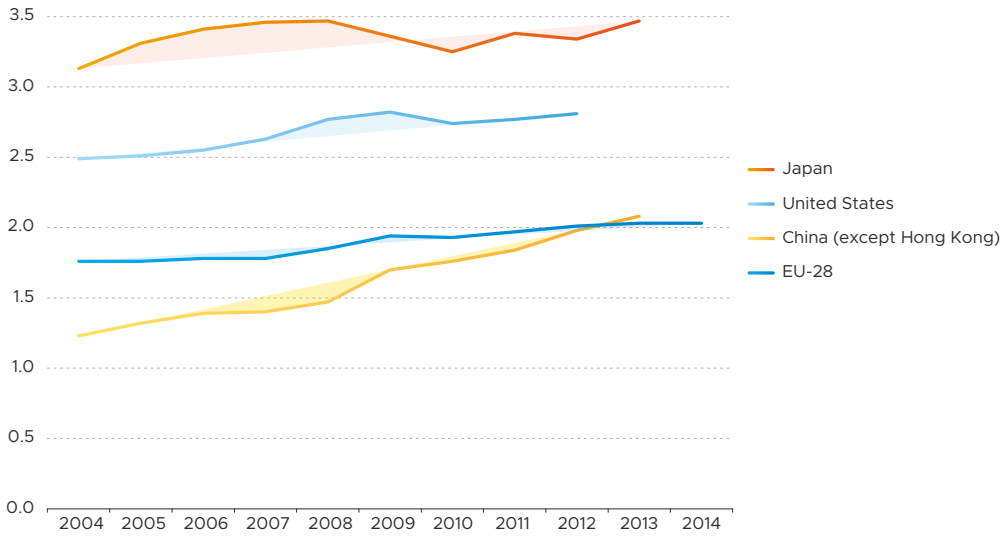
## 2.1 GROSS DOMESTIC EXPENDITURE ON R&D (GERD)

In the EU-28 in 2014, GERD stood at EUR 284 billion: a 3.4% increase on the year before, and 42.0% higher than in 2004 – these rates of change are in current prices therefore reflect price changes as well as real changes in the level of expenditure. Compared to the United States, in 2012, the level of expenditure on R&D in the EU-28 was 77% of the level in the United States. In 2013, it was 89% higher than in China, more than double the expenditure in Japan, and nearly seven times as high as in South Korea.

In Figure 1, GERD is expressed relative to GDP in order to make figures more comparable. During the period from 2004 to 2007, there is a slight increase in this ratio in the EU-28. There was a rapid increase between 2007 and 2012 and slight one to 2.03% in 2013, where it stayed in 2014. The EU-28's R&D intensity remained well below the one recorded in Japan (3.47%, 2013 data) and the United States (2.81%, 2012 data). The ratio in China surpassed that of the EU-28 in 2013 (2.08%).

[1] This chapter is based on Eurostat Statistics Explained: R&D expenditure (Retrieved from: http://ec.europa.eu/eurostat/statistics-explained/index.php/R_%26_D_expenditure)

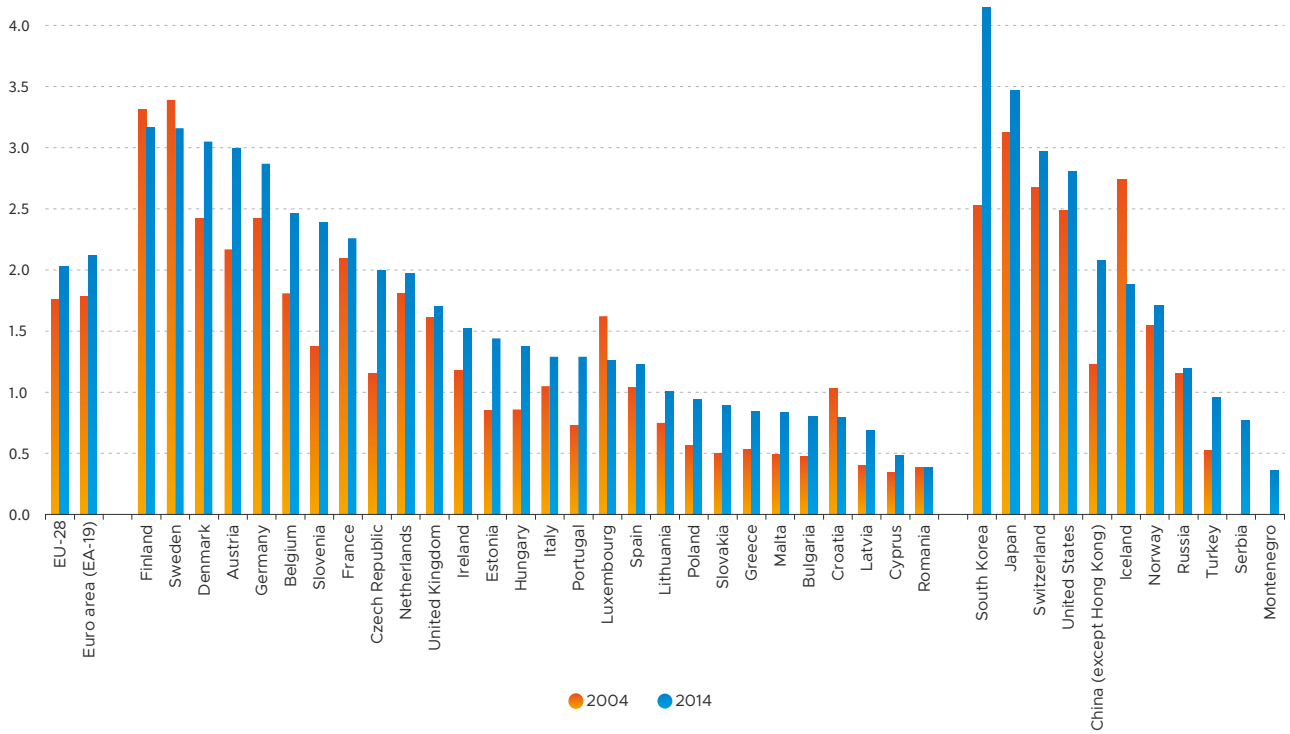
**Figure 1: Gross domestic expenditure on R&D, 2004–2014** (% of GDP)




*Source: Eurostat (online data code: tsc00001)*

Among the EU Member States, in 2014, the highest R&D intensities were recorded in Finland (3.17%), Sweden (3.16%), Denmark (3.05%) and Austria (2.99%) – see Figure 2. There were nine Member States that reported R&D expenditure below 1% of their GDP in 2014. Along with Greece, the Member States that joined the EU in 2004 or later had the lowest R&D intensities, however Slovenia (2.39%) reported an R&D intensity above the EU-28 average, while the Czech Republic (2.00%), Estonia (1.44%), Hungary (1.37%) and Lithuania (1.01%) also had a ratio above 1.00%.

**Figure 2: Gross domestic expenditure on R&D, 2004 and 2014** (% of GDP)




*Source: Eurostat (online data codes: t2020_20 and rd_e_gerdtot)*

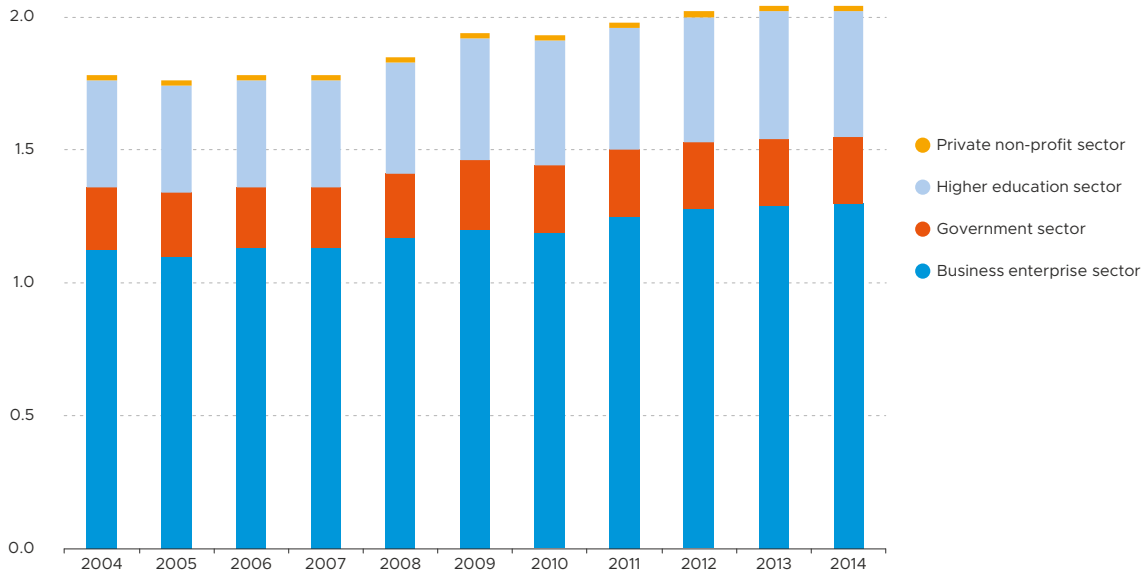
Almost all EU Member States had a higher R&D intensity in 2014 than in 2004, the exceptions being the two Member States with the highest intensities, Finland and Sweden, as well as Luxembourg and Croatia; there was no change in Romania. The biggest increases – on the other hand – were recorded in Slovenia, the Czech Republic and Austria.

## 2.2 SECTOR OF PERFORMANCE

Between 2004 and 2014, the majority of R&D expenditure in EU-28 was in the business enterprise sector with an overall increase of 16.1% of GDP. Higher education with a 17.5% increase was the second largest sector regarding R&D expenditure, while the third and fourth largest sectors – the government sector and the private non-profit sector changed little over this period.

**Figure 3: Gross domestic expenditure on R&D by sector, EU-28, 2004–2014**

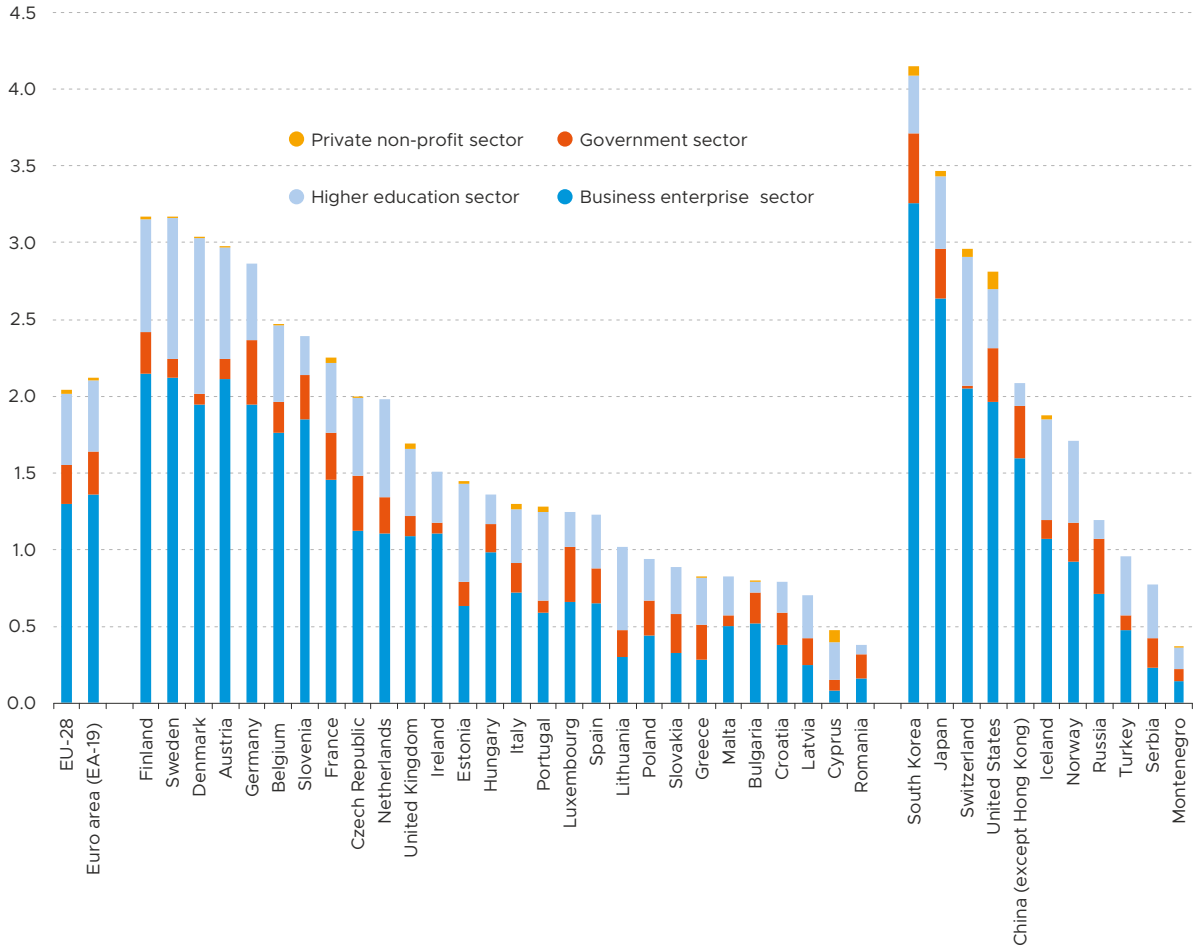
(% of GDP)




*Source: Eurostat (online data code: rd_e_gerdtot)*

In Figure 4, the differences in the relative importance of R&D expenditure between countries can be seen. Within the business enterprise sector in EU-28 this share was 1.30% of the R&D conducted in 2014, in South Korea it reached 3.26% (2013 data), in Japan it was 2.64% (2013 data), in Switzerland 2.05% (2012 data) and in the United States it was 1.96% (2012 data). The relative importance of R&D expenditure was mostly similar in the government and higher education sectors in the EU-28 and in the non-member countries surveyed, except for Switzerland (here the higher education sector's R&D intensity was relatively high, while that of the government sector was almost zero).

**Figure 4: Gross domestic expenditure on R&D by sector, 2014** (% of GDP)



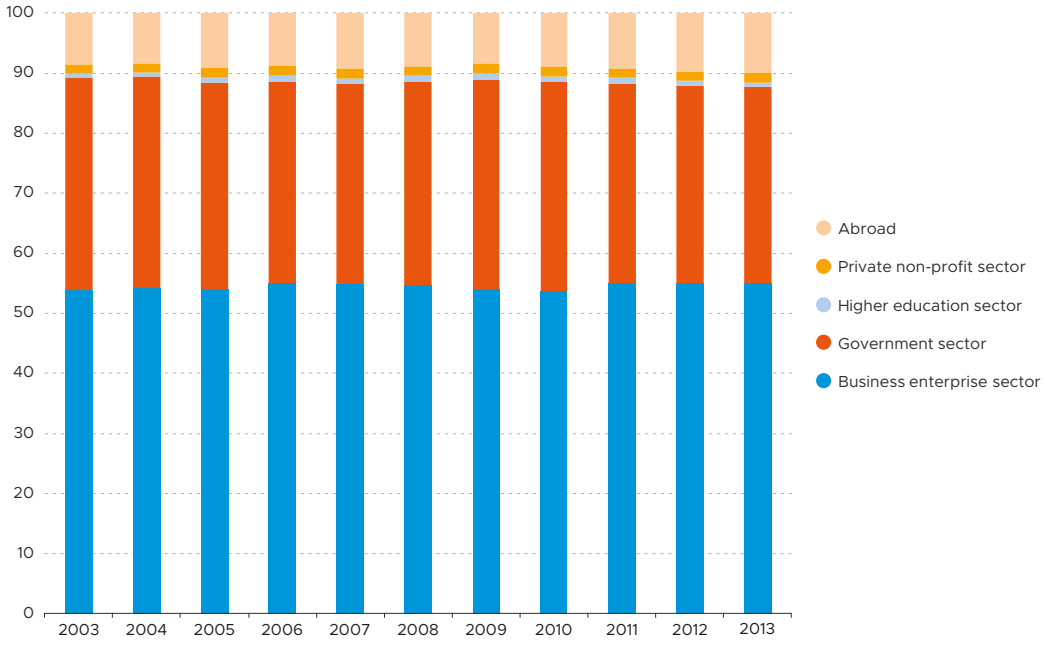

*Source: Eurostat (online data code: rd_e_gerdtot)*

Finland, Sweden, Denmark, Austria and Germany – countries with relatively high ratios of business enterprise expenditure on R&D relative to GDP – also reported relatively high overall R&D intensities (1.95% or above). These Member States – apart from Germany – also featured the top expenditure by the higher education sector, where the Netherlands and Estonia also had a relatively high ratio of R&D intensity.

## 2.3 SOURCE OF FUNDS

In 2013, more than half of the total expenditure was funded by business enterprises within the EU-28, while one third by government, and a further 9.9% by foreign funds. Higher education and private non-profit sectors played a relatively small role. Figure 5 shows that these shares were quite stable over time – 0.8% and 1.6% of the total respectively. The main changes were the increase of funding from abroad and a fall in the share of funding by the government sector.

**Figure 5: Gross domestic expenditure on R&D by source of funds, EU-28, 2003–2013 (1)** (% of total gross expenditure on R&D)

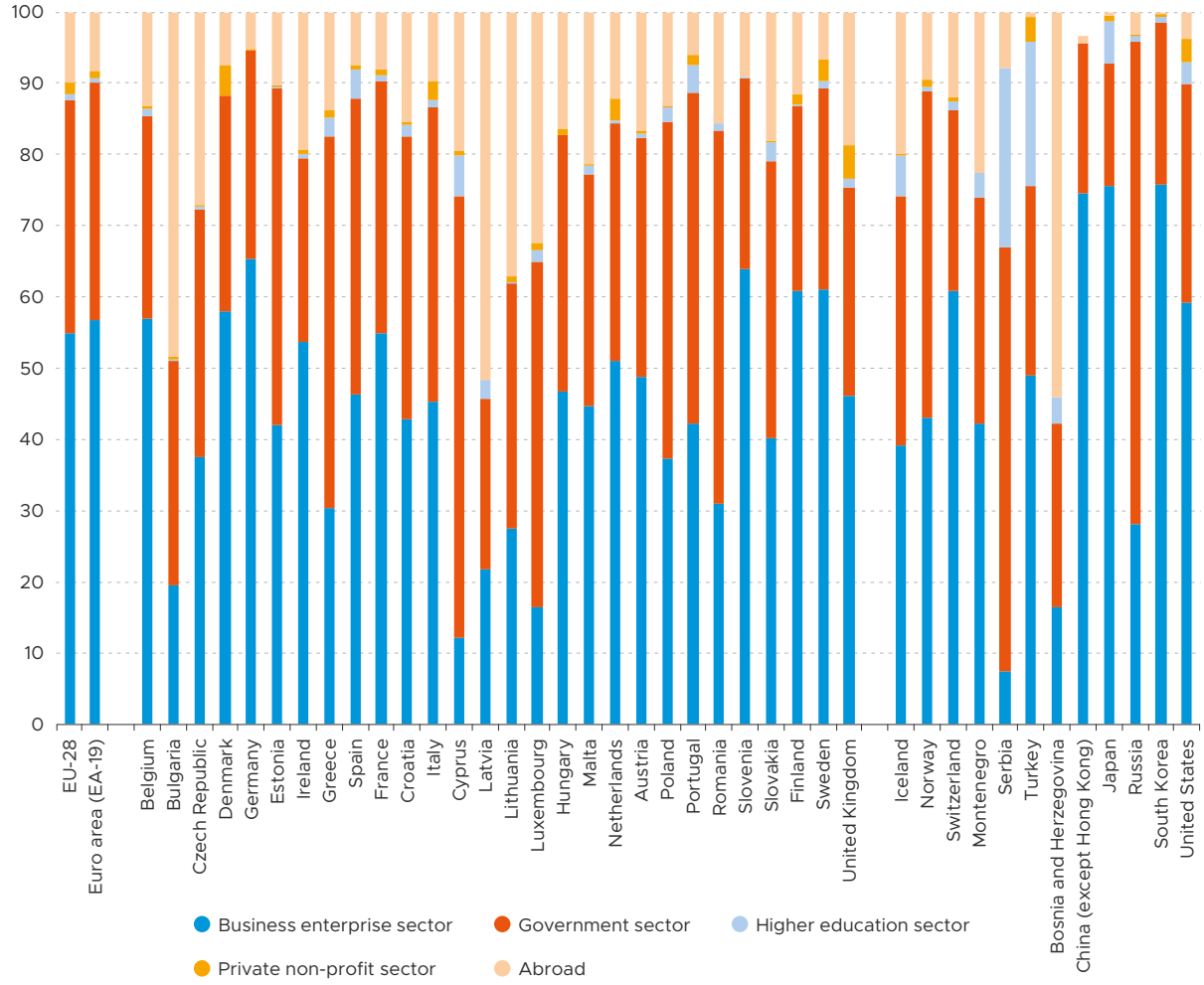



*Source: Eurostat (online data code: rd_e_fundgerd)*

In South Korea, Japan and China, business-funded R&D had a larger share of total R&D expenditure than in the EU-28 (see Figure 6).

In 2013 in Germany, Slovenia, Sweden and Finland business-funded R&D accounted for more than three fifths of total R&D expenditure. On the other hand, a majority of the expenditure on R&D was funded by the government sector in Cyprus, Romania and Greece. The higher education sector exceeded 3.0% in funding only in Cyprus, Spain and Portugal; in the rest of the Member States it played a relatively small role in funding R&D expenditure. Similarly, the role of private non-profit sector was overall small.

**Figure 6: Gross domestic expenditure on R&D by source of funds, 2013** (% of total gross expenditure on R&D)




*Source: Eurostat (online data code: rd_e_fundgerd)*