



Anita Pelle – Gabriella Tabajdi

Research and Development in the EU
Member states' performance in R&D&I: the
Digital Economy and Society Index

Lecture 11

This teaching material has been made at the University of Szeged, and supported by the European Union.

Project ID: EFOP-3.4.3-16-2016-00014

University of Szeged
6720 Szeged, Dugonics tér 13. Hungary
www.u-szeged.hu
www.szechenyi2020.hu



Member states' performance in R&D&I: the Digital Economy and Society Index

Lecture 11

In this lecture you will learn about:

- The considerations behind the EU's Digital Economy and Society Index (DESI)
- The Digital Economy and Society Index (DESI) framework
- Member states' performance along the DESI

The considerations behind the EU's Digital Economy and Society Index (DESI)

The **Digital Economy and Society Index (DESI)** monitors Europe's overall digital performance and tracks the progress of EU countries in **digital competitiveness**. By providing data on the **state of digitisation** of each Member State, it helps them identify areas requiring priority investment and action.

In February 2020, the **European Commission** published a communication titled '**Shaping Europe's digital future**'. In this document, the Commission set out the *priorities for the following 5 years (2020-2025) in the field of digitisation*, thereby "creating a Europe fit for the digital age":

1. Technology that works for the people

- Europe needs to pool its investments in research and innovation
- Europe must invest more in strategic capacities
- Europe needs to invest in connectivity, deep tech and human capital
- digital security
- improving education and skills
- basic digital literacy

2. A fair and competitive economy

- Europe's technological over-reliance on other parts of the world must be reduced
- single market for data
- frictionless single market

- proper application of EU competition law in digital markets
- fairness in the digital economy

3. An open, democratic and sustainable society

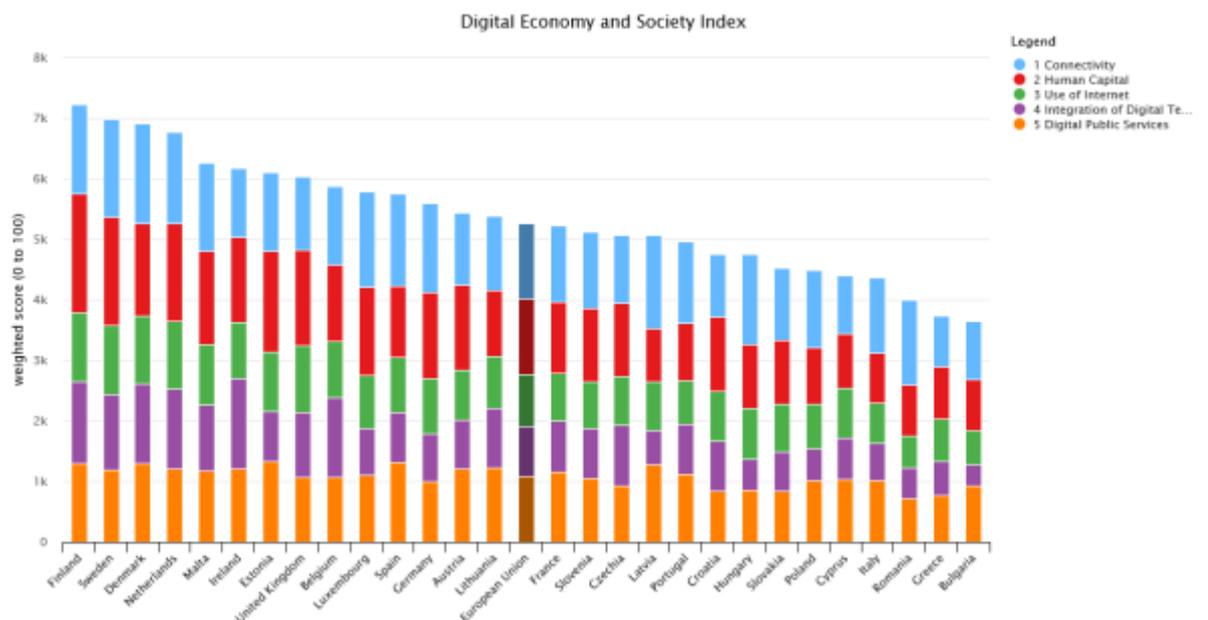
- trust in technology has to be guaranteed
- protecting European democracies in the digital age
- data protection (including health data)

The DESI is aimed at providing insight into the digital environment in the EU member states.

The Digital Economy and Society Index (DESI) framework

The DESI is made up of five dimensions:

DESI dimension	Content of DESI dimension	Weight in composite index
1) Connectivity	Fixed broadband take-up, fixed broadband coverage, mobile broadband and broadband prices	25%
2) Human capital	Internet user skills and advanced skills	25%
3) Use of internet	Citizens' use of internet services and online transactions	15%
4) Integration of digital technology	Business digitisation and e-commerce	20%
5) Digital public services	e-Government	15%

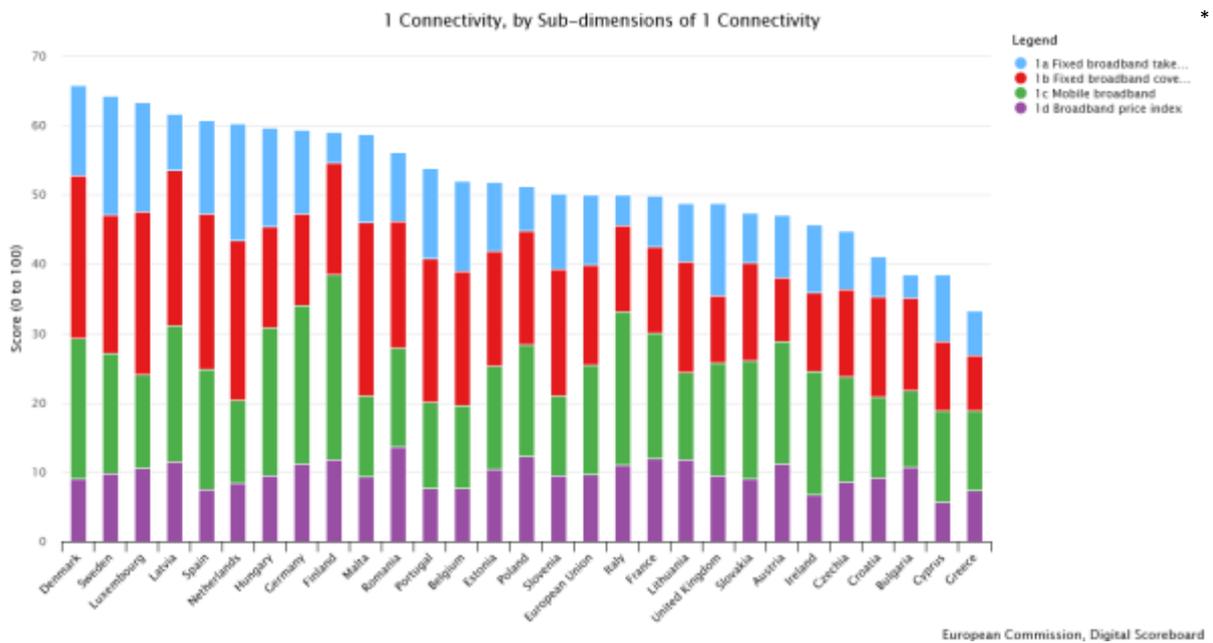


1) Connectivity

Access to a **fast and reliable broadband connection** (including fixed and mobile connections) is crucial in the current context, *in which key societal and economic services are delivered online*. A modern and robust digital infrastructure provides the necessary coverage for these services.

The sub-dimensions of connectivity are:

- Fixed broadband take-up (25%)
- Fixed broadband coverage (25%)
- Mobile broadband width (35%)
- Broadband price index (15%)



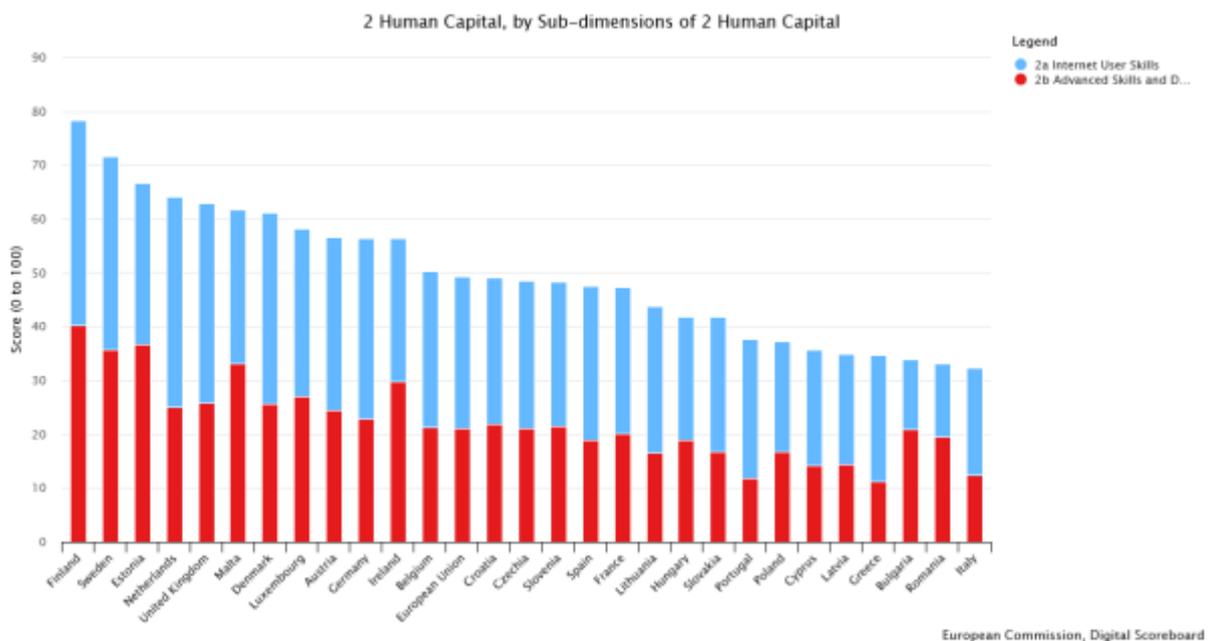
* All charts are based on the 2020 DESI scores.

2) Human Capital

Digital skills are the backbone of the digital society. Basic and advanced digital skills need to be *strengthened in the school curricula and academic offers in EU countries*. Similarly, digital skills are also essential for the *effective use of solutions for distance learning*.

The sub-dimensions of human capital in DESI are:

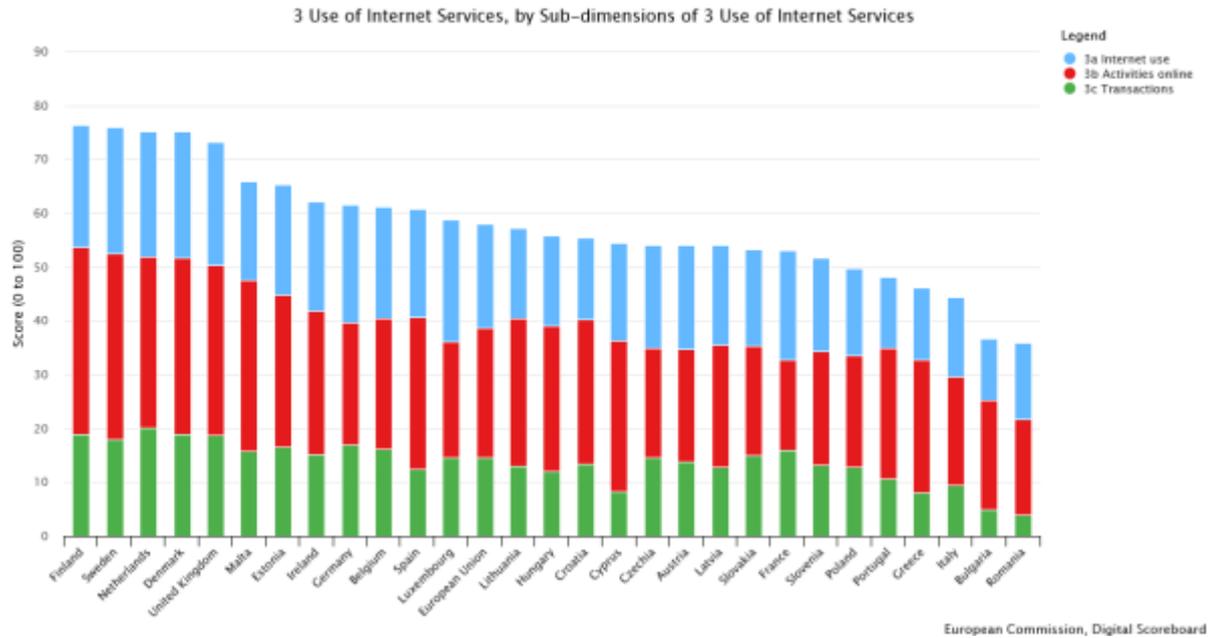
- Internet User Skills (50%)
- Advanced Skills and Development (50%)



3) Use of Internet Services

This dimension of DESI assesses the **internet use of individuals**. Its sub-dimensions are:

- Internet use (25%)
- Activities Online (50%)
- Online transactions (25%)

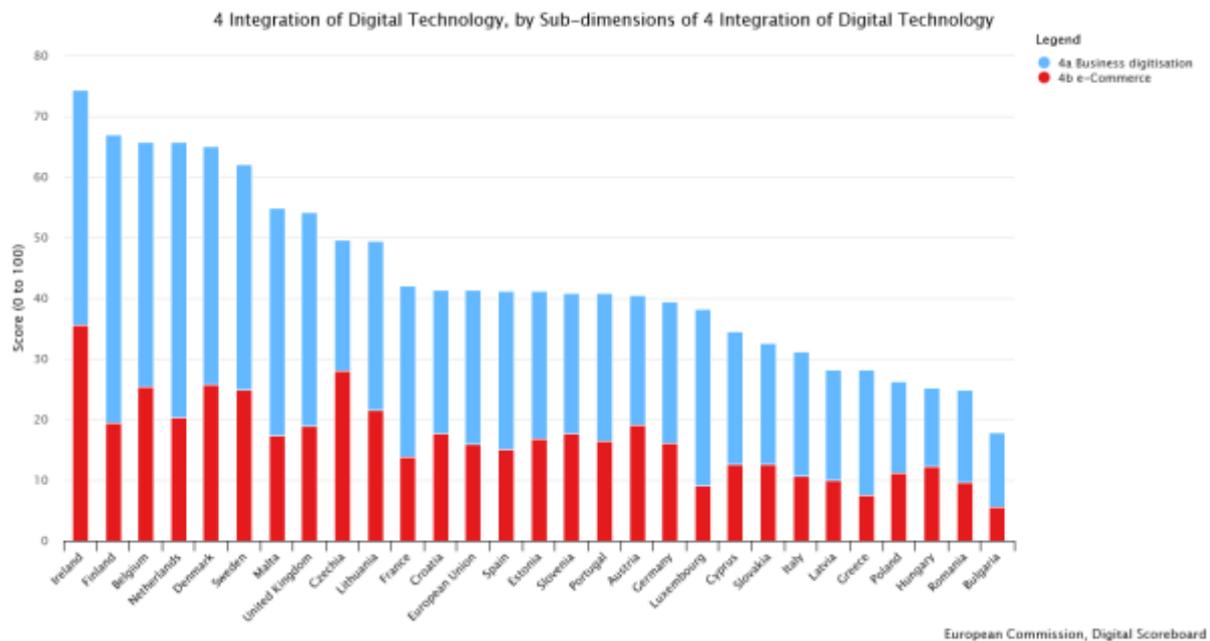


4) Integration of Digital Technology

One of the main obstacles to the **digitisation of SMEs** is the **digital knowledge gap**, which is caused by low levels of *digital literacy among owners, managers and employees*. Addressing these shortcomings is vital.

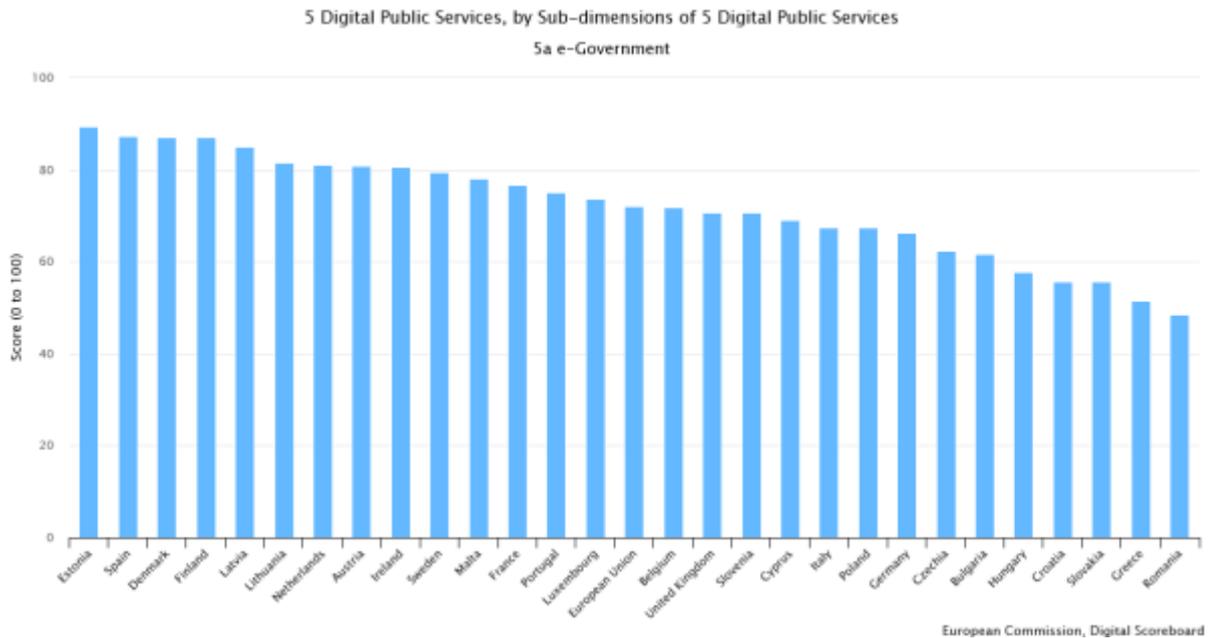
The sub-dimensions of this DESI dimension are:

- Business digitisation (60%)
- e-Commerce (40%)



5) Digital Public Services

DESI Digital Public Services Dimension is calculated by taking the score (0-100) for e-Government.

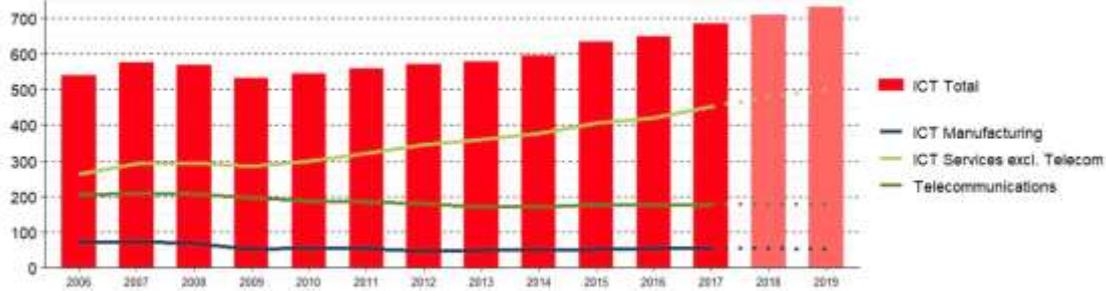


In addition, a **6th** dimension is regularly assessed: **Research and Development and ICT**. The European Commission drafted a report in the topic in 2020 that investigated the sector along the following aspects:

- 1) Value added
- 2) Prices
- 3) Employment
- 4) Productivity
- 5) R&D expenditure
- 6) R&D personnel
- 7) Public funding of ICT in R&D

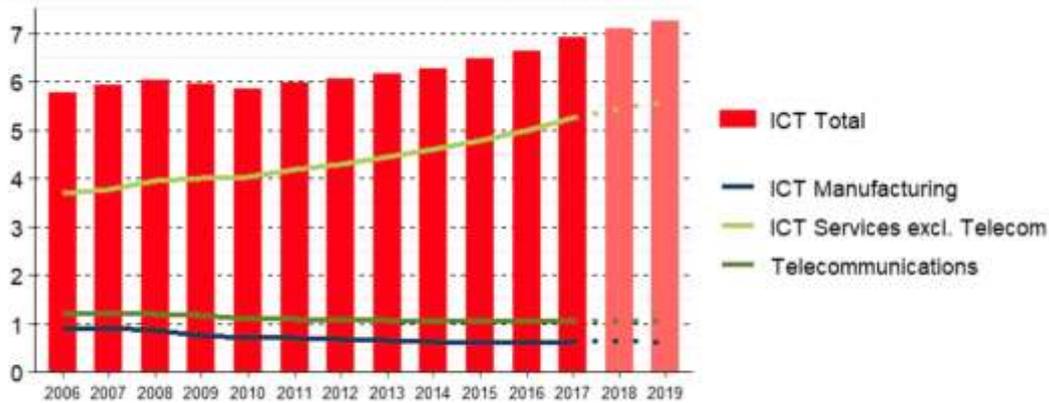
The report spectacularly shows the growing size and importance of the ICT sector in Europe, and also its improving productivity.

Figure 1 ICT sector Value Added, € billion, 2006-2019



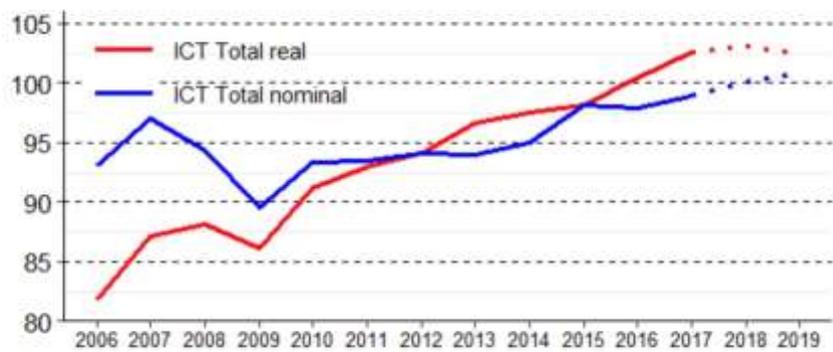
Note: Values for the years 2018 and 2019 are nowcasted data.

Figure 8 Employment in the ICT sector, million individuals, 2006-2019



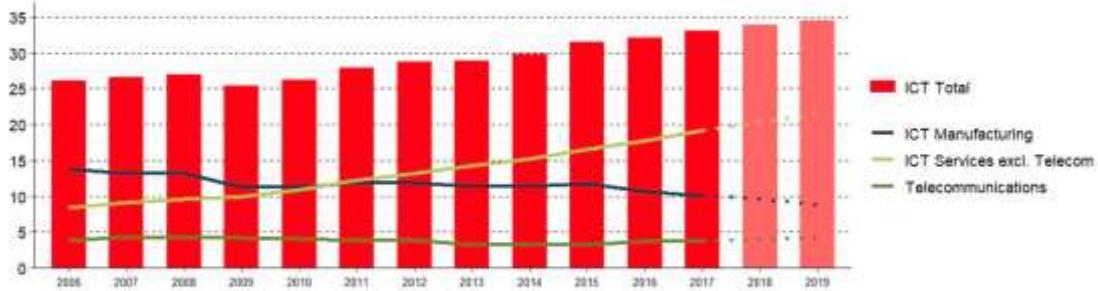
Note: Values for the years 2018 and 2019 are nowcasted data.

Figure 13 Productivity, nominal and deflated, thousand € per individual employed, 2006-2019



Note: Values for the years 2018 and 2019 are nowcasted data.

Figure 17 R&D expenditure by business enterprises (BERD) in the ICT sector, € billion, 2006-2019



Note: Values for the years 2018 and 2019 are nowcasted data.

Figure 22 R&D Personnel (PERD) in the ICT sector, thousand FTEs, 2006-2019



Note: Values for the years 2018 and 2019 are nowcasted data.

Figure 26 Public funding of ICT R&D (ICT GBARD), € billion, 2006-2018





Questions for self-study

- Please introduce the European Commission’s priorities for 2020-2025 that serve the objective of making the EU fit for the digital age.
- What does the Digital Economy and Society Index (DESI) show? How is it built up? How have EU member states performed along its five dimensions?

References:

EC (2020a): Digital Economy and Society Index (DESI) 2020 – Thematic chapters. European Commission, Brussels.

EC (2020b): Shaping Europe’s digital future. COM(2020) 67 final, European Commission, Brussels.

The DESI website of the European Commission. <https://ec.europa.eu/digital-single-market/en/desi>

EC (2020c): Digital Economy and Society Index (DESI) 2020 - The EU ICT Sector and its R&D Performance. European Commission, Brussels.