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

Lecture 11

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# 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

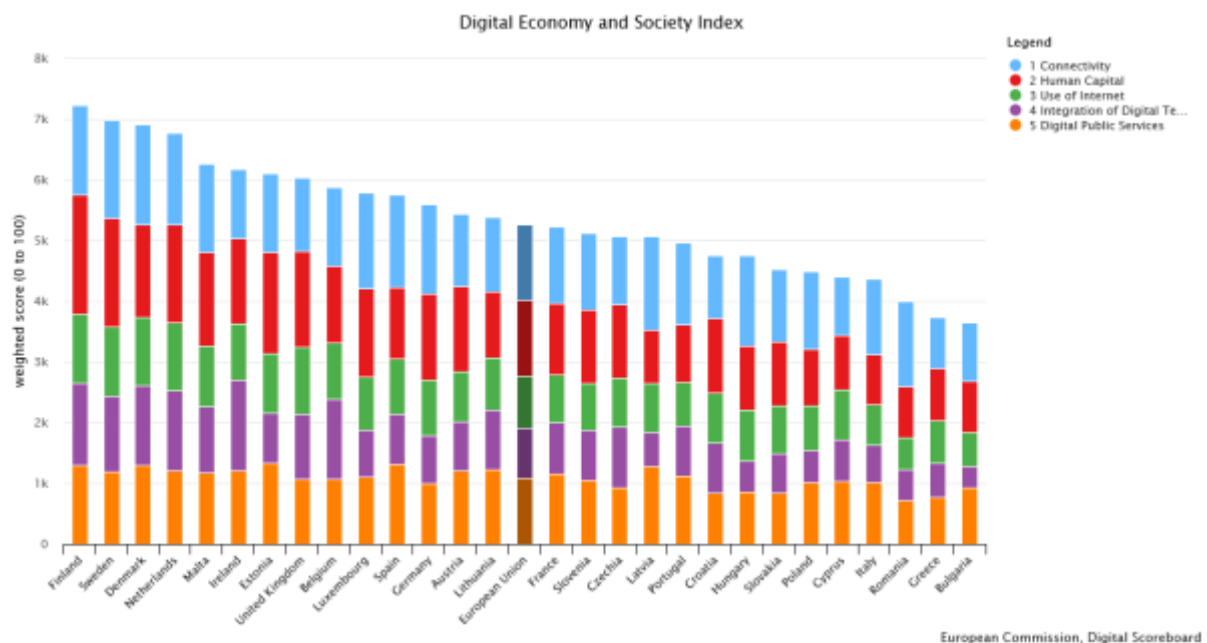
- trust in technology has to be guaranteed
- protecting European democracies in the digital age
- data protection (including health data)

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

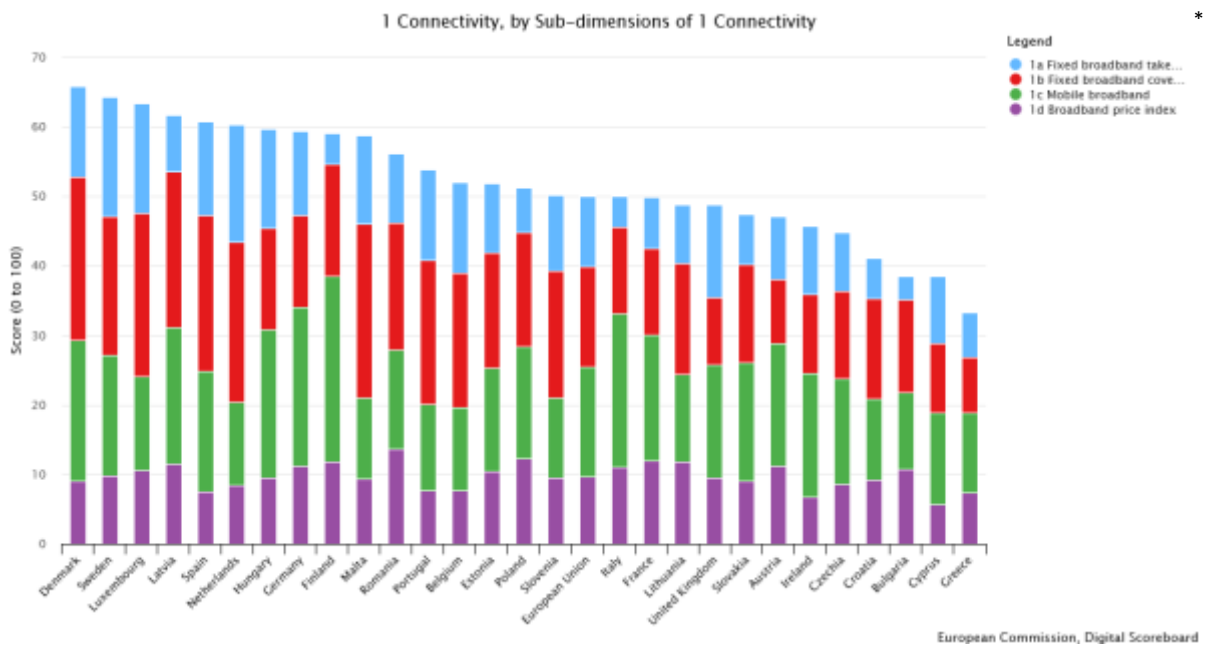


## 1) Connectivity

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%)



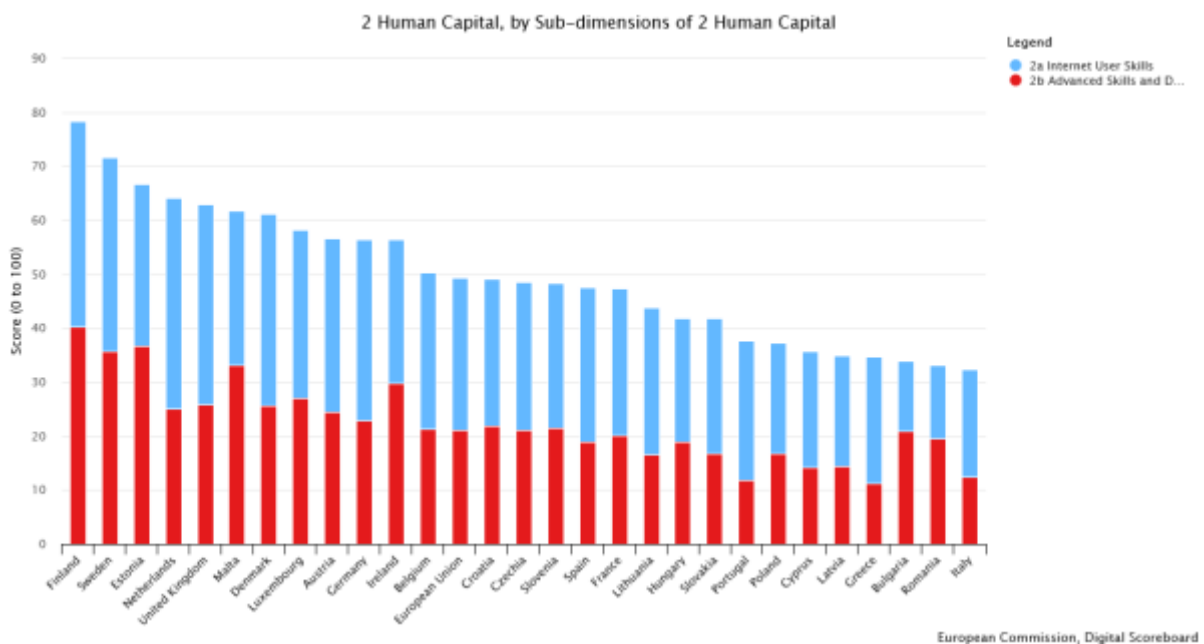
\* All charts are based on the 2020 DESI scores.

## 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:

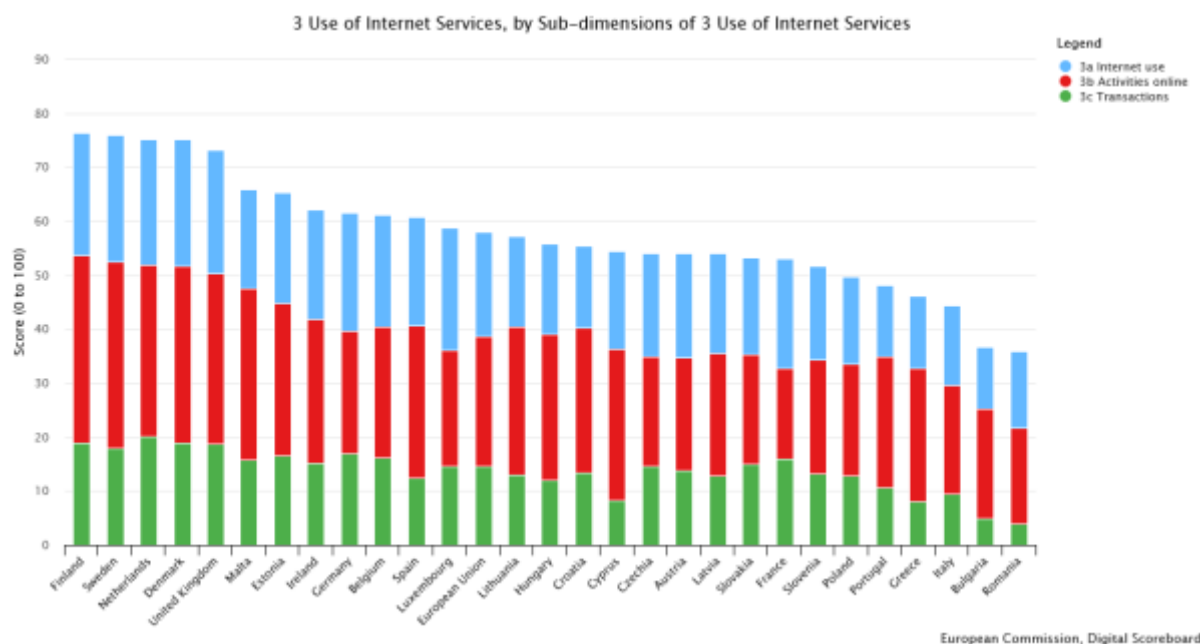
- Internet User Skills (50%)
- Advanced Skills and Development (50%)



## 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%)

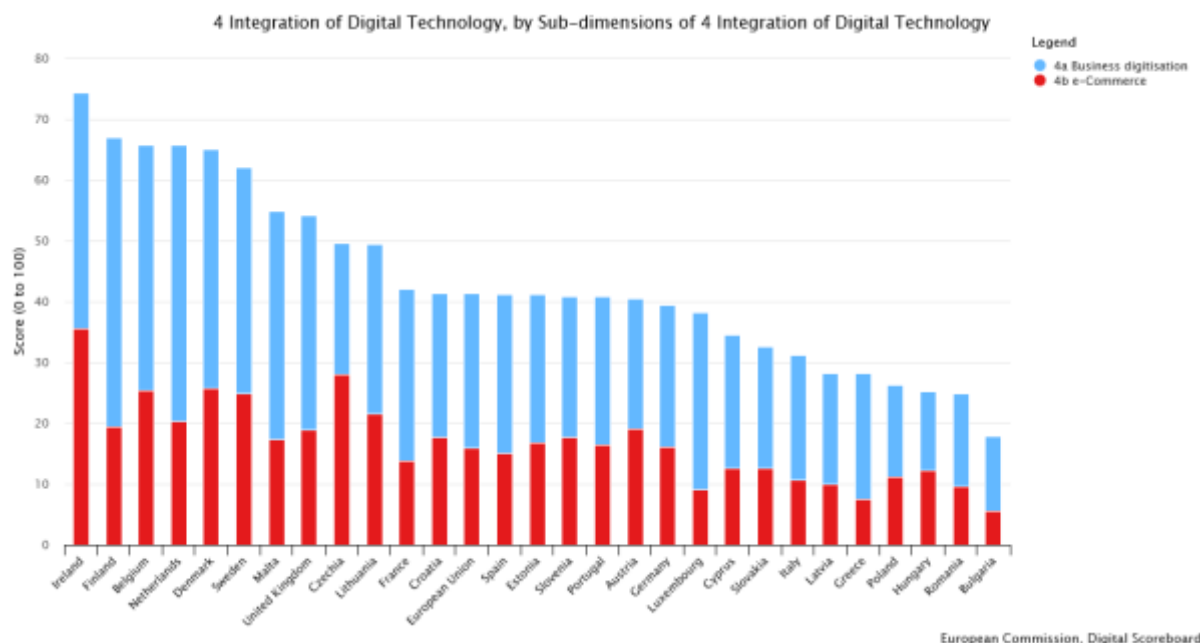


#### 4) Integration of Digital Technology

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.

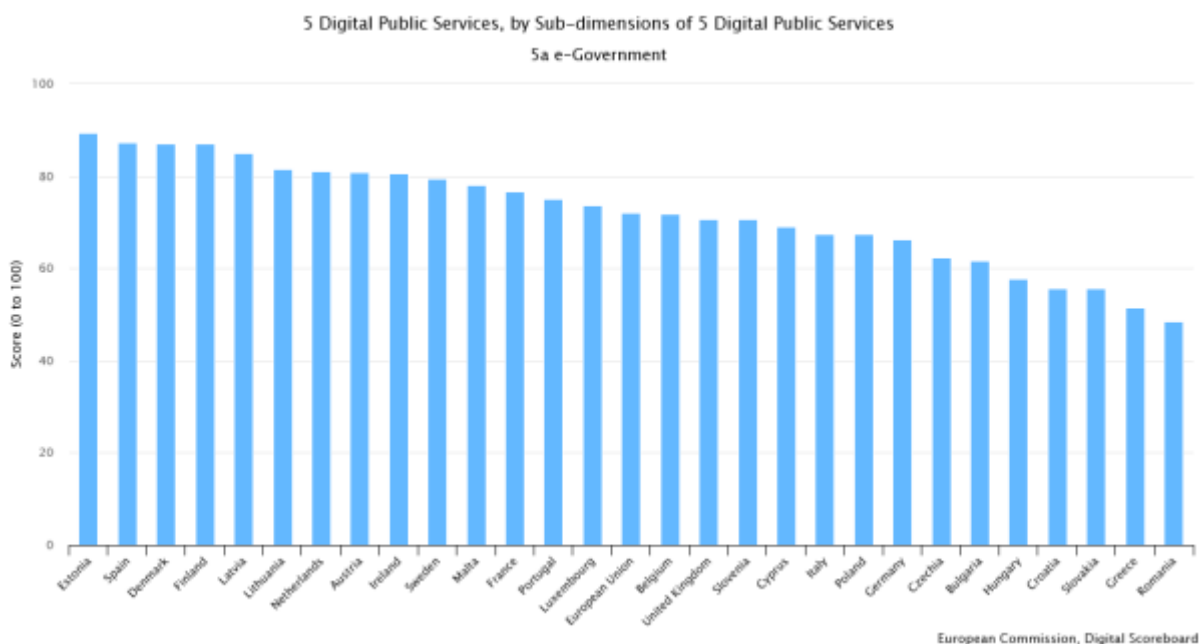
The sub-dimensions of this DESI dimension are:

- 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



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

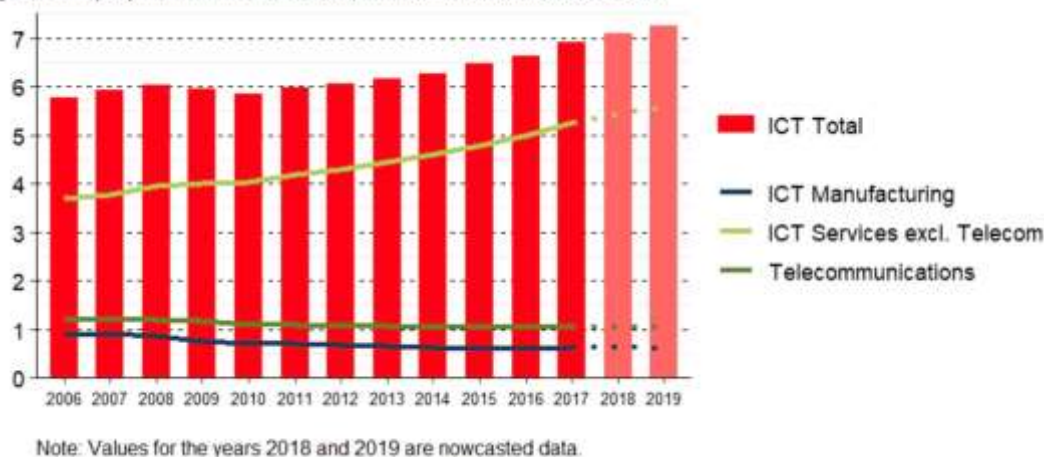


Figure 13 Productivity, nominal and deflated, thousand € per individual employed, 2006-2019

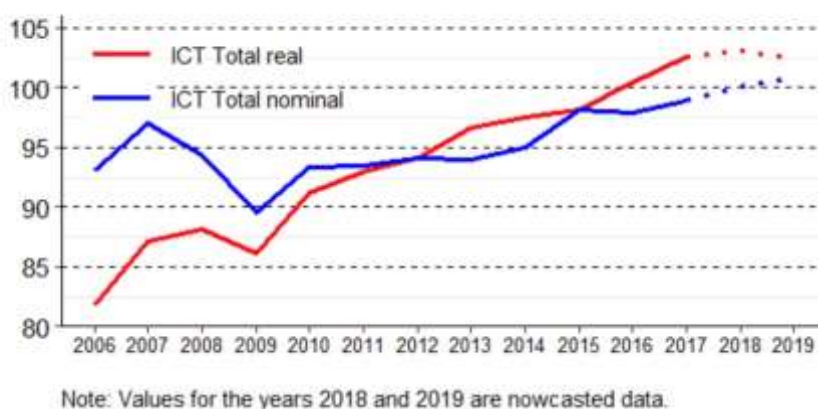




Figure 17 R&D expenditure by business enterprises (BERD) in the ICT sector, € billion, 2006-2019

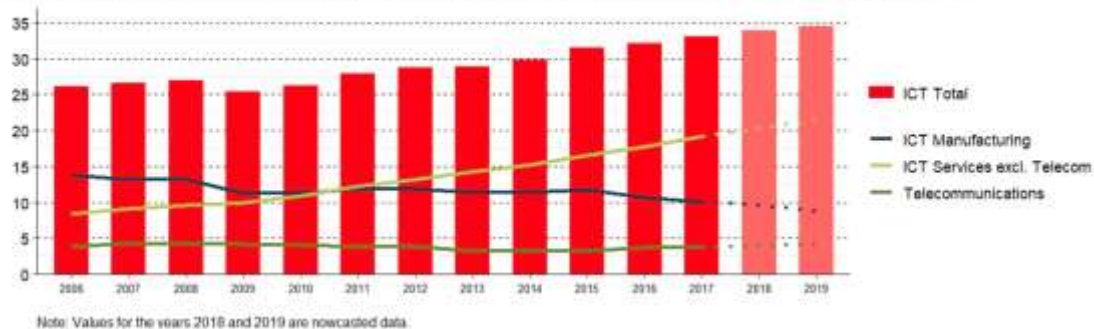


Figure 22 R&D Personnel (PERD) in the ICT sector, thousand FTEs, 2006-2019

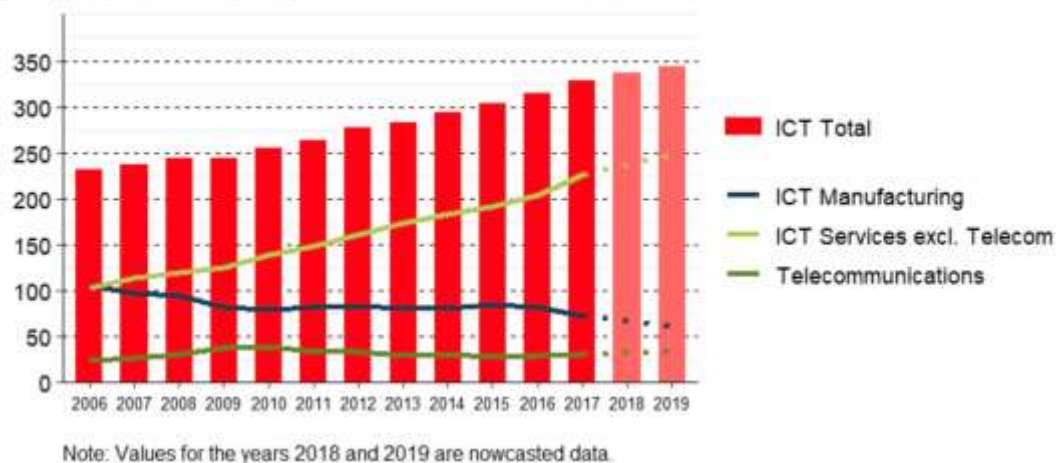
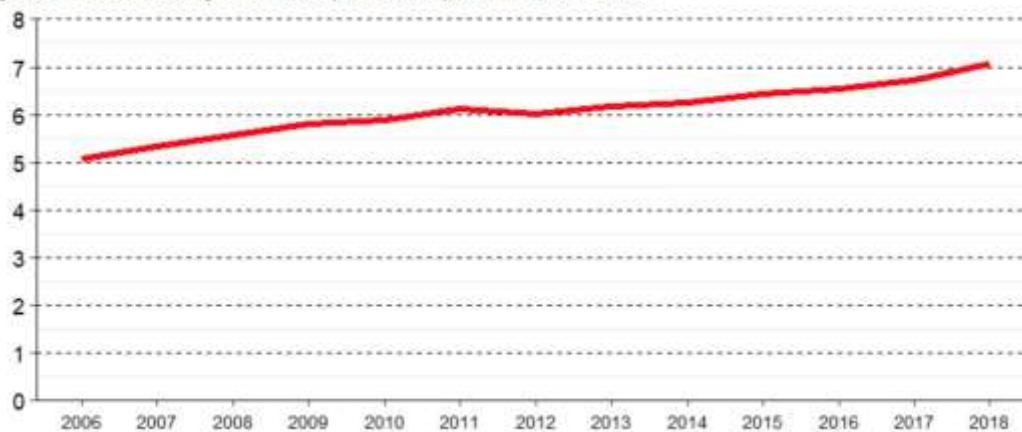


Figure 26 Public funding of ICT R&D (ICT GBARD), € billion, 2006-2018



### 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.