CHAPTER 5.4

INVESTMENT IN ICT

KEY FIGURES

2%
share of ICT investments in GDP estimated in the EU

4%
share of the ICT sector in total value added in the EU

3%
share of employees in the ICT sector in the EU

17%
share of ICT patents in total EU patents

1 in 10
enterprises performs big data analytics in the EU

What can we learn?

- **Europe underinvests in ICT** compared to other major economies.
- The **ICT-producing sector's contribution to productivity growth in the EU has declined**. However, the **contribution from the most-intensive ICT-using industries to labour productivity growth has picked up** in recent years and is **above that of the United States**.
- **The weight of the ICT sector in the European economy has stabilised at around 4 %** of total value added, which is below other international players.
- Overall, **ICT employment has slightly increased in Europe** and ICT services are the key component.
- The **share of ICT patents in the EU patenting landscape is considerably smaller** than among its international competitors.
- Although an **intra-EU gap persists in digital competitiveness, laggard countries are catching up**.
- **Company size seems to matter for firms' digital transformation** and differences are striking in some EU Member States.
- **ICTs can provide solutions to address climate change**. At the same time, R&I is key to reducing the global footprint of ICT – R&I for 'green ICT'.

What does it mean for policy?

- **Boost the level of investments in ICT** and the convergence of ICT with other 'physical' technologies.
- **Accelerate ICT diffusion**, including digital competencies, skills, technologies, and access to infrastructure across sectors, firms and individuals, in an inclusive manner.
- **Prioritise funding for R&I solutions to improve the energy** efficiency of data centres, high-performance computers, infrastructure of telecommunications, etc.

The expansion of ICT has enabled the digital revolution and contributed to productivity and economic growth. ICTs can also provide solutions for sustainable growth. At the same time, there is still room to improve ICT diffusion across sectors, firms and individuals in an inclusive way. Information and communication technologies (ICTs) play an important role in economic growth and in transforming societies by connecting ideas and people all over the world. ICT boosts firms' productivity by improving communication, enabling knowledge management and reducing production costs. Moreover, the use of ICT may create network effects across sectors, lower transaction costs and increase the speed of innovation, which can boost overall economic efficiency and thus total factor productivity (Pilat, 2004). In addition, technological progress leading to new ICT goods and services can also enhance productivity growth in the ICT sector. Furthermore, ICT can bring social benefits by allowing generalised access to information and knowledge, while bringing people together even if they are geographically apart. The use of ICTs can also be determinant for achieving the Sustainable Development Goals (SDGs) in areas such as energy efficiency, water management and in supporting the overall transition to a low-carbon economy. ICT-related projects are also an important part of EU Framework Programmes to spur R&I in ICT[1] in Europe.

However, ICT diffusion has not happened at the same pace across firms and individuals. The gap between frontier and laggard companies remains large (although there is some catching-up), which is partly explained by the insufficient diffusion of innovation, notably digital technologies (see Chapter 3.1- Productivity puzzle and innovation diffusion). At the same time, the access, adoption and uptake of digital technologies has yet to become widespread across individuals which illustrates the need to continue the efforts to make the access to ICT more inclusive. Skills and, in particular, digital skills are crucial to navigate this new paradigm. Chapter 5.2 - Investment in education, human capital and skills analyses differences across the EU in this respect.

In this chapter, we look at trends in ICT investment and its contribution to growth. Moreover, an analysis of the evolution of the ICT-producing sector, notably its value-added contribution, employment, innovation and R&D intensity, is provided alongside some reflections for policy.

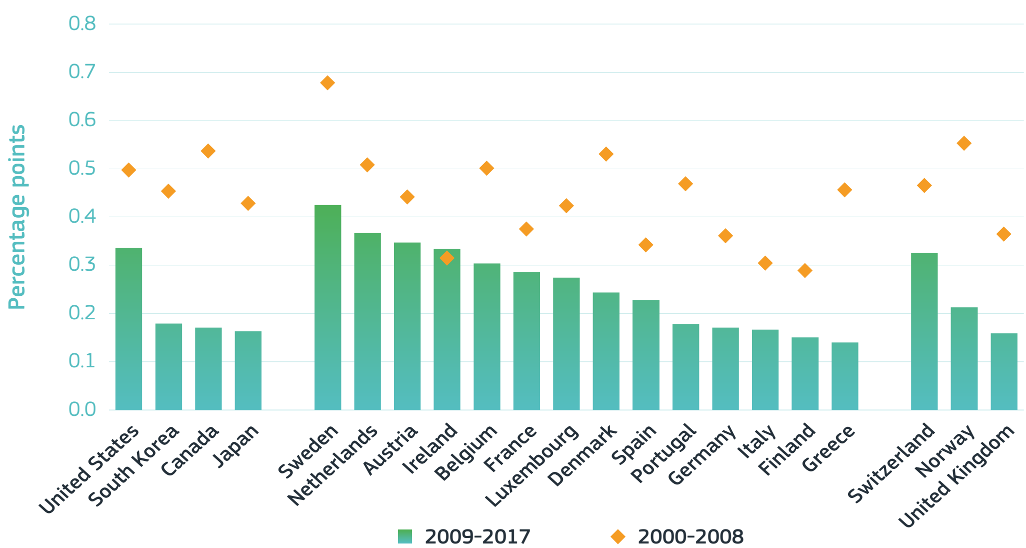
1 https://ec.europa.eu/digital-single-market/en/research-development-scoreboard

1. Europe underinvests in ICT

ICT capital deepening contributes to economic growth, although its contribution seems to have decreased in the last decade. The OECD (2016) points to the drop in ICT price relative to GDP price. Moreover, research shows a significant contribution from ICT to growth; the major impact on productivity occurred between 1995 and 2005 but the diffusion of ICT seems to have stabilised now. van Ark (2016) put forward the idea that we currently live in the 'installation phase' of the new digitalisation wave, which may imply that its impact on productivity may be 'on hold' until we effectively enter the 'deployment phase' of these digital technologies. Figure 5.4-1 provides a comparison between the contribution of ICT capital-deepening to GDP growth between 2000 and 2008, and 2009 and 2017. Overall, its contribution has declined worldwide. Similarly, Adarov and Stehrer (2019) found a declining role of ICT assets in growth across Japan, the United States and the EU15 as a whole.

In the EU, over the period 2009-2017, the contribution was the highest in Sweden, the Netherlands and Austria, and the lowest in Italy, Finland and Greece (of those Member States with available data). Ireland was the only EU Member State where the contribution from ICT capital has actually increased in recent years. Within the major economies listed below, the United States seems to be the economy where the slowdown was least pronounced, which could be evidence of greater ICT diffusion in the country in line with the OECD (2016).

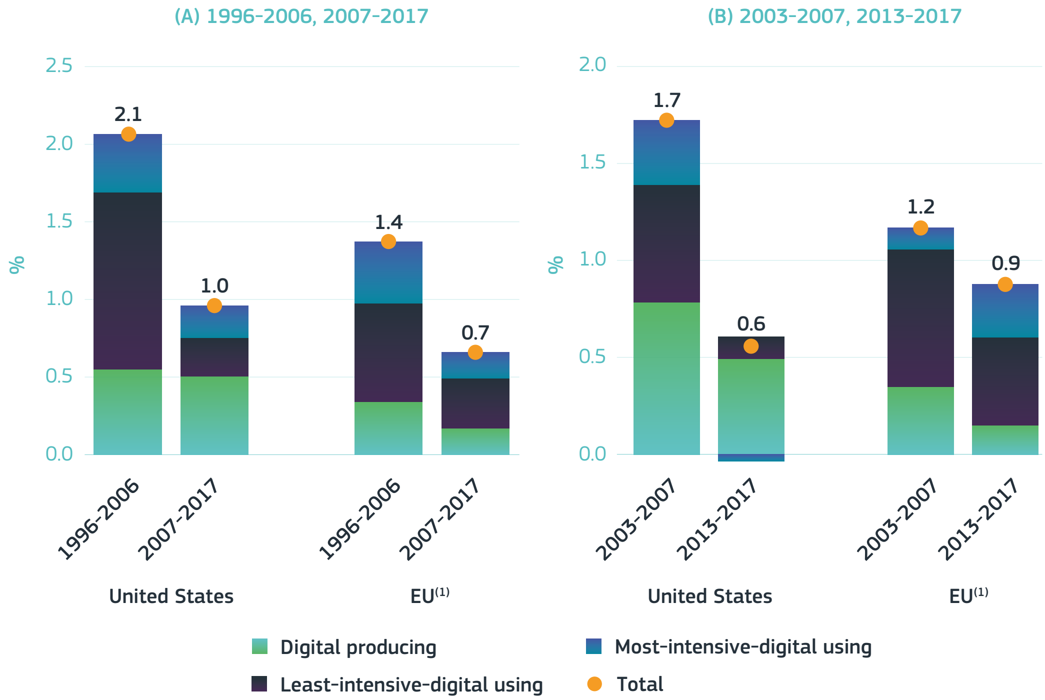
Figure 5.4-1 Contribution of ICT capital[1] to GDP growth (percentage points), average over 2000-2008 and 2009-2017



Source: OECD Productivity Database
Note: [1]ICT capital includes computer hardware, telecommunications equipment, and computer and software databases.
Stat. link: https://ec.europa.eu/info/sites/info/files/srip/2020/parti/chapter54/figure-54-1.xlsx

However, new research shows that Europe appears to have an advantage compared to the United States in the most-intensive ICT-using sector, which accounts for the largest contribution to labour-productivity growth in recent years. van Ark et al. (2019) look at the contributions of ICT-using and ICT-producing sectors to labour-productivity growth over time in 19 EU Member States and in the United States. Overall, the authors found that the contribution from the digital-producing sector to productivity growth has declined in the EU and, to a lesser extent, in the United States (Figure 5.4-2). However, in recent years in the EU, the contribution to growth in labour productivity in ICT-using sectors seems to have picked up, notably over the period 2013-2017. In fact, the most-intensive digital-using sectors make the largest contribution to labour-productivity growth in the EU. On the contrary, in the United States, the role of ICT-using sectors for productivity has declined in a very pronounced way, while the ICT-producing sector has not seen a marked decline (as is the case in the EU). Thus, the authors suggest that Europe has an opportunity from its ICT-using sectors to boost productivity growth while, in the United States, the ICT-producing sector, including the big 'tech' companies, may be making use of many of the available resources that could be limiting extending productivity benefits to the ICT-using sectors in the country.

Figure 5.4-2 Labour productivity growth and contributions from digital-producing and most- and least-intensive-using sectors, in %



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Source: van Ark et al. (2019), Conference Board calculations using data from Eurostat; BEA; BLS

Notes: [1]EU aggregate is based on 19 countries and euro area aggregate on 16 countries, as data for BG, EE, IE, HR, CY, LV, LT, LU and MT were not available for the entire period. Taxonomy for the identification of sectors defined as in Bart van Ark et al. (2019). Labour productivity growth concerns the growth of output per hour.

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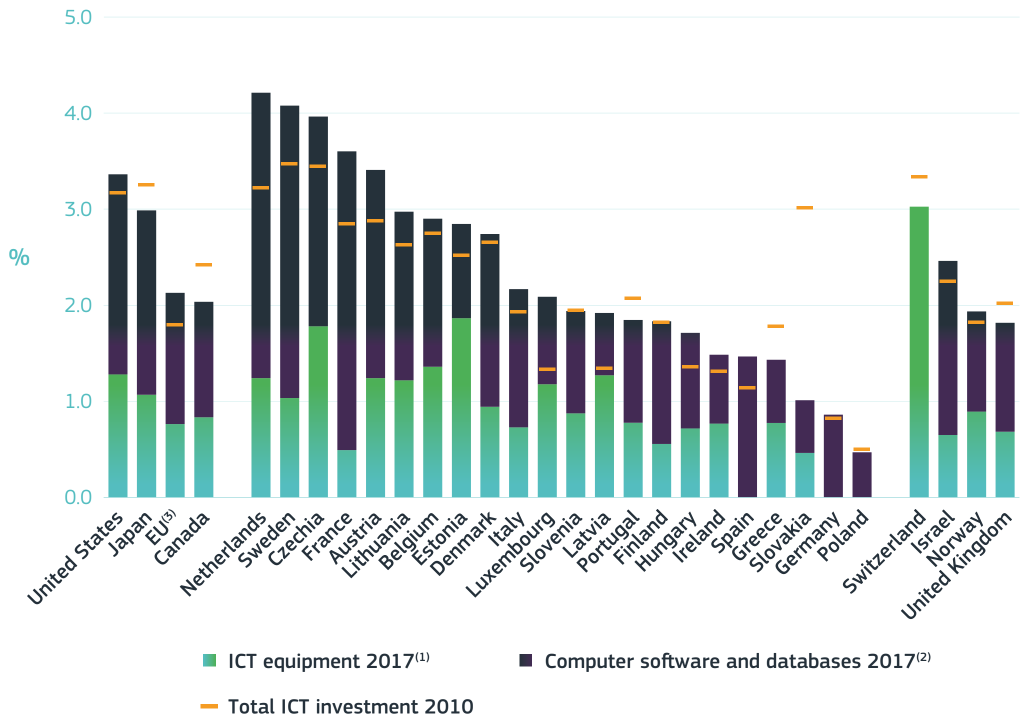
The EU underinvests in ICT in comparison with other major economies such as the United States and Japan, even though estimates point to an increase in the share of ICT investments in GDP more recently. Figure 5.4-3 depicts the evolution of ICT investments by country – i.e. the sum of ICT equipment and computer software and databases. Estimates for the EU aggregate show that Europe invests less as a percentage of GDP than its international competitors, notably the United States and Japan. Indeed, in 2017, the EU invested around 2% of GDP in ICT compared to almost 3.5% in the United States and 3% in Japan. However, it is important to mention that compared to 2010, there has been an increase in the share of ICT investments in GDP in the EU while, for example, there has been a relative decline in Japan and Canada.

Member States that invested the most are the Netherlands, Sweden and Czechia, at around 4% of GDP. Overall, the share of ICT investments in GDP increased between 2010 and 2017 in most EU Member States, the exceptions being Portugal, Greece and Slovakia.

Figure 5.4-3 Investment in ICT as % of GDP by country, 2010 and 2017



Source: OECD (Capital formation by activity ISIC Rev4) and Eurostat (online data code: nama_10_gdp)

Notes: (1)DK: 2015. LV, NO: 2016. (2)DK, EE, EL, PL: 2015. IE, ES, LV, PT, SE, NO: 2016. (3)EU value estimated with the available countries. The number of countries is not the same in both categories.

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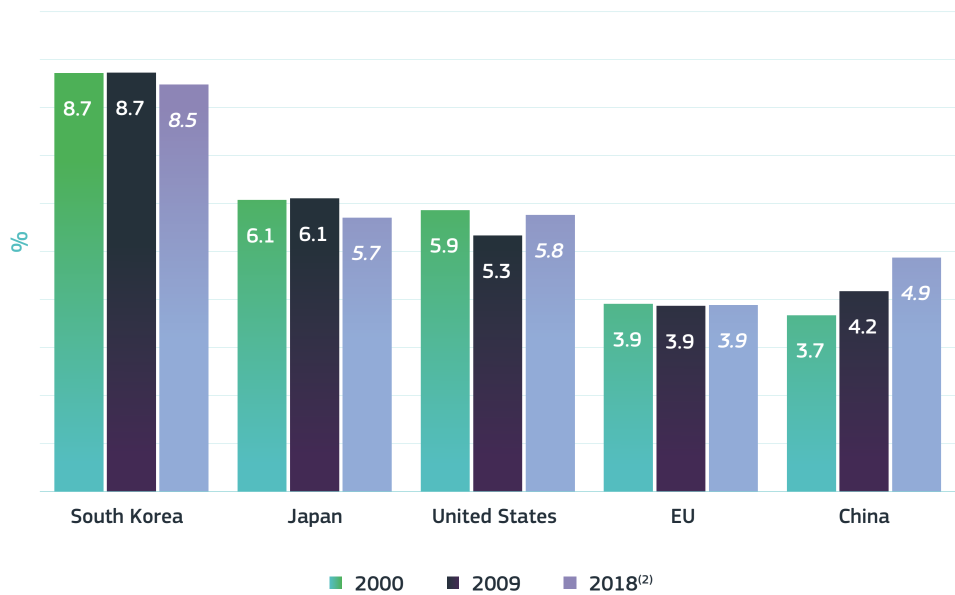
2. The ICT sector in Europe: weight stable over time, increasing employment share, less R&D-intensive, less productive, and lower patenting activity than other global players

Value added

Since 2000, the weight of the ICT sector in the European economy has stagnated at close to 4% of GDP, a much lower contribution than in South Korea, Japan and the United States. Whilst in most major economies ICT value added has more or less stabilised, in China it has been on the rise since 2000. In the EU, the weight of the ICT sector stabilised at 3.9% of GDP between 2000 and 2018, compared to a much higher share of over 8.5% in South Korea and around 6% in Japan and in the United States (Figure 5.4-4). The value added in ICT in China increased remarkably from 3.7% of GDP in 2000 to 4.9% in 2018.

Figure 5.4-4 Value added in ICT as % of GDP by region[1], 2000, 2009 and 2018



Source: DESI report ICT Sector and its R&D Performance, PREDICT project

Notes: [1]The operational definition of ICT, as defined in the PREDICT project, was used. The operational definition of ICT allows for international comparison with non-EU countries. [2]CN: 2016, JP: 2017.

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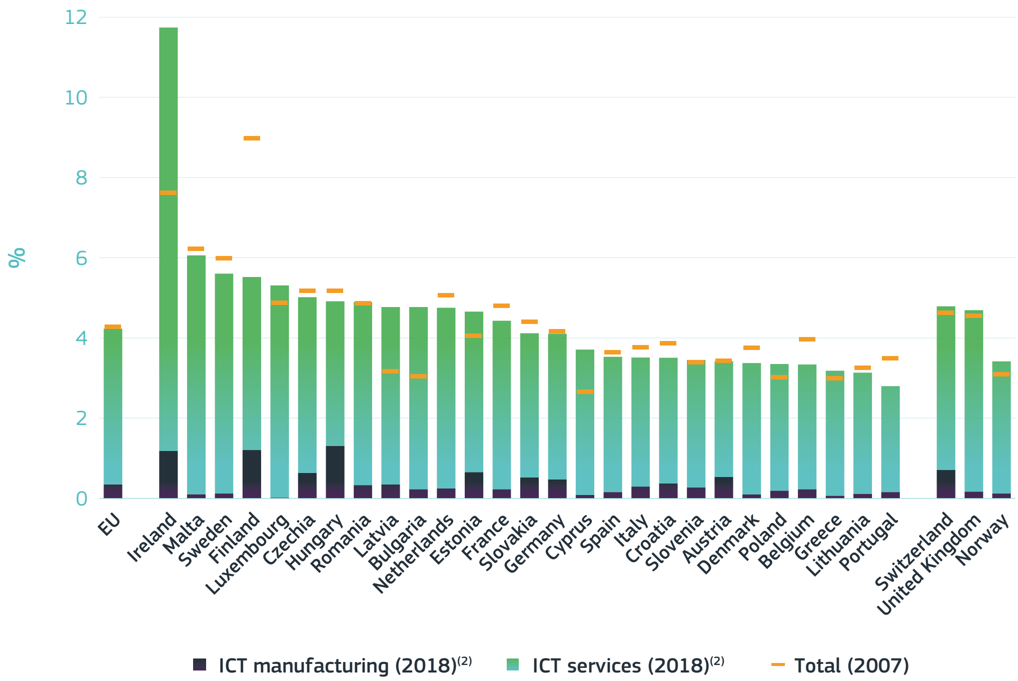
In most EU Member States, the share of value added in ICT as a share of GDP has slightly declined over the last decade. ICT services are the key components of the ICT sector. Figure 5.4-5 shows the evolution of the ICT sector (manufacturing and services) by country between 2007 and 2018. Ireland stands out as the EU Member State with the highest ICT share – of almost 12 % of GDP – in the country. The Member States with the lowest share of ICT were Greece, Lithuania and Portugal. ICT services is the most important component of the ICT sector in all countries. ICT manufacturing had the highest share in Hungary, Ireland and Finland.

Figure 5.4-5 Value added in ICT[1] as % of GDP broken down by manufacturing and services, 2018 (and for 2007 without breakdown)



Source: DESI report ICT Sector and its R&D Performance, PREDICT project

Notes: [1]The comprehensive definition of ICT, as defined in the PREDICT project, was used. [2]IE: 2014; NO, CH: 2015.

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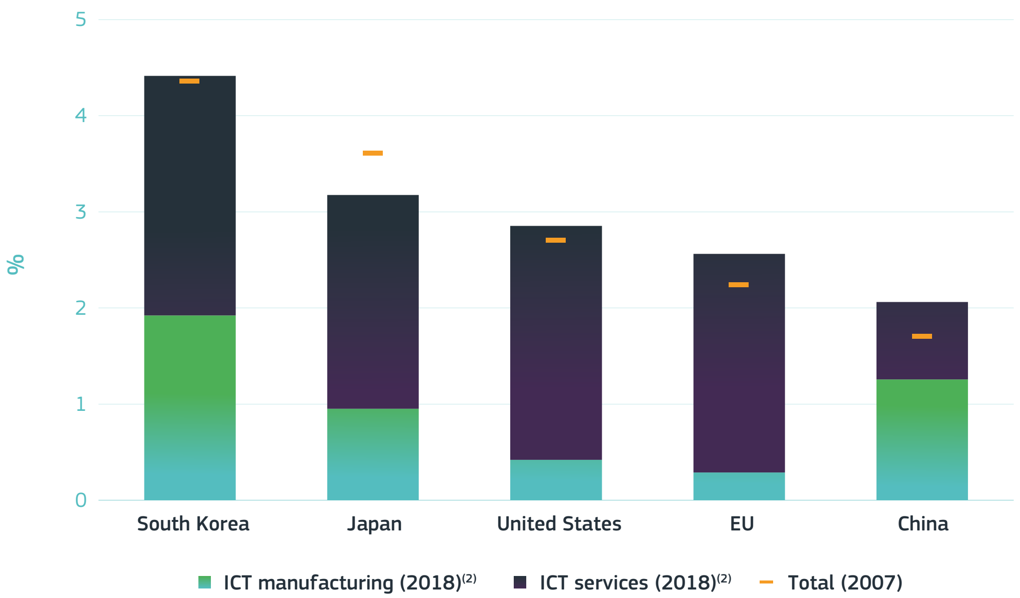
Employment

The ICT sector employs the most people in South Korea, followed by Japan, the United States, the EU and, finally, China. In the EU, the share of employment in the ICT sector rose between 2007 and 2018. The relevance of ICT value added in the economy was previously demonstrated as being highest in South Korea and, in 2018, was also visible in terms of employment contribution of around 4.5 % of the country's total employment (Figure 5.4-6). It is also important to note the relevant size of ICT manufacturing. Japan comes next with slightly more than 3% of its active population employed in the ICT sector, although the share has declined relative to 2007. The United States, the EU and China have seen increases in the importance of the ICT sector in employment over the last decade. In 2018, the EU's ICT share in employment was around 2.5% compared to around 2.8% in the United States and slightly more than 2% in China. In both the EU and the United States, ICT services are the leading employer within the ICT sector, while in China, ICT manufacturing stands out as the top sector.

Figure 5.4-6 Employment in ICT[(1)] as % of total employment broken down by manufacturing and services, 2018 (and for 2007 without breakdown)



Source: DESI report ICT Sector and its R&D Performance, PREDICT project
Notes: [(1)]The operational definition of ICT, as defined in the PREDICT project, was used. [(2)]CN: 2016; JP: 2017.
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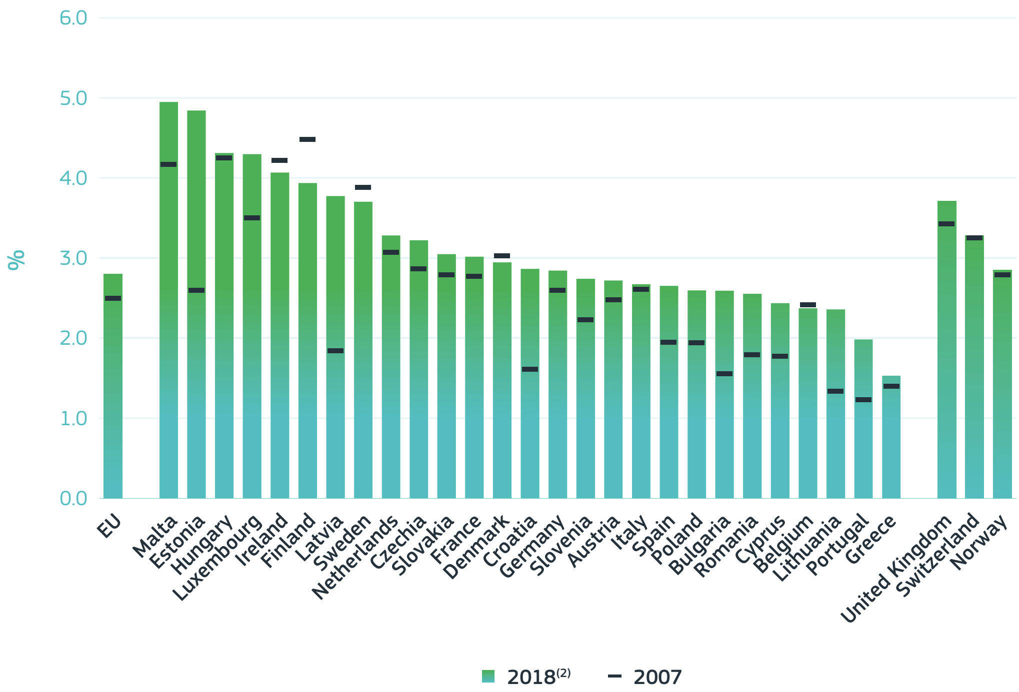
Employment in the ICT sector increased in most EU Member States between 2007 and 2018. Malta, Estonia, Hungary, Luxembourg and Ireland have the highest shares of ICT employment, at above 4% of total employment (Figure 5.4-7). On the other hand, in 2018, in Greece, Portugal, Lithuania and Belgium the role of the ICT sector in employment was the lowest, with less than 2.5% of employment. This is partly correlated with the economic structure, as previously noted that the size of the ICT sector in terms of value added in these economies was also smaller in relative terms. With the exception of Ireland, Finland, Sweden, Denmark and Belgium, all the other EU Member States maintained or even increased their employment shares in the ICT sector between 2007 and 2018.

Figure 5.4-7 Employment in ICT[1] as % of total employment, 2007 and 2018



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Source: DESI report ICT Sector and its R&D Performance, PREDICT project

Notes: (1)The comprehensive definition of ICT, as defined in the PREDICT project, was used. (2)NO, CH: 2016.

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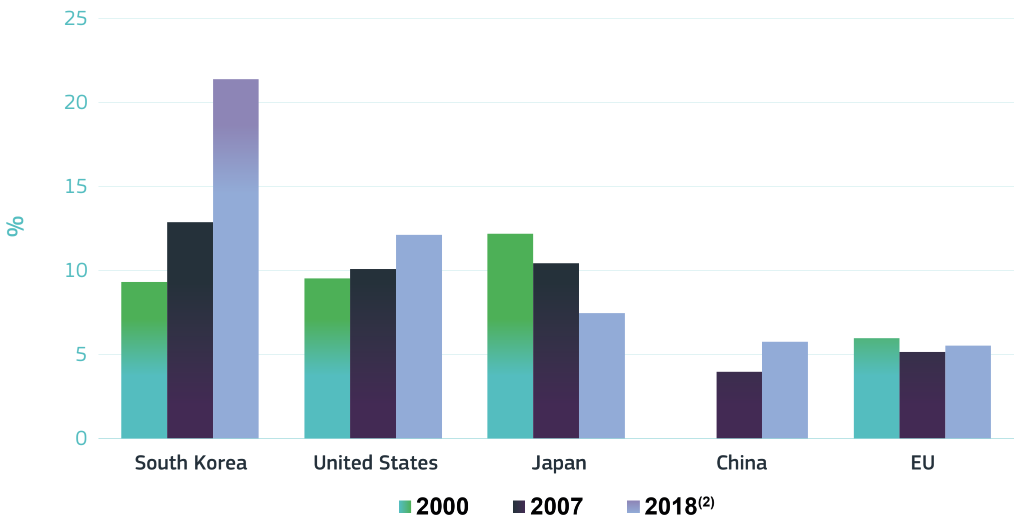
R&D intensity

The ICT sector is considerably less R&D intensive in the EU than among other international players, notably South Korea but also the United States and Japan. Figure 5.4-8 presents the evolution of business enterprise expenditure on R&D as a percentage of the value added of the ICT sector in 2000, 2007 and 2018 by major economy. The ICT sector is the most R&D intensive in South Korea where R&D intensity has been on the rise since 2000. The United States comes next, also showing slight increases in the R&D intensity of the ICT sector over time. In Japan, R&D intensity has been on the decline since 2000, although it was still above that of the EU in 2018.

In the EU, the R&D intensity of the ICT sector was the highest in Finland, Austria and Sweden. 'Innovation leaders', namely Finland, Sweden and Denmark, and 'strong innovators', such as Austria and France, rank highest in terms of their ICT industries' R&D intensity in 2018. At the lower end of the spectrum are Latvia, Luxembourg, Croatia, Lithuania and Romania (Figure 5.4-9). Norway stands out an H2020 associated country with a very high R&D intensity in the ICT sector (for which data are available), close to that of Finland.

Figure 5.4-8 Business R&D intensity of ICT[(1)], 2000, 2007, 2018



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Source: DESI report ICT Sector and its R&D Performance, PREDICT project

Notes: [(1)]Business enterprise expenditure on R&D as % of value added. The operational definition of ICT, as defined in the PREDICT project, was used. The operational definition of ICT allows for international comparison with non-EU countries. [(2)]CN: 2016; JP: 2017.

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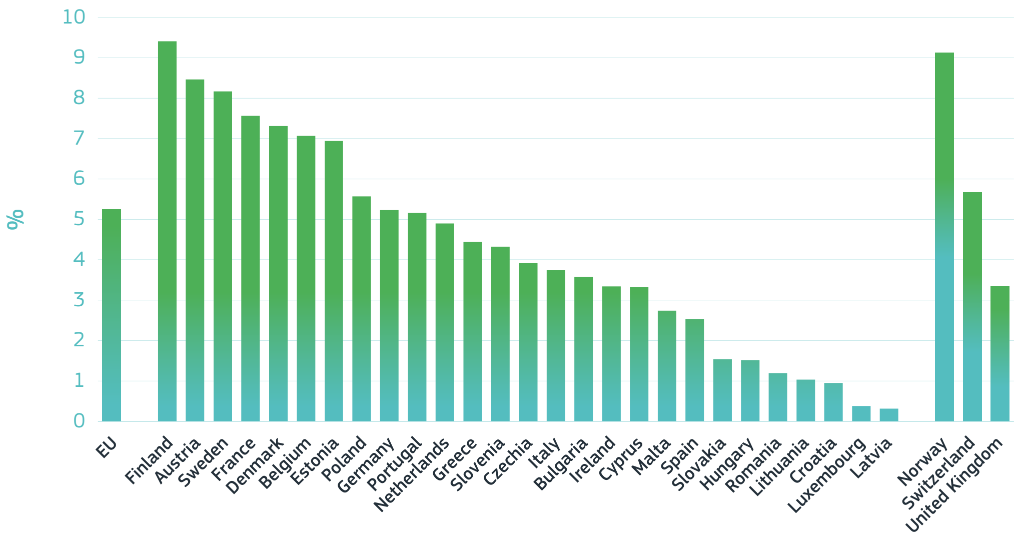
Figure 5.4-9 Business R&D intensity of ICT[(1)], 2018[(2)]



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Source: DESI report ICT Sector and its R&D Performance, PREDICT project

Notes: [(1)]Business enterprise expenditure on R&D as % of value added. The comprehensive definition of ICT, as defined in the PREDICT project, was used. [(2)]CH: 2015; IE: 2014; NO: 2016.

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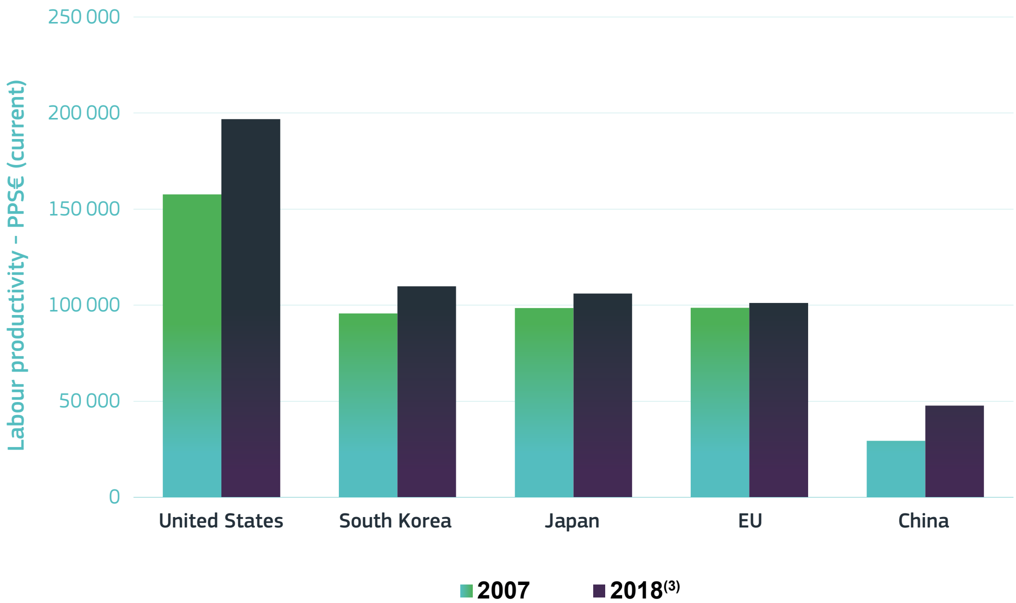
Productivity

The ICT sector is more productive in the United States, South Korea and Japan than in the EU. Figure 5.4-10 compares the evolution of labour productivity in the ICT sector between 2007 and 2018 by major economy. Relative to 2007, all economies have increased productivity levels in this sector, except for the EU where it seems to have stabilised. In 2018, labour productivity was the highest in the United States, followed by South Korea, Japan, and the EU. China seems to have the least-productive ICT sector (from the economies presented in the graph) even though labour productivity has risen considerably in just over a decade.

Figure 5.4-10 Labour productivity (GDP per person employed)(1) in ICT(2), 2007 and 2018



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Source: DESI report ICT Sector and its R&D Performance, PREDICT project

Notes: (1)GDP per person employed in current PPS€. (2)The operational definition of ICT, as defined in the PREDICT project, was used. The operational defintion of ICT allows for international comparison with non-EU countries. (3)CN: 2016; JP: 2017.

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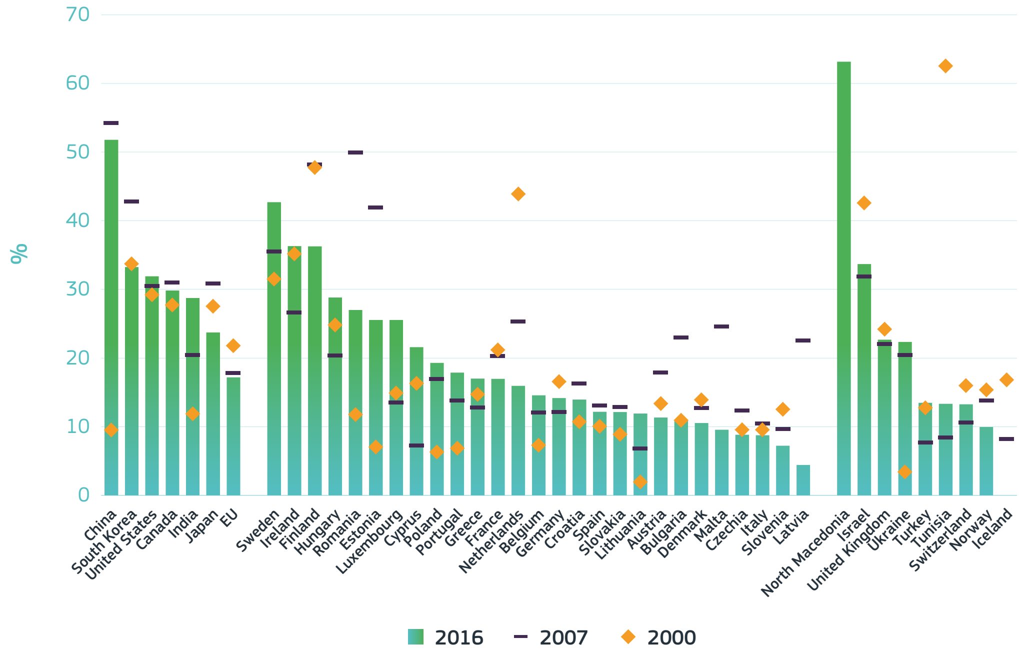
Patenting activity

The EU seems to trail behind other major economies when it comes to the relative innovativeness of the ICT sector. Figure 5.4-11 illustrates a means of representing the innovativeness of the ICT sector by looking into the evolution of the share of ICT-related patent applications, although there are certainly other ways. Major economies, such as China, South Korea, the United States, Canada, India and Japan, clearly outperform the EU in this respect. For example, 52 % of Chinese patents were ICT-related, compared to a much lower share of 17 % in the EU in 2016. Moreover, the share of ICT patents in the EU overall seems to have stabilised, while in China and India the share has been on the rise since 2000. In 2016, in the EU, the weight of ICT-related patents was the most pronounced in Sweden (43 %), Ireland (36 %) and Finland (36 %). Of course, the economic structure also plays an important role here, as we have seen before that these EU Member States also have high ICT value-added shares. Conversely, the share of ICT patents was the lowest in Latvia (4 %), Slovenia (7 %), Italy and Czechia (9 %).

Figure 5.4-11 ICT-related(1) PCT patent applications as % of total PCT patent applications(2), 2000, 2007 and 2016



Source: OECD (Patents by technology)

Notes: (1)Domains covered are: telecommunications, consumer electronics, computers, office machinery, and other ICT. (2)Patent applications filed under the PCT, at international phase, designating the European Patent Office (EPO). Patent counts are based on the priority data and the inventor's country of residence.

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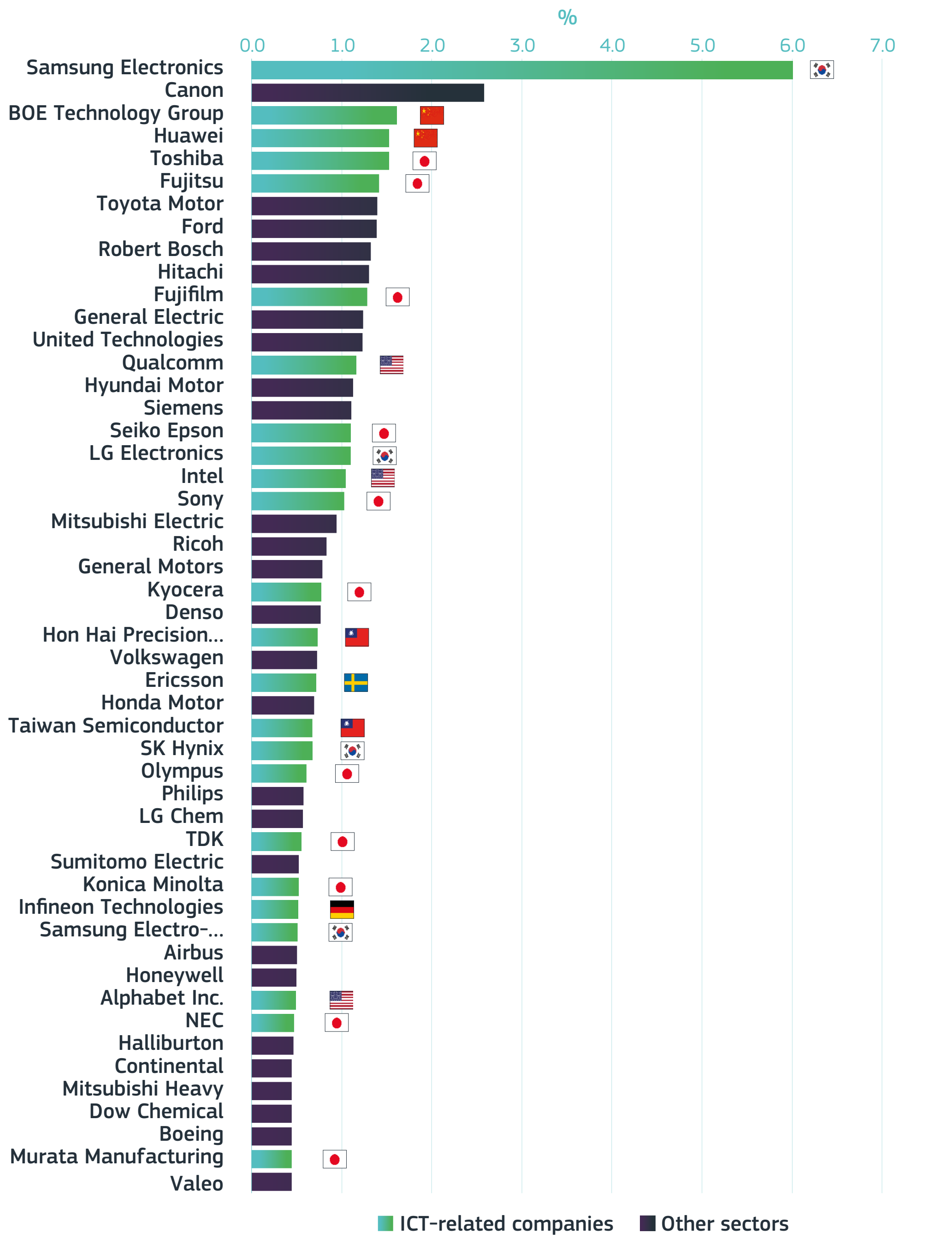
Almost half of the 'top 50 patenting companies' operate in the ICT sector and are mainly found in Asia, while the EU is represented by two companies. Figure 5.4-12 shows that within the most R&D-intensive investors active in patenting worldwide, ICT-related companies emerge as very active patenting companies, notably in computers and electronics. In particular, of the top 50 patenting companies, close to half are ICT-related. Asian companies (with headquarters in Japan, South Korea, China and Taiwan) are in the lead, while Ericsson (Sweden) and Infineon Technologies (Germany) represent Europe.

Figure 5.4-12 Share in patenting of the 'top 50 patenting companies' by sector and country for ICT-related companies, 2014-16



Source: OECD and Joint Research Centre-OECD, COR&DIP© database v.2., 2019

Note: Data concerns IP5 patent families.

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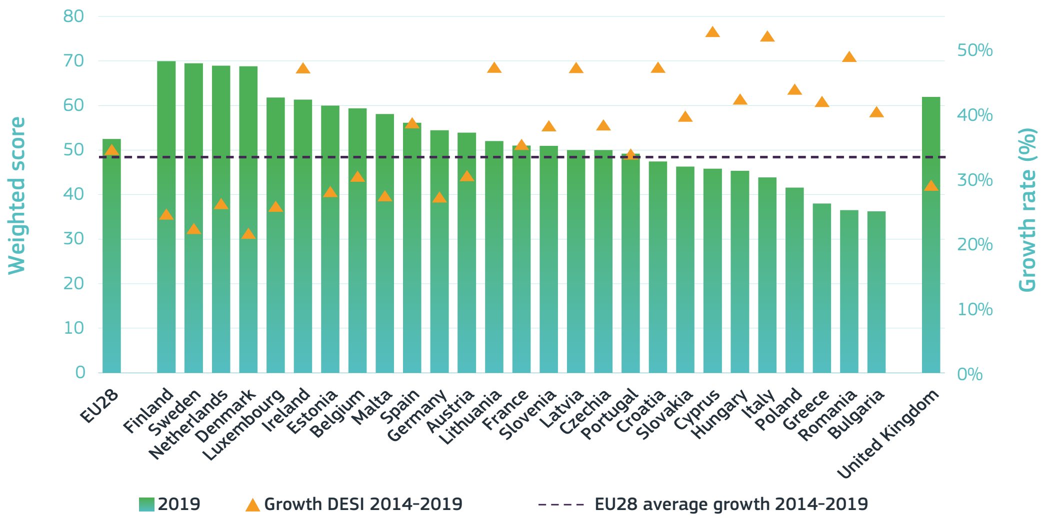
3. An EU digital divide remains, although there is some catching up

Digital competitiveness seems to be highest among the EU's 'innovation leaders' which demonstrates the import-ance of developing a country's digital capacity to innovate. At the same time, the digital divide between the most-advanced and least-digitally-advanced nations seems to be closing. Since 2014, the European Commission has issued the Digital Economy and Society Index (DESI) to monitor and benchmark the evolution of digital competitiveness in EU Member States across different digitalisation pillars. These include the dimensions of connectivity, human capital, use of internet, integration of digital technology, and digital public services.

The results of DESI 2019 show that the EU's 'digital leaders' are Finland, Sweden and the Netherlands (Figure 5.4-13). On the other hand, Bulgaria, Romania and Greece are the least-digitally-advanced Member States. Nevertheless, all EU Member States seem to have increased their digital performance between 2014 and 2019. More importantly, some catching-up from the laggards seems to have taken place, as shown by growth rates higher than the EU average. Hence, all EU Member States are improving their digital capacities and the digital divide has become less nuanced, although further efforts are needed to continue in this positive path towards digital convergence[2].

Figure 5.4-13 Digital Economy and Society Index (DESI)[(1)], 2019 and growth rate 2014-2019



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Source: DG Research and Innovation, Chief Economist - R&I Strategy & Foresight Unit based on European Commission, DG CNECT (Digital Economy and Society Index 2019)

Note: [(1)]The Digital Economy and Society Index (DESI) is a composite index that tracks the evolution of digital competitiveness. The index is the average of the five main dimensions: connectivity, human capital, uses of internet, integration of digital technology, and digital public services.

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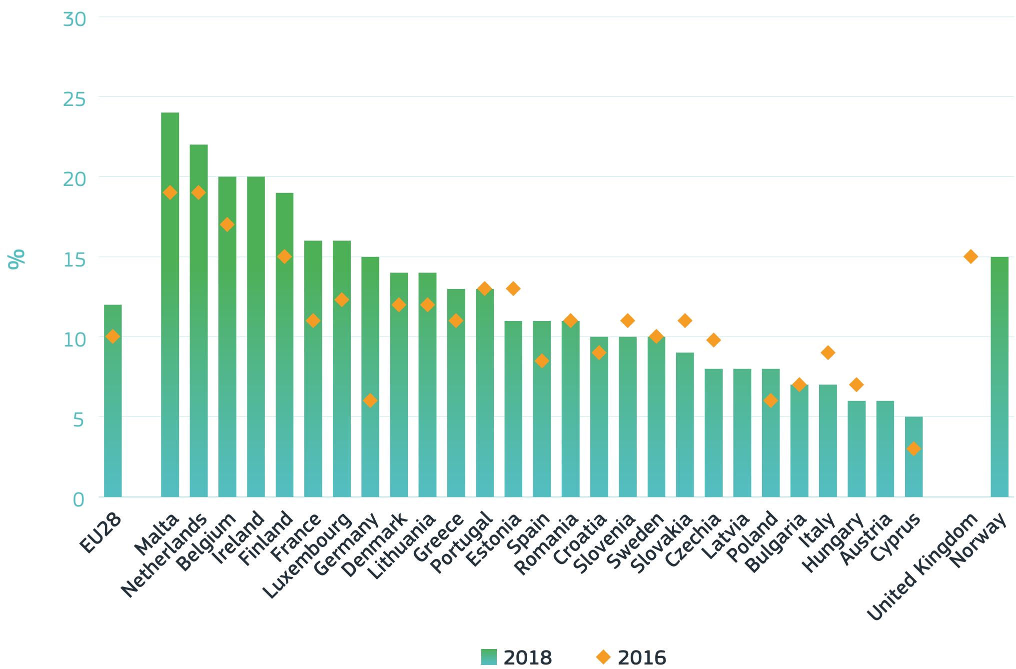
2 Indeed, in absolute terms substantial differences remain especially between top and lower performers.

Slightly more than 1 in 10 enterprises in the EU performed big data analyses as part of their work. However, in some countries, the gap in the uptake of this practice by firm size is considerable. Due to the huge amounts of data created every day, companies often need to have the capacity to process all the information produced digitally. Big data is usually characterised by its '3 Vs' – namely, *volume*, *variety* and *velocity*. Overall, the percentage of enterprises performing big data analytics increased in most EU Member States between 2016 and 2018 (Figure 5.4-14). In Malta, the Netherlands, Belgium and Ireland, 20 % or more of all enterprises performed some sort of big data analysis, while in Cyprus, Austria and Hungary, less than 7 % of enterprises did so.

Figure 5.4-14 Share of enterprises analysing big data in total enterprises[(1)], 2016 and 2018



Source: Eurostat (online data code: isoc_eb_bd)

Note: [(1)]All enterprises, without the financial sector (10 or more people employed).

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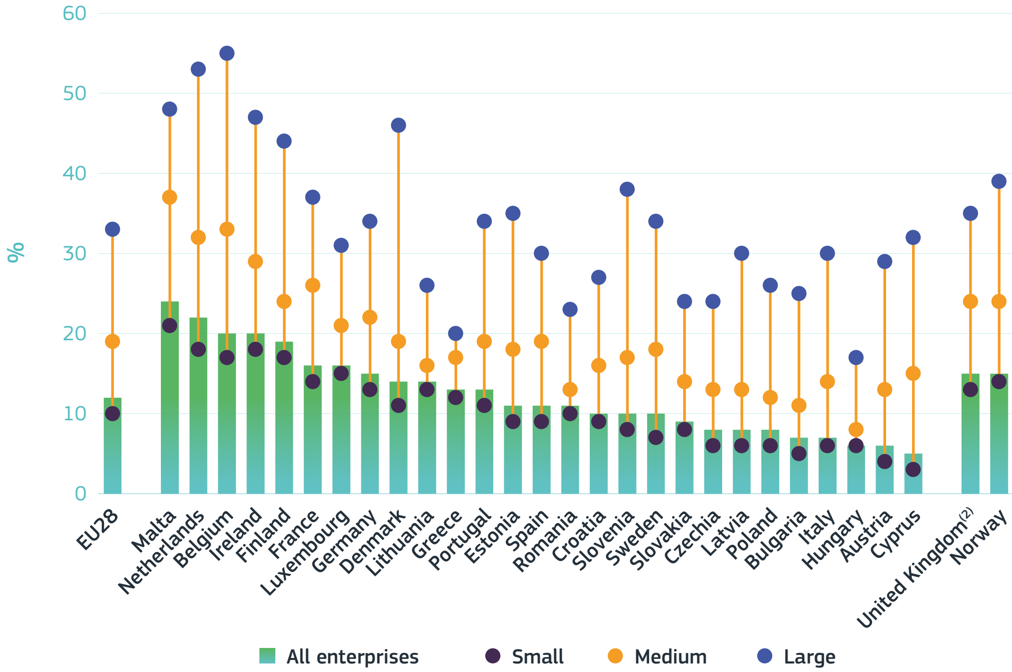
There are intra-EU differences in terms of big data uptake by firm size. Figure 5.4-15 depicts the difference by firm size in terms of the uptake of big data by country. While in Greece and Hungary there is not a very substantial difference in the use of big data by large, medium and small firms, in most Member States, big data practices seem less diffused across firms with large companies clearly making more use of big data analytics than medium-sized and, in particular, small firms. This is particularly true in countries such as Belgium and Denmark.

Figure 5.4-15 Share of enterprises[(1)] performing big data analysis by size, 2018



Science, research and innovation performance of the EU 2020

Source: OECD (2019) "Measuring the digital transformation" and Eurostat (online data code: isoc_eb_bd)

Notes: [(1)]Enterprises without financial sector. [(2)]UK: 2016.

Stat. link: https://ec.europa.eu/info/sites/info/files/srip/2020/parti/chapter54/figure-54-15.xlsx

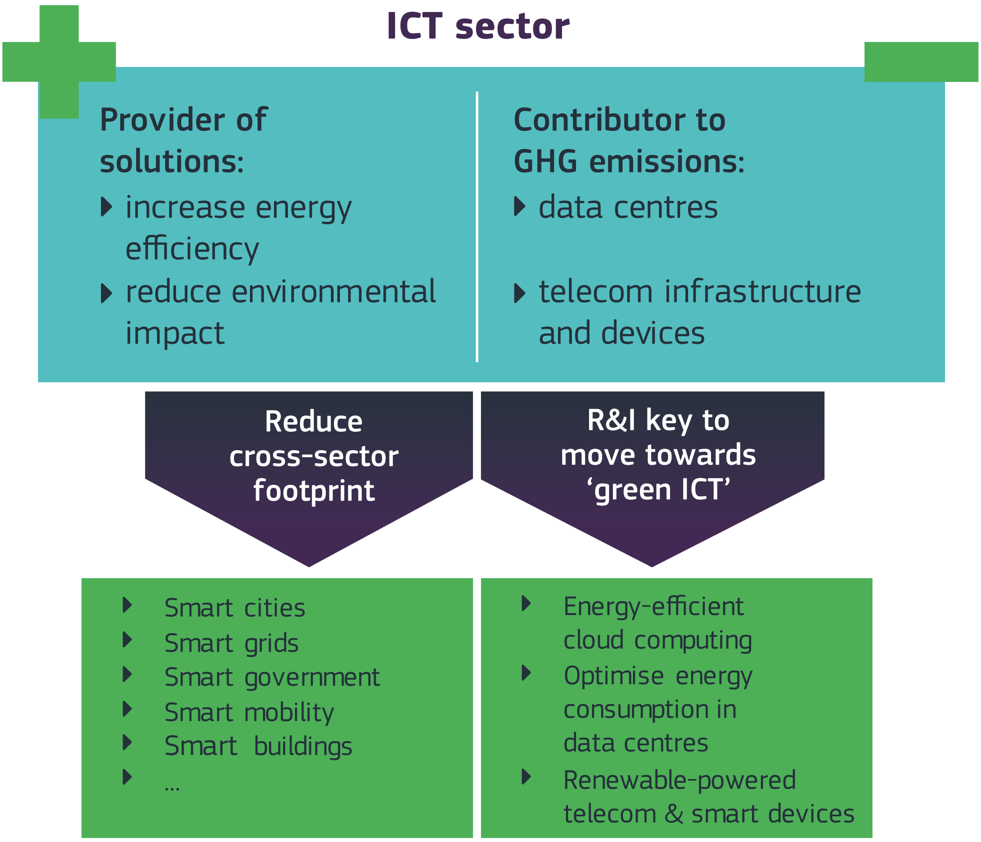
4. R&I essential to move towards 'green ICT'

ICTs can provide solutions to address climate change. At the same time, there is a need to reduce the global footprint of ICT which is being fostered by the digital transformation of the economy. In its 2009 Recommendation[3], the European Commission outlines a framework to 'mobilise ICTs to facilitate the transition to an energy-efficient, low-carbon economy', considering the potential of ICT to enhance energy efficiency. Indeed, ICTs can act as enablers of a low- (or even zero-) carbon economy. The Global e-Sustainability Initiative (2015) argues that ICT has the potential to cut global carbon emissions by approximately 15 % by promoting the efficiency of processes and energy use. As a result, ICTs can enable the 'smartification' of many aspects of our economies – i.e. smart cities, smart grids, smart mobility, smart governments, smart businesses, smart buildings, etc. – which reduce the environmental impact across sectors.

3 https://ec.europa.eu/information_society/activities/sustainable_growth/index_en.html

However, with the exponential growth of data, more storage and computing capacity is needed. Moreover, the use of sophisticated telecoms equipment, infrastructure and mobile devices is also consuming increasing amounts of energy. The new EU Digital Strategy[4] explains that today the ICT sector accounts for 5-9% of electricity use and more than 2% of global greenhouse gas emissions (as much as all air traffic). If unchecked, the footprint could increase to 14% of global emissions by 2040. R&I can be fundamental in the move towards 'green ICT' – i.e. by exploring and creating new ways of making cloud computing and data centres energy efficient, telecom operations powered by renewables, and by generating smart devices. Figure 5.4-16 is a simplified representation of ICT's potential impact on greenhouse gas emissions. While ICT is an important enabler of green growth (left-hand side), there is also substantial energy consumption by using ICTs and the need to increase computing capacity. Nevertheless, R&I solutions could address some of the pitfalls of digital technologies in terms of environmental impact. This matter is further explored in Chapter 7 - R&I enabling artificial intelligence.

Figure 5.4-16 Visual representation of the impact of ICT on greenhouse gas emissions



Source: DG Research and Innovation, Chief Economist - R&I Strategy & Foresight Unit based on Global e-Sustainability Initiative (2015) and presentation by Richard Labelle (2014)
Stat. link: https://ec.europa.eu/info/sites/info/files/srip/2020/parti/chapter54/figure-54-16.xlsx

4 EU Digital Strategy: https://ec.europa.eu/commission/presscorner/detail/en/fs_20_281

5. Conclusions

Investments in ICT capital remain important within the range of intangible assets for economic growth, despite a decline in recent years in its contribution to GDP growth. The EU appears to underinvest in ICT compared to the United States, so boosting the levels of investment in ICT equipment and software in Europe seems fundamental to ride the next innovation wave.

When it comes to the ICT sector, our analysis shows that ICT services in the EU are clearly the largest component within the sector. Moreover, the role of the ICT sector has remained relatively stable over time in the EU, at around 4% of GDP. The share of employment in the EU's ICT sector has also risen over the last decade. However, the sector appears less R&D intensive, less productive and less active in ICT patenting than other major economies.

At the same time, this chapter shows that ICT diffusion is not happening at an appropriate rate. Some countries are still lagging behind in providing their workforces with the right digital skills, or in the uptake of digital technologies by companies of all sizes, and governments. **This calls for further accumulation and diffusion of ICT capital throughout Europe to ensure the adoption of digital technologies that will bring productivity gains across the economy**.

Another important consideration relates to securing network and information systems. In fact, securing ICT products and services may probably contribute to fostering their uptake by the market, society which, ultimately, could help the ICT sector in the EU. The EU Cybersecurity plan focuses on five priorities, including achieving cyber- resilience, drastically reducing cybercrime, developing cyberdefence policies and capabilities related to the Common Security and Defence Policy (CSDP), developing industrial and technological resources for cybersecurity, and establishing a coherent international cyberspace policy for the EU and promoting the EU's core values[5].

Finally, while on the one hand ICTs can provide solutions to address climate change by leading to smart grids, smart buildings and smart cities (to name but a few), **on the other hand, there is a need to reduce ICT's global footprint from the energy-intensive use** of data centres as well as infrastructure for telecommunications. In this context, **investing in R&I to generate solutions for energy-efficient cloud computing, or the optimisation of energy consumption in data centres, can lead to green ICT**.

5 https://ec.europa.eu/commission/presscorner/detail/en/IP_13_94

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