

Digital economy & society in the EU

A BROWSE THROUGH OUR ONLINE
WORLD IN FIGURES

2018 edition



Browsing, chatting, online shopping...

...are among our everyday activities that use information and communication technologies (ICT), such as computers, laptops or smartphones. Nowadays, we spend a considerable part of our time online for various reasons, whether at work, at school or university, at home or on the move. Often we depend on our digital devices to stay in contact with family and friends, to get directions to shops, hotels and restaurants or to check our bank accounts. We are truly a digital society!

Likewise, businesses operate within a digital environment: more and more they conduct business electronically with their partners and interact online with customers. The internet is the cornerstone for their e-business operations as it provides limitless capacities to connect people and businesses worldwide.

This digital publication, developed by Eurostat, provides easily understandable statistics on several ICT-related topics and presents them using texts, interactive data visualisations and an animation. It aims to provide answers to some common questions, for example, about internet use, but also covers some more specific and less known aspects such as digital skills and e-sales.

This publication is divided into 4 chapters:

- Chapter 1 '**Profile of the digital society & businesses**' focuses on how and for which purposes people and businesses go online, on digital skills and ICT specialists. It includes, among others, information on mobile internet access, internet activities, use of social media as well as the employment of ICT specialists.
- Chapter 2 '**E-commerce**' looks in detail at e-commerce from two perspectives: people ordering goods and services online and businesses selling electronically.
- Chapter 3 '**Internet security & the cloud**' provides information about aspects related to privacy and the protection of personal information online, ICT security policies of businesses as well as about private and business use of cloud services.
- Chapter 4 '**What is the digital single market about?**' gives some background information about the content and goals of the EU policy concerning the creation of the Digital Single Market which is one of the ten political priorities of the European Commission.

Contents

1. PROFILE OF THE DIGITAL SOCIETY & BUSINESSES	4
1.1 People & businesses online	4
1.2 Living online: what the internet is used for	7
1.3 Digital skills for a digital world	10
2. E-COMMERCE	13
2.1 Online shoppers & e-purchases	13
2.2 Online businesses & e-sales	15
2.3 E-commerce turnover explained	18
3. INTERNET SECURITY & THE CLOUD	19
3.1 Safe surfing: A brief look on internet security	19
3.2 Use of cloud services	22
4. WHAT IS THE DIGITAL SINGLE MARKET ABOUT?	25
GLOSSARY	26
INFORMATION	29



1. PROFILE OF THE DIGITAL SOCIETY & BUSINESSES

1.1 People & businesses online




PEOPLE

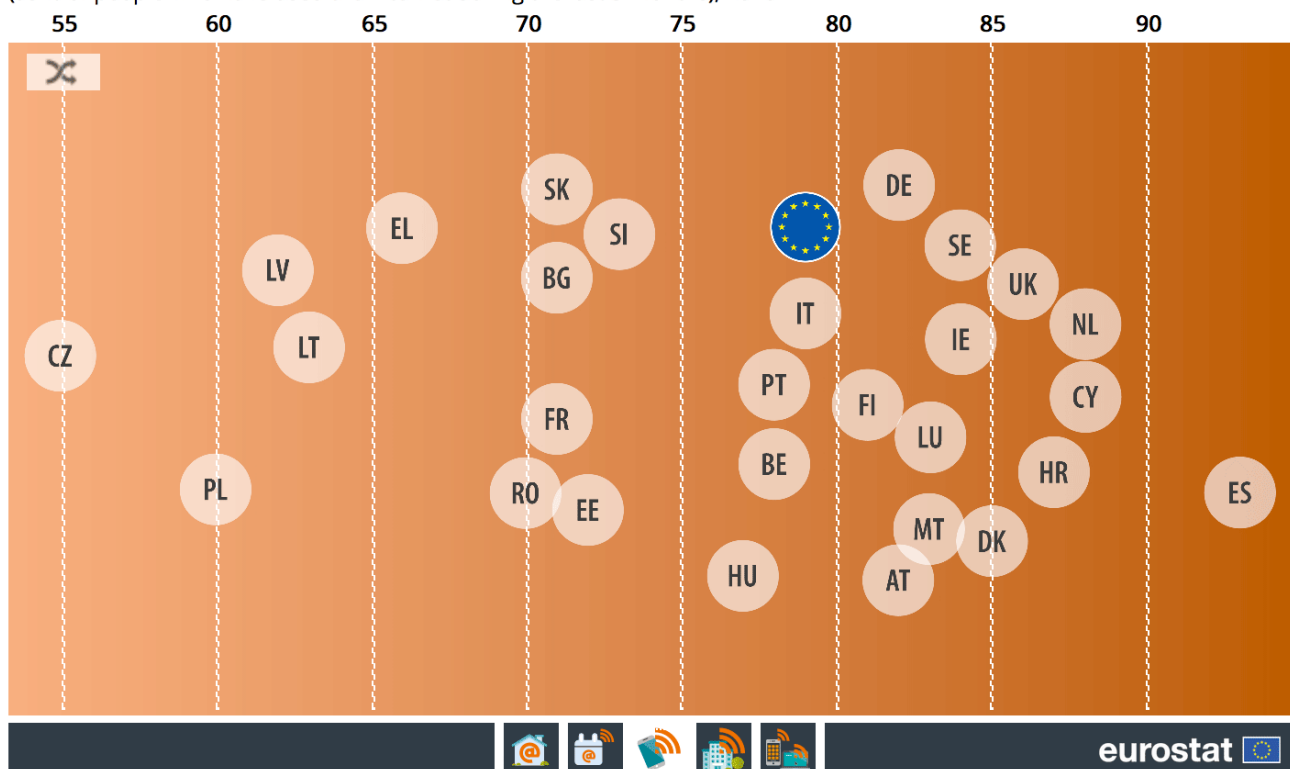
4 out of 10 EU households use mobile broadband

In 2017, 87 % of households in the EU had access to the internet, compared with 70 % in 2010. This share was slightly higher for households in urban areas (90 %) than in rural areas (82 %).

Among the 13 % of households without internet access, the two main reasons for not having access were that the internet was not considered to be useful (46 %) and that the people concerned lacked the necessary skills (43 %).

In 2017, most households (85 %) had a broadband internet connection. The share of households with fixed broadband rose from 57 % in 2010 to 75 % in 2017. During the same period, the percentage of households with a mobile broadband connection via a mobile phone network quadrupled from 10 % to 42 %.

People using a mobile phone to go online   
(as % of people who have used the internet during the last 3 months), 2016



8 out of 10 EU internet users go online with a mobile phone

For many people in the EU, using the internet has become a common activity: 84 % were internet users, meaning they had been online at least once during the last 3 months prior to the 2017 survey.

This share was slightly higher for people living in urban areas (88 %) than for those in rural areas (78 %). However, there were still some people who had never used the internet, but their share steadily declined from 27 % in 2010 to 13 % in 2017.

Most internet users said that they accessed the internet regularly during these 3 months: 87 % of them were online every day and a further 10 % at least once per week, but not daily. The highest shares of daily internet users were found in Italy (96 %), Denmark, Malta, the Netherlands and Sweden (all 94 %).

Nowadays, internet users have many options as to how they can go online and they often use more than one device to do so. In 2016, mobile/smart phones were the most frequently used device as reported by 79 % of internet users in the EU, 64 % said they used a laptop/netbook, 54 % a desktop computer and 44 % a tablet.

Among the EU Member States, the highest shares of users accessing the internet via a mobile/smart phone were found in Spain (93 %), Cyprus and the Netherlands (both 88 %). In 2016, mobile/smart phones were used by almost all younger internet users aged 16 to 24 years (94 %) in the EU to surf the internet. This was also the case among those aged 25 to 34 years (91 %), while it was just 48 % of older users aged 65 to 74 years.

BUSINESSES

7 out of 10 EU businesses use mobile broadband

Nowadays, for many businesses having internet access is indispensable for their daily activities. This is reflected in the fact that just 3 % of businesses in the EU did not have an internet connection at the beginning of 2017, with the highest shares found in Romania (15 %) and Greece (13 %).

Among those EU businesses with internet access, the vast majority (96 %) used fixed broadband to go online. However, mobile broadband connections are becoming more common: in 2017, this type of access was used by 71 % of businesses, compared with just 28 % in 2010.

Among large businesses, 93 % used a mobile broadband connection in 2017, compared with 70 % of small and medium sized businesses (SMEs).

Among the EU Member States, the use of mobile broadband connections was highest for businesses in Finland (94 %), Denmark (92 %) and Croatia (87 %).

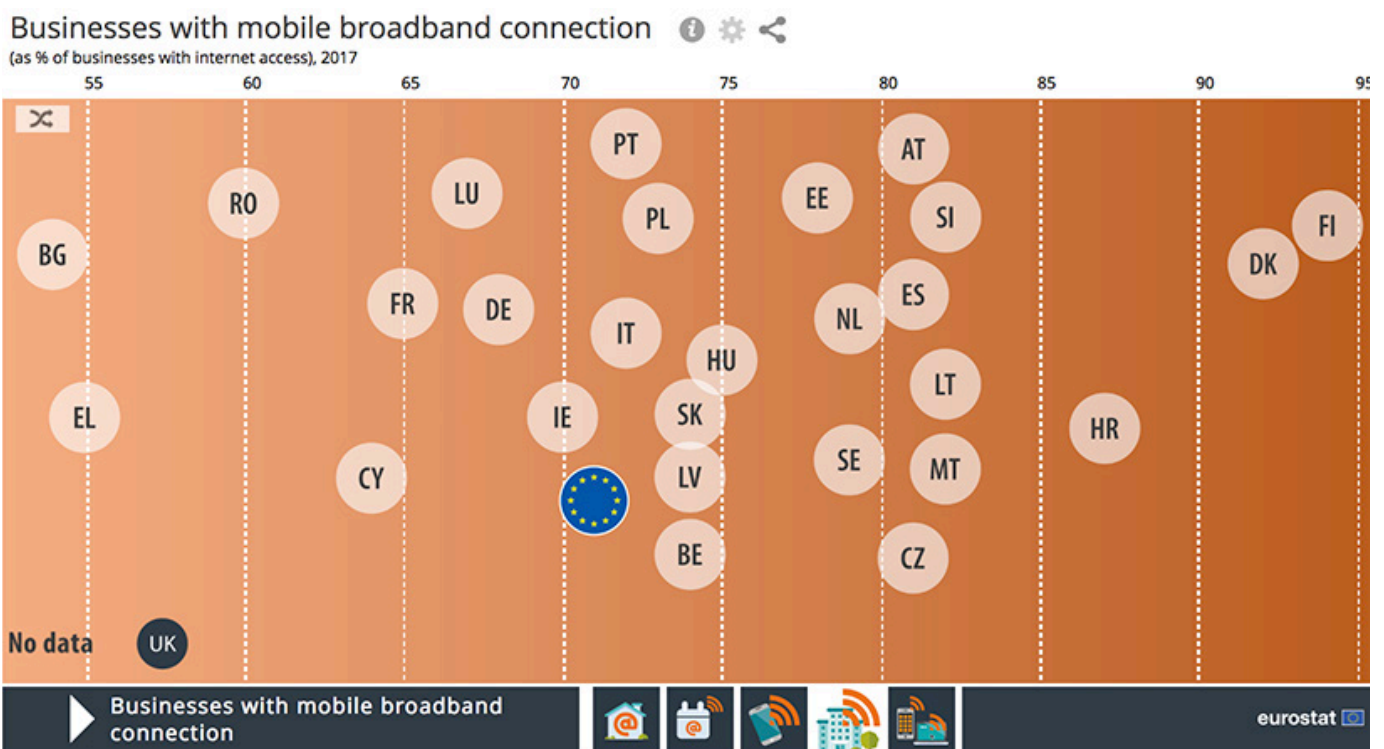
During recent years, the speed of internet connections has increased considerably and faster connections have become widely available. Between 2011 and 2017, the share of businesses in the EU which had a connection speed of at least 100 Mbit/s more than doubled from 6 % to 16 %.

7 out of 10 EU businesses provide portable devices to staff

In 2017, half of all employees in the EU used a computer with access to the internet. This share was slightly higher for large businesses (54 %) than for SMEs (49 %).

70 % of businesses provided their employees with a portable device with a mobile internet connection. This was the case for almost all businesses in the Nordic Member States: Finland and Denmark (both 92 %), while it was less common in Romania (50 %) and Bulgaria (51 %).

Taking a more detailed look at the reasons why businesses provide their staff with such a portable device, it appears that accessing work e-mails was the main purpose, as reported by 86 % of EU businesses in 2016, while other reasons included working on business' documents (50 %) or using business software applications (44 %).



1.2 Living online: what the internet is used for

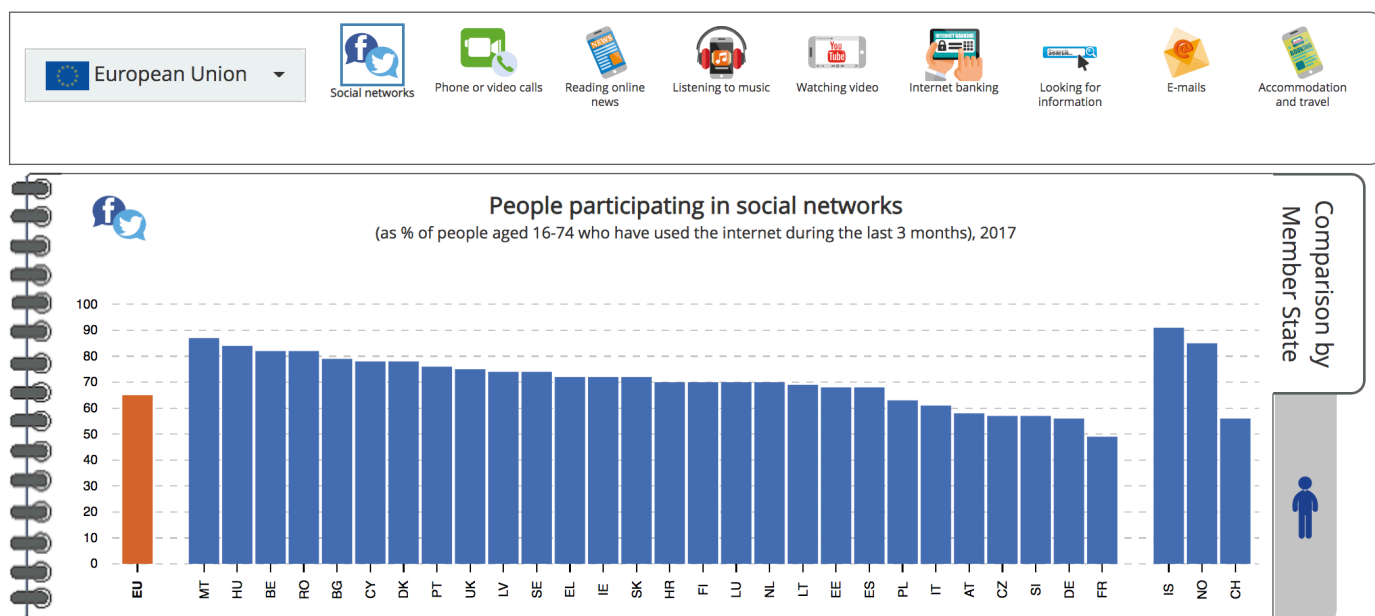
PEOPLE

Online phone and video calls on the rise in the EU

Taking a closer look at what internet users in the EU do when they are online shows that the most common activities in 2017 were sending and receiving e-mails (86 % of people who had used the internet during the last 3 months), finding information (78 %), reading online news (72 %) and participating in social networks (65 %).

Over the last six years, a range of online activities gained in popularity: the share of internet users making phone or video calls via the internet increased from 29 % in 2011 to 46 % in 2017, as did the share of those using social networks, from 53 % to 65 %.

Online behaviour of internet users differs between EU Member States: in 2017, making online telephone and video calls was most popular among internet users in Bulgaria (85 %), while participating in social networks was most common in Malta (87 %) and Hungary (84 %). The Netherlands and Finland (both 93 %) as well as Denmark (92 %) had the highest shares of internet users who used internet banking and Lithuania (93 %), Czechia and Croatia (both 91 %) of those who read news online.



90 % of younger EU internet users participate in social networks

Age is an important factor determining differences in the use of the internet. Among younger users aged 16 to 24 years in the EU some of the most popular online activities included participating in social networks (90 % in 2017), watching videos from commercial or sharing services such as YouTube or Netflix (83 % in 2016) and listening to music (80 % in 2016). On the other hand, for older users aged 65 to 74 years, reading the news (65 %) and seeking health information (59 %) were among the most popular online activities in 2017.

In 2017, the share of younger internet users who were active on social networks ranged from 78 % in France and 84 % in Italy to 99 % in Croatia and 98 % in Denmark and Hungary, while among older internet users this share was below 60 % in almost all EU Member States, except for Belgium (60 %) and Malta (71 %).

BUSINESSES

In 2017 8 out of 10 internet users in the EU searched online for information about goods or services. As a response, businesses are increasing their internet presence, for example by having a website, using social media or targeted advertising.

26 % of EU businesses with a website offer online ordering or booking

In the EU, 79 % of businesses with internet access had their own website in 2017, compared with 71 % in 2010. Among the EU Member States, this share was highest in Finland (96 %), Denmark (95 %) and Sweden (92 %).

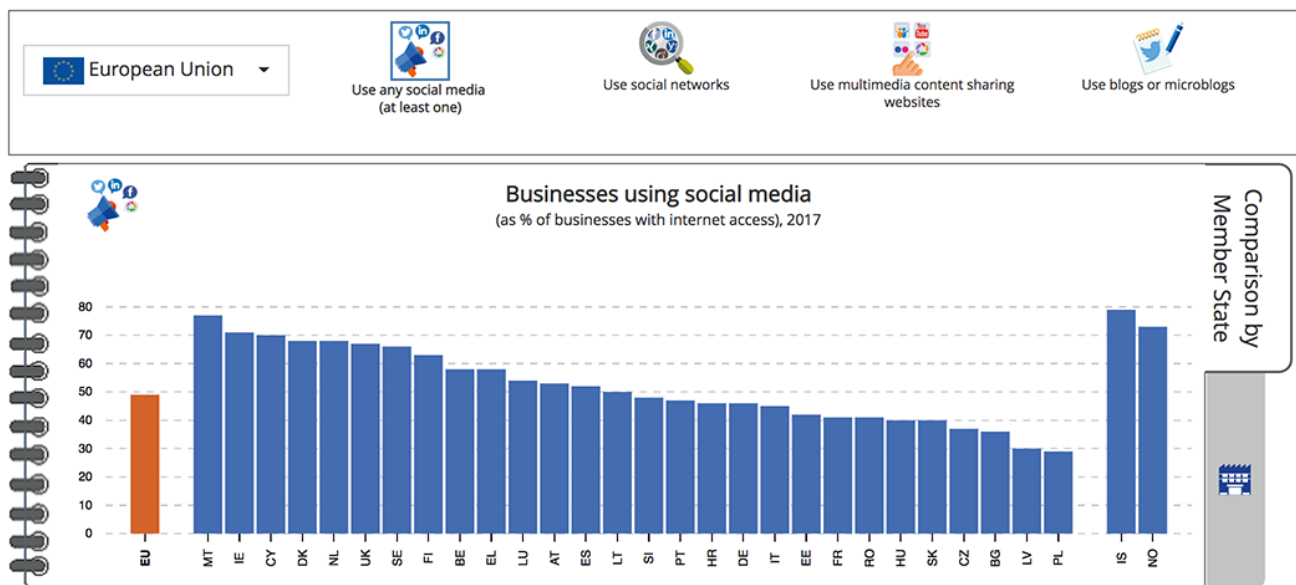
Looking in more detail, the share of businesses with their own website is linked to the size of businesses: almost all large businesses (94 %) in the EU had a website in 2017 compared with 79 % of SMEs. Internet presence, measured by the share of businesses with their own website, is also linked to the economic sector in which a business operates: almost all businesses in the accommodation sector (96 %) had a website compared with 65 % of businesses whose main activity was in transportation & storage.

Businesses use their website to provide different information and functionalities to their customers or business partners. Most commonly, those businesses which had a website in 2017 provided product catalogues or price lists (73 %), while 26 % offered online ordering, reservation or booking options, and 11 % had website functionalities that provided for online tracking of orders.

Social networks: the most widely used social media of EU businesses

In addition to websites, businesses can use social media channels to spread information or for marketing/promotional purposes. Almost half of all EU businesses with internet access (49 %) reported in 2017 that they used at least one social media channel: most common were social networks (such as Facebook, LinkedIn or Xing) that were used by 46 % of businesses with internet access, followed by multimedia content sharing websites (such as YouTube, Flickr or Picasa) which were used by 16 % and blog or microblogs (such as Twitter) used by 15 %.

Among the EU Member States, the highest share of businesses with internet access which use social networks were recorded in Malta (76 %), while the largest share for multimedia content-sharing websites was registered in the Netherlands (29 %) and for blogs or microblogs in the United Kingdom (44 %).



There are a variety of reasons why businesses in the EU may choose to use social media: the most popular uses included developing the image of their business or marketing their products (84 % of businesses which used at least one social media channel in 2017), obtaining or responding to customers' opinions or answering their questions (56 %) and recruiting employees (49 %).

Reaching the right audience: 26 % of EU businesses use internet ads

Especially for the online marketing of goods and services, just over one quarter (26 %) of EU businesses with internet access reported in 2016 that they used the internet for targeted advertising. Among the EU Member States, internet advertising was most popular in Malta (47 % of businesses with internet access), followed by Sweden (42 %) and Denmark (40 %).

A closer look at the types of internet advertising used by businesses shows that contextual advertising was the most widespread form (78 % of EU businesses which advertised online in 2016). Less common forms of internet advertising included geo-targeted advertisements (30 %), behavioural targeting (27 %) and other methods (35 %).

1.3 Digital skills for a digital world

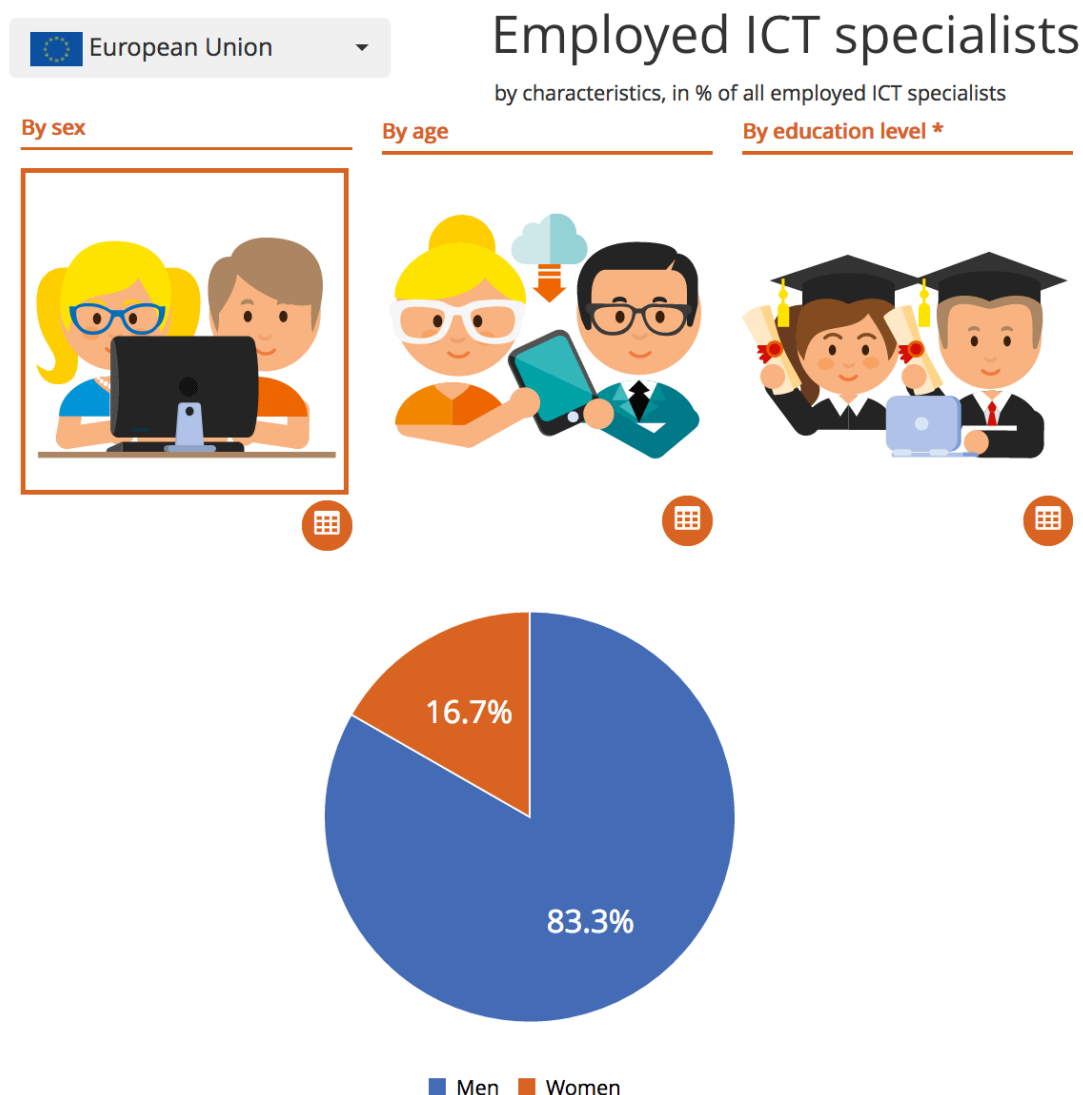
PEOPLE

Information and communication technologies (ICT) have a considerable impact on living and working conditions. Nowadays, an increasing number of businesses rely on ICT for their daily operations and this often requires the development and maintenance of ICT systems by specialists.

Employment of ICT specialists rose during the last 10 years

In the EU, 3.7 % of the total number of persons employed in 2016 were ICT specialists; this equated to 8.2 million persons. The highest shares of ICT specialists in total employment were registered in Finland (6.6 %), Sweden (6.3 %) and the Estonia (5.3 %).

In contrast to most other professions, employment developments of ICT specialists were largely unaffected by the financial and economic crisis. During the last decade, the number of employed ICT specialists increased by 33 % across the EU, compared with the 2 % growth for total employment. During the same period, the share of businesses which recruited or tried to recruit ICT specialists remained relatively stable at around 8 %.



ICT specialists are predominantly highly educated men aged 35+

In 2016, a large majority of ICT specialists who were employed in the EU were men (83 %), their share rising from 78 % in 2010. This gender distribution of ICT specialists was in contrast to the distribution for total employment, where the genders were broadly balanced (54 % men and 46 % women). Female ICT specialists were under-represented in all EU Member States and the largest gender gaps were found in Slovakia (91 % were men) and Czechia (89 %). The highest shares of female ICT specialists were recorded in Bulgaria (30 %) and Romania (26 %).

In 2016, almost two thirds of ICT specialists in the EU were aged 35 years or over (64 %), with the highest shares found in Italy (76 %) and Finland (71 %). By contrast, the highest shares of younger ICT specialists aged 15 to 34 years were recorded in Malta (63 %), Latvia and Poland (both 54 %). The majority of ICT specialists (62 %) in the EU had completed a tertiary education level. Among the EU Member States, this share varied from 33 % in Italy to 82 % in Ireland.

Over 90 % of people with an ICT education in the EU have a job

ICT education provides a very good basis for job opportunities on the labour market: in the EU in 2016, a high proportion of people with an ICT education were in employment (91 %), either as an ICT specialist or in another occupation.

The highest employment rates for persons with an ICT education were recorded in Malta (98 %), Germany, Hungary and Estonia (all 97 %). ICT education was a predominantly male choice: in the EU, only 16 % of employed people with an ICT education were women. In 2016, most employed persons who possessed an ICT diploma in the EU were younger than 35 years (67 %) and had completed tertiary education (72 %).

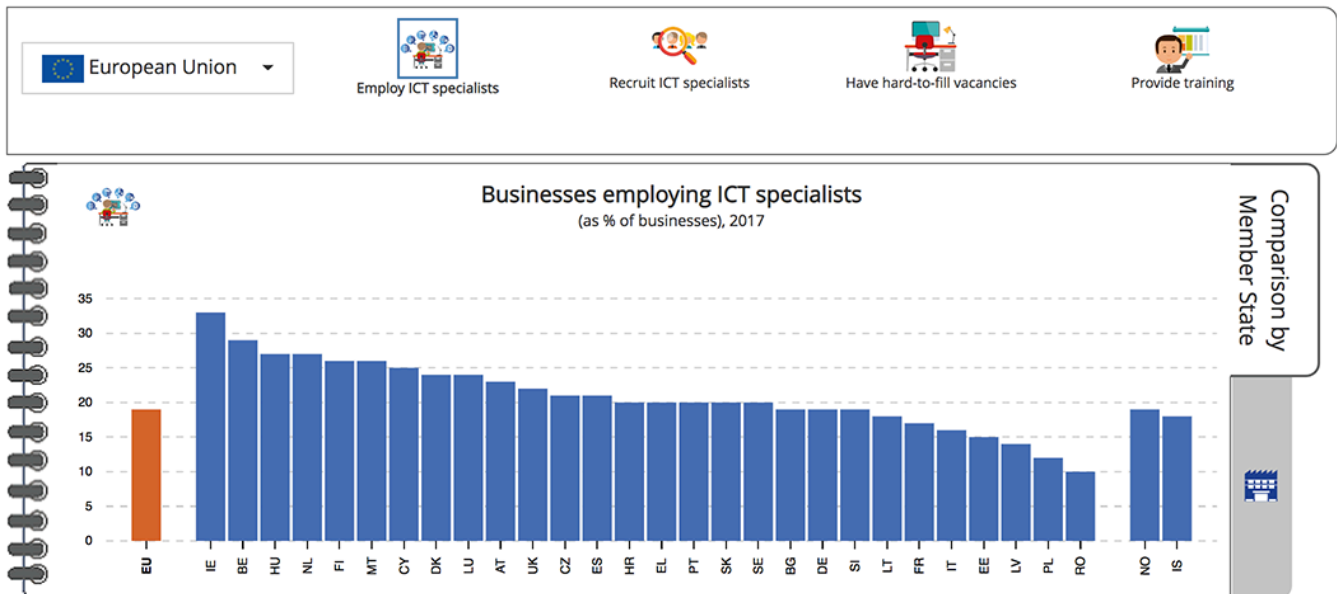
BUSINESSES

From the perspective of businesses, specialised ICT skills are often essential for the effective use of ICT in business' processes and commercial transactions which are carried out electronically.

Three quarter of large businesses in the EU employ ICT specialists

In 2017, around one fifth of businesses (19 %) in the EU employed ICT specialists. This share has been more or less stable since 2012. Among the EU Member States, the highest shares of businesses employing ICT specialists were recorded in Ireland (33 %) and Belgium (29 %). The difference between SMEs and large businesses in the EU was remarkable: while 75 % of the latter employed ICT specialists, the share among SMEs was just 18 %.

This difference was most pronounced in Austria (87 % of large companies compared with 21 % of SMEs), Poland (74 % compared with 10 %) and Slovenia (81 % compared with 17 %) and least distinct in Romania (42 % and 9 %).



EU businesses have difficulties recruiting ICT specialists

In 2017, 8 % of businesses in the EU reported having recruited or tried to recruit ICT specialists. Among the EU Member States, this share was highest for businesses in Belgium, Estonia, Luxembourg and the Netherlands (all 13 %). Again, there was a considerable difference by business size class: while 42 % of large businesses in the EU recruited or tried to recruit specialists in the EU, the corresponding figure was just 7 % for SMEs.

This difference was most pronounced in Denmark (55 % of large companies compared with 11 % of SMEs), the United Kingdom (50 % and 8 %) and Austria (49 % and 8 %) and least distinct in Cyprus (23 % and 9 %).

In the EU, almost half of the businesses (48 %) which recruited or tried to recruit ICT specialists had difficulties to fill their vacancies. Among the EU Member States, this situation was most widespread among businesses in Malta (70 %), Czechia and Austria (both 67 %) and Luxembourg (65 %).

Besides recruiting ICT specialists, businesses may choose to provide ICT training to their staff as well as outsource ICT tasks to external suppliers. In the EU in 2017, 21 % of companies reported having provided training to develop or upgrade ICT skills of their personnel. In addition, half of all EU businesses had their ICT functions mainly carried out by external suppliers in 2016, with the highest shares found in Italy (62 %), Belgium, Czechia and Portugal (all 61 %). While 50 % of SMEs in the EU made use of ICT outsourcing, this was done by a much smaller proportion of large businesses (28 %).



2. E-COMMERCE

2.1 Online shoppers & e-purchases

E-shopping is becoming increasingly widespread in the EU as consumers appreciate the advantages such as being able to shop anytime and anywhere, having access to a broader range of products and being able to compare prices easily.

E-shopping on the rise, especially among younger internet users

Among people in the EU who had used the internet in the year prior to the 2017 survey, 68 % were e-shoppers, meaning they had ordered goods or services online during this period, compared with 50 % in 2007. Looking at the EU Member States, more than 8 out of 10 internet users in the United Kingdom (86 %), Sweden (84 %), Denmark, Germany, Luxembourg and the Netherlands (all 82 %) shopped online during the previous year.

E-shopping is common among all age groups: in 2017, the highest share of e-shoppers in the EU was observed among internet users aged 25 to 34 (77 %), followed by those aged 35 to 44 years (72 %) and 16 to 24 years (71 %). Among the older internet users aged 65 to 74 years, 52 % had purchased goods or services online during the last year.

Over the last 10 years, the share of e-shoppers in the EU increased for all age groups, but most notably for younger internet users aged 16 to 24 years (from 44 % in 2007 to 71 % in 2017).

In 2017, the highest shares of e-shoppers among internet users aged 16 to 24 years were registered in the Netherlands (90 %), Sweden (89 %) and the United Kingdom (88 %). Also, the United Kingdom (75 %) had the highest shares of older online shoppers aged 65 to 74 years.

Over the last 10 years, the share of younger e-shoppers aged 16 to 24 years increased most in Slovakia (from 24 % to 82 %) and of older e-shoppers aged 65 to 74 years in Denmark (28 % to 64 %) and Belgium (16 % to 46 %).

Clothes & sports goods: most popular online purchases in the EU

Around 6 out of 10 e-shoppers in the EU had bought clothes and/or sports goods online during year prior to the 2017 survey, making this the top category of online purchases. Other common purchases included household goods (46 % of e-shoppers in the EU), holiday accommodation (43 %), tickets for events (39 %) and other travel arrangements (38 %), such as transport tickets or car hire. Less common were online purchases of food or groceries (24 % of e-shoppers) and medicine (13 %).

Among the EU Member States, the highest shares of online shoppers who ordered clothes and/or sports goods during the previous year were observed in Romania (75 %), Malta and the United Kingdom (both 74 %).

Buying household goods online was most common in the United Kingdom (65 % of e-shoppers), booking holiday accommodation online in Luxembourg (65 %), ordering tickets for events in Denmark (69 %) and booking other travel arrangements in Sweden (65 %).

In the Netherlands, 37 % of e-shoppers had purchased food or groceries online and 31 % of e-shoppers in Germany had bought medicine via the internet.

7 out of 10 younger e-shoppers order clothes & sports goods online

Looking in a bit more detail, it appears that age is one factor for explaining differences in the types of goods or services purchased online. The highest share of e-shoppers in the EU who purchased clothes and/or sports goods online in the previous year was found among those aged 16 to 24 years (71 %).

Booking holiday accommodation online in the previous year was most widespread among online shoppers aged 45 to 54 years (48 %) and booking other travel arrangements among those aged 25 to 34 and 55 to 64 years (both 40 %).

The age group of 35 to 44 year olds (55 %) had the highest share of e-shoppers who bought household goods online in the previous year, while the 65 to 74 year olds were the most likely to have ordered medicine via the internet (19 %).

Among the EU Member States, ordering clothes and/or sports goods via the internet was most widespread among younger e-shoppers aged 16 to 24 as well as among the older ones aged 65 to 74 years in Romania (86 % of younger and 69 % of older e-shoppers) and the United Kingdom (83 % and 54 %).

Booking holiday accommodation online was most widespread among older e-shoppers in Luxembourg (63 %) and among younger e-shoppers in Malta (51 %), whereas Cyprus (63 %) had the highest share of older and Estonia (64 %) of younger e-shoppers who booked other travel arrangements.

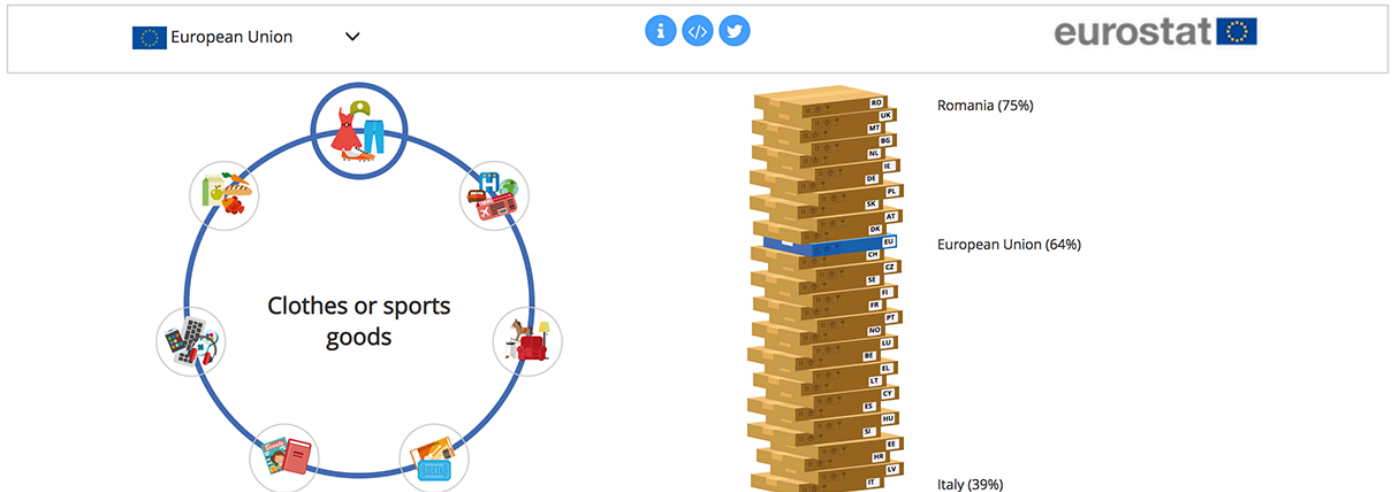
Lithuania and the United Kingdom (both 56 %) had the highest shares of older e-shoppers that had purchased household goods online, while the United Kingdom (47 %) also had the highest share among younger people.

Trouble-free e-shopping for most online shoppers

The majority of e-shoppers (69 %) in the EU had not experienced any problems when ordering or buying online during the year prior to the 2017 survey. Among the problems that were encountered the most frequently mentioned were delay of delivery (17 % of e-shoppers) and technical failures of websites (11 %).

Online shopping

(as % of people who ordered goods/services online during the last 12 months), 2017



2.2 Online businesses & e-sales

Over the last few years, the share of people ordering goods or services online increased steadily. Businesses selling their goods or services via the internet can potentially reach a large number of online customers and complement their traditional sales channels.

20 % of EU businesses sell online; this makes up 18 % of turnover

In 2017, 20 % of EU businesses reported that they conducted e-commerce sales (e-sales) to consumers, other businesses and/or public authorities; this is a moderate increase compared with 15 % in 2010. Among the EU Member States, conducting e-sales was most common for businesses in Ireland (33 %), Sweden (31 %) and Denmark (30 %).

In the EU, the share of large businesses making e-sales (44 %) was more than twice as high as for SMEs (20 %). Belgium and Ireland (both 59 %) had the highest shares of large businesses conducting e-sales, while the highest shares for SMEs were observed in Ireland (32 %) and Sweden (30 %).

Looking at the turnover generated by e-sales, this amounted to 18 % of total turnover in the EU; a small increase compared with 14 % in 2010.

Among the EU Member States, e-sales turnover was highest for businesses in Ireland (33 % of total turnover), followed by Belgium and Czechia (both 31 %).

The share of turnover from e-sales for large EU businesses (26 %) was more than twice as high as for SMEs (10 %). Large businesses in Czechia (43 %) and Ireland (42 %) generated the highest e-sales shares among all Member States. The same two Member States also reported the highest share of e-sales turnover for SMEs (Ireland 23 % and the Czechia 16 %).

16 % of EU businesses sell via websites; this makes up 7 % of turnover

Placing orders with businesses that sell online can be done via websites or apps (web sales) or in an automated way via EDI-type messages; businesses may offer one or both options to their clients.

When ordering online via a business' website, customers such as other businesses or internet users may use online order forms or apps to choose the goods or services they want to purchase. Web sales to other businesses are called B2B (business-to-business) sales and those to consumers are called B2C (business-to-consumer) sales.

EDI-type sales, on the other hand, are sales where orders are automatically placed and processed using computer-to-computer communication, based on a standard data exchange format. This means that no human intervention is needed in this process. Big supermarket chains, for example, use this method to order products in larger quantities from suppliers (see also our animation).

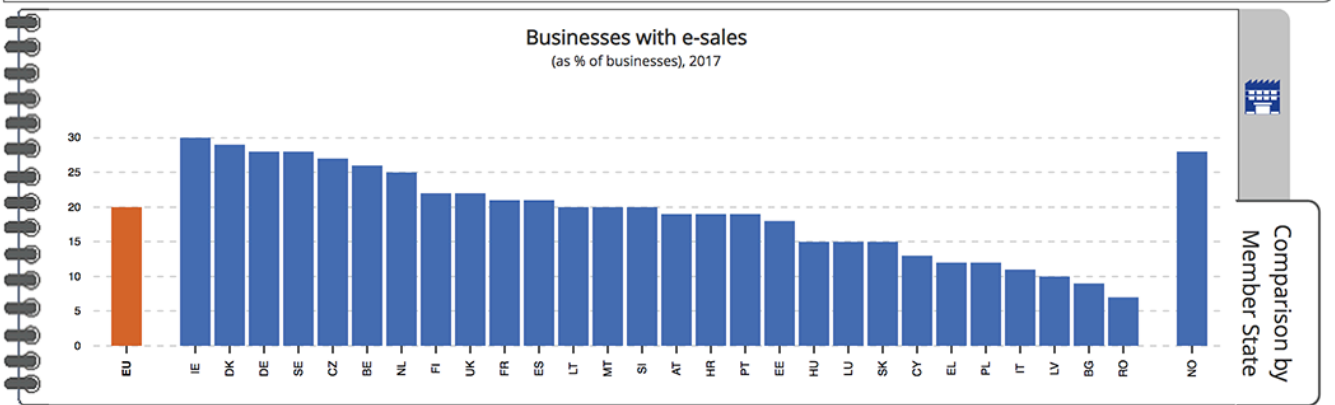
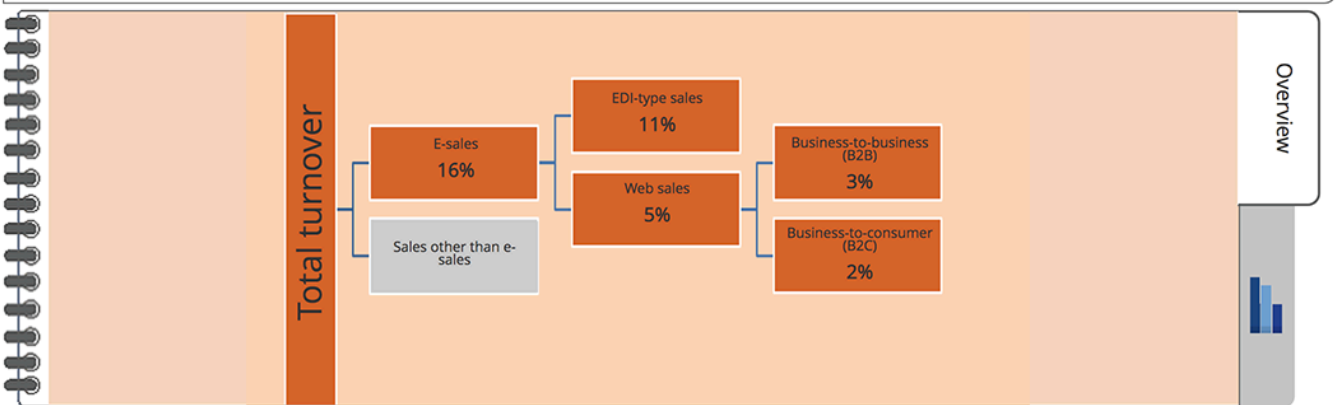
In 2017, 16 % of EU businesses reported having received online orders via a website or apps and 7 % via EDI-type messages. Looking at the turnover, the opposite situation can be observed: the share generated by EDI-type sales (12 % of total turnover) was more almost twice as high as that from web sales (7 %).

Among the EU Member States, Ireland reported the highest shares of businesses with web sales (26 %) as well as with sales via EDI-type messages (16 %). Ireland also recorded the highest share of turnover generated from web sales (16 %), while Czechia registered the highest share of turnover from EDI type sales (22 %).

13 % of EU businesses make B2C sales; this makes up 3 % of turnover

In the EU in 2017, 13 % of businesses reported having conducted web sales to consumers (B2C) and 11 % to other businesses (B2B). Of the 7 % of total turnover generated by web sales, 3 % came from B2C sales and 4 % from B2B sales.

Among the EU Member States, the highest share of businesses making B2C sales was found in Ireland (23 %), while the highest share of businesses making B2B sales was registered in Sweden (18 %). The share of turnover generated from B2C sales was also highest in Ireland (9 %), while that from B2B sales was highest in Belgium (10 %).

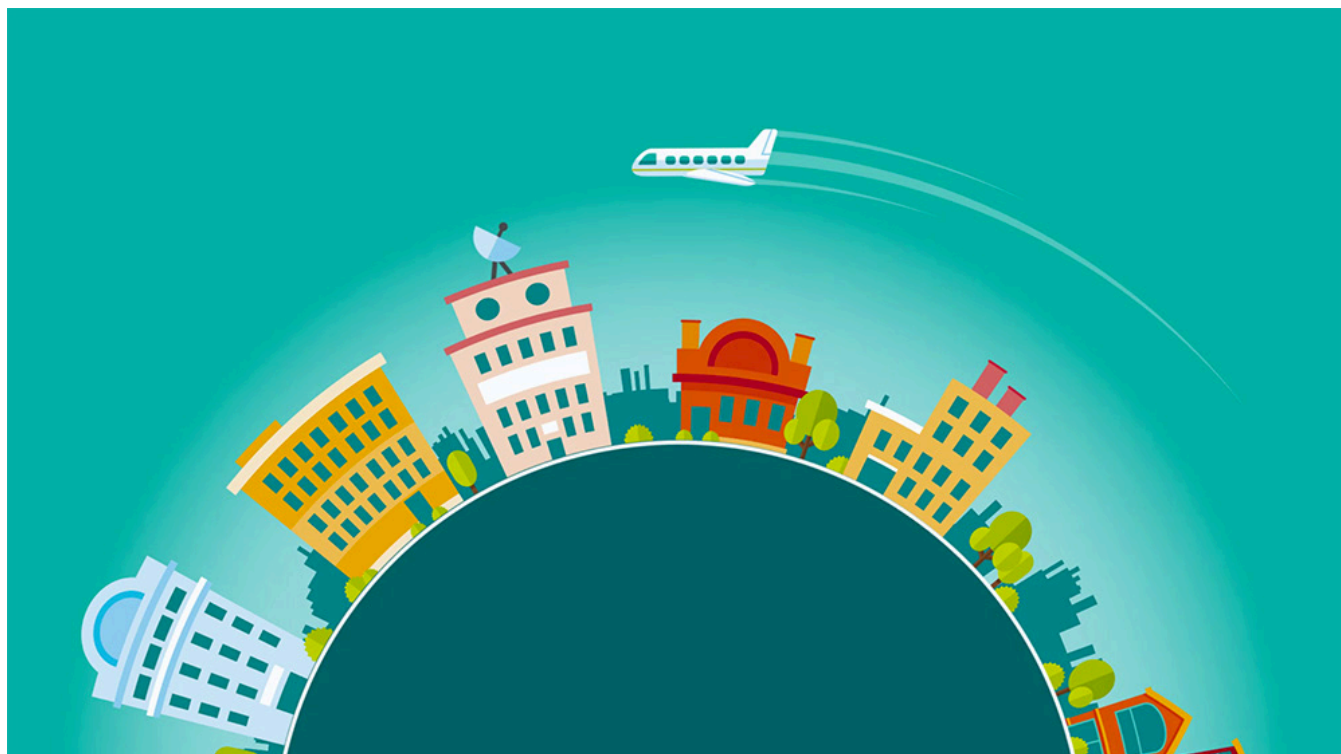


2.3 E-commerce turnover explained

Did you know that your online purchases only make up 2 % of business turnover in the EU?

No?

Then watch our short and entertaining video to get to know more about the turnover of EU businesses generated by e-sales.





3. INTERNET SECURITY & THE CLOUD

3.1 Safe surfing: A brief look on internet security

PEOPLE

Many online activities require internet users to provide some type of personal information: credit card details are often needed when shopping online; contact details when filling in online forms or setting up accounts; location coordinates when looking for the nearest petrol station, etc.

4 out of 10 EU internet users provide payment details online

Among people in the EU who have used the internet in the year prior to the 2016 survey, 71 % had provided some kind of personal information online. The most common types were contact details (61 % of internet users), followed by personal details such as name, date of birth or identity card number (52 %) and payment details, such as credit/debit card or bank account number (40 %). Just over one fifth (22 %) had provided other personal information such as photos, their location, or information related to their health, employment or income.

The share of internet users who had provided some kind of personal information over the internet ranged from 31 % in Romania to 92 % in Luxembourg.

Younger generations seem to provide personal information online more readily: more than three quarters (78 %) of internet users aged 16 to 24 years had shared some kind of personal information online, compared with 57 % of users aged 65 to 74 years.

Almost 2 out of 10 EU internet users use anti-tracking software

A number of different actions can be undertaken by internet users, separately or together, to control access to personal information on the internet. Almost half of all internet users (46 %) in the EU did not allow the use of personal information for advertising purposes and 40 % limited the access to their profile or content on social networking sites.

Other actions undertaken were reading privacy policy statements before providing personal information (37 %), checking that the website was secure (37 %), restricting access to geographical location (31 %) and requesting websites to update or delete personal information stored online (10 %).

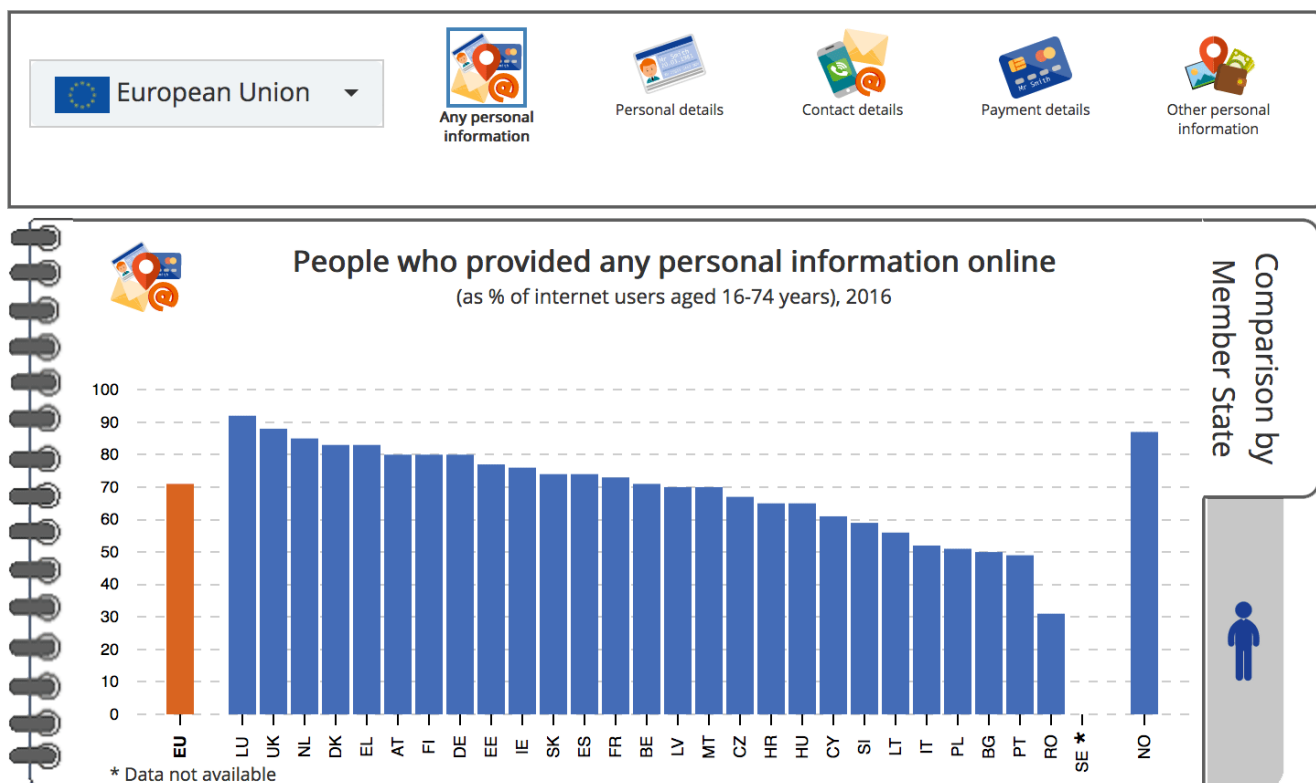
Among the EU Member States, the share of internet users who had undertaken at least one of the above mentioned actions was highest in Luxembourg (91 %), Finland (87 %) and Denmark (85 %).

Among internet users aged 16 to 24 years in the EU, 77 % had undertaken at least one of the above mentioned actions, compared with 56 % of users aged 65 to 74 years.

Other ways to limit the access to personal information online are for example to change the browser's settings to prevent or limit the amount of cookies on the computer/device or to use anti-tracking software. More than one third of internet users (35 %) in the EU had changed their browser settings to prevent or limit the amount of cookies stored on their computer, while 17 % used anti-tracking software.

Among the EU Member States, the share of internet users having changed their browser settings to prevent or limit the amount of cookies was highest in Luxembourg (54 %) and Germany (49 %), while the share of those having used using anti-tracking software was highest in Estonia (31 %).

These shares were higher for younger EU internet users aged 16 to 24 years than for older ones aged 65 to 74 years. Almost 40 % of younger internet users limited or prevented the amount of cookies and 19 % used anti-tracking software, compared with almost one quarter of older internet users who changed their browser's setting concerning cookies (24 %) and 14 % who used anti-tracking software.



Three quarters of EU internet users experience no security problems

Among people in the EU who have used the internet during the year prior to the 2015 survey, three quarters had not encountered any security related problem when being online. However, the most common problem that was encountered was catching viruses or similar computer infections resulting in a loss of information and time; this was experienced by 21 % of internet users in the EU.

Less common was the abuse of personal information and/or other privacy violations which 3 % of internet users had faced, and financial loss as a result of receiving fraudulent messages or getting redirected to fake websites (3 % of internet users).

Among the EU Member States, around 9 out of 10 internet users in Czechia (90 %) and the Netherlands (89 %) had not experienced any online security problems. However, 41 % of internet users in Croatia and 36 % in Hungary stated in 2015 that their computer had caught a virus or other infection.

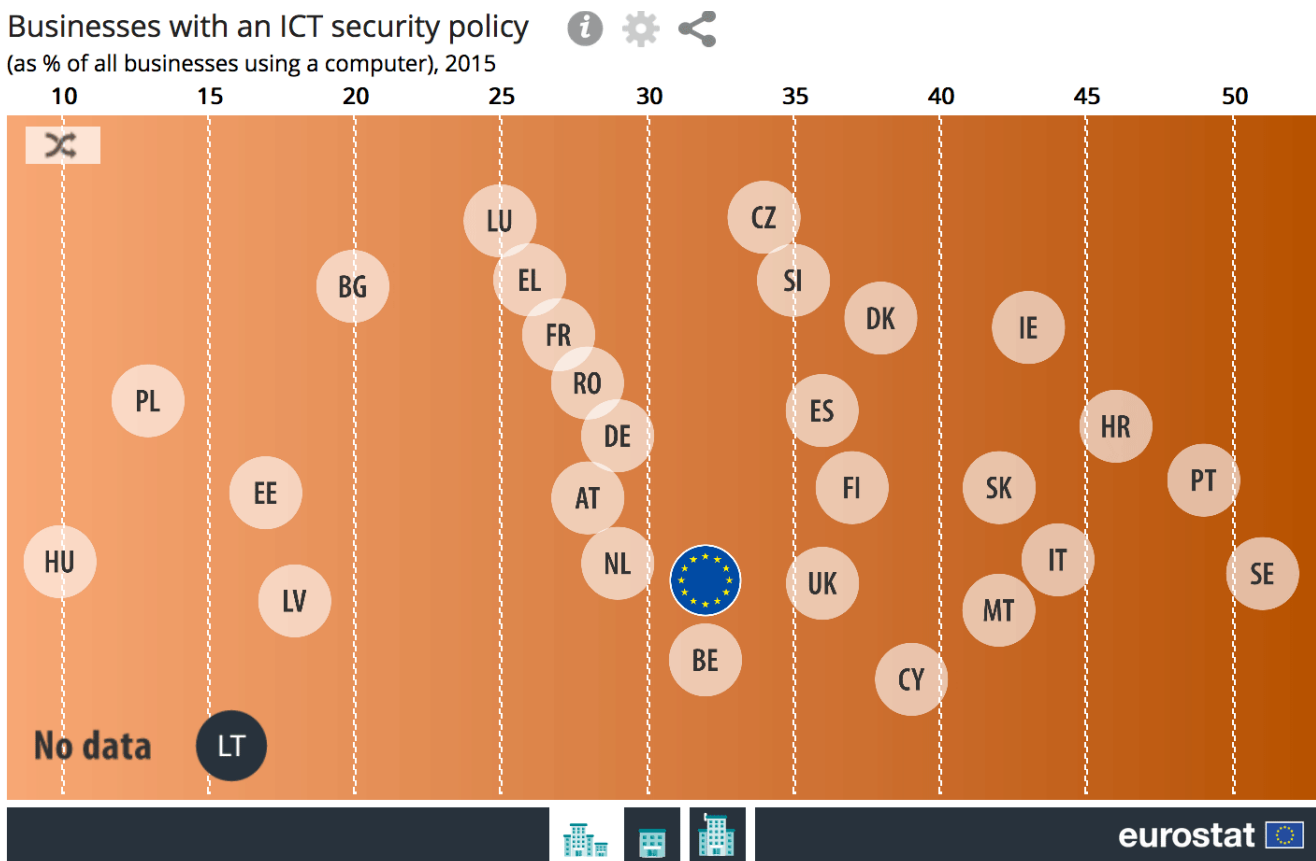
The share of older internet users aged 65 to 74 years in the EU who had not experienced any security problems (80 %) was slightly higher than for younger internet users aged 16 to 24 years (72 %). Among both age groups, the most common security problem was catching a computer virus or other infection (24 % of younger and 16 % of older internet users).

BUSINESSES

Having a formally defined ICT policy indicates that a business is aware of the risks to which their ICT systems are potentially exposed. Having such a policy implies a strategy to safeguard data and infrastructure.

3 in 10 SMEs in the EU have an ICT security policy

Nowadays, practically all businesses in the EU (98 %) use computers and among those, only 32 % have a formally defined ICT security policy. For large businesses, this share reached 72 %, while it was less than one third for SMEs (31 %).



Among the EU Member States, around half of all businesses using a computer in Sweden (51 %) and Portugal (49 %) had such a policy, while it was least common for businesses in Hungary (10 %) and Poland (13 %).

Risk most commonly addressed: destruction or corruption of data

Among others, a business' ICT security policy may address the following three types of risks: destruction or corruption of data due to an attack or some other unexpected incident; disclosure of confidential data due to intrusion, pharming or phishing attacks; and the unavailability of ICT services due to an external attack.

In 2015, the risk of destruction or corruption of data was the risk most commonly addressed by EU businesses with an ICT security policy (89 %). A smaller share of businesses addressed the risk of disclosure of confidential data (81 %) and the risk of unavailability of ICT services (71 %) in their ICT security policies.

As the share of large businesses having an ICT security policy was higher than for SMEs, they were also more likely to address the various risks. In 2015, 93 % of large businesses addressed the risks of destruction or corruption of data, compared with 89 % of SMEs; 85 % addressed the risks of disclosure of confidential data, compared with 81 % of SMEs; and 78 % addressed the risks of unavailability of ICT services, compared with 70 % of SMEs.

Among the EU Member States, the largest shares of businesses with an ICT security policy addressing the risk of destruction or corruption of data were found in Cyprus and Hungary (both 99 %) as well as in Romania (97 %). Malta (92 %), Ireland and the United Kingdom (91 %) registered the highest shares of businesses with an ICT security policy addressing the disclosure of confidential data and Hungary (87 %) and Ireland (85 %) the unavailability of ICT services.

3.2 Use of cloud services

PEOPLE

One third of EU internet users use cloud services

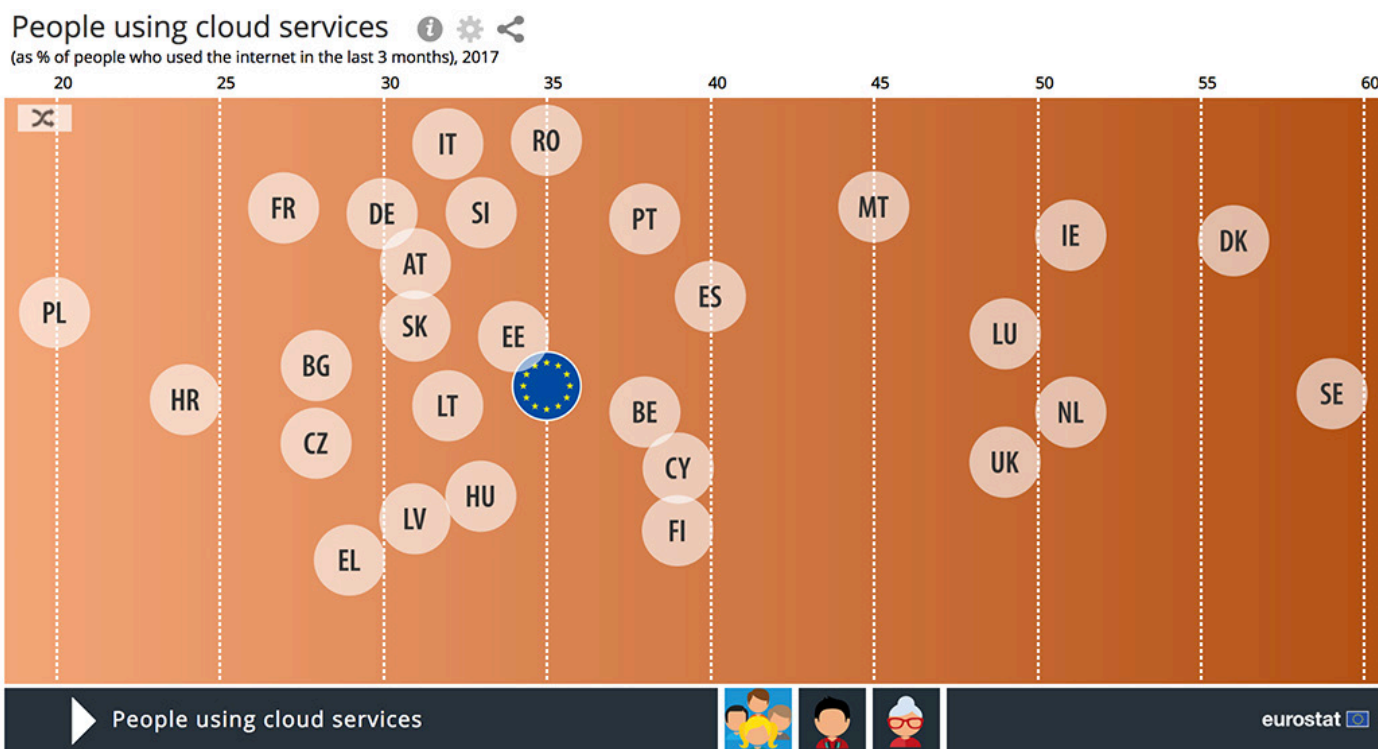
Cloud services provide the possibility for internet users to save documents, pictures, music and other files, irrespective of the device being used; the cloud also opens up possibilities to collaborate and share information with other people. In 2017, over one third (35 %) of people in the EU who had used the internet within the 3 months prior to the survey had used cloud services; this was a 8 percentage points increase compared with 2014.

Among the Member States, the share of cloud users ranged from one fifth in Poland (20 %) to more than half of all internet users in Sweden (59 %), Denmark (56 %), Ireland and the Netherlands (both 51 %). Compared with 2014, this share increased most in Sweden (+22 percentage points), while it remained almost stable in Croatia (+1 percentage point).

Cloud services most popular among younger EU internet users

In the EU, half of younger internet users aged 16 to 24 years took advantage of cloud services, whereas the lowest share was registered among older internet users aged 65 to 74 years, of whom 20 % used these services.

In 2017, the use of cloud services was most common among younger internet users in Sweden (74 %) and Malta (71 %) and among older internet users in Denmark (38 %) and Luxembourg (35 %).



BUSINESSES

Large EU businesses are twice as likely to use cloud services

Instead of building or expanding their own IT infrastructure, businesses can access computing resources such as cloud services hosted by other parties on the internet. In 2016, practically all businesses in the EU (97 %) had access to the internet. Among them, 22 % purchased cloud computing services; this is a minor increase compared with 19 % in 2014. This share was considerably higher for large businesses (45 %) than for SMEs (21 %).

Among the EU Member States, the purchase of cloud services by businesses in 2016 was most common in Finland (57 %), Sweden (49 %) and Denmark (42 %).

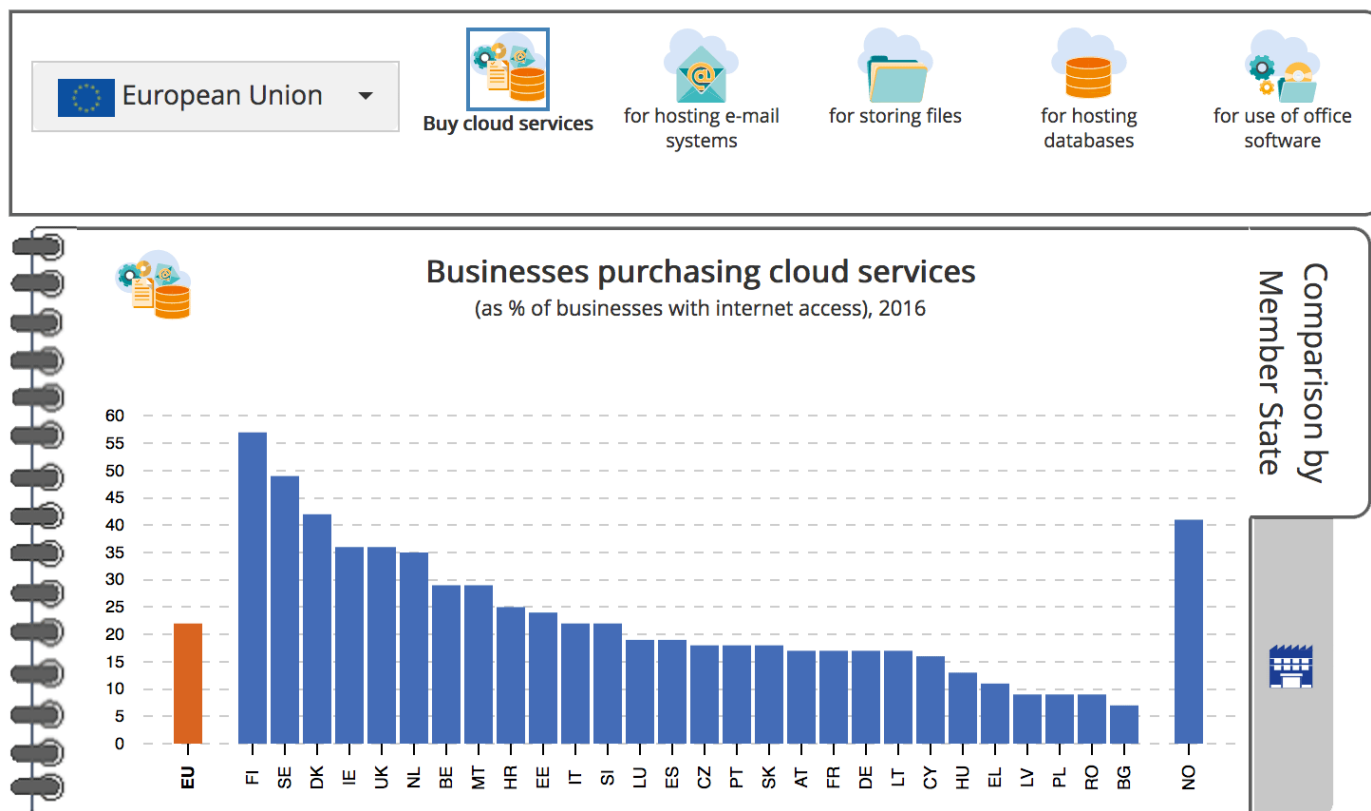
Main purposes of cloud services: hosting e-mails & storing files

Businesses may purchase cloud services for a variety of purposes such as hosting their e-mail systems or databases, storing files, using software applications and many more. Among EU businesses which purchased cloud services in 2016, the two most common purposes were hosting e-mail systems (65 %) and storing files in electronic form (62 %). Businesses also commonly use cloud services for hosting their databases (44 %) and to use office software (41 %).

With this technology businesses can also access more advanced and specialised software applications, for example for finance or accounting software which was done by 32 % of businesses or customer relationship management software which was used by 27 %.

For both SMEs and large businesses, the main purposes for buying cloud services were storing files (both 62 %) and hosting e-mail systems (65 % of SMEs and 54 % of large businesses).

Looking at these two purposes among businesses in the EU Member States, more than 80 % of businesses in Italy (85 %) and Slovakia (82 %) used cloud services for hosting e-mail systems, while more than 70 % of businesses in Ireland (75 %) and Cyprus (72 %) used the cloud to store files electronically.





4. WHAT IS THE DIGITAL SINGLE MARKET ABOUT?

Digital technologies and in particular the internet are transforming our world and the European Commission wants to make the EU's single market fit for the digital age – moving from 28 national digital markets to a single one.

Up until now, EU citizens and businesses have often faced barriers when using online tools and services. These barriers mean that consumers have restricted access to some goods and services, businesses cannot reap all benefits from digitisation, and governments and citizens cannot fully benefit from this digital transformation. The Digital Single Market opens new opportunities, as it removes key differences between online and offline worlds, breaking down the barriers to cross-border online activity.

The Digital Single Market strategy was adopted on 6 May 2015 and is one of the European Commission's 10 political priorities. It is made up of three policy pillars :

1. Improving access to digital goods and services

The Digital Single Market strategy seeks to ensure better access for consumers and business to online goods and services across Europe, for example by removing barriers to cross-border e-commerce and access to online content while increasing consumer protection.

2. An environment where digital networks and services can prosper

The Digital Single Market aims to create the right environment for digital networks and services by providing high-speed, secure and trustworthy infrastructures and services supported by the right regulatory conditions. Key concerns include cybersecurity, data protection/e-privacy, and the fairness and transparency of online platforms.

3. Digital as a driver for growth

The Digital Single Market Strategy aims at maximising the growth potential of the European Digital Economy, so that every European can fully enjoy its benefits – notably by enhancing digital skills, which are essential for an inclusive digital society.

Read more about the Digital Single Market on the website of the Directorate-General 'Communications Networks, Content and Technology'.

Glossary

Anti-tracking software

Anti-tracking software is a software that limits the possibility to track the activities of an internet user online.

Behavioural targeting

Behavioural targeting is a form of targeted internet advertising, based on information about users' past browsing activities recorded by cookies. Businesses may use this information to determine whether an internet user belongs to a specific target audience, subsequently sending internet ads that match the user's profile.

Broadband / Fixed broadband

Broadband refers to telecommunications in which a wide band of frequencies is available to send data. Broadband telecommunication lines or connections are defined as those transporting data at high speeds, with a speed of data transfer for downloading data (also called capacity) equal to or higher than 144 kbit/s (kilobits per second).

The most widely used types of fixed broadband internet connections are digital subscriber line (DSL) connections (e.g. ADSL, VDSL, etc.) or other wired fixed connections, such as modem cable, fibre optic cable, Ethernet, LAN, PLC, etc. The wired fixed connections may or may not have a router for Wi-Fi access in the household, in other words for wirelessly routing the signal to the users' device over a short distance.

Businesses

The ICT survey covers businesses with at least 10 persons employed that have their main economic activity (according to NACE Rev. 2) in: manufacturing; electricity, gas and steam; water supply; construction; wholesale and retail trade, repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; information and communication; real estate; professional, scientific and technical activities; administrative and support activities; repair of computers and communication equipment.

Cloud computing

Services based on cloud computing technology allow users to store files or use software on a server run over the internet.

Cloud computing involves two components, a cloud infrastructure and software applications. The first consists of the hardware resources required to support the cloud services being provided and typically includes servers, storage and network components. The second refers to software applications and computing power for running business applications, as provided via the internet by third parties. Contextual advertising

Online contextual advertising is a type of targeted internet advertising that uses technologies embedded in websites and apps that choose ads based on the content of the web pages that are viewed by internet users. Internet users are presented with ads that automated systems (ad servers) have selected for them based on the content of the webpage(s) they are browsing. Similarly, contextual advertising can be based on the specific keywords used in the user's latest query from the same device.

Cookies

An internet cookie is data from a website stored on the user's device. It can be used for many purposes, such as to log browsing activity and habits or to store information that may be commonly reused, such as login and password information, names, addresses, telephone numbers and payment details.

E-commerce

E-commerce refers to the trading of goods or services over computer networks such as the internet. It can be divided into e-commerce sales (e-sales) and e-commerce purchases (e-purchases).

Glossary

Employed persons

Employed persons are those aged 15 years and over living in private households, who during the reference week performed work, even for just one hour, for pay, profit or family gain, or were not at work but had a job or business from which they were temporarily absent, for example because of illness, holidays, industrial dispute or education and training. For more information, see here.

E-sales

E-sales are sales of goods or services via computer networks such as the internet. E-sales may be done via websites or apps (which allow for online ordering or reservation or booking, e.g. shopping cart) or via EDI-type messages.

EDI-type (Electronic Data Interchange) e-commerce refers to structured transmission of data or documents between businesses by electronic means allowing automatic processing using for example EDI format or XML format.

E-shoppers

E-shoppers or online shoppers are internet users who have ordered goods or services online during the 12 months prior to the survey.

Geo-targeted advertisements

Geo-targeting is a type of targeted internet advertising that refers to the use of internet users' geographic location such as the country, region, city and often zip code that provide useful information for targeting suitable ads, for example about nearby shops, restaurants or transport services.

ICT security policy

ICT security policy refers to measures, controls and procedures applied on ICT systems in order to ensure integrity, authenticity, availability and confidentiality of ICT data and systems. In addition, a policy should describe the various actors and their responsibilities in relation to incident handling and possible contingency plans.

ICT specialists

ICT specialists are defined as those who have the ability to develop, operate and maintain ICT systems and for whom ICT constitutes the main part of their job.

Information and communication technology

Information and communication technology, abbreviated as ICT, covers all technical means used to handle information and aid communication. This includes both computer and network hardware, as well as their software.

Internet access

For households, internet access refers to the possibility for anyone in a household to access the internet from home, in other words whether or not a connection exists that offers internet access. It is not the same as 'connectivity', which indicates whether or not a connection could feasibly be made in the household's area or street.

For businesses, internet access means having an external connection from the business to the internet through an 'internet service provider' (ISP). Internet users

An internet user is defined as a person making use of the internet in whatever way; whether at home, at work or from anywhere else; whether for private or professional purposes; regardless of the device or type of connection used.

Large businesses

Large businesses are those with 250 or more persons employed.

Mobile broadband

Mobile broadband is the name used to describe various types of wireless high-speed internet access through a portable modem, telephone or other device, using a connection via the mobile phone network (at least 3G).

Glossary

Other methods of targeted advertising

These concern the use of static internet ads on subject-specific websites (for example, displaying ads for spare parts of car engines on websites that cover vehicles or an automotive theme) or on websites such as online newspapers, magazines or blogs for specific audiences.

Phone or video calls via the internet

Phone or video calls via the internet using a webcam and applications, such as Skype, Facetime, etc.

Portable device

This can be portable computers (for example, a laptop, netbook, tablet) or handheld devices (for example, a smart phone, smart watch or other devices such as a media or games console, or an e-book reader).

Rural areas

Rural areas are thinly populated areas where at least 50% of the population lives in rural grid cells.

Small and medium sized enterprises (SMEs)

These are businesses with 10 or more, but fewer than 250 persons employed.

Social media

Social media refer to internet-based applications such as social networks (for example Facebook, LinkedIn or Xing), blogs (for example Twitter), content-sharing websites (for example YouTube, Flickr, Picasa) and wikis. Businesses using social media are those that use the internet and have a user profile, account or user licence, depending on the requirements and type of social media concerned.

Social networks

Participating in social networks refers to activities such as creating user profiles, posting messages or other contributions to Facebook, Twitter, etc.

Targeted internet advertising

Targeted internet advertising focuses on using internet-based technologies that increase the likelihood of promotional marketing messages reaching the right audience. Targeted internet advertising includes dynamic ads using various methods such as online contextual advertising, behavioural targeting and geo-targeting as well as the use of static ads on subject-specific websites (for example, displaying ads for spare parts of car engines on websites that cover vehicles or an automotive theme).

Tertiary education

This refers to ISCED (International Standard Classification of Education) 2011 levels 5-8. Tertiary education is provided by universities and other higher education institutions and is the level of education following secondary schooling. For more information, see here.

Urban areas

Urban areas are defined as the sum or average of cities, towns and suburbs.

Cities are densely-populated areas, where at least 50 % of the population lives in an urban centre; Towns and suburbs are intermediate density areas, where less than 50 % lives in an urban centre but more than 50 % of the population lives in an urban cluster.

INFORMATION

Digital economy and society in the EU is a digital publication released by Eurostat, the statistical office of the European Union.

For further information see:

[The dedicated section](#) on digital economy and society on the Eurostat website.
[Articles on the digital economy and society](#) in Statistics Explained.

Information on data

Date of data extraction/update: 01 February 2018 for text and all data visualisations. Due to the changing content/questions of the ICT survey questionnaires, not all data could be updated using the 2017 surveys results.

ICT usage data are organised in Eurostat's online database according to the year in which the survey was conducted.

For households/people, most countries collected data in the 2nd quarter of the survey year. In general, data refer to the 1st quarter of the survey year. Data on e-commerce and internet security refer to the 12 months prior to the survey.

For businesses, most data refer to the situation during the survey period. Data on ICT specialists, ICT functions and e-commerce refer to the year preceding the survey year.

In the visualisations, data marked as 'not available' can be missing, unreliable or confidential. For more information, please see the source dataset available below each visualisation.

Contact

If you have questions on the data, please contact the [Eurostat User Support](#).

Identifiers of the digital publication:

Catalogue number: KS-04-18-130-EN-Q

ISBN 978-92-79-79916-7

Doi: 10.2785/436845

[Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of the following information.]

Luxembourg: Publications Office of the European Union, 2018

© European Union, 2018

Reuse is authorised provided the source is acknowledged.

The reuse policy of European Commission documents is regulated by Decision 2011/833/EU (OJ L 330, 14.12.2011, p. 39).

Cover photo: © Shutterstock - copyright VLADGRIN - Image number: 217829920

Menu icons: © Fontawesome

For any use or reproduction of photos or other material that is not under the EU copyright, permission must be sought directly from the copyright holders.

For more information, please consult: <http://ec.europa.eu/eurostat/about/policies/copyright>