

Chapter B Households and ICT

In recent years, we have witnessed some significant changes in the use of information and communication technologies (hereinafter referred to as the “ICT”) not only in the Czech Republic, but also abroad. This mainly concerns the switch-over from non-portable devices, such as desktop computer or a fixed telephone line, to portable and mobile devices and connection. Whereas the percentage of households equipped with a computer in the Czech Republic has not been increasing dramatically any more, the percentage of households equipped with several ICT devices is still on the rise. Also, the character of usage of these digital devices has been changing from shared usage to individual.

On a long-term scale, the Czech Statistical Office has been recording these changes by means of a yearly harmonised survey in all EU countries on the usage of ICT in households¹. The results from this survey, on the expansion of selected digital technologies to Czech and European households, provide interesting data, especially if monitoring the individual types of households. They confirm how great the difference may be between the households with or without children, households of younger generation compared to households of pensioners, and between the households of various income groups.

B.1 Households and telephone

With some exceptions, all households in the Czech Republic currently have access to a telephone². Compared to the past, when mainly the fixed telephone line was used, nowadays all households prefer the usage of mobile phones. Whereas Czech households changed fixed telephone lines to mobile phones, both types of devices are to some extent still commonly used in some EU countries.

Households with a fixed telephone

The way in which the Czech population is using telephony is changing rapidly. Fewer households have a fixed telephone connection. Telephone calls are more often routed via internet applications and the number of mobile subscriptions is growing. In addition, the function of the mobile telephone is changing. Many people are now using their smartphone for internet browsing and to communicate via internet applications, such as WhatsApp and social media. These changes have drastic consequences for the telecom market.

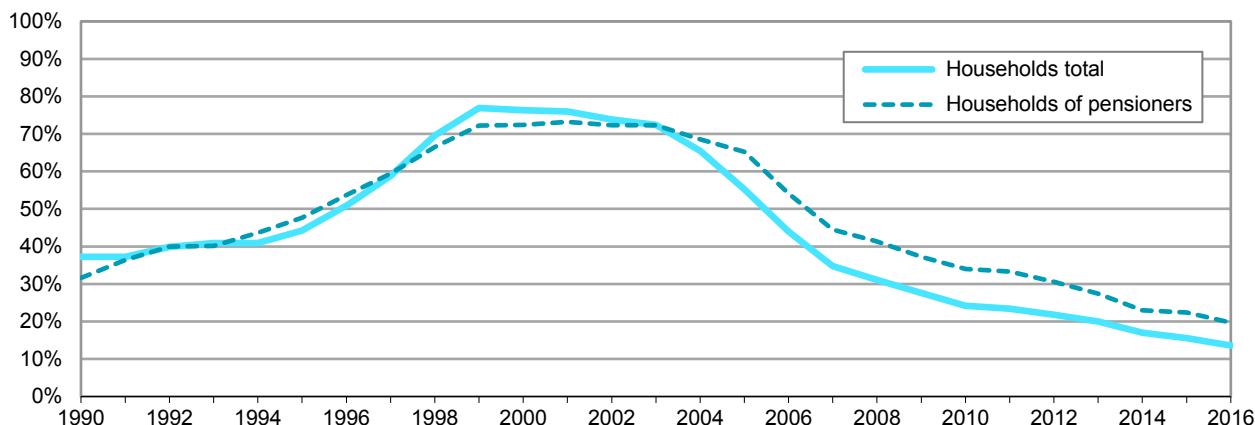
- Since 2000, the percentage of Czech households using **fixed telephone lines** has been decreasing. At the end of 2016, a fixed telephone was used by less than 14% of households, whereas in 2000 they were used by three quarters of Czech households.
- A fixed telephone is most frequently used in the households of **pensioners**. In 2016 a fixed telephone was still used by a fifth of these households. In the households of **“young”** families, the use of fixed telephone lines, in order to make phone calls, is rather exceptional. In 2016, a fixed telephone was used by 1.5% of households with a leading person aged up to 29.

¹ Since 2002, Czech Statistical Office monitors detailed data on the expansion of selected ICT in households by means of **Selective Survey on ICT usage in households (VŠIT)**. The survey is carried out by means of a survey sample of approx. 5 thousand households and the results are compared to all private households in the Czech Republic. Since 2006, the survey is carried out yearly in the 2nd quarter of the monitored year in all EU countries as a mandatory survey stipulated by the Regulation (EC) No. 808/2004 of the European Parliament and of the Council concerning Community statistics on the information society. The foundation for the selection of surveyed topics, forms of individual concepts and questions is the yearly updated model survey carried out by Eurostat. The ascertained data from this survey serves primarily to the regular monitoring of performance of individual targets of Digital Agenda for Europe and also the public administration of the Czech Republic with respect to the development of information society and digital economics. For more details see (*only in Czech*): https://www.czso.cz/csu/czso/domacnosti_a_jednotlivci

² Data concerning the equipment of households with a fixed telephone line and a mobile phone as of the end of the monitored year was collected from the **Statistical Report of Family Accounts of the CZSO** where the data is available with respect to individual types of households and various surveyed topics. Within the scope of this statistical report, this data was last monitored for the year 2016.



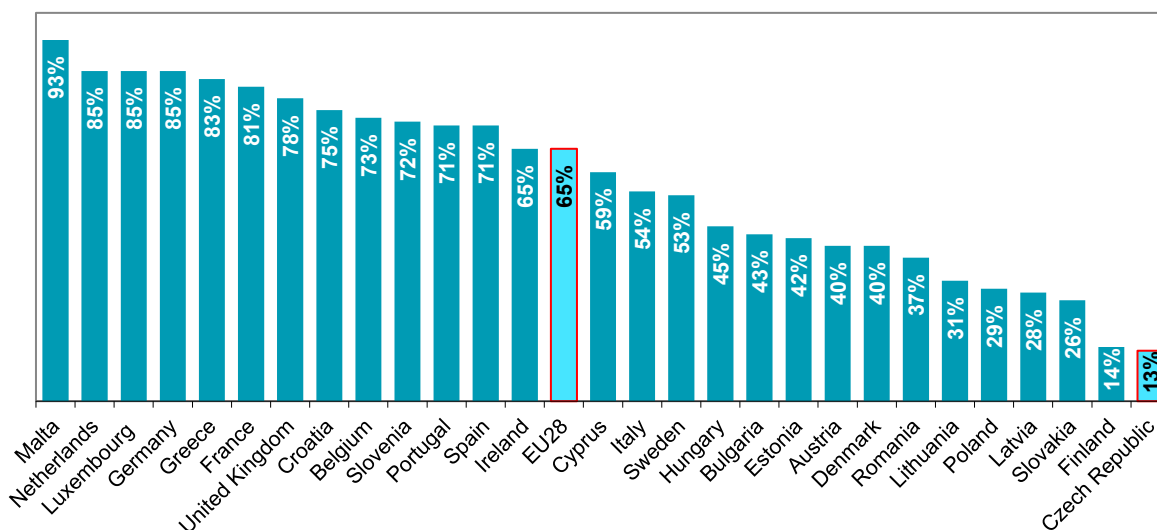
Figure B1 Share of households in the Czech Republic with a fixed telephone (%)



Source: Czech Statistical Office 2018, Household Budget Survey

- **Among the EU countries**, the least frequent usage of a fixed telephone line within households is in the Czech Republic. In 2015 – new data for international comparison is not available – only 13% of households claimed to be using a fixed telephone line for voice services. A similar percentage (14%) was recorded in Finland.
- Opposed to this, the **EU28 average** still reached a relatively high number (65%), which was due to the high percentage of households using a fixed telephone line within its largest countries: 85% in Germany, 81% in France, and 78% in Great Britain. However, the highest percentage overall was recorded in Malta (93%).

Figure B2 Share of households in EU countries with a fixed telephone in 2015 (%)*



* as a percentage of all households in a given country

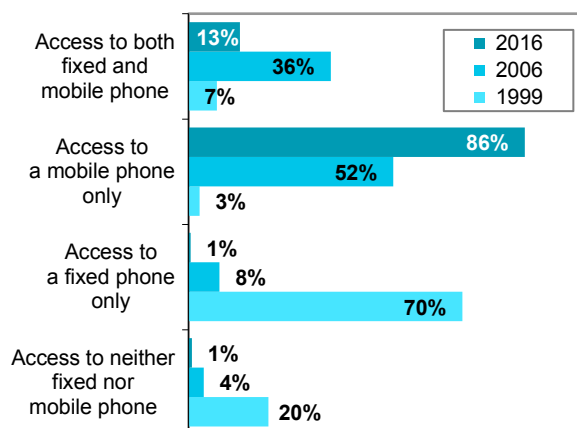
Source: European Commission 2017, Eurobarometer 438 E-Communications Survey

Households with a mobile telephone

- In the past few years, the most commonly used information technology in Czech households has been a **mobile phone**. In 2016 a mobile phone was owned nearly by all Czech households (99%), whereas in 2000 it was only a third.
- In 2016, the average **number of mobile phones** used in Czech households, was one device (0.99) per each household member over the age of 6; eleven years ago, it was only 0.64 of a device.
- The difference in household **equipment by mobile phones** is recorded within various income categories of households. While in 2016, households with the highest income (the fifth income quintile) had one

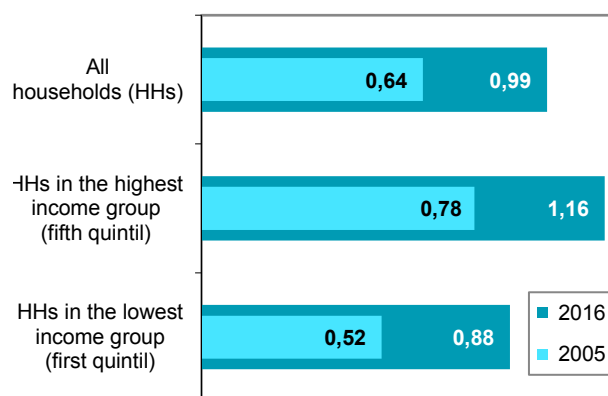
member over the age of 6 using 1.16 mobile phones, in households with the lowest income (the first income quintile) it was 0.88 of a mobile phone.

Figure B3 Households in the Czech Republic with access to a telephone (%)



Source: CZSO 2018, Household Budget Survey

Figure B4 Number of mobile phones used in Czech households per 1 member of household*



* per 1 member aged 6+ living in a given type of household

Source: CZSO 2018, Household Budget Survey

- The Czech Republic, together with Finland, belongs to the two EU countries with **only mobile phone access**, i.e. households do not have a fixed telephone, but only a mobile phone. In 2015 there were 84% of such households in the Czech Republic and in Finland the number was even higher – 87% – whereas the EU28 average in the same year was 33%.

Households telecommunication expenditures

Along with the expansion of mobile phone usage between the years 1995 and 2005, the percentage of household expenditure on telecommunication services has also increased with respect to the total expenditure. Subsequently, despite further expansion of mobile phone usage, the increase slowed down significantly; in the Czech Republic as well as the EU it has even been decreasing in recent years. Despite this fact, however, Czech citizens spend a higher percentage of their total income on telecommunication services than the EU average.

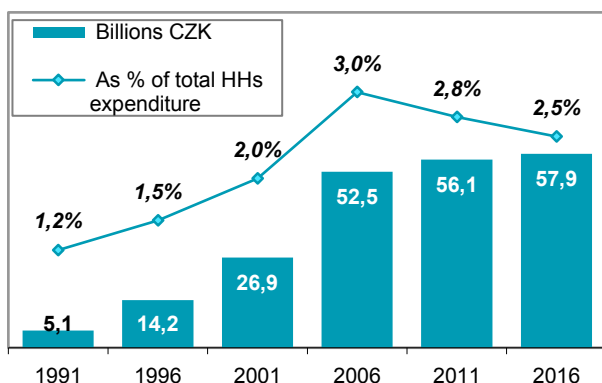
- In 2016, the **total** expenditure of Czech households **on telecommunication services** amounted³ to nearly 60 billion CZK. The share of this expenditure was 2.5% of total household expenditure – ten years ago (in 2006), it was 3%, and 20 years ago it was only 1.5%.
- In 2016, the amount spent on telecommunication services **per one household member**⁴ was 4.7 thousand CZK; in households with the highest income (the fifth income quintile), the average amount spent was 6.3 thousand CZK, and in households with the lowest income (the first income quintile), the amount spent was 3.7 thousand CZK.

³ Data on **total household expenditure for telecommunication services** (CZ-COICOP: 08.3) was obtained from the Czech Database of National Accounts using the national concept, which includes expenditure of residents in the Czech Republic and abroad spent on telecommunication services dedicated to direct satisfaction of needs and wishes of individuals. Expenditure for telecommunication services includes not only fixed line and mobile phone related services, but also payments for internet connection and bundled (packages) services. Further information: http://apl.czso.cz/pll/rocenka/rocenkavyber.spotr_dom?mylang=EN

⁴ Data on household consumption expenditures for telecommunications services – **annual averages in CZK per household member** – was obtained from Household Budget Surveys, where data is available in a wide range of classifications by type of household or type of telecommunication service. Further information: <https://www.czso.cz/csu/czso/expenditures-and-consumption-of-households-included-in-the-household-budget-survey-2016>

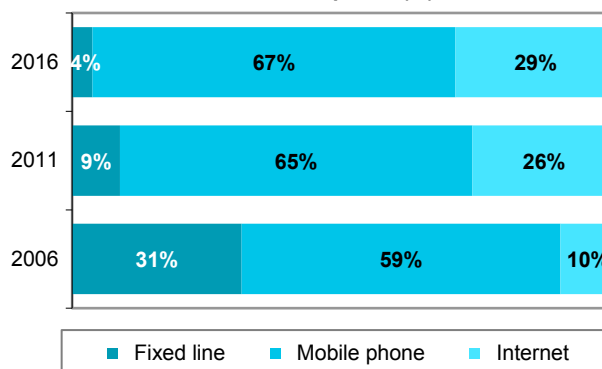


Figure B5 Household consumption expenditure for telecomm. services in the Czech Republic



Source: CZSO 2018, National Accounts

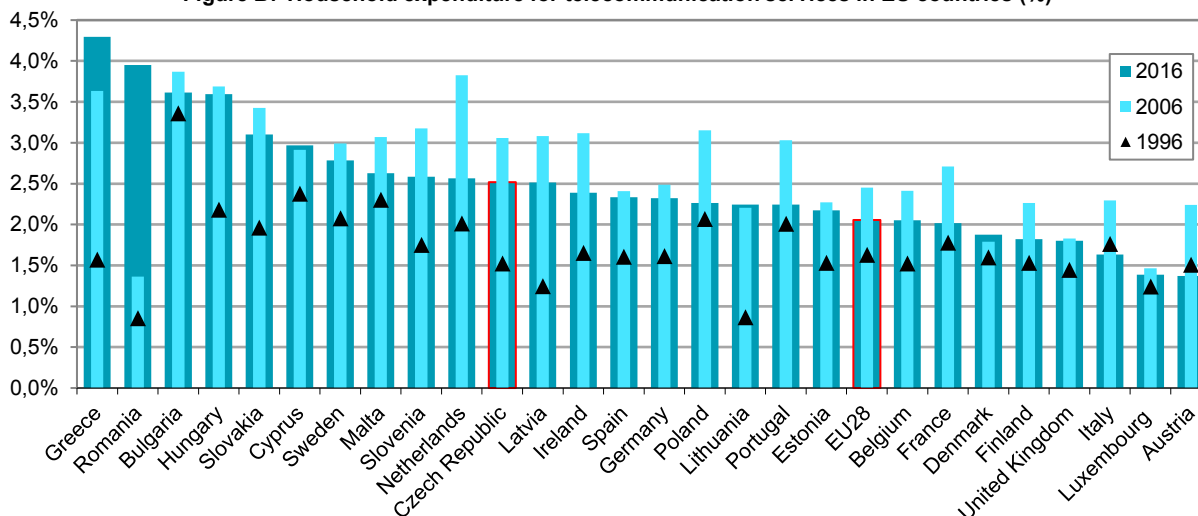
Figure B6 Telecommunication household consumption expenditure by type of services in the Czech Republic (%)



Source: CZSO 2018, Household Budget Survey

- Since the beginning of the new decade, there is a decrease in household consumption expenditures on telecommunication services per 1 household member from 5.0 thousand in 2010 to the aforementioned 4.7 thousand CZK in 2016.
- Despite the fact that the households with the lowest income spend, on average, approximately 2.5 thousand CZK less on telecommunication services per one household member than the households with the highest income, the percentage of this expenditure with respect to the **total consumption expenditure** is higher (4.4% vs. 3.2% in 2016).

Figure B7 Household expenditure for telecommunication services in EU countries (%)*



* as a percentage of total household consumption expenditure in a given country

Source: Eurostat 2018

- Most households spend money on the **operation of mobile phones** (67% of total household expenditure on telecommunication services – data for 2016). Another, yet less significant item, is expenditure on **internet connection** (29%), which has been increasing as time goes on.
- In comparison with the situation 10 years ago, Czech households spend a significantly lower amount on the operation of a fixed telephone. Whereas in 1995 nearly the whole amount spent by households on telecommunication services was used for the **operation of fixed telephone lines**, in 2010, it was only ten per cent, and in 2016, only 4%.
- Since 2002, the percentage of telecommunication services in total household expenditure in the Czech Republic is higher than the EU average. In 2016, the EU average amounted to 2.1%, compare to 2.5% in the Czech Republic. This expenditure is of **the highest percentage** in Greek households (4.3%), Romanian (4.0%), Bulgarian (3.6%), in Hungarian (3.6%), and Slovakian (3.1%), and **of the lowest** in Luxembourg and Austrian households (equal percentage of 1.4% in total household expenditure).

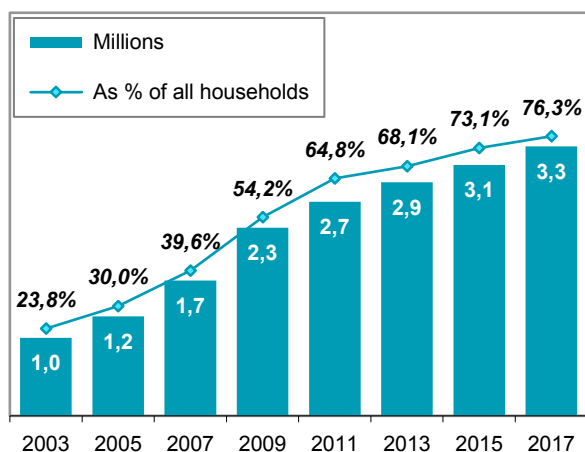
B.2 Households and computers

In the 1990s, it was not typical for Czech households to own a private computer, and at the beginning of the new millennium having a computer in one's household was rather rare. However, since 2005, the number of private computers is growing. A computer, as well as TV or other consumer electronics, are owned by nearly all households which have this equipment at home or are willing/able to use it.

Households with a computer – Main figures

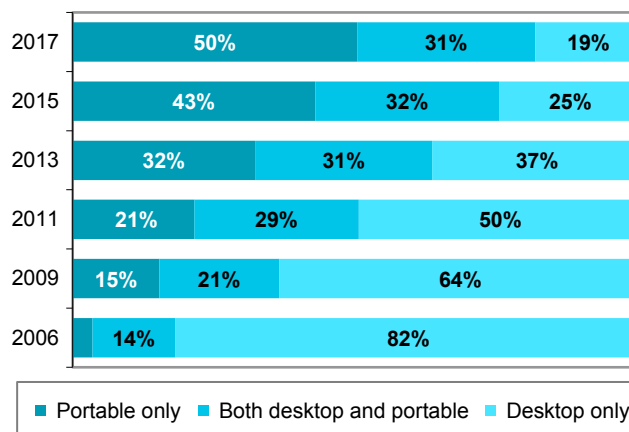
- Since 2005, the number of **households with a computer** has been increasing in the Czech Republic⁵. Only in the past ten years has the number nearly doubled, and in Q2 of 2017 there were 3.3 million, meaning 76% of all households.

Figure B8 Households in the Czech Republic with access to a computer at home



Source: CZSO 2018, Household ICT usage survey

Figure B9 Czech households with a computer by type of computer used at home (%)*



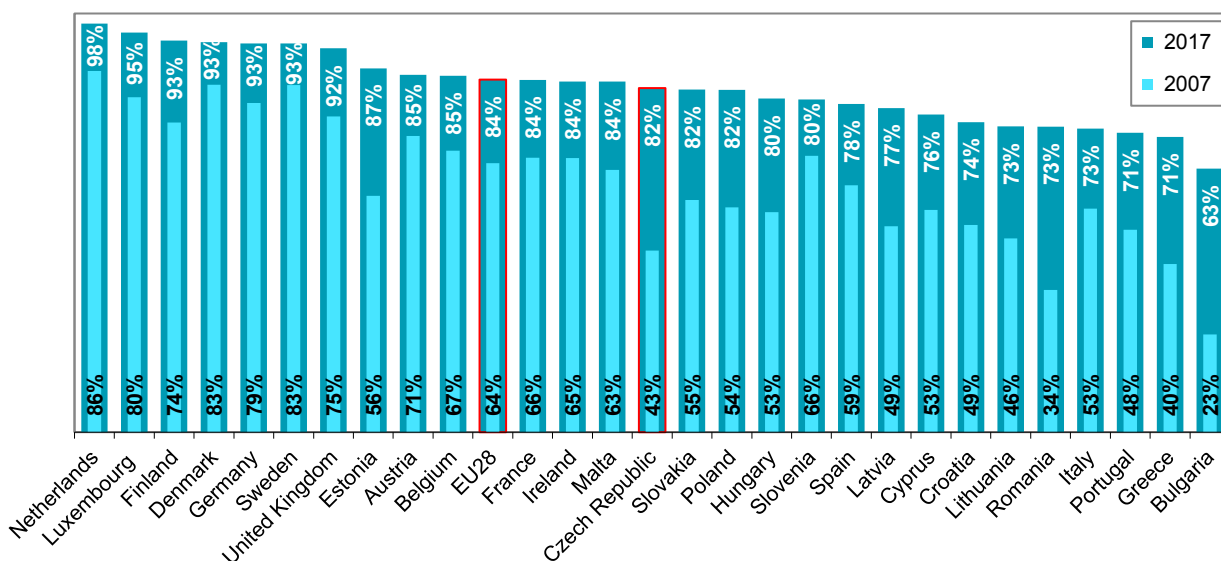
* as a percentage of households with a computer

Source: CZSO 2018, Household ICT usage survey

- Much better equipment with a computer is found in **households with children** and in **young households** (persons up to the age of 40 with no children). With respect to those categories, a computer may be found nearly in all such families – in 95% of cases. Opposed to this, just under a third of **pensioners** (persons over the age of 65) is equipped with a computer. Out of the million households having no computer in 2017, nearly two thirds were the households of pensioners.
- It may not come as a surprise that households with a **higher income** are more frequently equipped with computers than households with **lower income**. Whereas in 2017 no computer could be found in more than a half of all households with the lowest income (59%) – these mainly include the aforementioned households of pensioners, the same applied only to 1.5% of households with the highest income.
- In the past decade, the percentage of households equipped with a computer in the EU countries has increased from 64% in 2007 to 84% in 2017. Although we belong to EU countries where the past ten years have meant the greatest development in the equipment of households with computers, we still lag behind the aforementioned **European average**. In 2017 the number of Czech households with computer access was 82% (*data solely involving households with at least one person aged 16–74*), i.e. still two per cent less than the EU28 average.

⁵ **Households with computer** involve all households, which at the time of the survey stated, that at least one of the household members had access to a personal computer at home. The household does not need to be in possession of the computer (it may be employer's computer, one borrowed from friends, etc.) yet this computer should be functional and located at home. A portable computer may not be permanently located at home; it may be in use at work or at school.

Figure B10 Households in EU countries with access to a computer at home (%)*



* as a percentage of all households in a given country where at least one member is younger than 75 years

Source: Eurostat, 2018

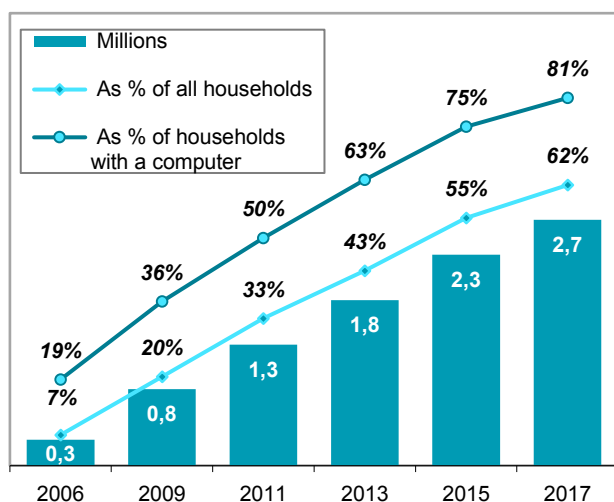
- Among the **EU countries**, computer usage is mostly expanded in the Netherlands, where 98% of households claim to have access to a computer. High equipment of households with computers – above 90% – is also found in Scandinavia, Luxembourg, Great Britain, and in Germany. Opposed to this, more than a third of Bulgarian households (37%) do not have any computers.

Type and number of computers used at home

In recent years, the size and mobility of computers used in our households has been changing significantly. Up to the year 2013, desktop computers were prevailing in Czech households; in 2014 portable computers became the prevailing ones (laptops or tablets). At the time when nearly all households wishing to have a computer had at least one of them at home, the data concerning the type, and alternatively the number of used computers, indicates to be a better measurement method of so called digital imbalance with respect to the equipment with this technology, rather than the number of households equipped with a computer in general.

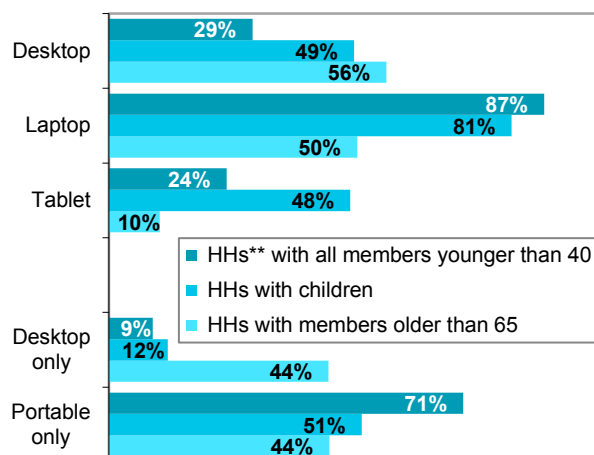
- Whereas in the past years the total number of Czech households equipped with a computer has not been increasing significantly, the percentage of households equipped with a **portable computer (laptop or tablet)** has been gradually increasing (62% of households in 2017). Ten years ago a portable computer was owned solely by a tenth of all households. Only in 2011, half of all “computerised” households in the Czech Republic were equipped with only a desktop computer, and a fifth had a portable computer. In 2017, this ratio was exactly the opposite.
- **Laptops** are mainly used in young families with no children (83%), and for three quarters of those it is the sole type of computer they have at home. Similarly, laptops are used by three quarters of families with children.
- In 2017, a **tablet** could be used in nearly a quarter of Czech households, mainly including **households with children**; tablets were used by 46% of such households. Opposed to this, only 3% of households of persons over the age of 65 used a tablet.
- Until the year 2013, the prevailing type in Czech households was the **desktop computer**, however, nowadays (Q2 of 2017), it is mainly used in the households of pensioners. The desktop version of a computer is owned by less than a half of all households of pensioners.

Figure B11 Households in the Czech Republic with a portable computer (laptop or tablet)



Source: CZSO 2018, Household ICT usage survey

Figure B12 Czech households with a computer by type of computer used at home; 2017 (%)*



* as a percentage of all HHs of a given type with a computer
 ** Households without children

Source: CZSO 2018, Household ICT usage survey

- Over the years, **the number of computers** used in Czech households has been increasing. Whereas in 2010 a mere fifth of all households (a third of households owning a computer) owned two or more computers, in 2016, two or more computers could be found in 38% of all households, i.e. 50% of households equipped with a computer. With respect to households with children it was 61% of them, and with respect to households with a high income, it was even 80%.

B.3 Households and the internet

The equipment of households with the internet contributes to digital literacy of inhabitants, and also serves as an important indicator of how people are willing to join the digital society, and whether they have sufficient funds to do so. In the Czech Republic, internet connection is currently owned by even more households than the percentage of households actually owning a computer. Despite this fact, we still lag behind the current average percentage of households with access to the internet within the EU. At the same time, the manner in which Czech citizens get connected to the internet also differs from the one used in western EU countries.

Households with the internet – Main figures

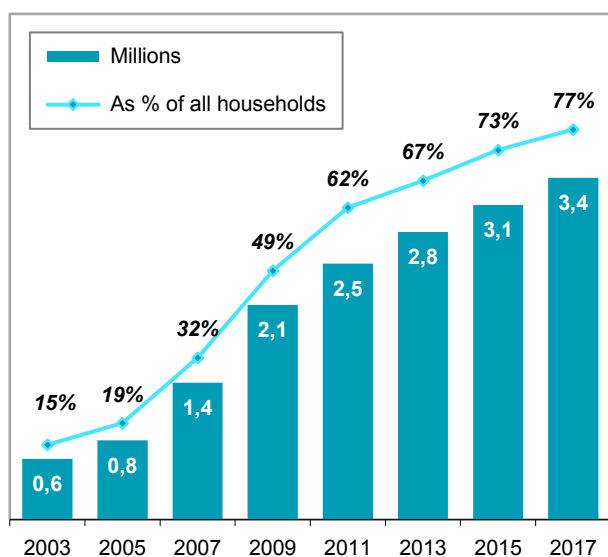
According to ITU estimation, worldwide, almost 60 per cent of households had internet access at home in 2018, up from less than 20 per cent in 2005. Fewer than half of households had a computer at home, highlighting that a substantial number of households accessed the internet (also) through other means, most importantly through mobile devices.

Age, education, financial situation and geographical location of households play a key role with respect to equipment with information technologies. In the Czech Republic, some of these differences are wiped off, along with the time, and it depends on whether the household members find ICT and internet useful or not, and whether they are willing to learn to work with it.

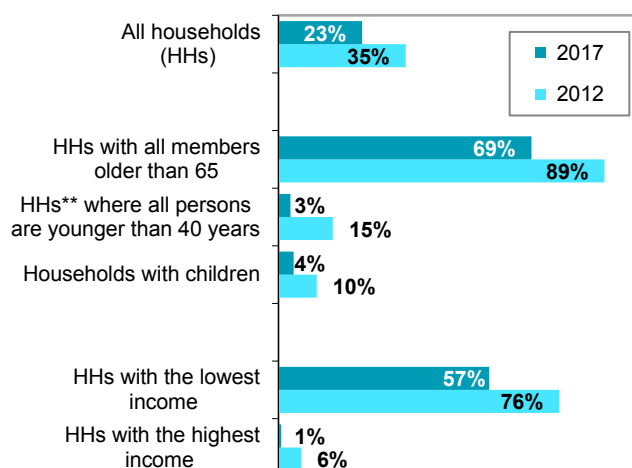
- Since 2016, there are more households in the Czech Republic equipped with **internet access** rather than with a computer. In the Q2 of 2017 internet access⁶ was already used by 77% of households (3.4 million). In the past ten years, the number of households with internet access has increased by two million – in 2007 internet access was used by a third of Czech households (1.4 million).

⁶ **Households with the internet** include all households, which at the time of survey stated that at least one of the household members had an access to the internet at home. It does not matter what type is the device used (desktop computer, portable computer, mobile phone, digital TV, game deck, or other device), or the way of connection.



Figure B13 Households in the Czech Republic with access to the internet at home


Source: CZSO 2018, Household ICT usage survey

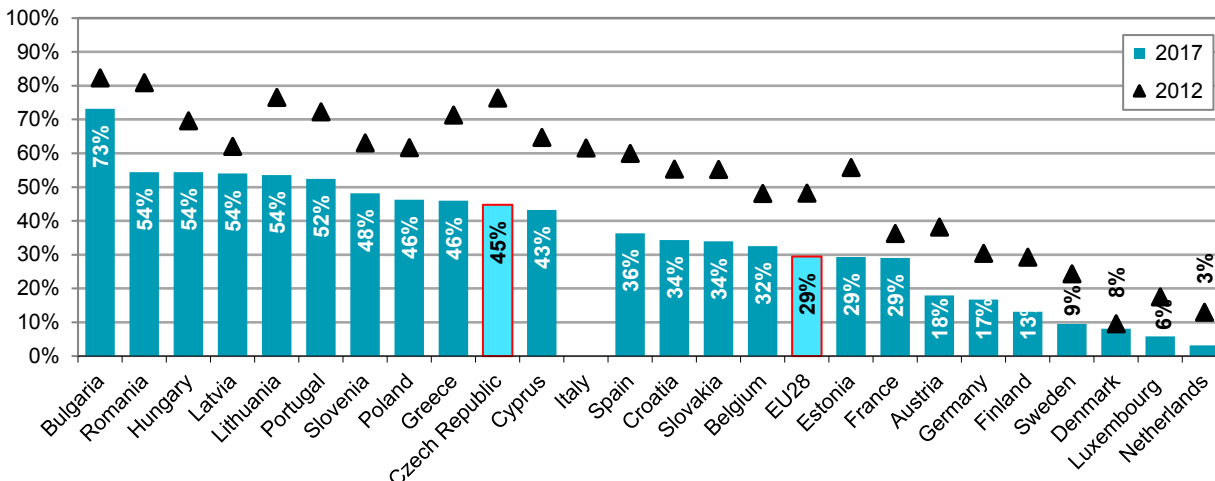
Figure B14 Households in the Czech Republic without access to the internet at home (%)*


* as a percentage of all households of a given type
 ** HHs without children

Source: CZSO 2018, Household ICT usage survey

- Internet has become widely available to the general public, both in terms of accessibility as well as cost. A boundary was crossed in 2007, when for the first time a **majority (55%) of households in the EU28** had internet access. This proportion continued to increase, passing three quarters in 2012, and four fifths in 2014. By 2017, the share of EU28 households with internet access had risen to 87%, some 32 per cent higher than in 2007.
- Among the **EU countries**, internet access is mostly expanded in the Netherlands and in Luxembourg where only three households out of a hundred did not use it in 2017. High usage of internet access has also been recorded in Scandinavian countries, in Great Britain and in Germany. In these countries the percentage of households with internet access has reached above 90%. As opposed to this, internet access was “only” used in 71% of Greek households, and 67% of Bulgarian households. Over the last ten years, cross-country differences in internet access have narrowed markedly across EU countries
- To some extent, there is an **urban–rural divide within the EU28 in terms of internet access**. Whereas households in cities, as well as towns and suburbs, had comparatively high access rates — 90% in cities and 87% in towns and suburbs — internet access was somewhat lower in rural areas (82%). The divide between rural areas, and the two other types of areas, was particularly strong in Greece, Portugal, Bulgaria and Romania.
- One of the main reasons why the households of the Czech Republic lag behind in internet usage, among most of western and northern countries of the EU28, is the prevailing difference between income groups of households regarding their access to the internet. Whereas in 2017 a **quarter of the wealthiest Czech households** all had internet access, within the quarter of households with the lowest income, where mainly the households of pensioners belong, nearly a half had no internet connection (45%).
- Compared to this, in 2017, in Sweden, Denmark, Luxembourg, and the Netherlands, there was less than a tenth of households with the lowest income that had **no internet access**. On the other hand, in Bulgaria it was 73% of households in this first income quartile. Apart from Portugal, only the former socialist countries belong among the six EU countries, where the percentage of low-income households with internet access was in 2017 lower than 50%.

Figure B15 Low income households (first quartile) in EU countries without access to the internet at home (%)*

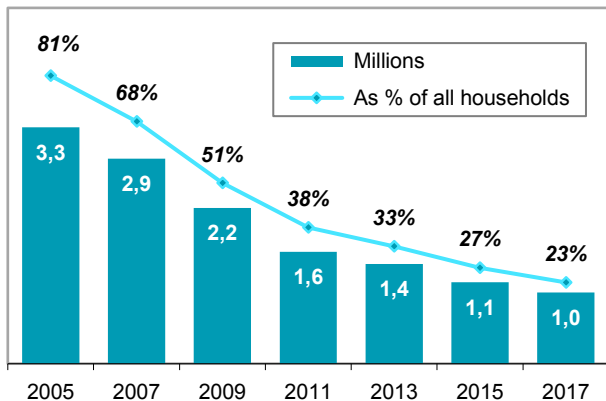


* as a percentage of all low income households in a given country where at least one member is younger than 75 years

Source: Eurostat 2018

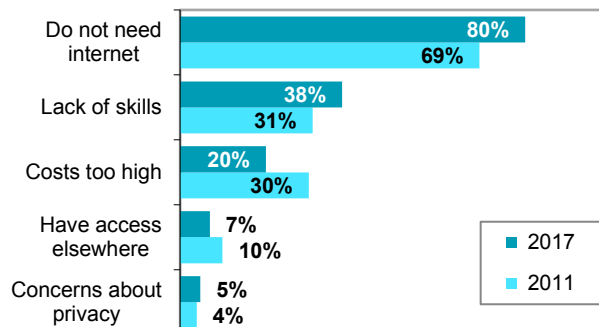
- In Q2 of 2017, there were a million (23%) households in the Czech Republic where **nobody was using internet at home**. Ten years ago there were more than two thirds (68%) of such households, which in real numbers meant nearly three million households with no internet access in 2007. These were most frequently the households of pensioners where the internet is still unavailable in more than two thirds (69%) of such households.

Figure B16 Households in the Czech Republic without access to the internet at home



Source: CZSO 2018, Household ICT usage survey

Figure B17 Main reasons for Czech households for not having access to the internet at home (%)*, **



* as a percentage of all households without the internet

** more reasons possible

Source: CZSO 2018, Household ICT usage survey

- However, we may observe that a computer or the internet can be found in nearly all households where its members wish or know how to use these technologies. Out of the aforementioned million households that had no internet access in 2017, 80% stated that this is due to a **lack of interest or no need to work with the internet**. Most frequently, this reason was provided by the households of persons over the age of 65 and there were 87% of those. The members of nearly 40% of households with no internet access acknowledged they **did not know how to operate it**⁷. In households with children, these two reasons were highly exceeded by the financial aspect (57.5% of households with children with no internet access).
- In EU countries among the 15% of households without internet access in 2017, on average, the two main reasons for not having access were that the internet was not considered to be useful (47%) and that the people were concerned about the lack of necessary skills (42%).

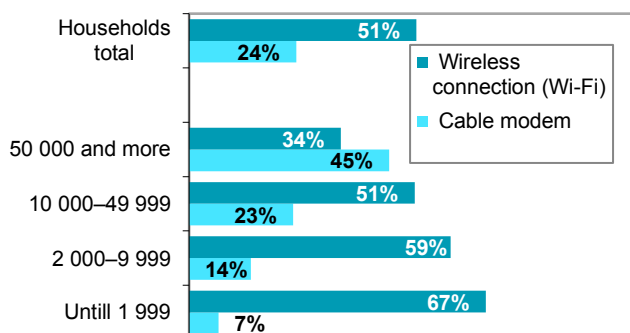
⁷ In the question on the reasons why households do not have an internet connection at home, households may have multiple responses.



Type of connection used by households to access the internet at home

- As opposed to nearly all other EU countries, in order to get online, Czech households most frequently use primary external internet access⁸ via **wireless connection** provided by local providers by means of Wi-Fi technology. In 2017, this technology was used approximately by a half of all households where internet was used by their members.
- Connection via **TV cable system (cable modem)** was the second most used one in 2017 – this means of connection was used by a quarter of Czech households with internet access. Internet connection via telephone lines by means of **xDSL** technology, most frequently used in the majority of households in many other EU countries, was used “only” in 15% of Czech households in 2016.
- In particular, the type of household internet connection has been changing with respect to the **municipality size** of the given household’s residence, which is associated with the changeable availability of individual connection types in municipalities of various size groups.
- For instance, the aforementioned terrestrial wireless **connection via Wi-Fi** is most frequently used in households living in small municipalities of up to 2 thousand inhabitants – this type of connection was in 2017 used by two thirds of Czech households out of those that had internet connection as opposed to a third of households in the largest municipalities of over 50 thousand inhabitants.
- The internet connection via **cable modem** is most frequently used in households living in large cities with over 50 thousand inhabitants where in 2017 nearly a half (45%) of all Czech households with internet connection used this means compared to 7% of households in the smallest municipalities.

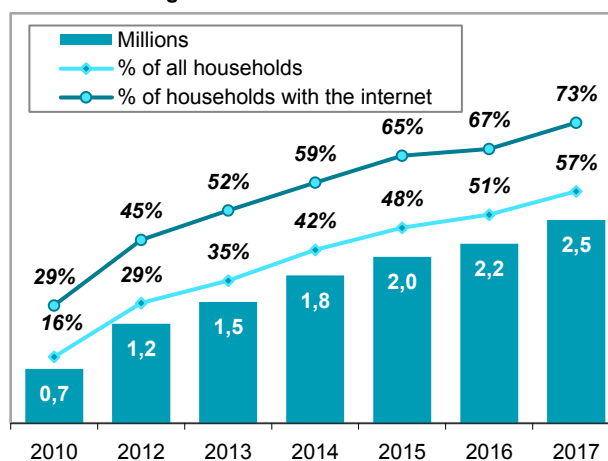
Figure B18 Type of connection used by Czech households to access internet at home by size of their municipalities (no. of inhabitants); 2017 (%)*



* as a percentage of all households with the internet in given municipalities size

Source: CZSO 2018, Household ICT usage survey

Figure B19 Households in the Czech Republic using a Wi-Fi router to within their home



Source: CZSO 2018, Household ICT usage survey

- Ensuring adequate access to the ICT infrastructures across all geographic areas is essential to ensuring that all citizens can benefit from the opportunities of digital transformation. The **rural-urban divide** in the Czech Republic encompasses access to broadband that is of sufficient quality. While the share of households with broadband access has been consistently increasing to near complete penetration rates, these gains have not been evenly shared across households.
- Along with the increase in Czech households using portable devices enabling internet connection (smart phones, laptops, tablets), the popularity of **so called “home-based” Wi-Fi⁹** is increasing, as it offers the wireless distribution of internet signal within a flat/house. In 2017, this technology was used by 2.5 million Czech households, i.e. 75% of those having the internet at home and even by 80% of households with children. In 2010, a **Wi-Fi router** was owned only by 16% of households.

⁸ Types of connection to the internet involve only the types of connection provided by supplier. It does not specify if the connection is shared by multiple devices within one household.

⁹ A Wi-Fi router is a device that enables internet distribution within the household, i.e. it enables connection of more devices at the same time and from different places within the reach of Wi-Fi network.