



Data consumption patterns impact our behaviour



Introduction



Most present users probably have no idea about the form and existence of the mobile data world eight years ago, about PDA communicators at that time or about even older WAPs. June 2008 signified a critical turning point, when Steve Jobs introduced the revolutionary iPhone 3G to the world. Jobs' innovation and change were not only based on a, for that time, technically precise device, but mostly on Apple successfully convincing people that a mobile phone connected to the internet would change their lives for the better. Just as Jobs called computers "bicycles for human brains", we can designate smart phones as "bicycles for our whole life". At present, no one is probably questioning the correctness of Jobs' pronouncements at that time. The mobile internet and smart devices have changed the world.

However, this "bicycle" has a different meaning for each user and everyone has their own opinion on the correctness of its use. What is really behind this trend? Is it convenience, social networks, applications, photo and video sharing or the quick access to information? In other words, what is the value of data for different population segments? And how does this value differ geographically? How have interpersonal relationships and communication changed? We have combined the results of a research project carried

out by KPMG Czech Republic on a sample of 1 850 respondents in the Czech Republic in March 2016 with data from other countries. We also take a look back in history and answered a number of interesting questions.

In the Czechs and Mobile Data 2016 study, we did not forget about the supplier part of the market either, i.e., the operators. The increased demand for data means higher loads for transmission networks and greater investments in infrastructure and licences. As an operator, what ways are there estimate how much more to invest so suffer a loss from this trend?

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The young lead in the usage of mobile internet

And men use mobile internet more often than women.



Provided that operators continue to encourage both the sale of smart phones and the construction of quick data networks, the growing trend in the number of mobile internet users is expected to continue. The increasing number of internet users is especially maintained by the younger generations which have been connected through mobile devices since a very early age and are also carrying these habits into their adult lives.

According to research among respondents between the ages of 18 and 64, 55% of people in the Czech Republic use the internet on their mobile phones. This indicates an increase of 10 percent since 2012.

A quick construction of LTE data networks, operators' marketing strategies, rapid technological development and a decrease in the prices of smart phones stand behind the quick development of the mobile internet. According to estimates from 2015, smart phones account for up to 85% of all mobile phone sales in the Czech Republic.

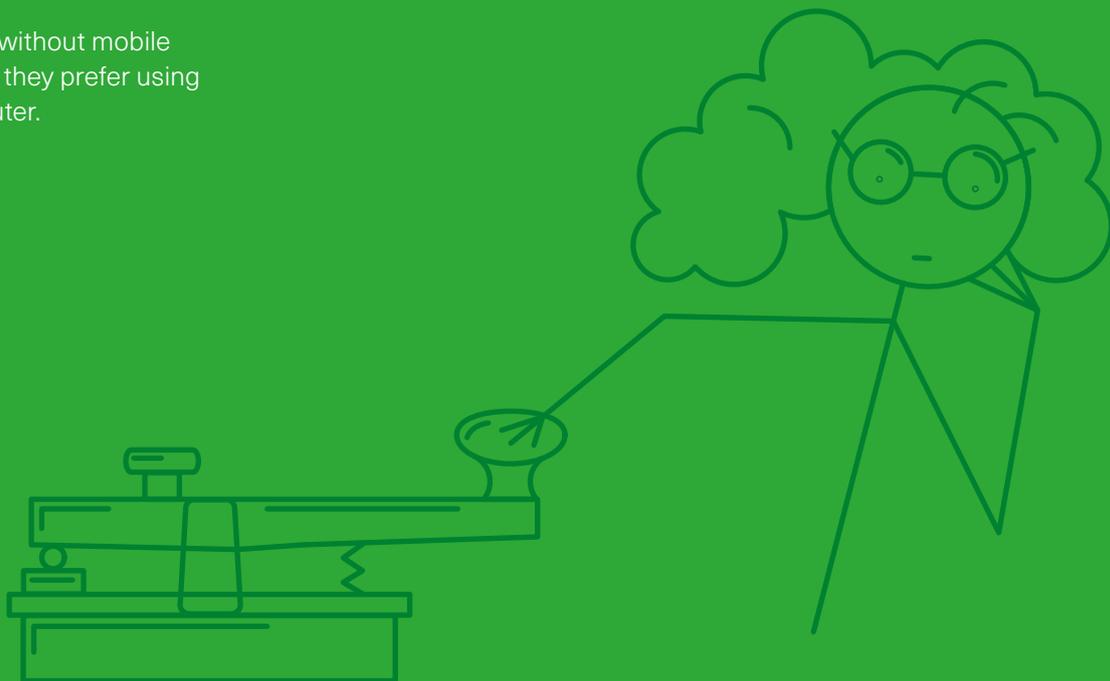
The mobile internet also appears to be used more often by men than by women (on average, 60% of men compared to 50% of women). The popularity of the mobile internet usually grows with the size of one's municipality, the highest level of education achieved and also with one's income level.

The mobile internet is popular primarily among younger generations. Nearly 70% of people aged 18-34 use the internet on their phones. In the 45-54 age group, this is less than a half; and in the 55-64 age group, the number declines to one third. An interesting finding is that in the 18-24 age category, data of up to 200 MB are largely paid for by the respondents themselves, whereas from 201 to 500 MB, it is paid for by someone else (probably parents).

The standard user of mobile data is a man of up to 44 years of age, living in a city of more than 100 thousand inhabitants, who has completed at least secondary school and who earns no less than average income.

By contrast, what speaks against the mobile internet?

Two thirds of respondents without mobile internet access stated that they prefer using the internet on their computer.

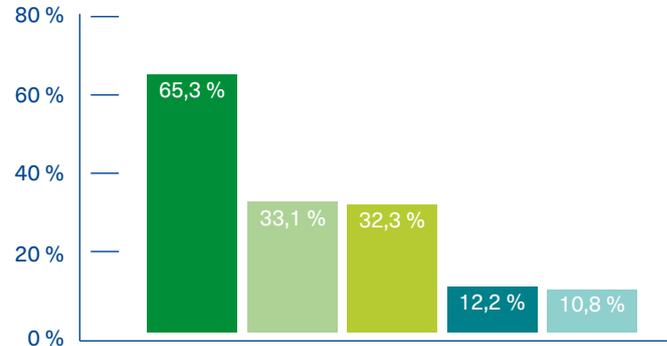


Old habits die hard. Certainly, almost every technological innovation struggles to spread and maintain its presence among individuals. Over time, we can assume that the percentage of people who claim that the mobile internet has no value for them will decrease.

What stands in the way of an even greater expansion of the mobile internet? Two thirds of respondents without mobile internet, explained that they primarily accessed the internet over their computers, thereby making the mobile access to the internet a futile utility.

Approximately one third of those who have no internet on their phone stated that they are put off by the access fee and that, in general, having access to the internet via mobile phones is not convenient to them. Approximately 7% of respondents stated that they do not need the internet as such. The reasons for not using the internet do not differ significantly among men and women.

What are the reasons for not using the internet in your mobile?



- I use the internet primarily via computer; access to the internet via mobile phone is not important for me
- The fee is not acceptable to me
- Access to the internet in my mobile phone is not convenient for me (small screen, pages do not support mobile version, etc.)
- Mobile connection is of low quality
- I do not consider the internet access on my mobile phone to be safe

How much mobile data do we use on average?

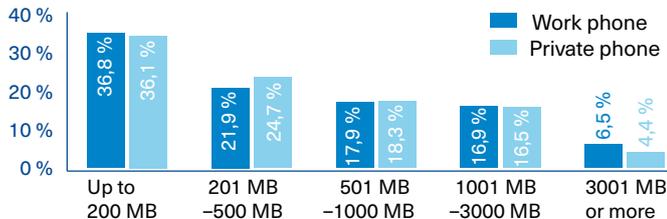
Approximately 60% of respondents use around 500 MB of mobile data per month.



In comparison with the EU, Czechs use a significantly lower volume of mobile data. The average usage in the Czech Republic is 593 MB for a SIM card with an active data tariff. When referring to all SIM cards, including those without an active data tariff, usage in the Czech Republic is 320 MB, whereas the average in Western Europe is 740 MB and as high as several GBs in the Nordic countries. Although the usage of data per user has increased since 2011, our research shows that 60% of users with an active data tariff consume only up to 500 MB per month.

The research shows that men have a slightly higher data usage than women. Data usage with virtual operators is significantly lower than with classic operators, probably due to limited offers. More than half of the customers of alternative operators do not use mobile data at all. According to responses, there is no significant difference in data usage between private phones and work phones.

What is the average monthly mobile data usage of your phone?



Using the mobile internet decreases with age. In the 18–44 age category more than 60% people use it, while 47% of people use it in the 45–54 age category. In the age category of 55–64, this number decreases to 34%. Data usage by younger people reaches higher volumes as well. Approximately every fifth respondent aged 18-44 uses more than 1 GB of mobile data per month; with respondents above the age of 54 it is only one in nine respondents. At the same time, according to research conducted by Hansecom Media and Communication in 2014, approximately 80% of data usage in mobile phones is via WiFi and only 20% occurs through mobile operator services.

Younger users can spend up to several hours a day performing various activities on their mobile phone. Our research shows that young people between 18-24 years of age watch whole episodes of TV shows, clips, music videos or movie trailers on their mobile phones considerably more often than older respondents. Despite using these data-demanding services, this group represents one of the most frequent users of the lowest mobile data tariffs of up to 200 MB per month. Therefore, we can assume that the young primarily use WiFi connections.



A tablet generates 2.8 times more usage than a smartphone; a laptop 2.9 times more (according to Cisco* from 2015).

* Cisco [online]. Available also from: www.cisco.com.

What do we use the mobile internet for?

Communication on social networks and watching videos, make up 70% of total data usage, together.



In its research in 2014, the technology company Ericsson asked Czechs why they bought smart phones. A comparison of Ericsson's results with the current KPMG research, which surveyed specific internet usage through phones, shows that people indeed use their phones for activities, which they had declared they were buying them for.*

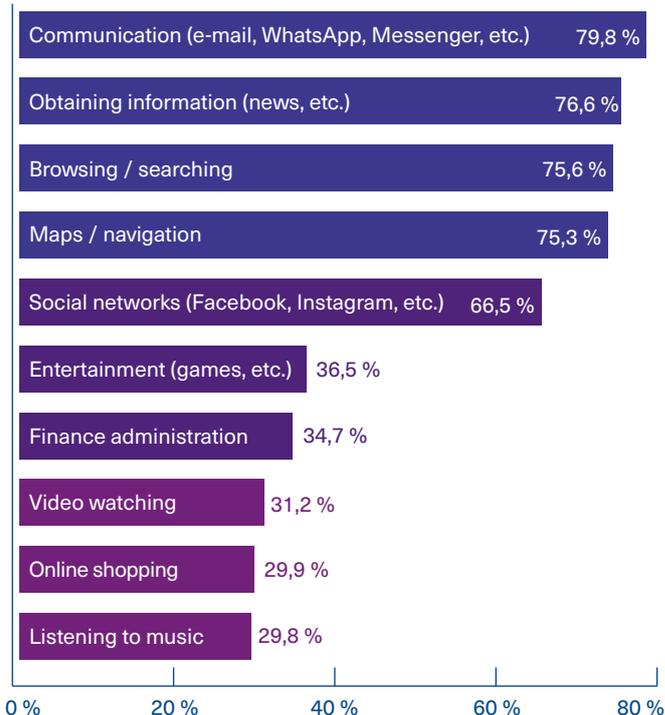
More than two thirds of respondents said that communication, surfing the internet, searching for information, maps, and social networks were the main activities they performed on the internet.

The number of internet activities performed on a mobile decreases with the age of respondents. Research shows a relationship between the highest education level achieved and the activities performed – people with a higher achieved level of education are more likely to use the mobile internet for communication (e-mail, instant messaging), searching for information, and taking care of their finances – rather than for entertainment, and spending time on social networks.

A little over 30% of respondents mention watching videos. However this activity is data-demanding, so watching videos and communication together make up 70% of total data usage.

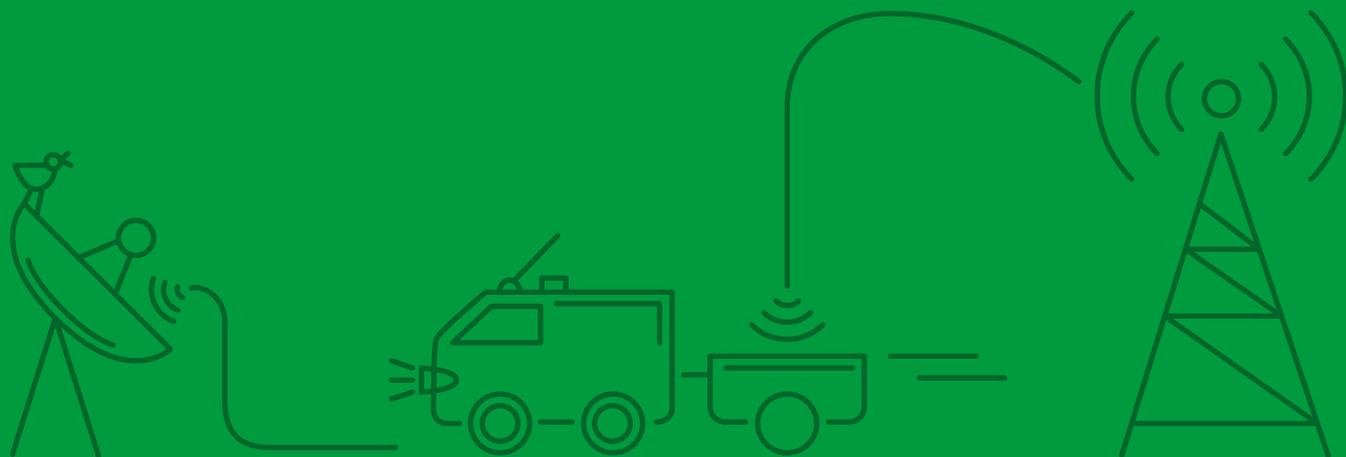
* Ericsson [online]. Available also from: www.ericsson.com

What activities do you use the mobile internet for?



The development of mobile internet quality

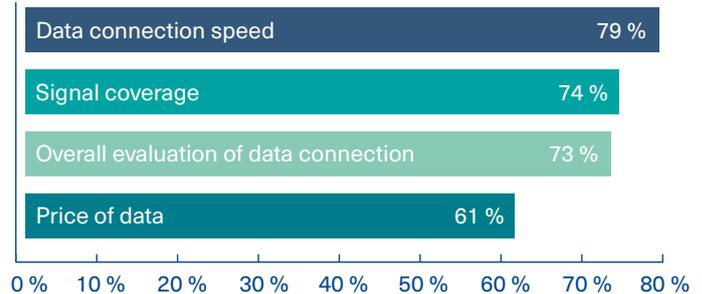
Three quarters of respondents believe that the quality of the mobile internet has improved over the past three years.



Compared to Western Europe, Czechs are better informed with respect to the current offer and development of data services. For example in Great Britain, up to 40% of people think that the price of data has increased over the past three years, even though even though it has decreased every year. The times when Czech customers had no information, no comparison with foreign countries, and were willing to pay high bills for telecommunication services, are long gone.

Three quarters of respondents in the Czech Republic believe that the quality of the mobile internet has improved over the past three years. Its speed is considered to be the most distinct improvement. Men rate the offer of data services more positively than women, who more often tend to think that the offer has not changed. The most positive perception of data services is by people between the ages of 25 and 34; older people rate the offer as worse.

What has improved over the past years according to users?



Satisfaction with data services

Seven out of ten people indicate that they are satisfied with their operator's mobile data connection.

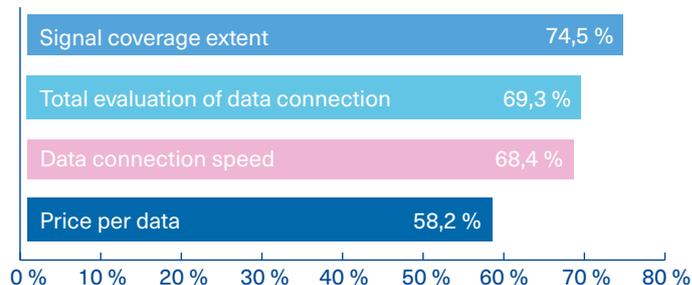


Customer satisfaction of several traditional operators is at very similar levels. Lower satisfaction is visible only with virtual operators. The difference in satisfaction between traditional and virtual operators is not as noticeable as we could expect due to the virtual operators' limited offer. This is probably due to lower customer expectations – they do not expect such a high level of service, as they pay less money than with traditional operators.

In total, 7 out of 10 people indicate that they are satisfied with their operator's mobile data connection. In 2016, customer satisfaction reached similar figures as in 2013. Czechs are among the most satisfied customers in Europe.

In total, 6 out of 10 people are satisfied with the price of data services, while only a little less than one fifth are not satisfied. The high level of satisfaction with the offer of telecommunication services can be explained by adequate expectations from the side of customers. As a result, this can lead to a more positive evaluation compared to the evaluation of the less informed foreign customers who often have unrealistic expectations.

Satisfaction with the offer of operators



One or more telecommunication service providers?

Approximately 16% of people plan to transfer at least one service.



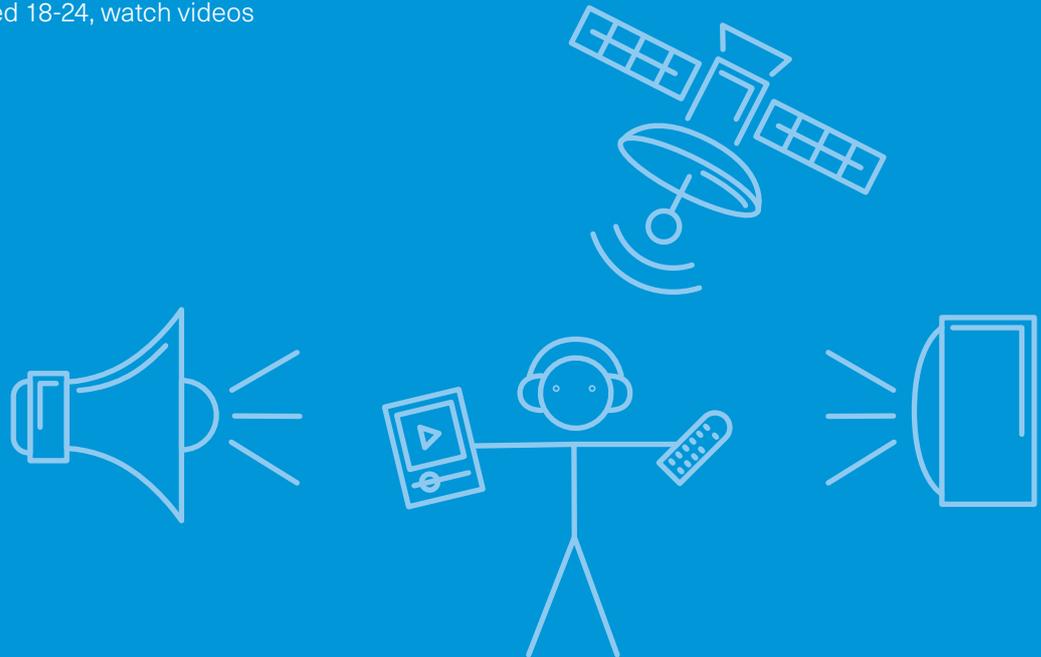
Two thirds of respondents do not plan to replace their telecommunication service provider in the next 12 months. On one hand, such a high number confirms customer satisfaction with current service offers. On the other hand, these people do not receive any discounts connected connected to bigger service packages.

In total, 18% of respondents indicate that all their telecommunication services are provided by one operator, and 16% of respondents plan to transfer more than one service – however, not all of them – to one provider. Bundling more services to one, single provider, so called quadruple play, is a highly discussed topic on the telecommunication market. Bundling enables operators to reach higher revenues per customer, lowers the price of services charged, and simplifies invoicing for customers.

Research shows that men and women are almost equally willing to transfer more services to one operator and that the willingness to transfer services to one provider does not in fact differ according to age group. With regard to this, Czechs are different from Western Europe, primarily Great Britain, where mostly young people are interested in the transfer of services to one, single provider.

Watching videos on smart phones - what's most important?

A total of 96% of people, aged 18-24, watch videos on their smartphones.



So why are we now watching videos on our mobile phones when we had no such need 5 years ago? We can most likely blame a growing number of smart phones offering similar experiences as tablets and computers, the omnipresence of video in the online world (commercials, social networks, news, etc.), as well as the construction and accessibility of a fast LTE data network, for this change in consumer behavior.

For Czechs, the most important factors are sufficient internet speed, satisfactory picture quality and free video content. By contrast, people do not require HD quality when watching videos on their phone and sound quality is not crucial for them either. Our preferences in watching videos are almost identical to the Western world.

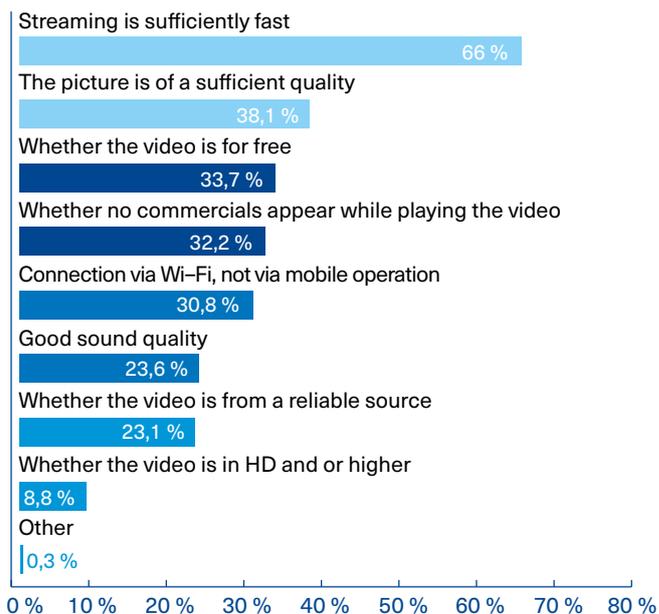
According to research by the IAB marketing agency in 2015, 88% of respondents in Europe watch videos on their mobile phones at home* and “only” 51% do so outside their home. This finding suggests two conclusions:

1. People watch videos on mobile phones at home even though they usually have a higher quality alternative in form of a TV at their disposal.
2. Roughly half of all respondents watch videos on their phone to kill time while waiting or travelling.

* Internet Advertising Bureau [online]. Available also from: www.iabeurope.eu.

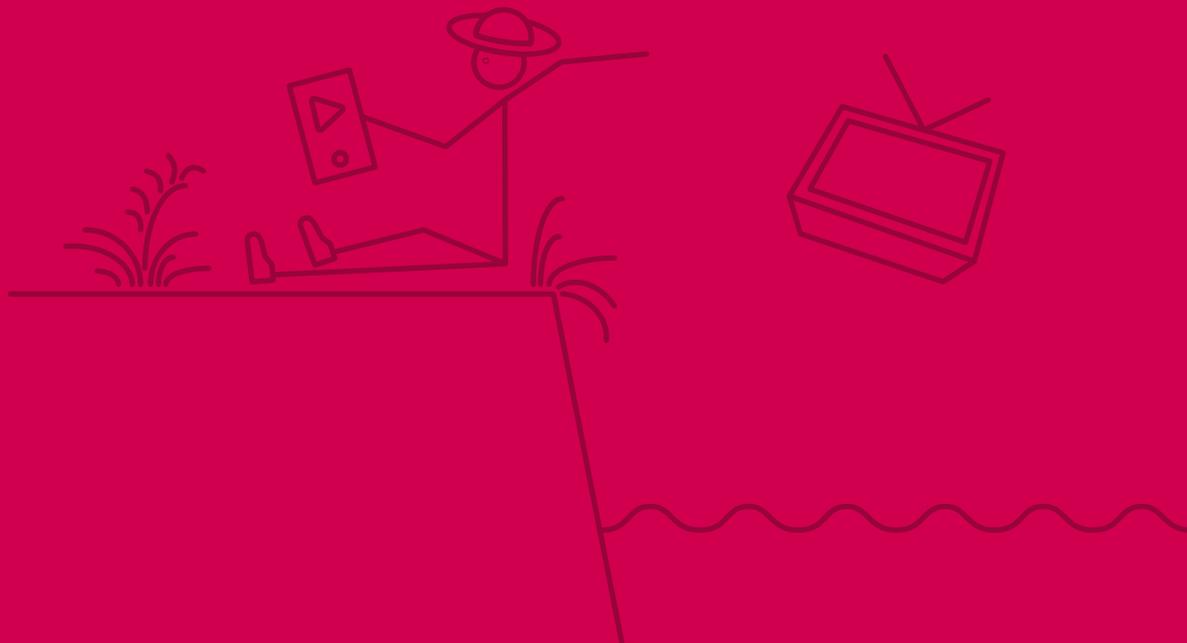
Interestingly, respondents with a higher education level watch videos on mobile phones less than other respondents. It is also surprising that respondents in the 18-24 age group do not pay as much attention to how reliable the sources of videos are, however, they prefer HD video quality.

What are the most important factors when watching videos on mobile according to users?



Screen size does not matter

In total, 16% of respondents, most of them up to the age of 24, stated that they watch long videos on their phone.

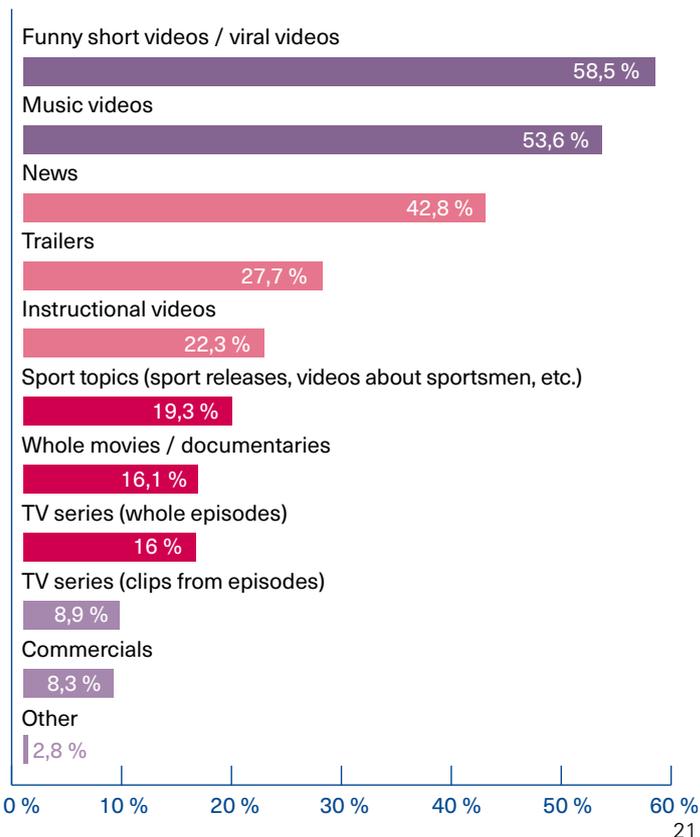


In our research, we noticed that, just like in other parts of the world, the popularity of watching videos on mobile phones has increased significantly in the Czech Republic. Most often, respondents watch short, funny video clips (more than half of respondents in the Czech Republic). In comparison with foreign countries, Czechs are more interested in what is happening around them; they watch the news 50% more often, but commercial video clips interest them less.

In total, 16% of respondents stated that they watch long videos on their phone (whole movies or episodes of series), which is a slightly smaller group than abroad. In the 18–24 age group this number grows to 24%. We can assume that this group of people has reduced their time watching TV as a result of watching videos on their phone.

However, it does not seem that TV sets will cease to exist and that people will watch videos only on their mobile devices any-time soon. Currently, on their phones, people watch videos that are four minutes long on average, hence not endangering TV as a whole. The Japanese might come closest to doing away with TV, as they on average watch ten-minute videos. The length of watched videos is rising, as is the frequency of their watching. According to IAB's research, 58% of people watch short videos and 36% watch long videos on a daily basis. This usually applies to men under 35 years of age.*

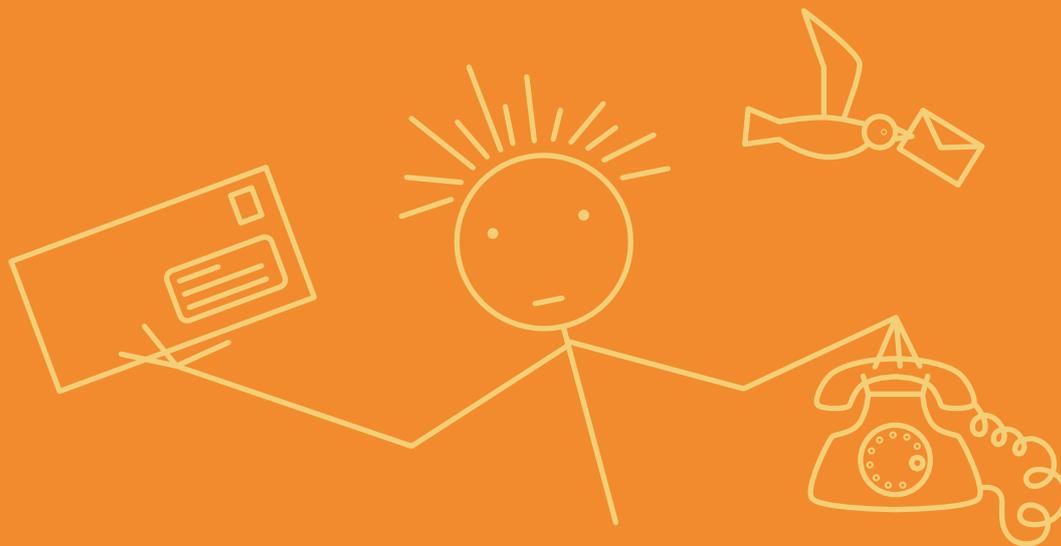
What types of videos have users watched in the past 3 months:



* Internet Advertising Bureau [online]. Available at www.iabeurope.eu.

How has the mobile internet changed users?

Every sixth respondent stated that it is easier for them to meet new friends or partners thanks to the mobile internet.



Half of the respondents stated that as a result of being constantly connected to a source of infinite information they plan less and rely more on immediate data accessibility to problem-solve particular situations with the help of their phone, but not before they occur.

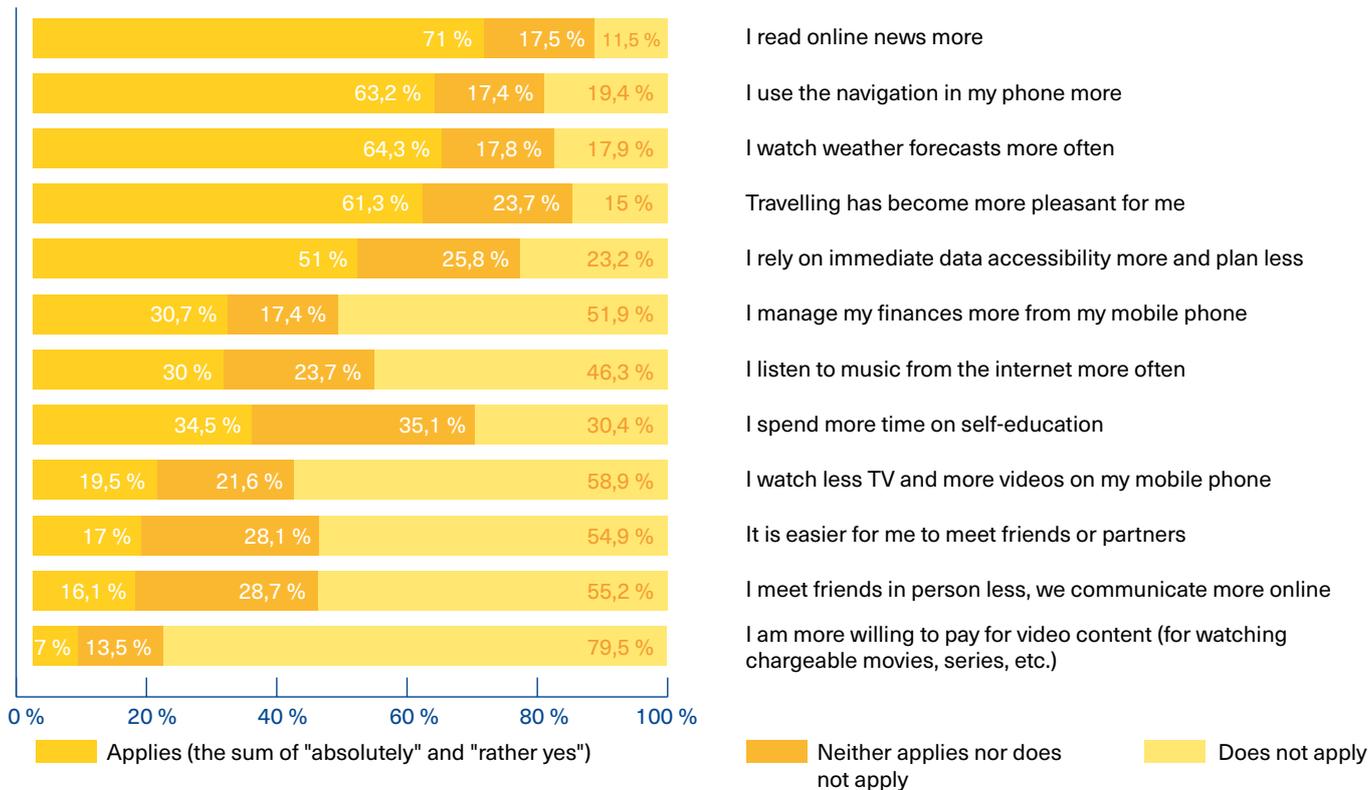
In 2000, the internet was introduced into the homes and workplaces of many Czech people, inciting changes in all areas of life. However, how has the mobile internet, as a relatively new technology, changed us? Our research shows that most users have started to inquire more about current ongoings/events, while travelling has become more comfortable due to broader entertainment opportunities and on-line navigation.

Every sixth respondent admitted that due to the mobile internet, they have cut down on personal communication with friends and prefer using online communication, which is probably the most shocking fact. Every sixth respondent also stated that it is easier for them to meet new friends or partners thanks to the mobile internet.

The research results do not differ by size of respondent's municipality, hence, has any significant impact on one's responses. Hence, it appears that this sweeping change in behaviour has generally occurred throughout the Czech Republic.

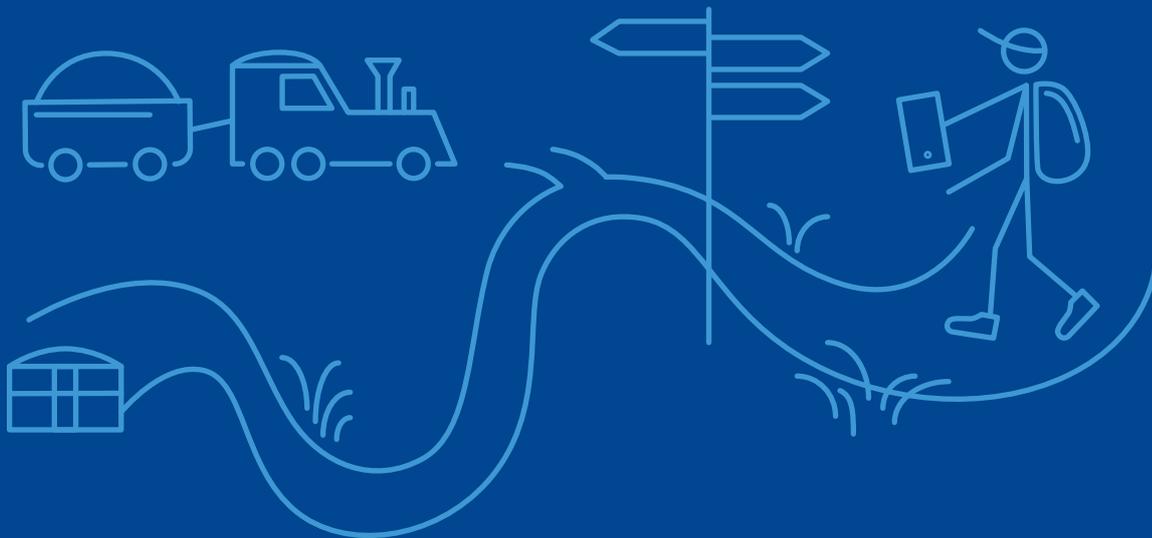
Up to 66% of respondents aged 18–24 rely on immediate data accessibility and plan less.

How has mobile internet usage influenced users' habits and behaviour?



Applications or a browser?

Only 28% of respondents prefer watching videos via applications, which is less than half compared to foreign countries.



Applications have two purposes: making the internet activity as simple and enjoyable as possible while providing services that will compel users to continue using the application, leading to a higher internet usage.

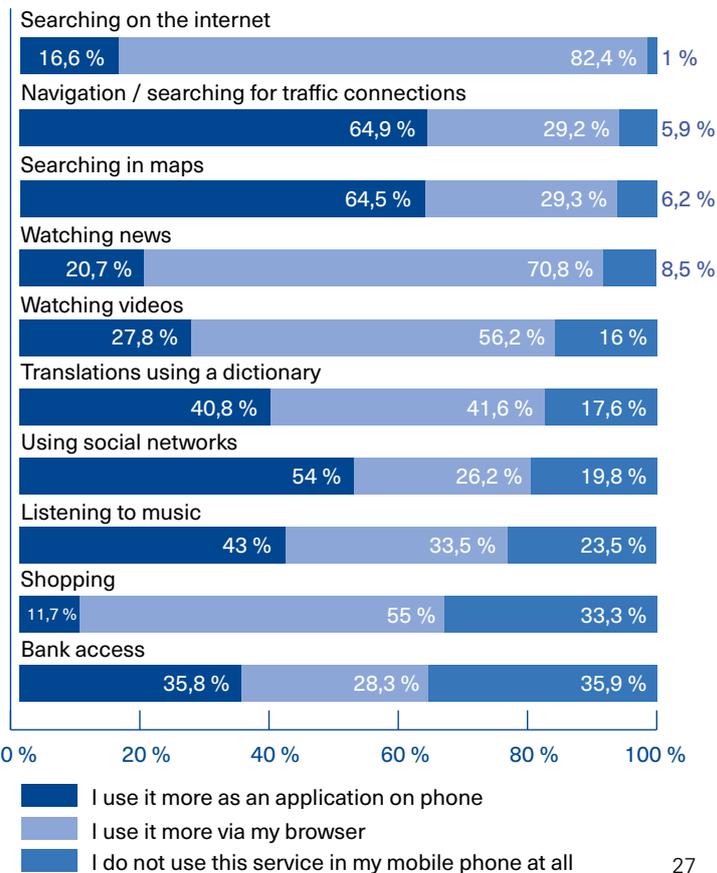
While Czechs do not differ much from European or world averages most areas, according to the research, with the usage of applications they might just as well live on a different planet.

According to Comscore,* an agency analysing internet behaviour, more than 80% of people in Great Britain use applications and only a little less than one fifth of them prefer browsers. This percentage is considerably lower in the Czech Republic. In terms of access via applications, navigations, maps and social networks (54–65%) prevail in the Czech Republic. Only 28% of respondents prefer watching videos via applications, which is less than half compared to foreign countries. The low percentage (36%) of respondents using an application for bank access is also surprising.

No matter whether they gain internet access via an application or a browser, the results show that Czechs have learned to use data services. At least two thirds of respondents use them in their phone. Men are more likely than women to use apps, and the young prefer them more than do older people.

* Comscore [online]. Available from: www.comscore.com.

Using applications and a browser for individual activities



LTE network operating costs

Expenses through LTE frequencies incurred by Czech mobile operators are above average.



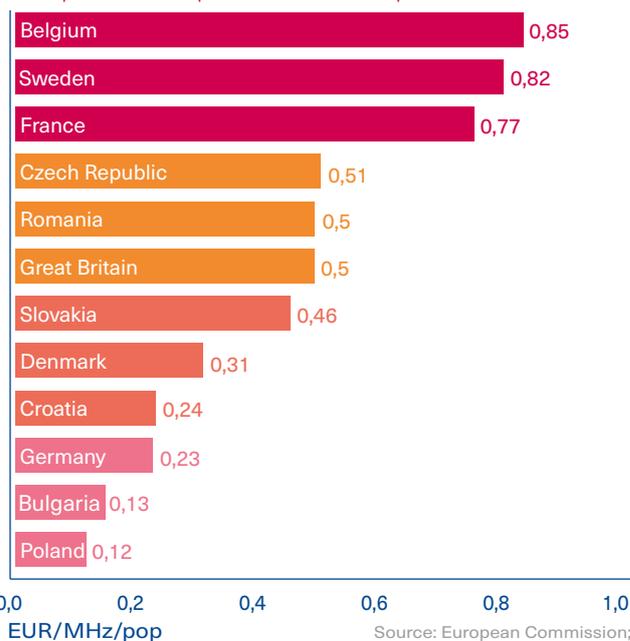
Operators' expenses, which significantly impact the pricing of mobile data, primarily consist of costs incurred on network construction (e.g. new towers, installations of new technologies), operating expenses (e.g. maintenance, electric power, IT equipment) and expenses incurred on client services (e.g. marketing, operating a call centre). At the same time, acquisition and operating expenses for frequency licenses - through which data is spread - form a significant item.

Operators perceive expenses incurred on the construction and operation of networks as significant, hence they devote considerable effort to their minimization. The transfer to LTE technology brings new opportunities, but at the price of great investment and operating expenses. At the same time, the acquisition of these frequencies reflects an operator's obligations arising from licensing rules and their expectations with respect to future revenues from services and returns on their current investment.

The chart depicts an international comparison of expenses connected with LTE frequencies in EUR per MHz per population (EUR/MHz/pop). The resulting value of the indicator is influenced by the starting price determined by the regulator, the competition rate on the market, and the necessity to own frequencies in order to provide services. Therefore, the final price indicates how much the operators stake on future positive developments.

Expenses incurred by Czech mobile operators on LTE frequencies are still below the EU's average level. The operators' willingness to pay higher frequency prices is probably given by their expectations regarding substantial changes in their clients' behaviour, which they want to achieve by designing surprising service offers. And this is definitely good news.

Comparison of expenses on LTE frequencies



Conclusion

What is the value of mobile data for Czechs?



Every sixth respondent in our research stated that it is easier for them to meet people thanks to the mobile internet. This proves that data indeed works like an imaginary bicycle for people and is of high value to them. If the mobile internet can impact such essential aspects of human life, it is obvious that people will not easily give it up. Younger generations already perceive the mobile internet as an essential part of their life. The internet is becoming a habit for older users as well – it makes navigation easier for them, lets them get immediate information and instructions, and provides entertainment. Members of every age group are gradually changing their behaviour, getting used to the regular usage of mobile data, and thus increase its value.

Nowadays, customers do not only require internet access from their operators. They want high quality services available anytime and anywhere and the possibility to use high volumes of mobile data. Whereas in the past, customers got on the internet, took care of anything they needed to and left, they now rely on online information and services almost all the time. Being online always and everywhere has become a present day phenomenon.

Overall, mobile data usage is still in its early stage. Space for its growth with users over 24 years of age, who represent the productive generation with the largest impact on the functioning of society, is substantial. Compared to the EU average, data usage in the Czech Republic is lower, but people perceive network quality as very positive. Therefore, there is no reason for Czech data usage not to grow in the future as young users with a positive attitude towards mobile data move into the productive group of users.



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