

Czechia

| | Czechia | | | | EU |
|--|------------|------------|------------|-----------|------------|
| | DESI 2017 | DESI 2018 | DESI 2019 | | DESI 2019 |
| | value | value | value | rank | value |
| 1a1 Fixed broadband coverage | 99% | 98% | 98% | 14 | 97% |
| % households | 2016 | 2017 | 2018 | | 2018 |
| 1a2 Fixed broadband take-up | 71% | 73% | 74% | 14 | 77% |
| % households | 2016 | 2017 | 2018 | | 2018 |
| 1b1 4G coverage | 94% | 99% | 99% | 3 | 94% |
| % households (average of operators) | 2016 | 2017 | 2018 | | 2018 |
| 1b2 Mobile broadband take-up | 77 | 81 | 82 | 22 | 96 |
| Subscriptions per 100 people | 2016 | 2017 | 2018 | | 2018 |
| 1b3 5G readiness | NA | NA | 17% | 11 | 14% |
| Assigned spectrum as a % of total harmonised 5G spectrum | | | 2018 | | 2018 |
| 1c1 Fast broadband (NGA) coverage | 75% | 89% | 90% | 12 | 83% |
| % households | 2016 | 2017 | 2018 | | 2018 |
| 1c2 Fast broadband take-up | 26% | 32% | 37% | 18 | 41% |
| % households | 2016 | 2017 | 2018 | | 2018 |
| 1d1 Ultrafast broadband coverage | NA | 60% | 63% | 17 | 60% |
| % households | | 2017 | 2018 | | 2018 |
| 1d2 Ultrafast broadband take-up | 14% | 16% | 18% | 16 | 20% |
| % households | 2016 | 2017 | 2018 | | 2017 |
| 1e1 Broadband price index | 88 | 87 | 88 | 9 | 87 |
| Score (0 to 100) | 2016 | 2017 | 2018 | | 2017 |

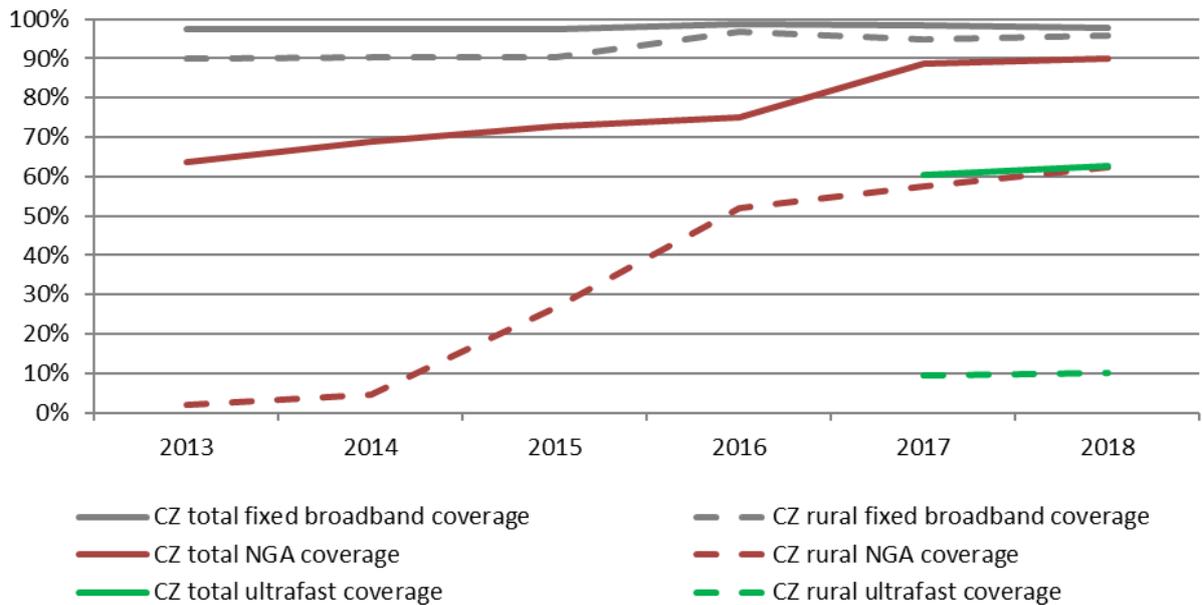
1. Progress towards a gigabit society

In 2018, Czechia's overall growth in the connectivity dimension slowed down, falling just below the EU average. It has almost met the target for fixed broadband full coverage, and next generation access (NGA) coverage grew to exceed the EU average. Both the deployment of fibre by alternative operators and the wholesale incumbent upgrading its copper network to VDSL contributed to this increase.

The growth of subscriptions to fixed broadband is achieved mainly in the (well-developed) urban areas, reaching 74 % of households, although this is still below the EU average of 77 %. In terms of ultrafast broadband coverage, Czechia performs slightly better (63 %) than the EU average (60 %). However, Czechia's urban-rural digital divide is illustrated by the figures for FTTP coverage, where 8.3 % of rural areas are covered (slightly more than half of the EU average of 14.2 %) as opposed to the aggregate coverage of 38.4 % that is above the EU average of 29.6 %.

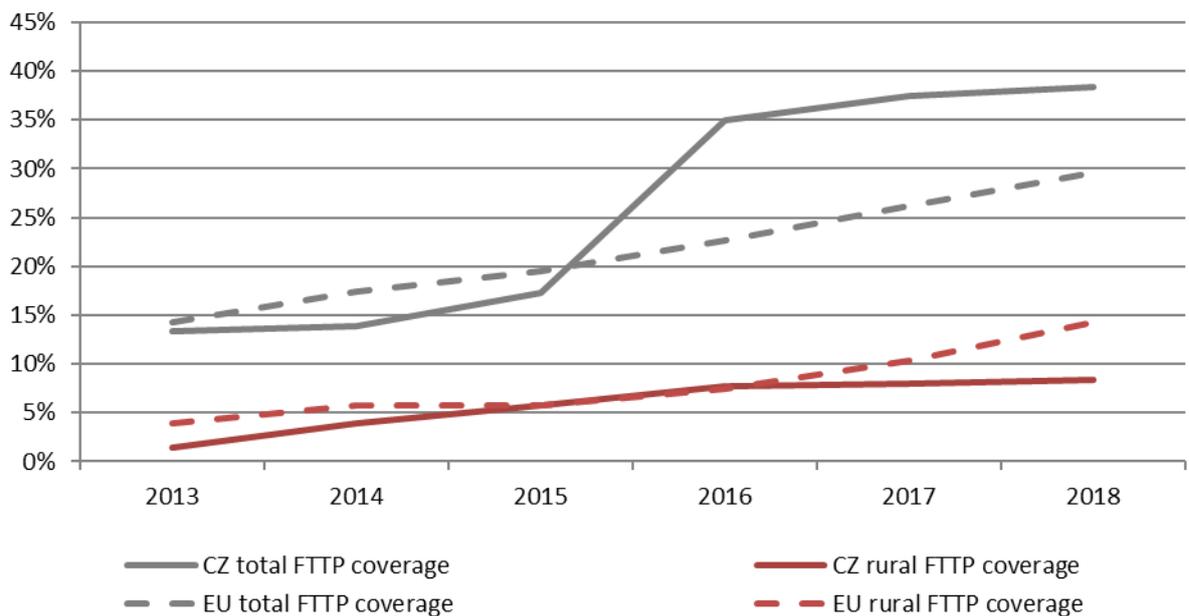
In 2018, the wholesale incumbent Česká telekomunikační infrastruktura a.s (CETIN) continued upgrading its DSL network to VDSL. This is part of the CZK 22 billion (approx. €800 million) plan launched in 2015 to develop NGNs over the next 7 years, mainly by upgrading its network to VDSL2, VDSL3 and vectoring technology. In 2018, the lease of VDSL lines to new entrants grew by 20 %. In 2018, CETIN announced an increase of its investment plan with CZK 5 billion (approx. €195 million). In January 2019, T-Mobile, the third largest provider of fixed broadband at retail level, announced investments of CZK 16 billion (approx. €624 million) in a five-year plan to cover one million households (20 % of total) with fibre access.

Fixed, NGA and ultrafast coverage, total and rural at Member State level (% of households), 2013-2018



Source: Commission services, *Broadband coverage in Europe Study*, commissioned to IHS and Point Topic. 2013-2014 data as of end of December; 2015-2018 data as of end of June. Ultrafast coverage metrics are available for 2017 and 2018.

Fibre-to-the-premises (FTTP) coverage, total and rural at Member State level (% of households), 2013-2018



Source: Commission services, *Broadband coverage in Europe Study*, commissioned to IHS and Point Topic. 2013-2014 data as of end of December; 2015-2018 data as of end of June.

National and EU investment in broadband

The national broadband plan has not yet been updated to bring it into line with the gigabit society targets. To address the urban-rural digital divide, in market failure areas, deployment will benefit from public support co-financed with EU funds within the Operational programme enterprise and

innovations for competitiveness (OPEIC). The OPEIC support to broadband rollout has been significantly reduced to €281 million from the initially planned €521 million as a result of a reduction of the intervention areas with no NGA coverage and lower demand for funding by operators than initially expected. These funds will support the concession of grants under a new call for projects in areas with no NGA coverage on the basis of a new map prepared by the Ministry of Industry and Trade based on the data collection carried by the national regulatory authority, the Czech Telecommunication Office (CTU). The Czech authorities are also assessing a new intervention to reinforce backhaul networks. The remaining funds will support the preparation of an Infrastructure Atlas to ease the reuse of existing infrastructure suitable to support the deployment of electronic communications networks. The OPEIC is also expected to contribute to setting up a demand support scheme, which is currently under preparation, and a programme of loans to support SMEs in the provision of electronic communication services.

5G: On 22 November 2018, the national roadmap for the 700 MHz frequency band was published, 5 months after the legal deadline, on the website of the Ministry of Industry and Trade. In August 2018, the proposed auction of the 700 MHz spectrum in Czechia took another step forward, with the CTU issuing its 'framework position' after completing the first stage of its industry consultation. The auction is planned for the second half of 2019 and will offer interested parties apart from the frequencies in the 700 MHz band, the remainder of the 3.4-3.6 GHz band, followed by a refarming of the 3.4-3.8 GHz band by 2020.

2. Market developments

Several consolidation processes were finalised in 2018. In the fixed broadband access market, Kaprain Industrial Holding – owner of the broadband access provider Nej.cz – extended its portfolio by purchasing RIO Media. The merger was not notified to the NCA as it did not meet the minimum turnover threshold. Nej.cz is not only a fixed provider, but it is also a mobile virtual network operator (MVNO) using T-Mobile's Czech network. The merger was finalised on 1 October 2018. The broadband access providers COMA s.r.o. and PODA a.s. also merged in 2018.

Vodafone notified the Commission of its plans to acquire certain Liberty Global assets (including UPC Czech Republic). On 11 December, the Commission opened an in-depth investigation into the proposed acquisition by Vodafone of Liberty Global's business in Czechia, Germany, Hungary and Romania. If the acquisition is cleared, it could influence the competition dynamics in Czechia for fixed-mobile converged bundled offers.

In July 2017, 4-play services had a penetration of only 1 % (EU average 11 %) and 3-play services only 6 % (EU average 25 %). Czechia has the lowest uptake of bundled services (total of 2-3-4 play): 25 % against the average of 67 % in the EU. This may also be altered by T-Mobile Czech Republic's recently announced plans to invest in its fibre-optic network in order to strengthen its bundled products business.

2.1. Fixed markets

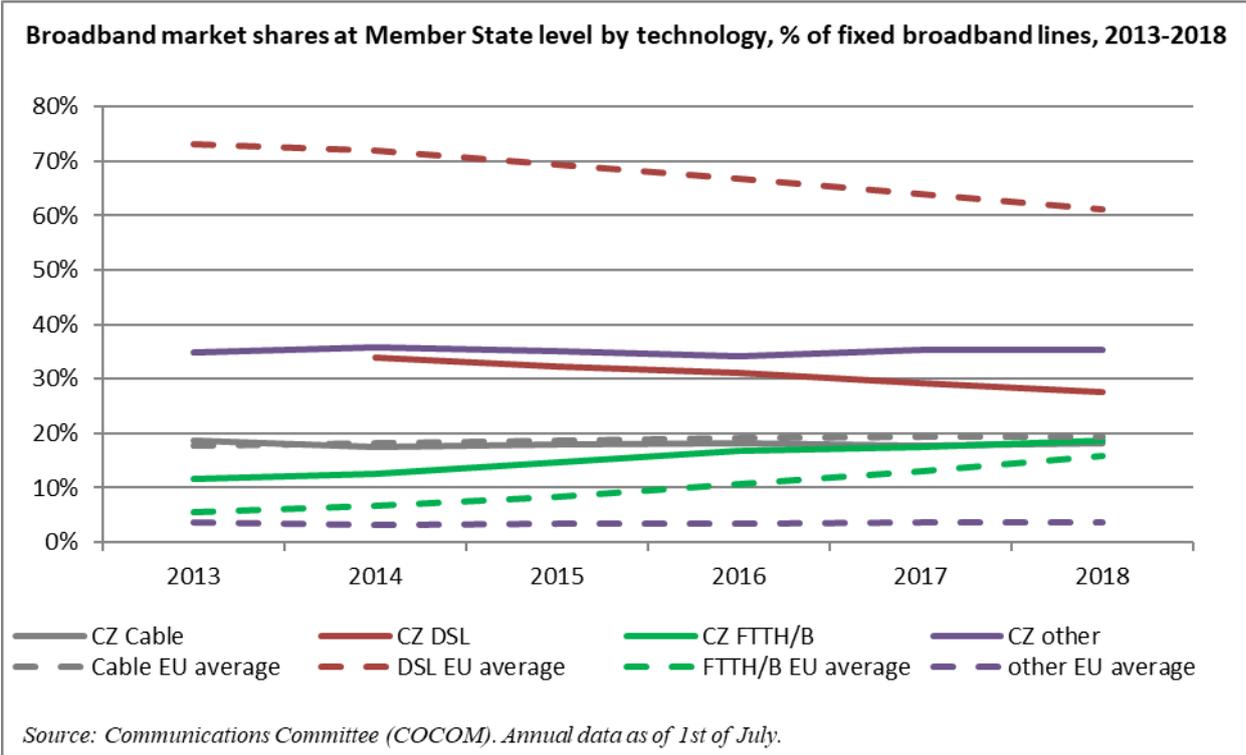
The Czech telecoms market has a number of notable features. The incumbent¹ voluntarily separated in 2015. Before the separation, its delayed broadband deployment on its DSL network saw the

¹ In June 2015, O2 Czech Republic a.s. (the former vertically integrated incumbent) voluntarily separated into two companies:

- Česká telekomunikační infrastruktura a.s. (CETIN), which retained the infrastructure of the former vertically integrated incumbent and now acts solely as a wholesale service provider; and
- O2 Czech Republic, which provides retail services on the fixed market and is also a mobile network operator (holder of frequency licences and owner of mobile exchanges) that offers both retail and wholesale services on the mobile market.

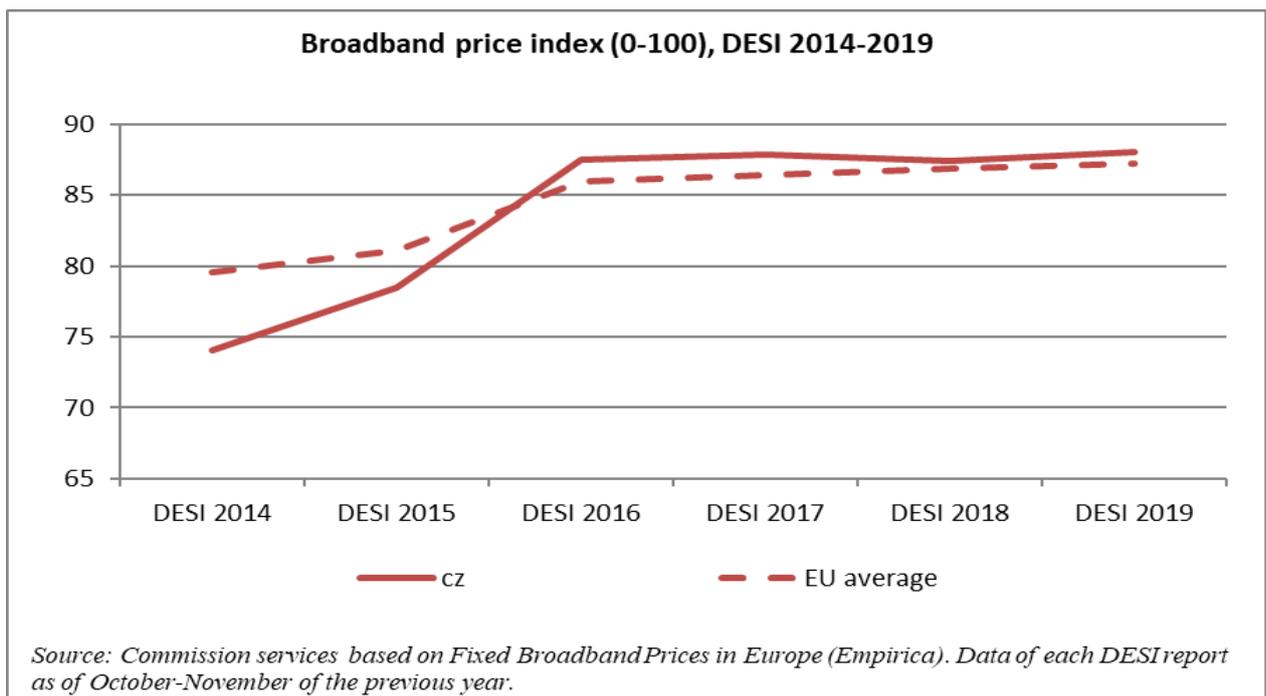
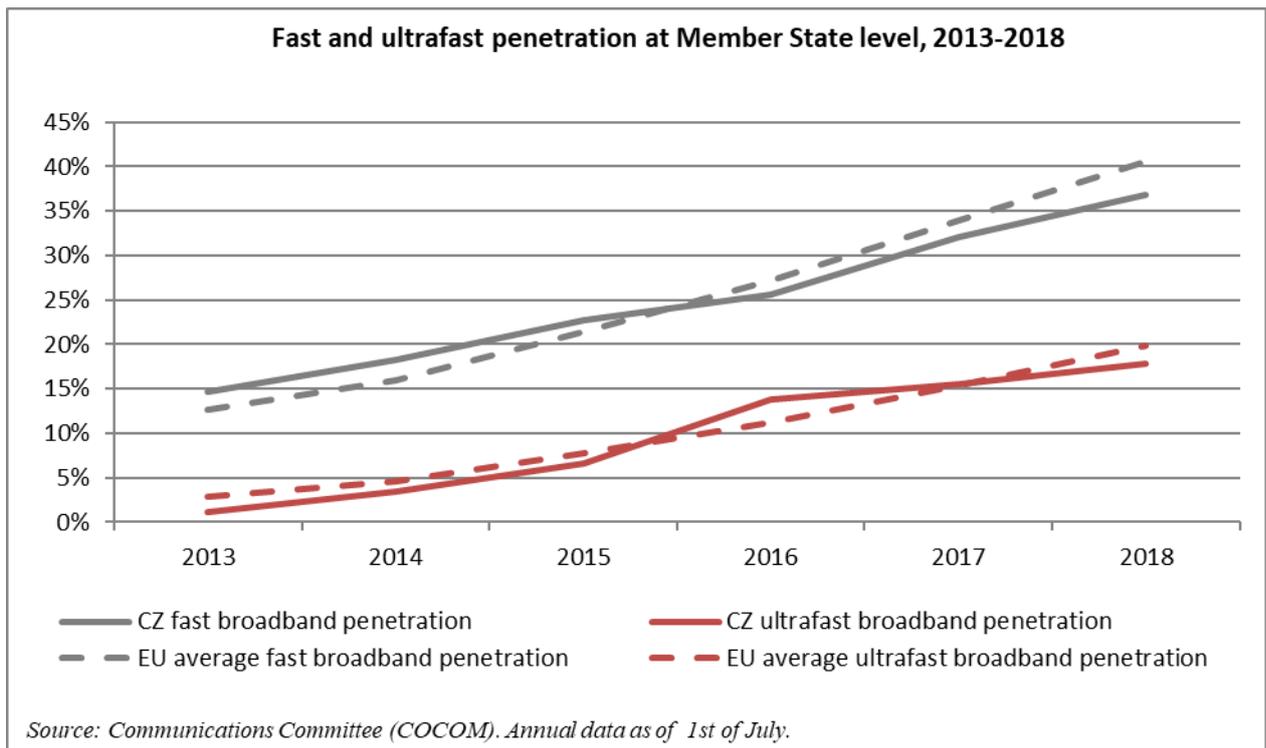
emergence of more than 1,500 local alternative operators that use fixed wireless access (FWA) technology, including WiFi technology. The biggest FWA provider has only 5 % share of the FWA market. These operators exert considerable competitive pressure on the wholesale incumbent, with FWA representing one third of the technology used in the broadband market. FWA gained market share in 2018 boosted also due to the spectrum allocations in the 3.6–3.8 GHz band that took place in 2017. However, it is worth noting that the deployment of FTTH/B networks was driven by these local operators, while the incumbent is focusing on upgrading its copper network to VDSL. Cable companies — CATV providers — have had a stable number of subscribers, coverage and market share in recent years. The main CATV provider enjoys a market share of more than 85 % in this segment. Its urban footprint is a major competitive constraint for the retail incumbent as cable provides the wide majority of ultrafast broadband connections (above 100 Mbps) in Czechia. There are no wholesale access products available via cable. In 2018 a significant increase in fixed long-term evolution (LTE) deployment – fixed broadband access via LTE networks was observed. In mid 2018 fixed broadband services via LTE technology served 8 % of the fixed retail market.

In 2018, the new entrants’ share of DSL subscription by type of access increased due to the significant migration from CETIN’s ADSL bitstream access to its VDSL offer. Still, 35 % of the new entrants’ DSL broadband subscriptions use ADSL bitstream access. New entrants using xDSL account for a growing share of the DSL broadband market (currently 20 %), mainly as a result of the take-up of VDSL products. On the other hand, the retail incumbent O2 Czech Republic relies heavily on the ADSL and VDSL bitstream access lines supplied by the wholesale incumbent CETIN.



The take-up of fast broadband (37 %) and ultrafast broadband (18 %) in Czechia is below the EU average (of 41 % and 20 % respectively), and shows a significantly slower pace of growth. The ultrafast broadband uptake is catered for by new entrants through FTTP and cable technology, with a marginal deployment on the incumbent’s network. Czechia scores 88.1 on the indicator for fixed

broadband prices, which is just above the EU average of 87².



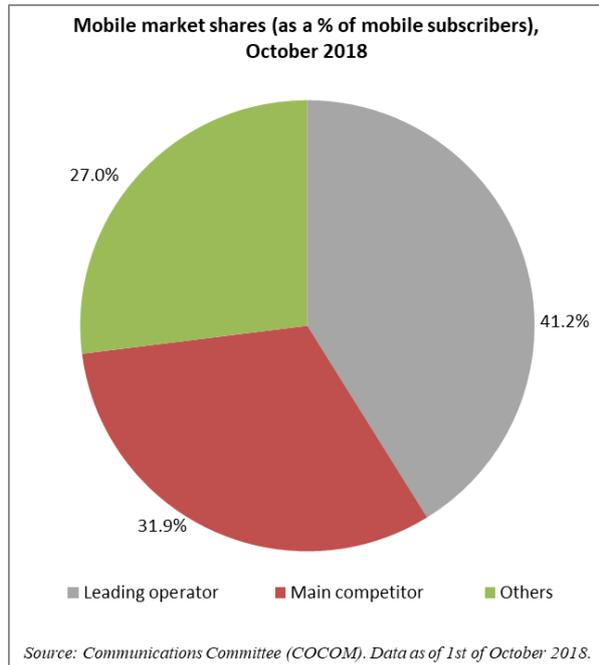
PODA and Nordic Telecom, owners of the licences acquired in the 3.6–3.8 GHz band in 2017 announced in the second half of 2018 the launch of wholesale access to data services in 2019 through fixed wireless access technology. This could influence the wholesale fixed market in Czechia.

The number of nation-wide IoT networks is growing (ex: LoRa, Sigfox, Wightless, Waviot). No

²The fixed broadband price index weighs the cheapest retail offers from: standalone, double play (BB + TV, BB + fixed telephony) and triple play (BB+TV+fixed telephony) and three speeds categories - 12-30 Mbps, 30-100 Mbps and +100 Mbps. This indicator presents values from 0 to 100 (which should not be read as prices) and the higher the values, the better the country performs in terms of affordability of prices relative to purchasing power.

specific regulatory measures are in place for M2M services.

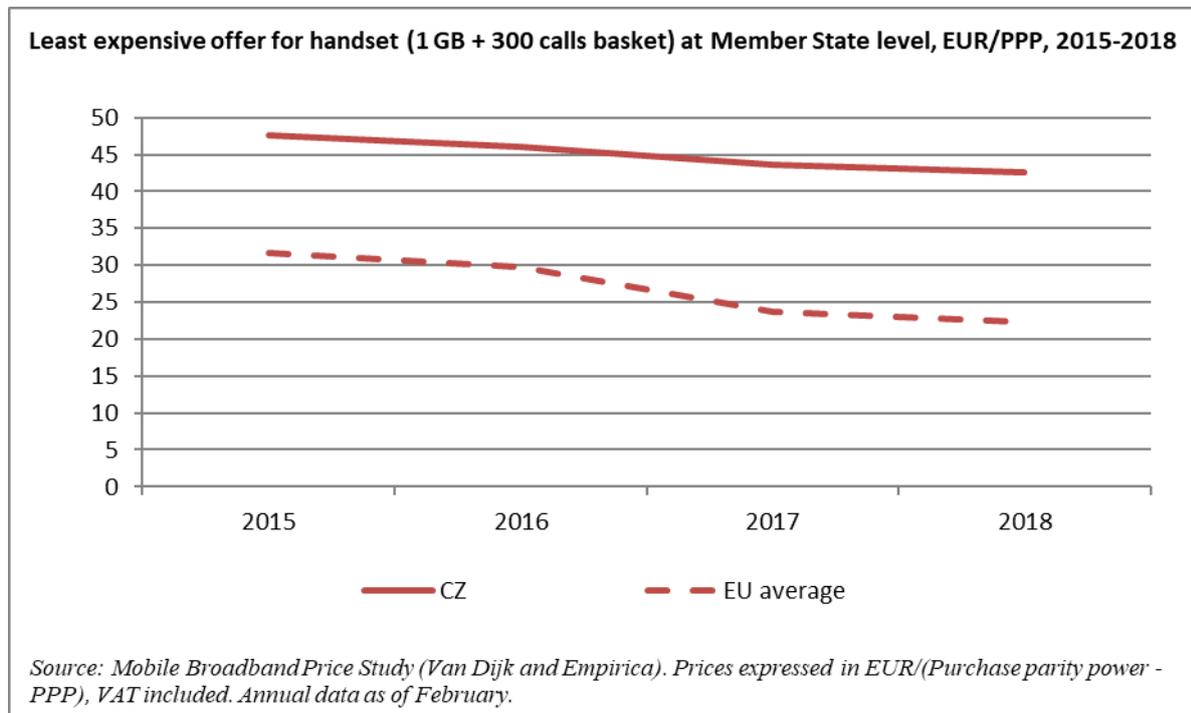
2.2. Mobile markets



In terms of mobile broadband, 4G coverage is almost ubiquitous (99 %). Mobile broadband take-up (82 %) saw a marginal increase in the past year, but remains well below the EU average of 96 %. The low take-up of mobile broadband may be due to the fact that prices for mobile phone users are among the highest in Europe. The mobile broadband prices for handset offers³ (€42.6) are almost double the EU average of €22.3. At the same time, the fixed broadband price index is very close to the EU average.

According to CTU, the most common technology for mobile backhaul was microwave lines, which are used to connect more than half of base stations, while fibre made up around 30 % of the available backhaul.

A network sharing agreement between O2 Czech Republic/CETIN and T-Mobile Czech Republic has been in place since 2011, and its scope has been expanding. It currently covers all mobile technologies (2G, 3G and 4G) and all of Czechia apart from Prague and Brno (which means it covers the other cities and all rural areas, which together account for about 85 % of the population). On 25 October 2016, the European Commission started investigating the network sharing agreement. The investigation was ongoing in 2018 and examines whether the agreement restricts competition and thereby breaches EU antitrust rules.

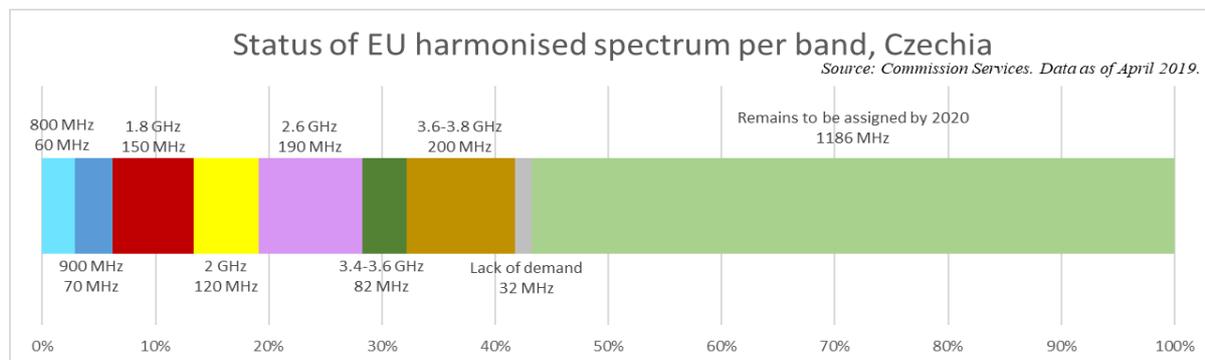


³ Offers from February 2017 including 1 GB, 300 calls and 225 SMS. Source: Mobile Broadband Price Study (Van Dijk and Empirica). Prices expressed in EUR/PPP, VAT included. Data as of February 2019.

149 mobile virtual network operators (MVNOs), excluding branded resellers, were present on the Czech telecom market in mid-2018. 121 of these offer voice services along with data packages, while 19 MVNOs provide stand-alone mobile data services (broadband for laptops, tablets and other portable devices).

3. Regulatory developments

3.1. Spectrum



In Czechia, 42 % of the spectrum harmonised at EU level for wireless broadband has been assigned⁴. The spectrum that remains to be assigned is mainly in the 700 MHz, 3.6 GHz and the 26 GHz bands.

The Czech Telecommunication Office is in the process of preparing auction terms for a 5G auction to auction frequencies in the 700 MHz and 3400-3600 MHz bands. This auction is expected to take place during the second half of 2019. In June 2018, CTU published on its website first version of the basic principles of the spectrum auction followed by an update⁵ in February 2019. The auction conditions seem to favour new entrants on the Czech telecommunications market in line with the objective to promote infrastructure-based competition. CTU's intention is to reserve a 2x10 MHz block in the 700 MHz band is reserved for a new entrant. In addition, a time-limited, cost-oriented national roaming access is ensured on the networks of the incumbent operators participating in the auction to allow the new entrant to compete during the period required for its own network rollout.

The CTU assesses that, under the current legislative framework, no other suitable mobile spectrum below 1 GHz range is likely to be available in the foreseeable future, not until at least 2030. After the 700 MHz auction, spectrum below 1 GHz will be fixed and a new entry into the Czech mobile market will only be possible by way of access or spectrum trading. In order to ensure that the licences are 5G ready, winners of the 3400-3600 MHz licences will have to accept refarming with the 3600-3800 MHz band. Similarly the licences granted following the auction in 2017 contain the condition to accept refarming with the 3400-3600 MHz band.

The call for offers for the 700 MHz and the 3400-3600 MHz bands is expected to be launched in the second half of 2019.

In 2018, the CTU initiated negotiations for refarming in the 900 MHz band with all current right holders.

⁴ The 5G spectrum readiness indicator is based on the amount of spectrum already assigned and available for use for 5G by 2020 within the '5G pioneer bands' in each EU Member State. For the 3.4-3.8 band this means that only licences aligned with the technical conditions annexed to Commission Decision (EU) 2019/235 are considered 5G-ready. However, the percentage of harmonised spectrum takes into account all assignments in all harmonised bands for electronic communications services (including 5G pioneer bands), even if this does not meet the conditions of the 5G readiness indicator.

⁵ <https://www.ctu.eu/notice-preparation-tender-right-use-radio-frequencies-700mhz-band-and-related-steps>

3.2. Regulated access

In 2017, the CTU launched a public consultation on the fulfilment of the three criteria test for a wholesale ‘mobile services market’ (Market 15 - Access and call origination on public mobile telephone networks - in the 2003 Recommendation) covering all network technologies (2G, 3G, 4G). In 2018, the CTU completed its examination and is currently preparing its competition assessment – SMP analysis. While the mobile wholesale data market is not identified in the 2014 Commission Recommendation as a market susceptible to *ex ante* regulation, the CTU identified the ‘mobile services market’ in Czechia as susceptible to *ex ante* regulation. The CTU concluded that the three criteria test is passed⁶ and is finalising its assessment of the potential existence of joint significant market power (SMP) of mobile operators. The CTU expects to send a pre-notification of its conclusions to the European Commission in the first half of 2019.

The markets for wholesale local access provided at a fixed location, wholesale central access provided at a fixed location for mass-market products and wholesale high-quality access provided at a fixed location (markets 3a, 3b, 4 of the 2014 Recommendation⁷) in Czechia were notified to and assessed by the Commission in 2017 (cases CZ/2017/1985-1986 and CZ/2017/1999). The CTU designated CETIN as the only operator holding SMP in markets 3a, 3b and a segment of market 4. The CTU imposed on CETIN the obligation of access, transparency, non-discrimination, accounting separation and on market 3a price control obligation on collocation services and access to the dark fibre. In its analyses, the CTU took into consideration the impact of the 2015 voluntary separation of O2 Czech Republic into two legal entities: CETIN, which operates at wholesale level only, and the retail arm O2 Czech Republic. In 2018, the CTU notified⁸ the details of the regulatory obligations imposed on CETIN. The Commission commented on the lack of cost-oriented prices for access to CETIN’s passive infrastructure. It considered that the CTU should maintain the cost-orientation obligation imposed on the SMP operator even after transposition of the Directive 2014/61/EU into national law. As a result, the Commission asked the CTU to monitor the application of Directive 2014/61/EU in practice. Where access to CETIN’s civil engineering infrastructure could not be ensured in an appropriate, timely and effective manner, in accordance with Article 16(4) of the Framework Directive and Articles 12 and 13 of the Access Directive the Commission asked the CTU to impose a cost-orientation obligation for access to CETIN’s passive infrastructure even before the end of the regulatory review period. In addition, the Commission welcomed the CTU’s plan to review the weighted average cost of capital (WACC) in 2018 and asked the CTU in that regard to take account of recent Article 7 case practice concerning the WACC calculation method. In 2019, the CTU notified⁹ to the Commission the updated WACC value together with the details of its calculation. The Commission had no comments.

The final access remedies in market 3a imposed on CETIN include an obligation to provide access to specific network elements and associated facilities, specifically to copper and optical access lines, VULA and dark fibre. CETIN is also obliged to ensure SLA agreement. Price regulation on the market 3a was to some extent relaxed following the relevant market analysis. The CTU lifted cost orientation on copper Local loop unbundling (LLU) and on access to physical infrastructure. The cost orientation was re-imposed on collocation services and on access to the dark fibre. In addition, an economic replicability obligation was imposed to avoid margin squeeze between services on markets 3a and 3b.

⁶ <https://www.ctu.eu/notice-consultation-preliminary-analysis-wholesale-mobile-market>

⁷ Commission Recommendation of 9 October 2014 on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services.

⁸ On 27 March 2018 CTU notified the remedies introduced for markets 3a (case CZ/2018/2067), 3b (case CZ/2018/2068) and 4 (case CZ/2018/2069).

⁹ On 03 January 2019, the CTU notified the updated WACC value together with the details of its calculation (case CZ/2019/2135)

The remedies imposed on market 3b include access to specific network elements and associated facilities in order to provide wholesale service with a central and regional access point.

The remedies imposed in market 4 include access to specific network elements and associated facilities in order to provide termination segments of leased lines for services up to 6 Mbps.

In March 2019 the CTU initiated the analysis of the wholesale termination markets, and the findings are expected in Q1 of 2020.

4. End-user matters

According to the 2018 Consumer Markets Scoreboard, of the 25 services markets surveyed in Czechia ‘Mobile telephone services’ (-3.9 percentage points) and ‘TV-subscriptions’ (-3.3) score the lowest compared to the EU-28 average, with the former market recording a decrease in consumers’ assessment between 2015-2017 (-2.4 points, now ranks 24th of 25 markets assessed), whereas the fixed telephone services market ranks equally low (23th, -3.2 points below the market’s EU average).¹⁰

1,587 complaints had been registered by the end of September 2018.

On 15 October 2018, the Supreme Administrative Court upheld the second instance decision of CTU to impose a fine of CZK 4.5 million (approx. €175,000) on O2 Czech Republic for changing contracts in May 2015 without the prior approval of its customers and for automatically charging for extra data when the limit was exceeded. The Court stated that any contract change that requires the customer to spend more money constitutes a ‘substantial change’ that is detrimental to the consumer.

The CTU awards accreditation to independent price calculators of electronic communication services upon their request and provided they fulfil all the accreditation criteria set in the CTU’s accreditation scheme. Each accreditation needs to be renewed annually. All currently accredited price comparison calculators may be found on the CTU’s web page¹¹.

a. Net neutrality

The CTU cooperates with an independent association CZ.NIC to provide the Net Metr¹² monitoring tool to end-users. This application allows end-users to test the speed and overall quality of their internet connection at any time. If the Net Metr test identifies issues with the quality of the internet connection, the CTU will use its own technical measurement procedures to investigate the issue. Consequently, the NetMetr application is not yet certified.

The CTU has been performing its own technical measurements of the data speeds in mobile networks through mobile terminals with the QualiPoc Android software tool. The database of the results of the monitoring is used in assessing complaints. The CTU has published¹³ on its website interactive maps reflecting the measurements.

The CTU is keeping a special separate register of complaints focusing on net neutrality issues.

The CTU has undertaken approximately 60 investigations and has reviewed approximately 150 IAS contracts on the basis of Article 4(1) of EU Regulation 2015/2120 (the Regulation). These investigations resulted in 17 enforcement decisions. Most of the investigations and decisions concern orders relating to infringements of multiple (sub)paragraphs of Articles 3 and 4 of the Regulation:

¹⁰ Consumer Market Scoreboard – 2018 edition. Published on 12 October 2018: https://ec.europa.eu/info/publications/consumer-markets-scoreboard_en

¹¹ <https://www.ctu.eu/price-calculators>

¹² <https://www.netmetr.cz/en/>

¹³ <https://qos.ctu.cz/>

- 15 investigations initiated and six decisions related to restrictions on using terminal equipment (Article 3(1)). Remedial orders were imposed in relation to (i) provisions in the IAS agreement prescribing the use of terminal equipment offered by the ISP; (ii) unclear and incomprehensible contractual provisions regarding the use of terminal equipment; and (iii) contractual provisions requiring prior approval of the terminal equipment by the ISP.
- four investigations and four decisions related to zero-rating (Articles 3(2) and 3(3) of the Regulation). The investigations focused on issues such as restrictions after the data cap was reached and the (potential) reduction of quality of service for certain categories of data. None of the decisions were based on a comprehensive assessment as referred to in paragraph 46 the BEREC Guidelines.
- four decisions related to other traffic management measures (Article 3(3) of the Regulation) such as reductions of transmission speed after the specified volume of data was reached for certain types of applications, services and content.
- 12 decisions were taken referring to lack of transparency regarding obligations in relation to specialised services (Article 4(1)(c) of the Regulation).
- 24 investigations and 17 decisions related to other transparency obligations. Two of these decisions have been appealed and the court cases are still pending.

All of the decisions require ISPs to amend their contract terms or commercial practices. No penalties have yet been imposed.

b. Roaming

CTU evaluated the impact of one operator which did not automatically apply the roam like at home (RLAH) rules on end-users. The shortcomings identified were rectified in Q1 2018. As of June 2018 there have been no cases of non-compliance with the RLAH rules. The new roaming rules are now well assimilated by the market and understood by end-users. Czech travellers now use approximately 12 times more data while roaming than they did before RLAH, and they call two to three times more.

c. Emergency communications

Caller location requirements are laid down in Decree 267/2017 on localisation and identification of the caller. In June 2017 new requirements for caller location accuracy were imposed on operators. Consequently, as of 1 March 2018 mobile network operators had to provide a sector-ID-based location to the authority handling the call. It is planned to implement the handset-derived caller location solution. According to the COCOM report on the implementation of 112, access to emergency services for disabled end-users is ensured through a text relay service.

The Commission is currently looking into the functioning of emergency communications and the 112 number in Czechia, with particular regard to equivalent access to emergency services for end-users with disabilities.

d. Universal service

On 4 November 2018 CTU issued a new list of public payphones included in universal service for 2019. This decision is effective as of 1 January 2019 and amended the decision ČTÚ-41 366/2017-610/VI. vyř. of 7 November 2017 on the obligation to provide a partial service within the frame of the universal service. This obligation has been imposed on O2 Czech Republic a.s

Persons with special social needs are entitled to obtain a CZK 200 (approx. €8) allowance in the form of a price discount. The obligation to provide special prices has been imposed on O2 Czech Republic a.s. A universal service obligation is in place to enable access for disabled persons to the publicly

available telephone service, to the telephone directory enquiry service and to telephone directories at the same level of quality as the access enjoyed by all other end users, based on, in particular, specially equipped telecommunications terminal equipment. End-users with a disability may rent or buy a special terminal device for the price of a standard terminal device.

The net cost of the universal service is financed from the state budget. The universal service compensation paid in 2018 for the service provided in 2017 was CZK 34,066,380 (approx. €1,300,000) for public payphones and CZK 74,720,929 (approx. €2,900,000) for special prices for end users with a disability.

5. Conclusion

The 2025 strategic targets proposed by the European Commission seem to be supported by the deployment of future-proof technologies by alternative operators. Greater market-led deployment than previously anticipated means that Czechia's direct public investment needs to close the urban-rural divide as regards NGA networks have been reduced. All the remaining measures provided for by the OPEIC should be swiftly implemented. The forthcoming auction of 5G spectrum auction needs to be held soon if 5G is to be deployed in good time.