

## A ICT Infrastructure

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The **telecommunications and internet infrastructure** is the cornerstone of majority of information technologies and thus the information society as a whole, as well. Data on the state and trends in the infrastructure of electronic communications in Czechia and the Member States of the European Union in the chapter have been collected from the **telecommunication and internet services providers**, on the contrary to majority of other chapters.

The **Reference Period** is as at 31 December of the reference year, unless otherwise stated.

Information in the chapter applies to services provided in retail only that means services provided to **end users**.

### Definitions (sorted alphabetically)

- A **subscriber** (or customer) to publicly accessible services of electronic communications shall mean individual or legal entity, which has concluded a contract on the use of such services with a provider and has an access to the public switched telephone network or public mobile telephone network within the contracted services.
- **Domain (internet domain and/or domain name)** shall mean a definite identifier of a computer or a computer network connected to the internet. The domains shall be registered by domain name registrars, which are authorised to administer Top Level Domains.
- **Fixed wired access** to the internet includes connections over following technologies and networks: i) digital subscriber line xDSL (ADSL, VDSL, FTTC) using fixed telephone networks, ii) cable modem using coaxial cable television networks (CATV) and iii) optical fibre networks (FTTH/B).
- **Fixed wireless access (FWA)** to the internet is the description of fixed wireless access by means of a radio connection both in licensed (including fixed LTE/5G) and non-licensed (fixed Wi-Fi) frequency bands. The end-point device is at a fixed place, located in a building, dwelling etc.
- **SIM cards** are **prepaid** ones, in which case the customer does not conclude any contract with the provider and buys a credit, which the provider deducts payments for services provided from; and **post-paid** ones in which case customers have a contract concluded with the provider and pay for contracted services by monthly invoice.
- The **number of fixed broadband subscriptions** is measured on the basis of so-called access points (**active connections**) at which services are provided in a fixed point via **fixed wired** or **wireless access**.
- The **number of mobile broadband subscriptions using cellular phone** is measured by the number of data SIM cards with activated voice and data services together, which are provided based on the contract allows the access to mobile broadband in cellular phone.
- The **number of subscriptions of voice services in a fixed telephone network** is measured as the number of the **public switched telephone network (PSTN) lines** and the number of **phone numbers** used for voice services by means of the **IP telephone** (VoIP technology).
- The **number of subscriptions of voice services in a mobile network** is measured by the number of **active SIM cards**, which were used at least once in the recent three months for voice services.

Data for the **Czechia** are taken from data sources of the Czech Telecommunication Office, except for the number of registered domains (source: cz.nic). Further information: [www.ctu.cz](http://www.ctu.cz) and [www.nic.cz](http://www.nic.cz).

**International comparisons** were worked out by the CZSO using data from the International Telecommunication Union (ITU World Telecommunication/ICT Indicators Database, December 2022), European Commission and OECD (from data source available in February 2023).

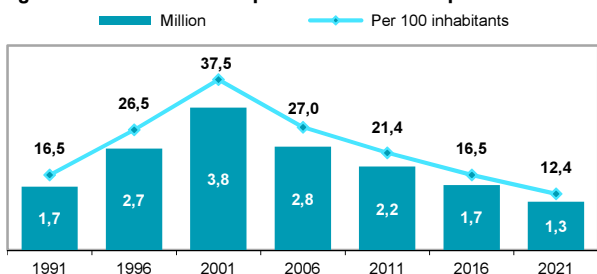
**Further information on this theme can be found at** (in Czech language only): [https://www.czso.cz/csu/czso/telekomunikacni\\_a\\_internetova\\_infrastruktura](https://www.czso.cz/csu/czso/telekomunikacni_a_internetova_infrastruktura)

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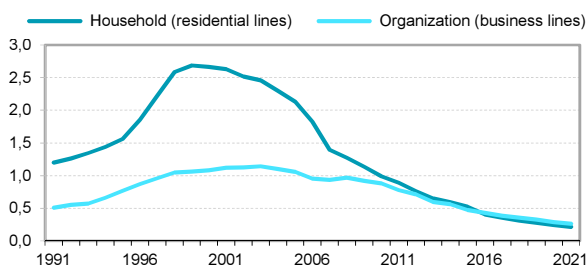
**Table A1 Fixed telephone voice subscriptions in Czechia**

	Thousand		
	2015	2020	2021
<b>Total</b>	<b>1 896</b>	<b>1 334</b>	<b>1 302</b>
<b>Subscriber</b>			
Household - residential subscriptions	831	459	411
Organization - business subscriptions	1 065	875	891
<b>Network technology and subscriber</b>			
<b>Switched network - PSTN lines</b>	<b>994</b>	<b>530</b>	<b>477</b>
Household - residential PSTN lines	523	244	214
Organization - business PSTN lines	471	286	263
<b>Internet network - VoIP lines</b>	<b>902</b>	<b>804</b>	<b>826</b>
Household - residential VoIP lines	309	216	197
Organization - business VoIP lines	594	588	628

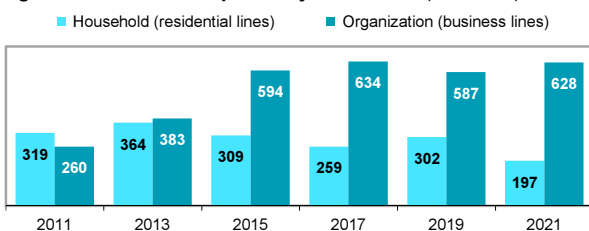
**Figure A1 Active fixed telephone voice subscriptions**



**Figure A2 Active fixed telephone lines to PSTN by subscriber (million)**



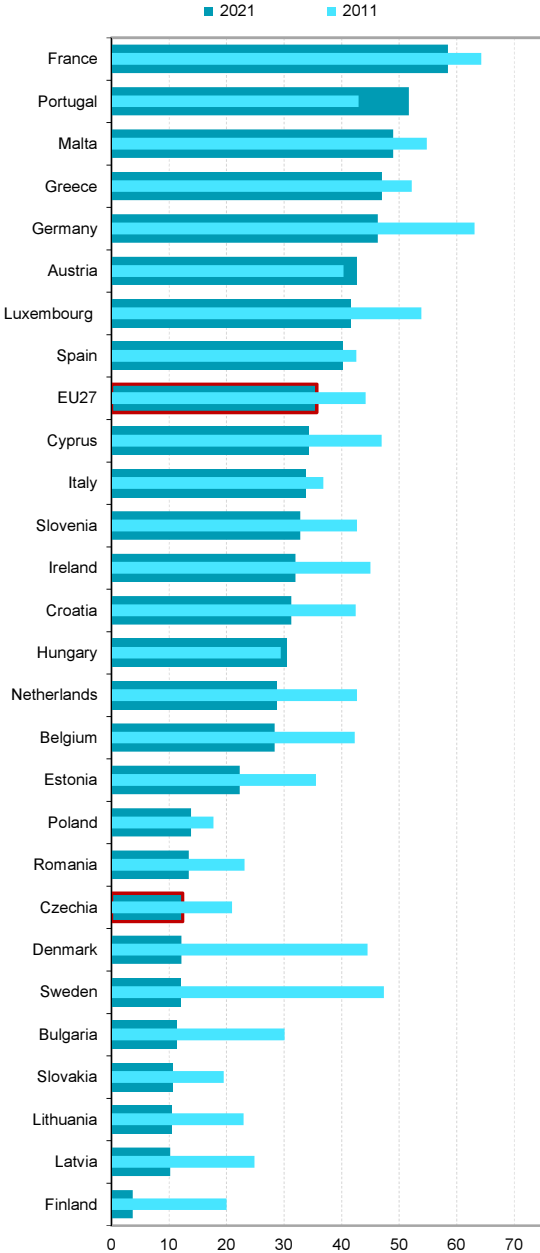
**Figure A3 VoIP subscriptions by subscriber (thousand)**



Source: Czech Telecommunication Office and CZSO own calculations

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**Figure A4 Fixed telephone voice subscriptions  
in EU countries (per 100 inhabitants)**



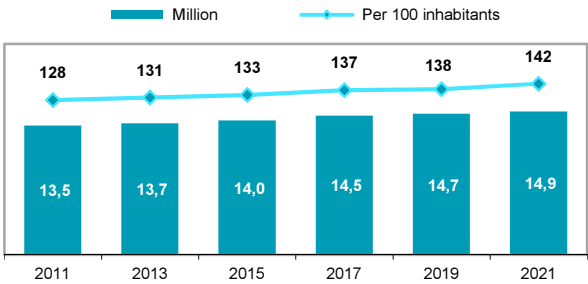
Source: International Telecommunication Union

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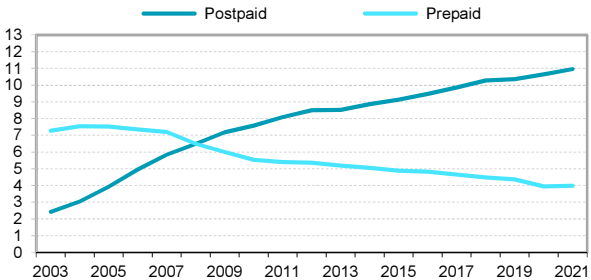
**Table A2 Mobile telephone voice subscriptions in Czechia**

	Thousand		
	2015	2020	2021
<b>Total</b>	14 017	14 600	14 943
<b>Subscriber</b>			
Individual (citizen)	9 222	8 836	9 113
Organization (e.g. enterprise)	4 795	5 764	5 830
<b>Subscription</b>			
Prepaid	4 893	3 947	3 982
Postpaid	9 124	10 653	10 961

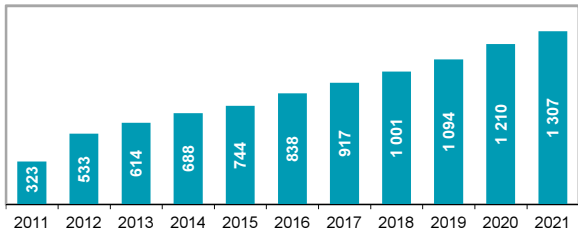
**Figure A5 Mobile telephone voice subscriptions**



**Figure A6 Active SIM cards by subscription (million)**



**Figure A7 M2M subscriptions\* (thousand)**

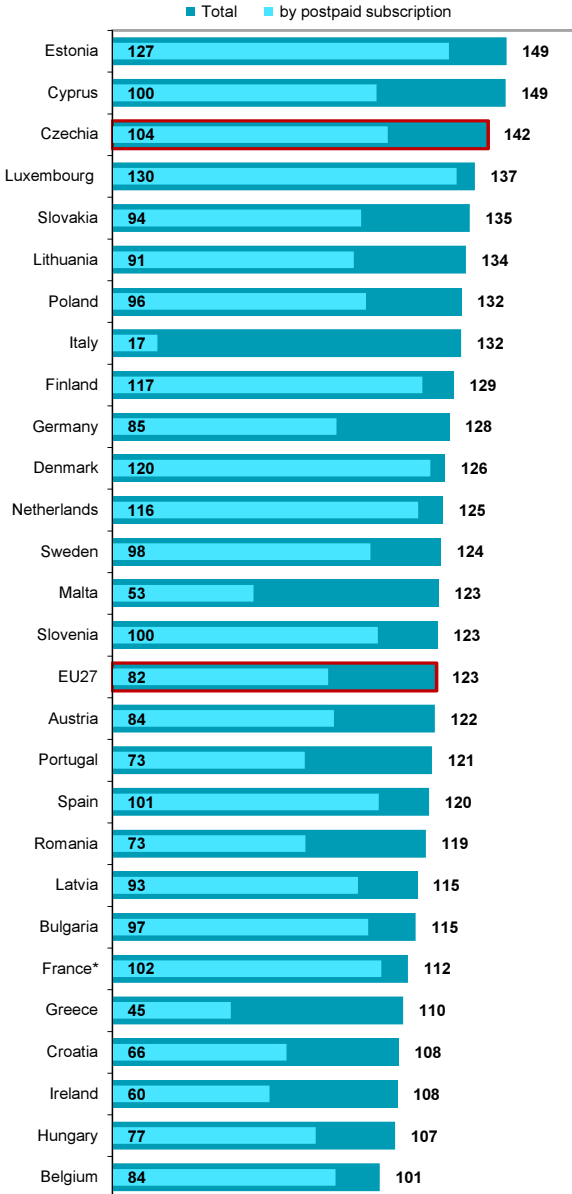


\* Machine-to-Machine (M2M) includes SIM cards designed exclusively for wireless communication among devices and systems without human intervention.

Source: Czech Telecommunication Office and CZSO own calculations

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**Figure A8 Mobile telephone voice subscriptions in EU countries; 2021 (per 100 inhabitants)**



\* data for 2019

Source: International Telecommunication Union, Czech Telecommunication Office

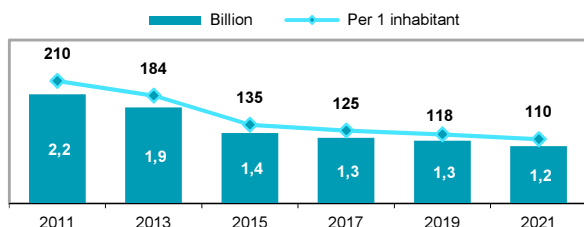
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**Table A3 Fixed telephone traffic in Czechia**

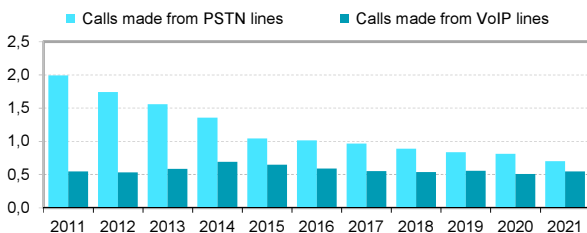
Outgoing calls from the fixed network in million minutes

	2019	2020	2021
<b>Total</b>	<b>1 389</b>	<b>1 318</b>	<b>1 243</b>
<b>Subscriber</b>			
Household - calls from residential lines	651	632	534
Organization - calls from business lines	738	686	709
<b>Technology</b>			
Switched network - calls from PSTN lines	835	812	700
Internet network - calls from VoIP lines	554	506	544
<b>Destination</b>			
<b>Domestic calls, total</b>	<b>1 262</b>	<b>1 202</b>	<b>1 156</b>
Fixed-to-Fixed calls	595	503	472
Fixed-to-Mobile calls	666	699	685
<b>International calls</b>	<b>77</b>	<b>72</b>	<b>51</b>

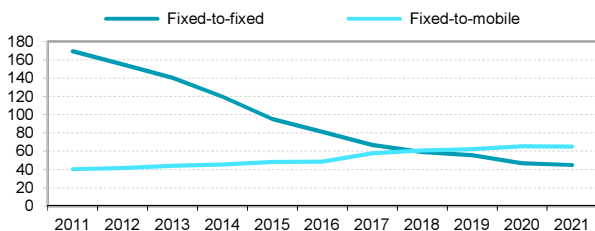
**Figure A9 Domestic fixed telephone traffic (minutes)**



**Figure A10 Fixed telephone traffic by technology**  
(outgoing calls in billion minutes)



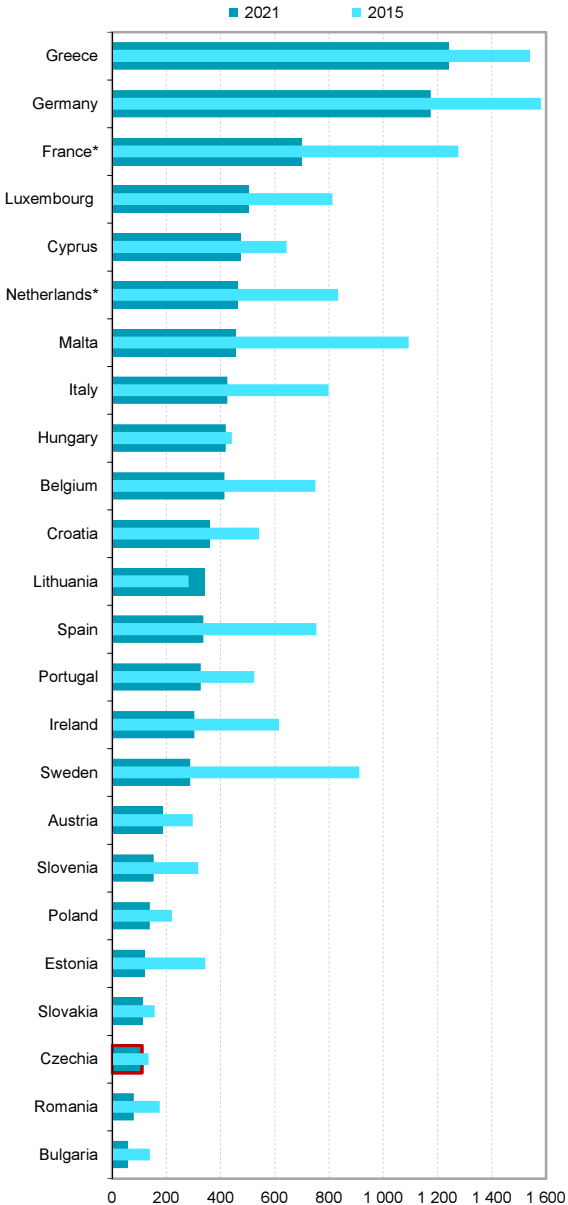
**Figure A11 Domestic fixed telephone traffic by network**  
(outgoing called minutes per one inhabitant)



Source: Czech Telecommunication Office and CZSO own calculations

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**Figure A12 Domestic fixed telephone traffic in EU countries**  
(outgoing called minutes per one inhabitant)



\* France: data for 2014 and 2019, Netherlands: data for 2019.

Source: International Telecommunication Union and CZSO own calculations

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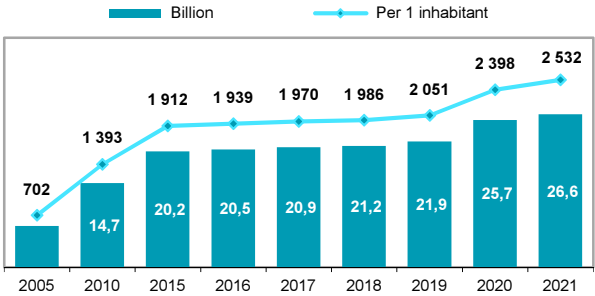
**Table A4 Mobile telephone traffic in Czechia**

Outgoing calls from the mobile network in million minutes

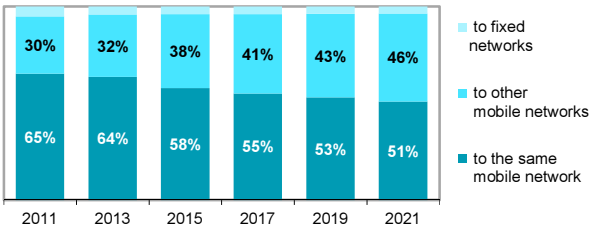
	2019	2020	2021
<b>Total</b>	<b>23 553</b>	<b>27 091</b>	<b>28 096</b>
<b>Subscriber</b>			
Individual (citizen)	12 293	14 372	15 156
Organization (e.g. enterprise)	9 991	11 651	11 813
<b>Destination</b>			
<b>Domestic calls, total</b>	<b>21 931</b>	<b>25 660</b>	<b>26 628</b>
to the same mobile network	11 595	13 244	13 537
to other mobile networks	9 501	11 451	12 125
to fixed networks	836	965	966
<b>International calls*</b>	<b>1 622</b>	<b>1 430</b>	<b>1 468</b>

\* Incl. outbound roaming, which is not included in the breakdown by subscriber type.

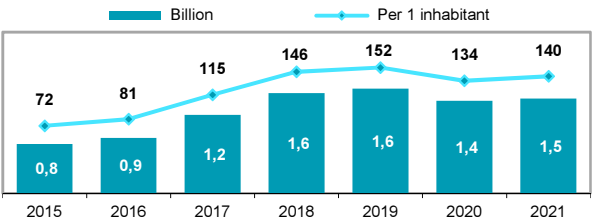
**Figure A13 Domestic mobile telephone traffic (minutes)**



**Figure A14 Domestic mobile telephone traffic by destination**



**Figure A15 International mobile telephone traffic (minutes)**

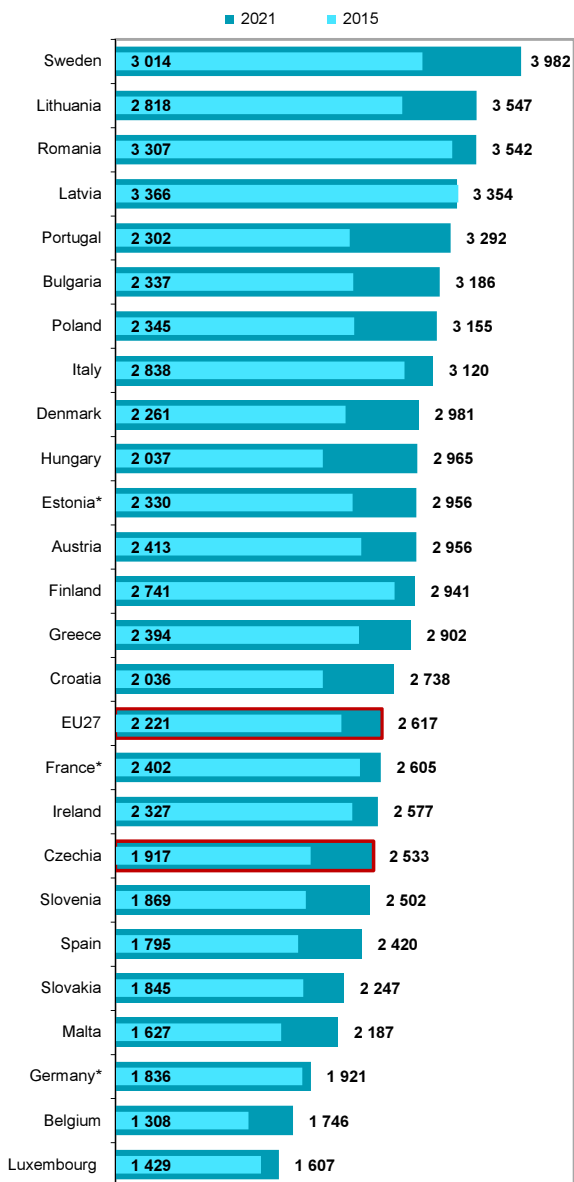


Source: Czech Telecommunication Office and CZSO own calculations



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**Figure A16 Domestic mobile telephone traffic in EU countries**  
(outgoing called minutes per one inhabitant)



\* Estonia: data for 2020, France: data for 2019, Germany: data for 2014.

Source: International Telecommunication Union and CZSO own calculations

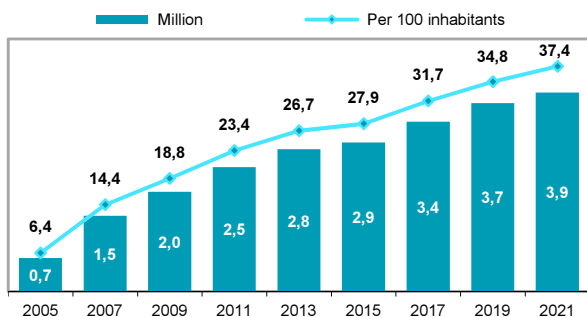
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**Table A5 Fixed broadband subscriptions in Czechia**

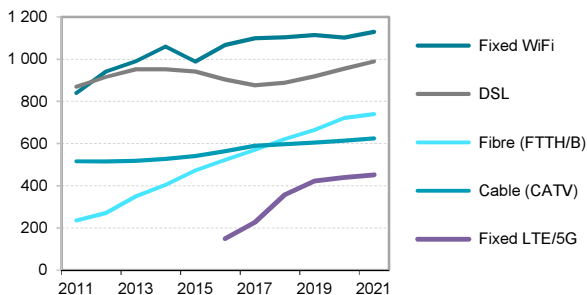
Thousand

	2019	2020	2021
<b>Total</b>	<b>3 726</b>	<b>3 833</b>	<b>3 936</b>
<b>Speed</b>			
< 30 Mbit/s	1 550	1 353	1 161
≥ 30 < 100 Mbit/s	1 101	1 253	1 517
≥ 100 Mbit/s	1 075	1 227	1 258
<b>Subscriber</b>			
Household	3 094	3 182	3 260
Organization	632	651	677
<b>Access and technology</b>			
<b>Wired fixed access, total</b>	<b>2 188</b>	<b>2 291</b>	<b>2 355</b>
DSL incl. FTTC	918	956	990
Fibre (FTTH/B)	664	721	740
Cable (CATV)	606	614	625
<b>Wireless fixed access, total</b>	<b>1 538</b>	<b>1 542</b>	<b>1 582</b>
Fixed WiFi	1 115	1 103	1 130
Fixed LTE/5G	423	440	452

**Figure A17 Fixed broadband subscriptions**



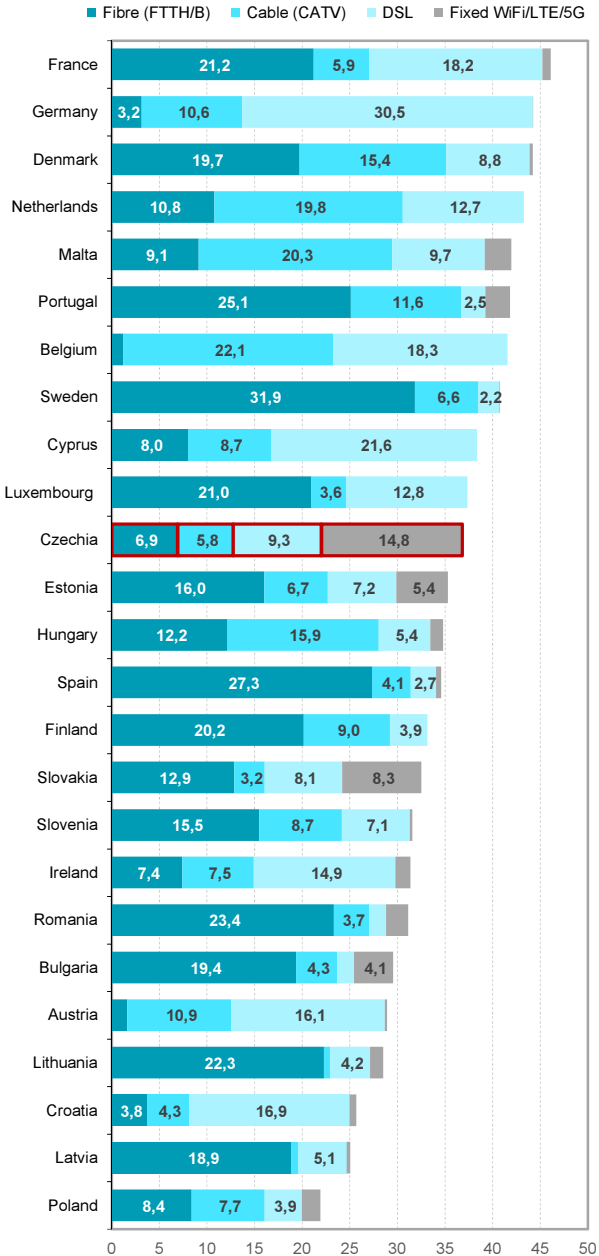
**Figure A18 Fixed broadband subscriptions by technology (thousand)**



Source: Czech Telecommunication Office and CZSO own calculations

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**Figure A19 Fixed broadband subscriptions in EU countries by technology; 2021 (per 100 inhabitants)**



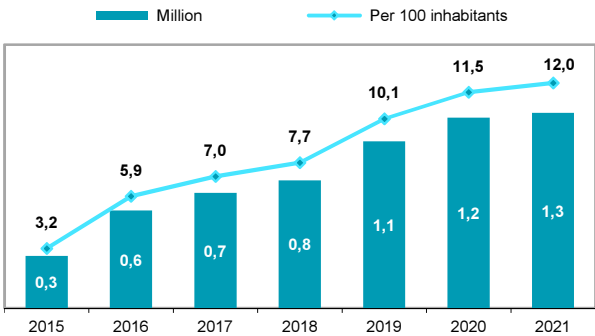
Source: International Telecommunication Union and OECD

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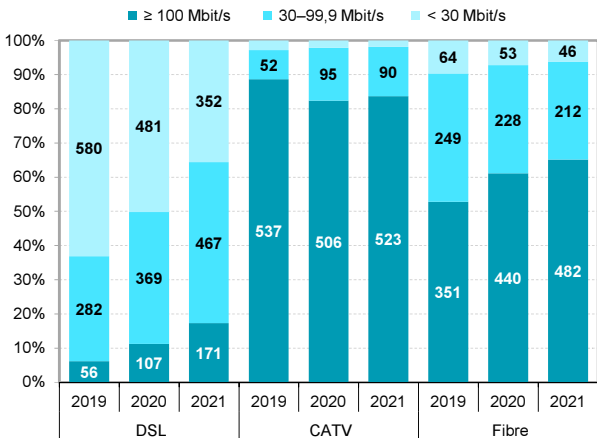
**Table A6 Speed of fixed broadband in Czechia; 2021**

	Thousand subscriptions*		
	< 30 Mbit/s	30–99,9 Mbit/s	≥ 100 Mbit/s
<b>Total</b>	<b>1 161</b>	<b>1 517</b>	<b>1 258</b>
<b>Wired fixed access, total</b>	<b>410</b>	<b>769</b>	<b>1 175</b>
DSL incl. FTTC	352	467	171
Fibre (FTTH/B)	46	212	482
Cable (CATV)	12	90	523
<b>Wireless fixed access, total</b>	<b>750</b>	<b>748</b>	<b>83</b>
Fixed WiFi	415	647	68
Fixed LTE/5G	335	102	15

**Figure A20 Fixed broadband subscriptions 100 Mbit/s+\***



**Figure A21 Speed of fixed broadband technologies (thousand subscriptions; percentage)\***

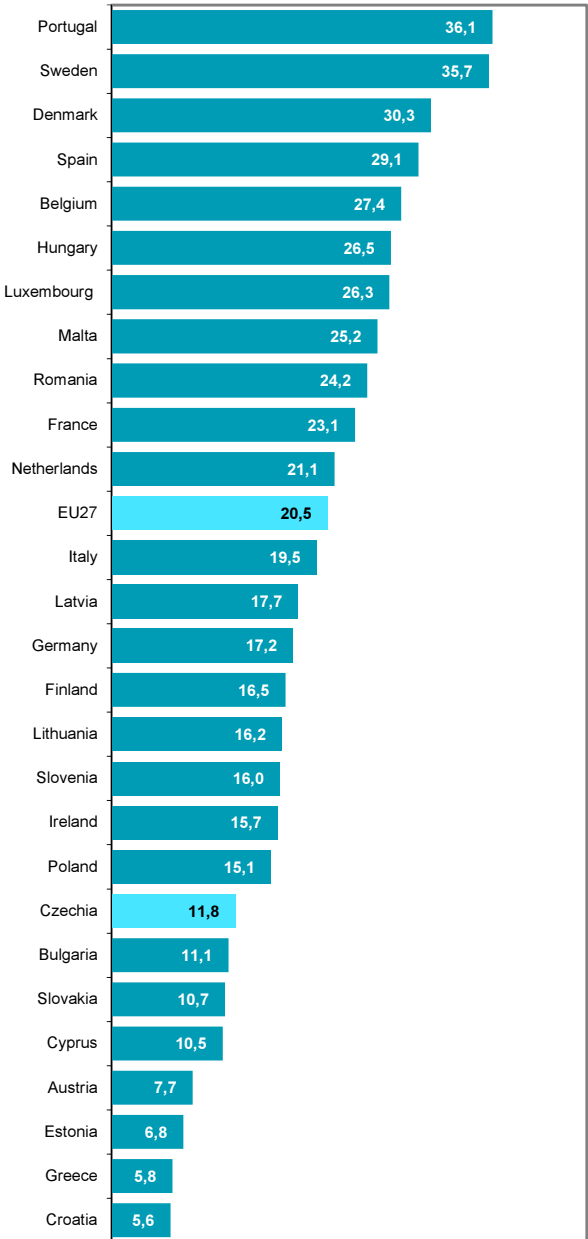


\* Measured based on the number of subscriptions having a contract on the use of internet access within specific interval of advertised download speed.

Source: Czech Telecommunication Office and CZSO own calculations

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**Figure A22 Fixed broadband subscriptions 100 Mbit/s+ in EU countries; 2021 (per 100 inhabitants)**



Source: European Commission, OECD and CZSO own calculations

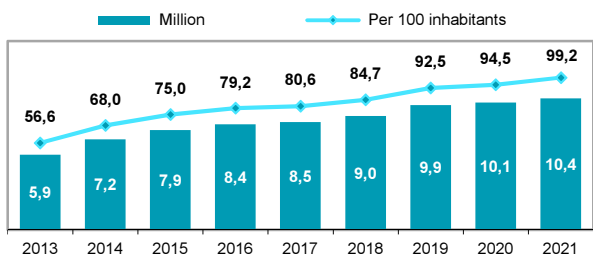
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**Table A7 Mobile broadband subscriptions in Czechia**

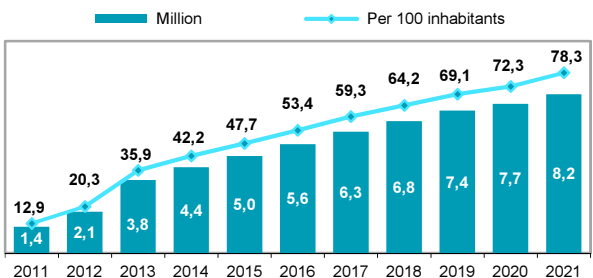
Thousand

	2019	2020	2021
<b>Total</b>	<b>9 888</b>	<b>10 109</b>	<b>10 434</b>
<b>Voice and data subscriptions</b>	<b>9 372</b>	<b>9 718</b>	<b>10 085</b>
Temporary access w/o monthly plans	1 981	1 980	1 845
Postpaid monthly plans	7 391	7 739	8 239
<b>Data-only subscriptions*</b>	<b>517</b>	<b>390</b>	<b>349</b>

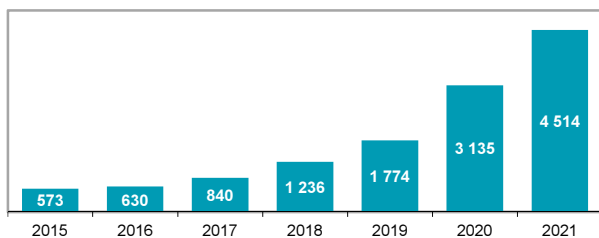
**Figure A23 Mobile broadband subscriptions**



**Figure A24 Active voice and data mobile broadband subscriptions within postpaid monthly plans**



**Figure A25 Average monthly mobile data consumption (MB per active SIM card with data services)**

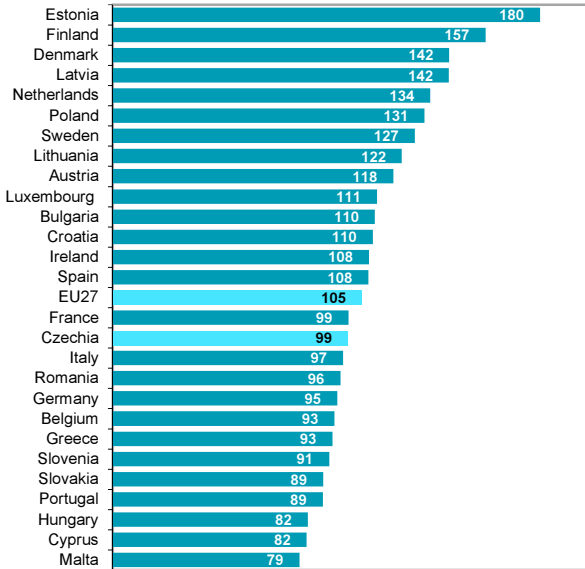


\* Mobile internet for laptops or tablets includes a permanent (dedicated) data services (over a mobile network) that are purchased separately from voice services. For mobile internet access is needed USB modem or data SIM card connection with laptop or tablet.

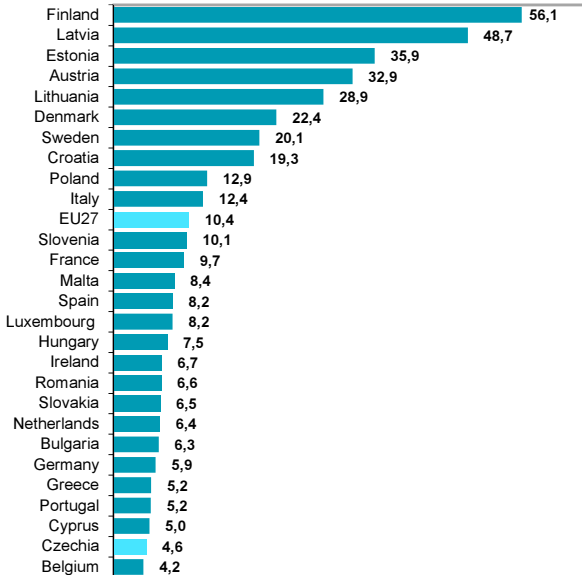
Source: Czech Telecommunication Office and CZSO own calculations

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**Figure A26 Mobile broadband subscriptions in EU countries; 2021 (per 100 inhabitants)**



**Figure A27 Monthly mobile broadband internet traffic in EU countries; 2021 (GB per 1 inhabitant)**



Source: International Telecommunication Union and OECD

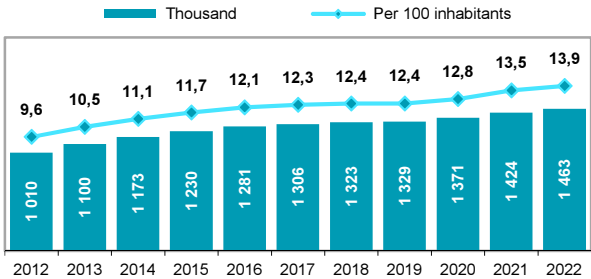
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**Table A8 Domains under Top Level Domain .CZ in Czechia**

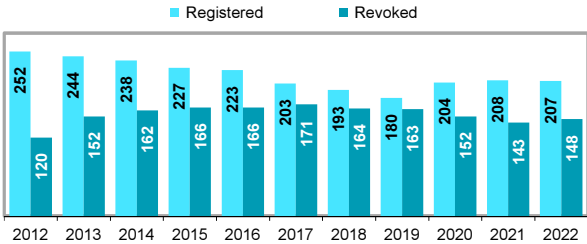
	Thousand		
	2020	2021	2022
<b>Total</b>	<b>1 371</b>	<b>1 424</b>	<b>1 463</b>
domains protected by DNSSEC*	829	848	845
<b>Registrant's country</b>			
Czechia	1 273	1 307	1 322
Slovakia	24	27	27
Germany	15	14	15
United States of America	10	13	29
other countries	49	63	70

\* Further information can be found at: [www.dnssec.cz](http://www.dnssec.cz).

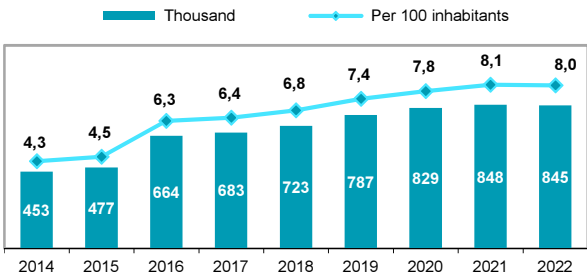
**Figure A28 Domains under Top Level Domain .CZ**



**Figure A29 Registered and revoked .CZ domains (thousand)**



**Figure A30 Domains .CZ protected by DNSSEC**



Source: CZ.NIC and CZSO own calculations