

A ICT Infrastructure

This chapter examines trends in the available **telecommunication** and **Internet infrastructure** measured mainly by the number of voice and broadband subscriptions. Data used in this chapter are collected from the telecommunication or Internet **service providers (supply side)** and should be distinguished from data based on ICT users' surveys (demand side).

Reference period: end of the year unless otherwise stated.

Definitions

- A **subscriber** to publicly accessible services of electronic communications (**voice** and **data** services in **fixed** and **mobile** communication **networks**) shall mean a legal or natural person, which has concluded a contract on the use of such services with a provider. Data in the tables and figures include solely services provided in the retail segment, i.e. services provided to end users.
- The number of **voice subscriptions in a fixed network** is measured as the number of the "traditional" **public switched telephone network (PSTN) lines (stations)** and the number of **phone numbers** used for voice services by means of **Internet (IP) telephone (VoIP: Voice over Internet Protocol)**.
- The number of **voice subscriptions in a mobile network** is measured by the number of active **SIM cards**. *Note: The SIM cards are **prepaid ones**, in which case the customer does not conclude any contract with the provider yet buys a credit; and **post-paid** ones in which case customers have a contract concluded with the provider and pay for contracted services by monthly invoice. Only SIM cards, which were used at least once in the last three month for originating and terminating of calls, sending of SMS, MMS, or for data services, are considered to be the active prepaid SIM cards.*
- **Machine-to-Machine (M2M) card** is a SIM card assigned for use in machines and devices without direct human intervention and which are not part of a consumer subscription. *Note: It includes cards in personal navigation devices, smart meters, trains, cars, etc.*
- The number of **fixed broadband subscriptions** - subscribers with the Internet access with nominal speed 256 or more Kbit/s - is measured on the basis of so-called **access points (active connections)** where subscribers are provided with the Internet access from a fixed point for one of technology as follows: xDSL (incl. FTTCab), cable television network (CATV), access via an optical fibre (FTTH/B), and wireless connection (e.g. WiFi).
- **Fixed wireless access (FWA)** to the Internet is the description of terrestrial Internet connection via a radio system including non-licensed frequency (WiFi). *Note: It is characteristic by placing of the end point device on a fixed location (house, dwelling). It is included only if this service is used as a primary internet connection (a transport mechanism) of the Internet service provider (ISP).*
- The number of **mobile broadband subscriptions** - subscribers with the Internet access on third (3G) and higher (4G/LTE) generation technologies of mobile networks - is measured by the number of active data SIM cards or USB modems provided on the basis of contracts on the Internet access in the mobile network.
- **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.

Data for the **Czech Republic** are taken from data sources of the Czech Telecommunication Office (hereinafter CTO), except for the number of registered domains which is taken from cz.nic. Further information can be found at www.ctu.cz and www.nic.cz.

International comparisons is based on publicly available data from the International Telecommunication Union (ITU), OECD and the EC.

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Tab. A1 Voice subscriptions in a fixed network in Czechia

	Thousand		
	2015	2016	2017
Total	1 896	1 749	1 633
by subscriber			
Individuals (citizens)	831	701	614
Legal entities (e.g. enterprises)	1 065	1 048	1 018
by technology			
Switched networks - PSTN stations, total	994	832	740
Individuals - residential PSTN stations	523	403	355
Legal entities - business PSTN stations	471	429	385
Internet (IP) telephony - VoIP stations, total	902	917	893
Individuals (citizens)	309	299	259
Legal entities (e.g. enterprises)	594	619	634

Figure A1 Total voice subscriptions in a fixed network

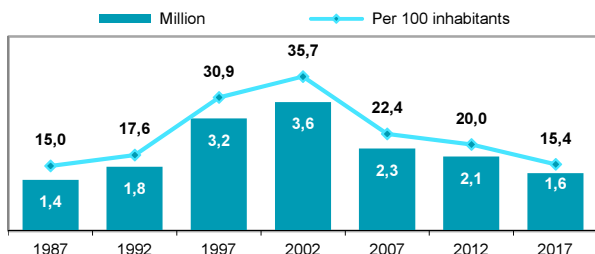


Figure A2 PSTN voice subscriptions (million)

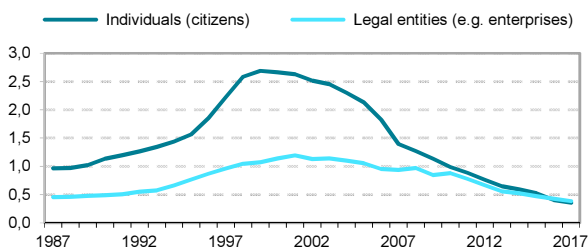
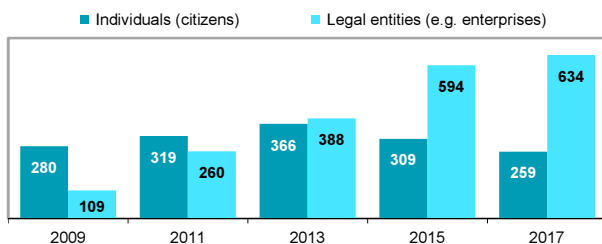


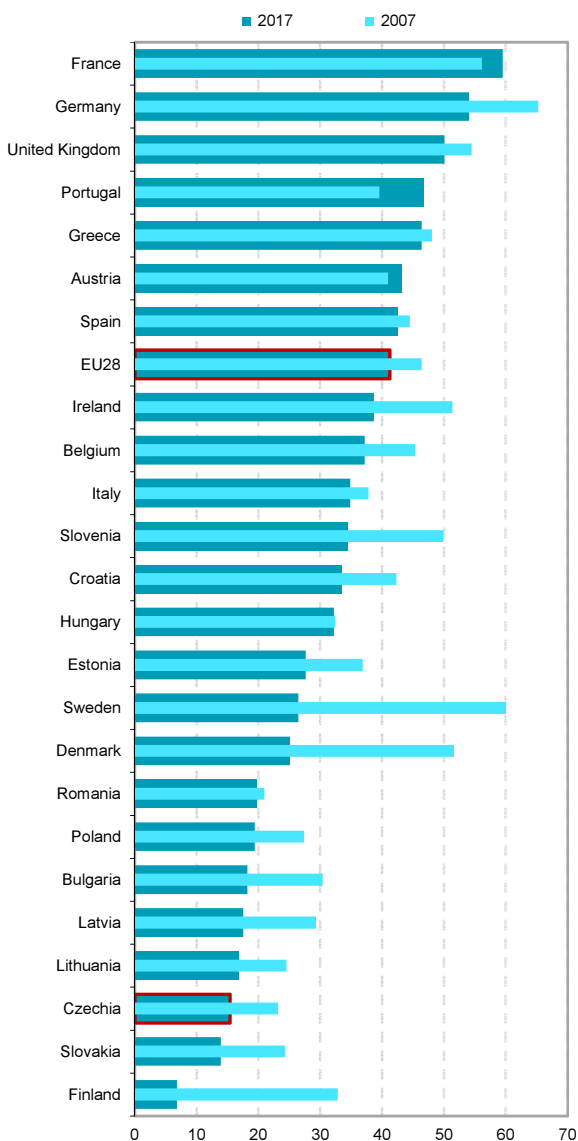
Figure A3 VoIP subscriptions (thousand)



Source: Calculations of the CZSO based on data of the CTO, 2019

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Figure A4 Total voice subscriptions in a fixed network in EU countries (per 100 inhabitants)



Note: The number of voice subscriptions in a fixed network is measured as a number of "traditional" Public Switched Telephone Network (PSTN) telephone lines (stations) and the number of phone numbers used for voice services by means of IP telephone (VoIP technology: Voice over Internet Protocol).

Source: Calculations of the CZSO based on data of the ITU, 2019

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Tab. A2 Voice subscriptions in a mobile network in Czechia

	Thousand		
	2015	2016	2017
Total	14 017	14 299	14 511
by subscriber			
Individuals (citizens)	9 222	9 237	9 144
Legal entities (e.g. enterprises)	4 795	5 062	5 367
by SIM card			
Prepaid	4 893	4 821	4 656
Post-paid	9 124	9 478	9 855

Figure A5 Total voice subscriptions in a mobile network

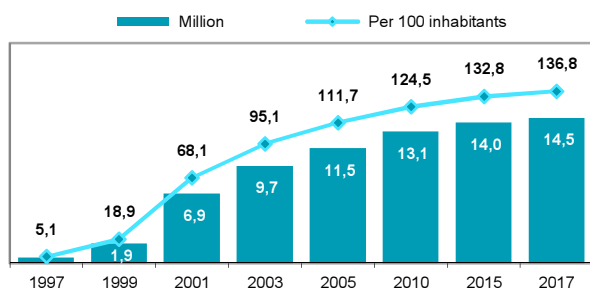
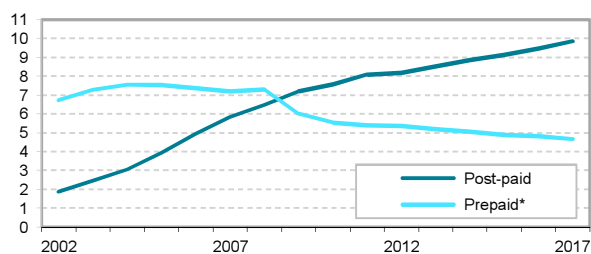
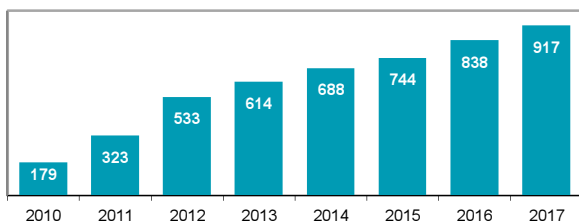


Figure A6 SIM cards used for voice communication (million)



* Break in time series. Since 2008 only prepaid SIM cards, which were used at least once in the last 3 months; before 2008 it was in the last 13 months.

Figure A7 M2M cards** (thousand)



**Machine-to-machine (M2M) cards are SIM cards assigned for use in machines and devices without direct human intervention and which are not part of a consumer subscription. It includes cards in personal navigation devices, smart meters, trains, cars, etc.

Source: Czech Statistical Office calculations based on the CTO data, 2019

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Figure A8 M2M cards* in EU countries; 2017
(per 100 inhabitants)



* Machine-to-Machine (M2M) cards are SIM cards assigned for use in machines and devices without direct human intervention and which are not part of a consumer subscription. It includes cards in personal navigation devices, smart meters, trains, cars, etc.

Source: Czech Statistical Office calculations based on the ITU data, 2019

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Tab. A3 Fixed telephone traffic in Czechia

Outgoing calls from the fixed network in million minutes

	2015	2016	2017
Total	1 689	1 601	1 514
by subscriber			
Individuals (citizens)	.	.	692
Legal entities (e.g. enterprises)	.	.	822
by technology			
from the PSTN stations	1 041	1 011	963
from the VoIP stations	648	590	550
by destination			
Domestic calls, total	1 422	1 373	1 321
Fixed-to-fixed telephone traffic	1 007	858	709
Fixed-to-mobile telephone traffic	415	515	612
International and other calls	267	228	192

Figure A9 Total fixed telephone traffic by technology
(outgoing calls in billion minutes)

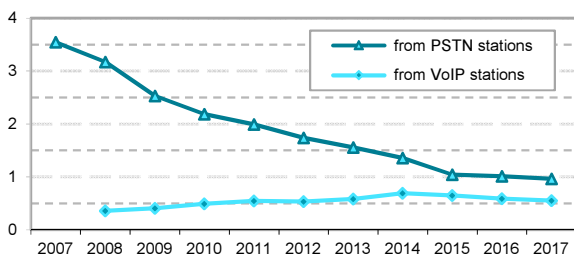


Figure A10 Domestic fixed telephone traffic by destination
(outgoing calls in million minutes)

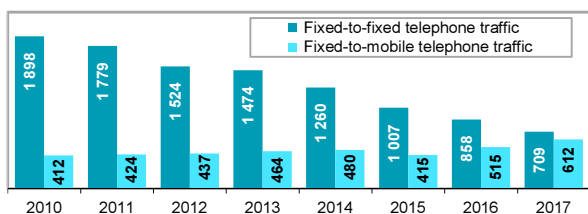
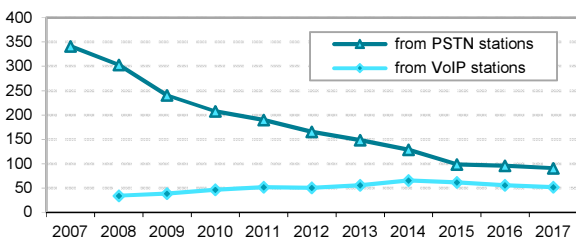


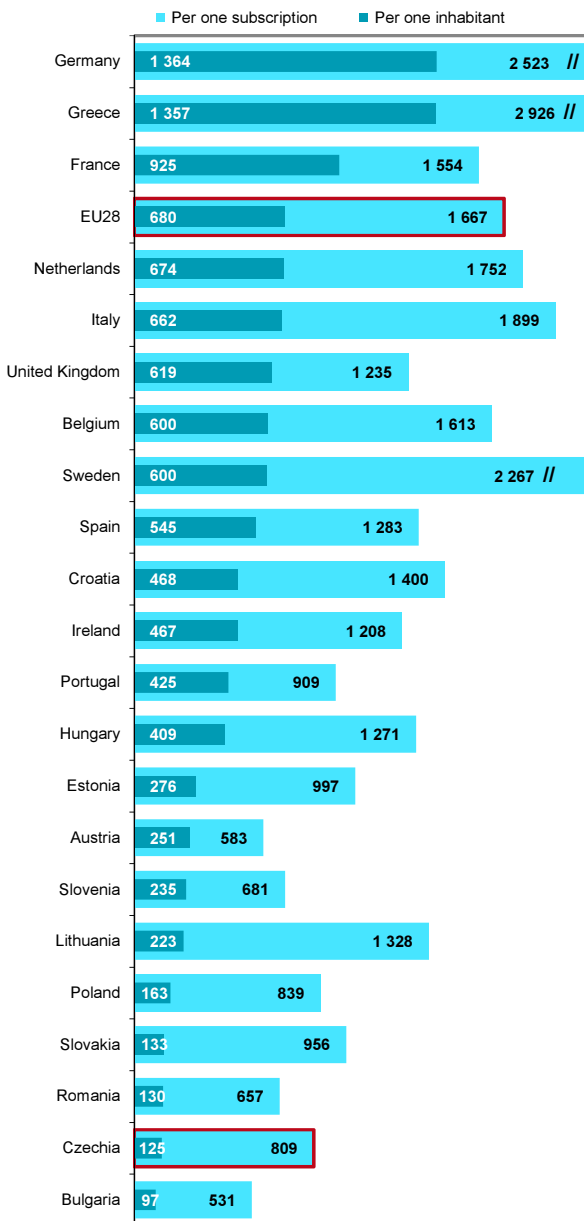
Figure A11 Domestic fixed telephone traffic by technology
(outgoing called minutes per one inhabitant)



Source: Czech Statistical Office calculations based on the CTO data, 2019

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Figure A12 Domestic fixed telephone traffic in EU countries; 2017 (outgoing called minutes)



Source: Czech Statistical Office calculations based on the ITU data, 2019

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Tab. A4 Mobile telephone traffic in Czechia

Outgoing calls from the mobile network in million minutes

	2015	2016	2017
Total	20 634	20 979	21 328
by subscriber			
Individuals (citizens)	11 550	11 566	11 591
Legal entities (e.g. enterprises)	9 084	9 413	9 737
by destination (only domestic calls)			
Total	20 176	20 672	20 907
to the same mobile carrier	11 660	11 543	11 482
to the different mobile carrier	7 694	8 141	8 587
to fixed telephone network	822	826	838

Figure A13 Total mobile telephone traffic (outgoing minutes)

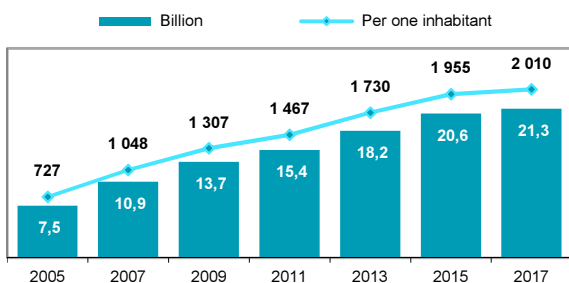


Figure A14 Domestic mobile telephone traffic by destination

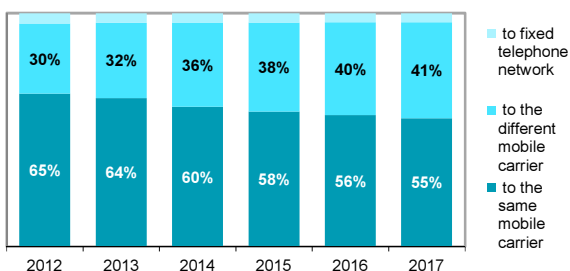
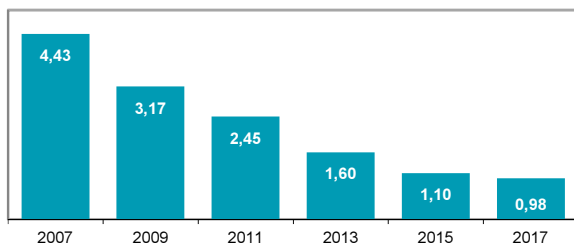


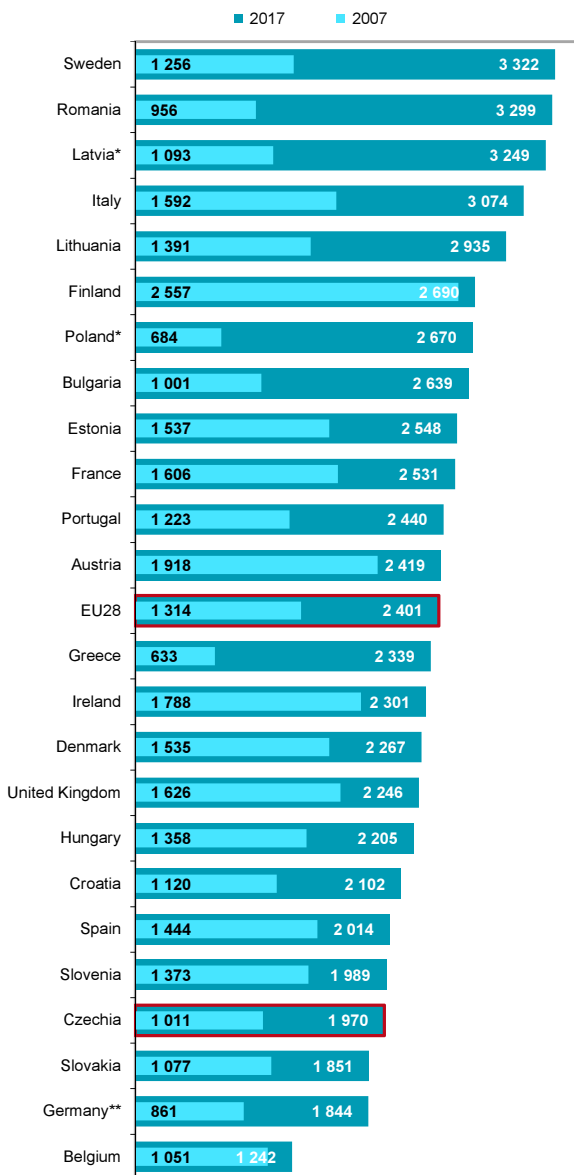
Figure A15 The average retail price for one outgoing called minute in the mobile network (CZK)



Source: Czech Statistical Office calculations based on the CTO data, 2019

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



* 2006 instead of 2007

** 2014 instead of 2017

Source: Czech Statistical Office calculations based on the ITU data, 2019

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Tab. A5 Fixed broadband subscriptions in Czechia

	Thousand		
	2015	2016	2017
Total	2 960	3 058	3 134
by subscriber			
Individuals (citizens)	2 645	2 731	2 800
Legal entities (e.g. enterprises)	315	327	333
by technology			
xDSL line	941	904	876
Cable (CATV)	541	563	589
Fibre (FTTH/B)	473	523	570
Wireless (FWA; WiFi)	1 004	1 068	1 099

Figure A17 Fixed broadband subscriptions

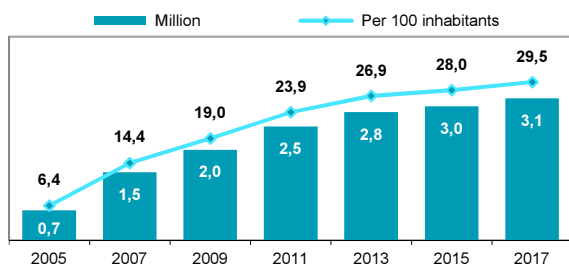


Figure A18 Fixed broadband subscriptions by technology (mil.)

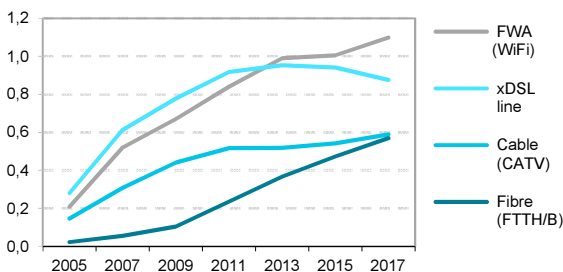
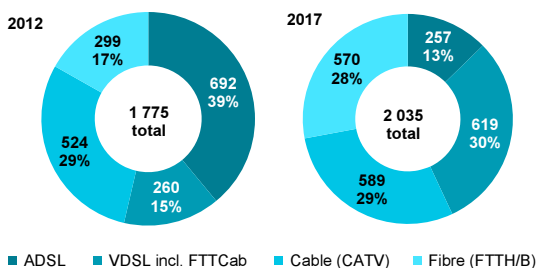


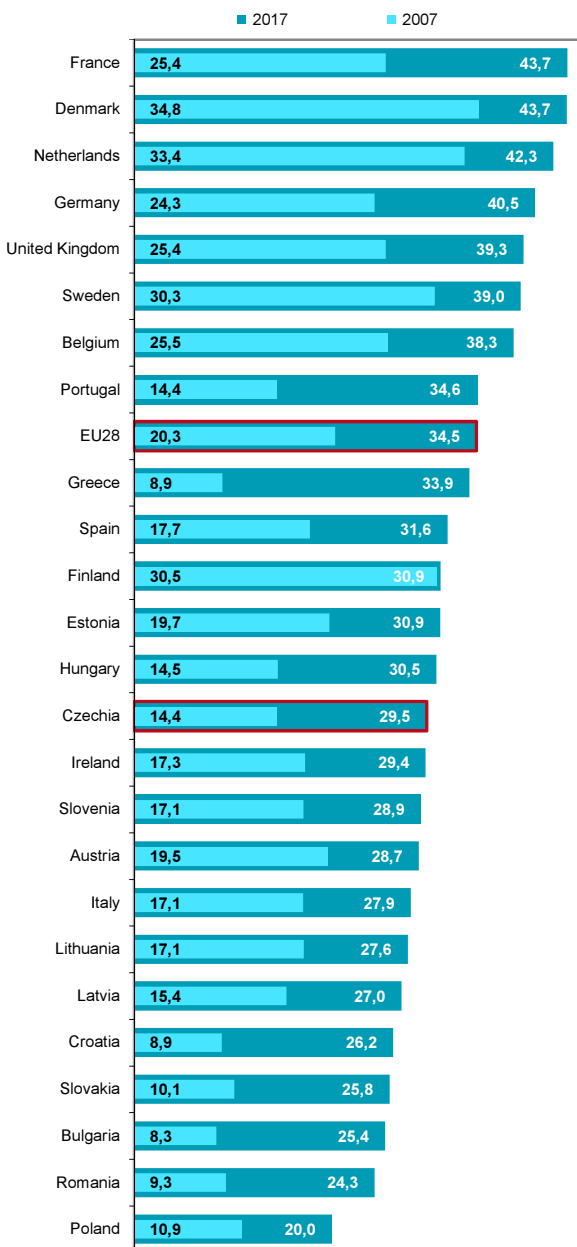
Figure A19 Wired fixed broadband subscriptions by technology (thousand)



Source: Czech Statistical Office calculations based on the CTO data, 2019

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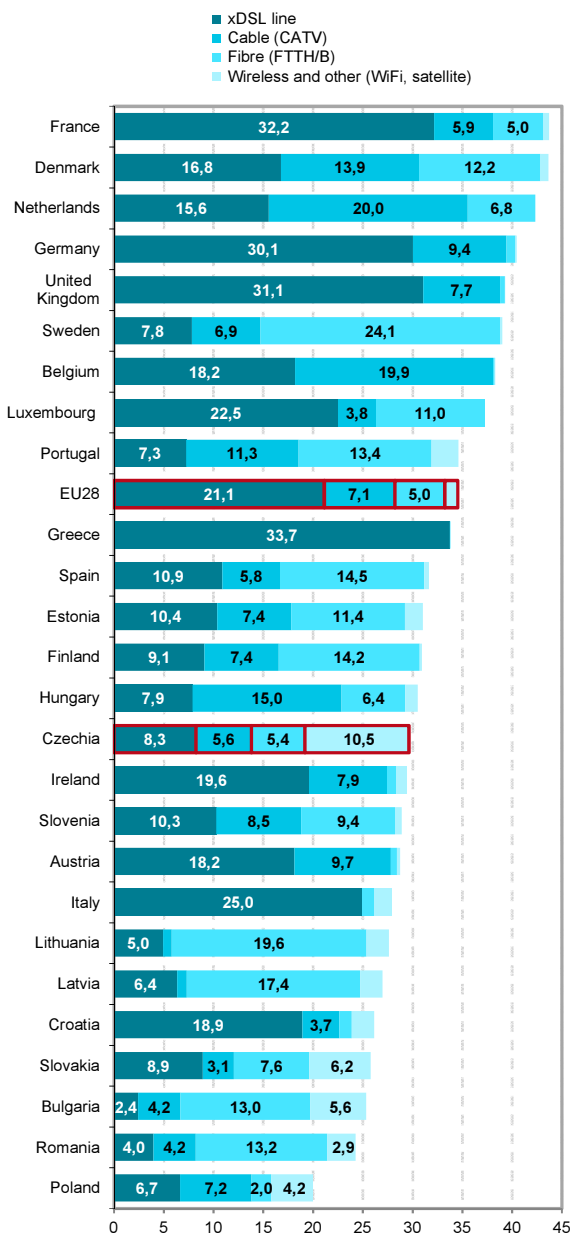
Figure A20 Fixed broadband subscriptions in EU countries (per 100 inhabitants)



Source: Czech Statistical Office calculations based on the ITU data, 2019

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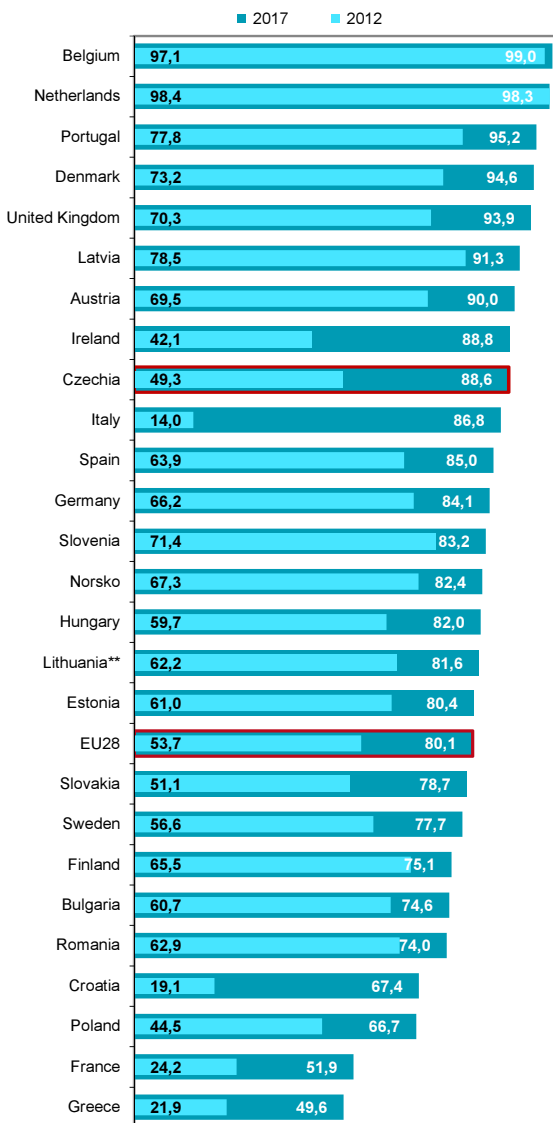
Figure A21 Fixed broadband subscriptions in EU countries by technology; 2017 (per 100 inhabitants)



Source: Czech Statistical Office calculations based on the ITU data, 2019

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Figure A22 Households in EU countries living in areas served by NGA networks* (percentage)



* NGA (Next Generation Access) includes the following technologies: FTTH, FTTB, Cable Docsis 3.0, VDSL, and other superfast broadband (at least 30 Mbit/s download).

** 2011 instead of 2012

Source: European Commission, 2018

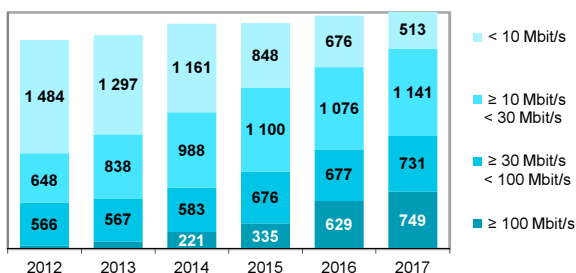
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Tab. A6 Fixed broadband subscriptions in Czechia by speed

	Thousand		
	2015	2016	2017
Total	2 960	3 058	3 134
by contracted download speed tiers			
< 10 Mbit/s	848	676	513
≥ 10 Mbit/s < 30 Mbit/s	1 100	1 076	1 141
≥ 30 Mbit/s < 100 Mbit/s	676	677	731
≥ 100 Mbit/s	335	629	749

Figure A23 Fixed broadband subscriptions by speed tiers

a) Thousand



b) As a percentage of total fixed broadband subscriptions

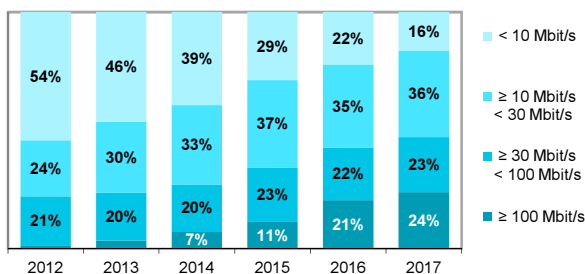
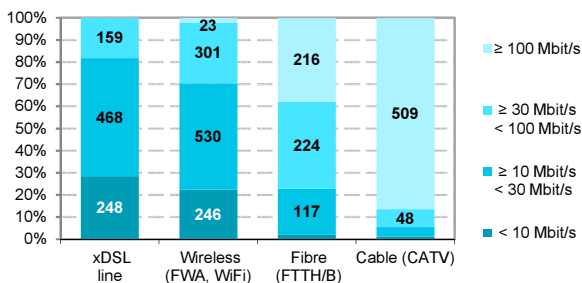


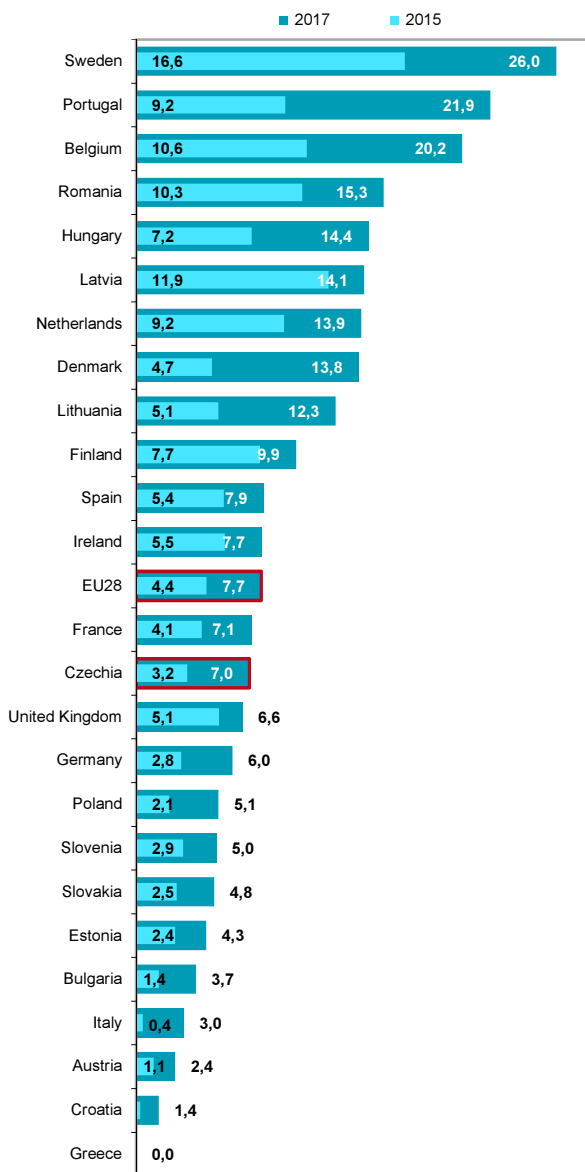
Figure A24 Fixed broadband subscriptions by technology and speed tiers; 2017 (thousand)



Source: Czech Statistical Office calculations based on the CTO data, 2019

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Figure A25 Fixed broadband subscriptions in EU countries with contracted speed 100 Mbit/s and more (per 100 inhabitants)



Source: European Commission, 2019

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Tab. A7 Mobile broadband subscriptions in Czechia

	Thousand		
	2015	2016	2017
Total	7 918	8 530	8 777
by package type			
Data subscriptions as part of mobile phone voice services (data & voice), total	7 100	7 554	7 748
Temporary "ad-hoc" access	2 068	1 908	1 461
Permanent access (monthly data tariffs)	5 032	5 646	6 288
Data only access for computer-based (tablet, laptop) mobile data subscriptions	818	976	1 028

Figure A26 Mobile broadband subscriptions

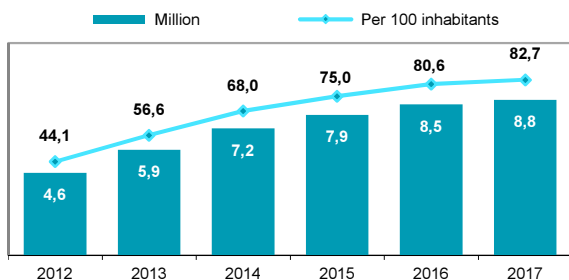


Figure A27 Mobile broadband subscriptions by package type (million)

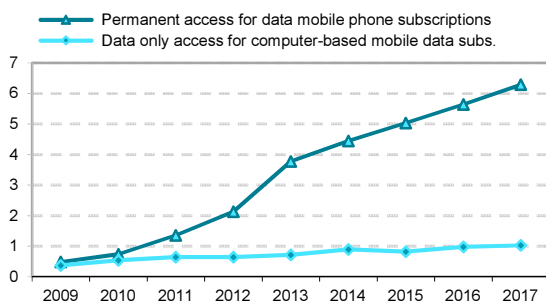
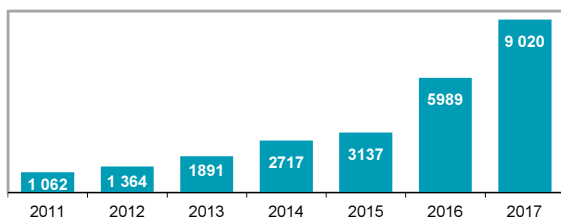


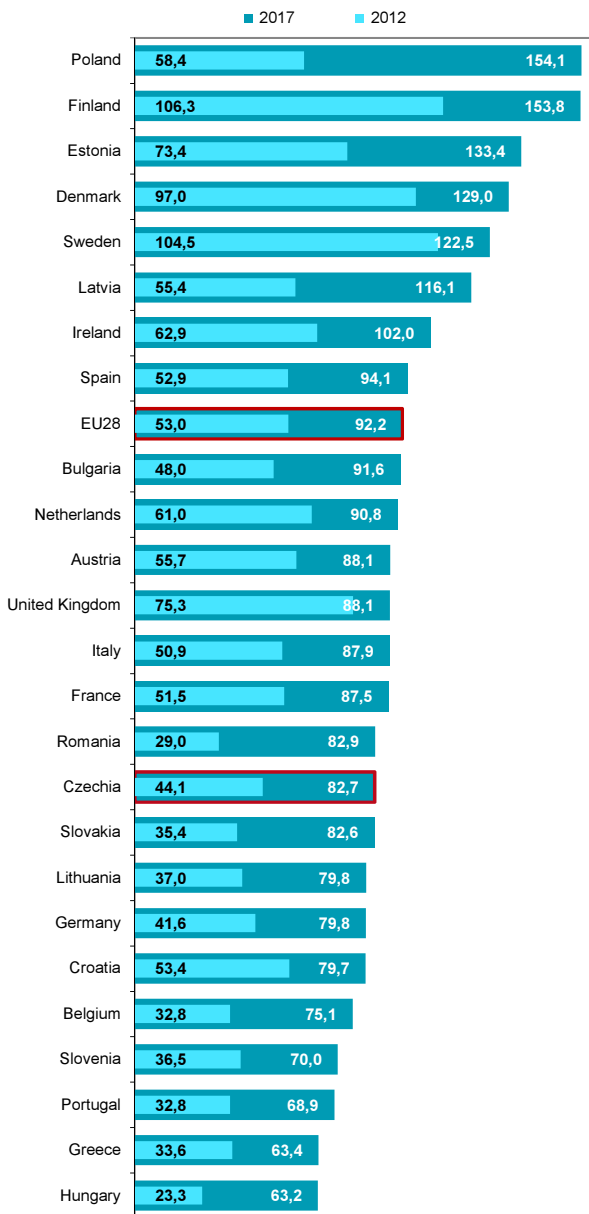
Figure A28 Average mobile data consumption (megabytes per one inhabitant)



Source: Czech Statistical Office calculations based on the CTO data, 2019

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Figure A29 Mobile broadband subscriptions in EU countries (per 100 inhabitants)



Source: Czech Statistical Office calculations based on the ITU data, 2019

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Tab. A8 Top-level domains in (.cz) zone

	Thousand		
	2016	2017	2018
Total	1 281	1 306	1 323
DNSSEC signed	664	683	723
by IP protocol			
IPv4 domains	891	895	890
IPv4+IPv6; IPv6 domains	369	389	412

DNSSEC is a security extension of common Domain Name System. See: http://en.wikipedia.org/wiki/Domain_Name_System_Security_Extensions

Internet protocol version 4 (IPv4) and Internet protocol version 6 (IPv6): <http://en.wikipedia.org/wiki/IPv4> and <http://en.wikipedia.org/wiki/IPv6>

Figure A30 Top-level domains in (.cz) zone

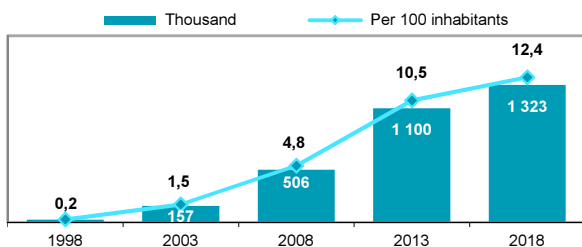


Figure A31 Top-level (.cz) domain registration and cancellation (thousand)

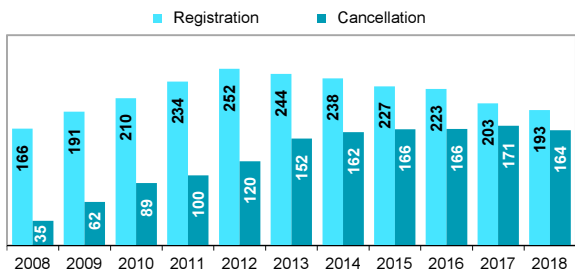


Figure A32 Top-level (.cz) domain by IP protocol (thousand)

