

A ICT Infrastructure

This chapter examines trends in the available **telecommunication and internet infrastructure** measured mainly by number of telephone 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.

The information in this section applies to services provided at the retail level only, **from services to end users**.

Definitions:

- **Fixed telephone subscription** refers to individuals or legal entity connected to the public switched telephone network (PSTN) including usage of IP telephone (VoIP technology). Number of fixed telephone subscriptions is measured as a number of active **fixed telephone lines (PSTN lines) and VoIP fixed line subscriptions (VoIP lines)**.
- **Mobile telephone subscription** refers to individual or legal entity connected to a public mobile telephone service that provides access to the PSTN using cellular technology and offering voice communication. Number of mobile telephone subscriptions is measured as a number of **SIM cards**. Both **post-paid** and active **prepaid** SIM cards that have been used during the last three months are included. *Note: As one person may use more than one active SIM card, the number of mobile phones can exceeds the number of individuals in total.*
- **The telephone traffic** originated in fixed or mobile telephone networks is measured by means of the number of actually called minutes (real minutes of calling) during the reference year, not the invoiced ones.
- **Broadband internet subscription** includes both **fixed (wired and wireless)** and **mobile access** to the Internet with nominal speed 256 or more kbit/s, in one or both directions. It includes both residential subscriptions and subscriptions for organizations.
- **Fixed wired broadband** includes one of these "wired" technologies: DSL (Digital Subscriber Line); Cable modem (CaTV) and Fiber (FTTx).
- **Fixed wireless access (FWA)** is the terrestrial internet connection by means of a radio system including non-licensed frequency (**Wi-Fi**). It is characteristic by placing of the end point device on a fixed location (house, apartment) - the so-called WLL (Wireless Local Loop). *It is included only if this service is used as the transport mechanism of the Internet service provider (ISP).*
- **Mobile broadband** is internet access on third generation technologies (3G) and higher (4G/LTE). Mobile broadband subscriptions refers to:
 - **Standard mobile subscription** via SIM cards are typical voice subscriptions which also provide access to the Internet but are not purchased separately. It covers only actual subscribers - users must have accessed the Internet in the last three months.
 - **Dedicated data subscription** offered separately from voice services, either as an **add-on data package** to voice service **via SIM cards** or a **stand-alone service** using USB data **cards/modems/keys** integrated usually into portable computers or tablets.
- **Domain (Internet domain/domain name)** is a unique identifier of a computer or computer network connected to the Internet. The domain is registered by the registration authority (Top Level Domain).

Statistical information from the **Czech Telecommunication Office** (<http://www.ctu.eu>) has been used as main data source for the Czech Rep.

Data for **registered domains** has been obtained from www.nic.cz

International comparison data has been taken from **ITU and EC database**.

For further information on ICT infrastructure see:

https://www.czso.cz/csu/czso/telecommunication_infrastructure_and_internet

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Tab. A1 Fixed telephone network in the Czech Republic

thous./ mil.

| | 2012 | 2013 | 2014 |
|---|--------------|--------------|--------------|
| Fixed-telephone subscriptions (thous.) | 2 103 | 1 991 | 1 875 |
| PSTN subscriptions, total | 1 478 | 1 245 | 1 022 |
| Residential | 763 | 649 | 589 |
| Business | 715 | 596 | 433 |
| VoIP subscriptions, total | 625 | 747 | 853 |
| Residential | 269 | 383 | 344 |
| Business | 356 | 364 | 509 |
| Fixed-telephone traffic, total (mil. outgoing minutes) | 2 272 | 2 141 | 2 062 |
| Using traditional PSTN lines | 1 739 | 1 559 | 1 370 |
| Using VoIP technology (network) | 533 | 582 | 692 |
| By type of calls: | | | |
| Domestic calls, total | 1 961 | 1 850 | 1 754 |
| Fixed-to-fixed telephone traffic | 1 524 | 1 411 | 1 274 |
| Fixed-to-mobile telephone traffic | 437 | 439 | 480 |
| International calls | 139 | 132 | 153 |
| Other calls | 172 | 159 | 155 |

PSTN - Public Switched Telephone Network

VoIP - Voice over Internet Protocol using broadband networks

Figure A1 Fixed telephone network - PSTN lines

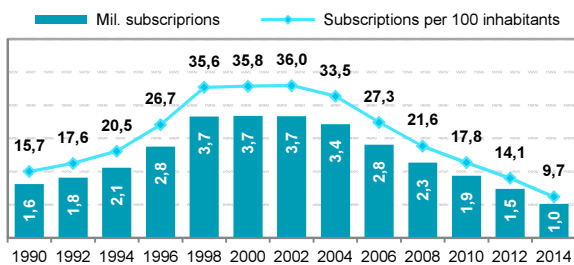


Figure A2 PSTN lines by type of subscription (mil.)

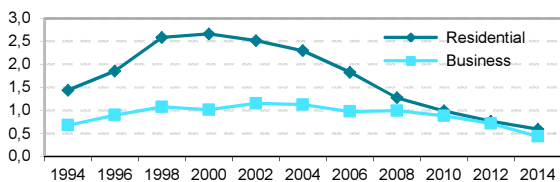
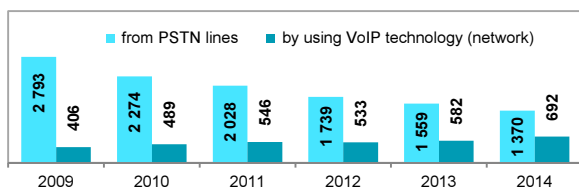


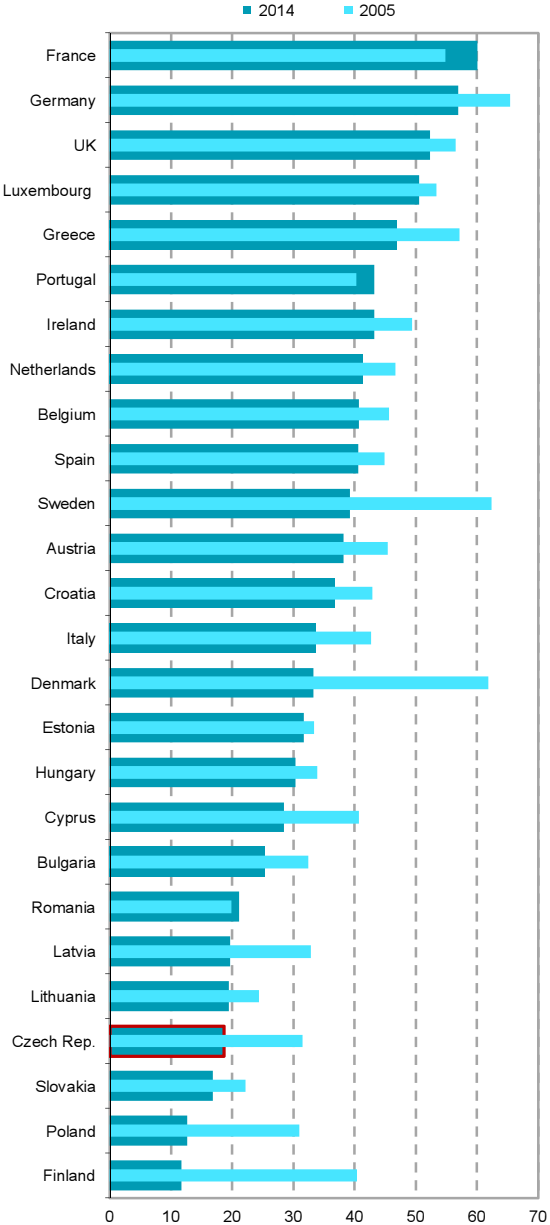
Figure A3 Fixed telephone traffic (mil. outgoing minutes)



Source: Czech Telecommunication Office, 2015

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



* both using traditional traditional PSTN lines and VoIP technology (network)

Source: International Telecommunication Union, 2015

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Tab. A2 Mobile telephone network in the Czech Republic

thous./ mil.

| | 2012 | 2013 | 2014 |
|--|---------------|---------------|---------------|
| Mobile telephone subscriptions, total (thous.) | 14 456 | 13 411 | 13 518 |
| Prepaid subscriptions | 6 548 | 5 195 | 5 055 |
| Postpaid subscriptions | 7 908 | 8 216 | 8 463 |
| Mobile telephone traffic, total (mil. outgoing minutes) | 16 169 | 18 066 | 20 732 |
| Domestic calls | 15 862 | 17 704 | 20 197 |
| International calls | 307 | 362 | 535 |

Figure A5 Mobile telephone network

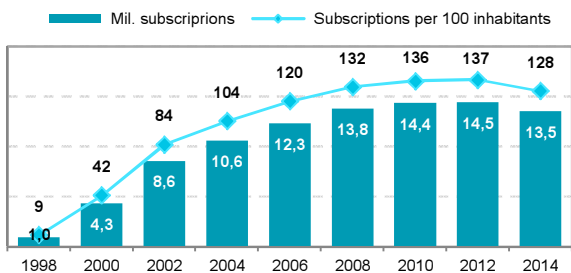


Figure A6 Mobile telephone network by type of used SIM cards (mil. subscriptions, %)

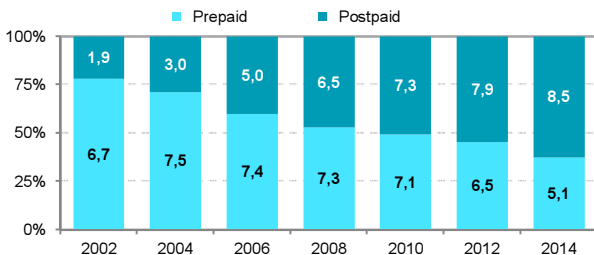
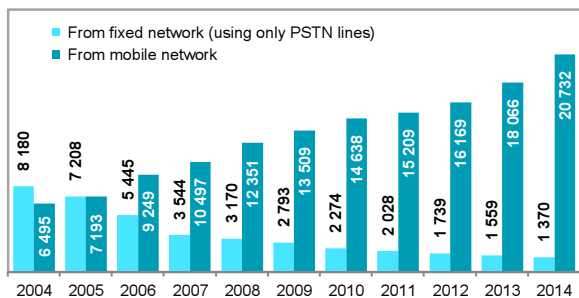
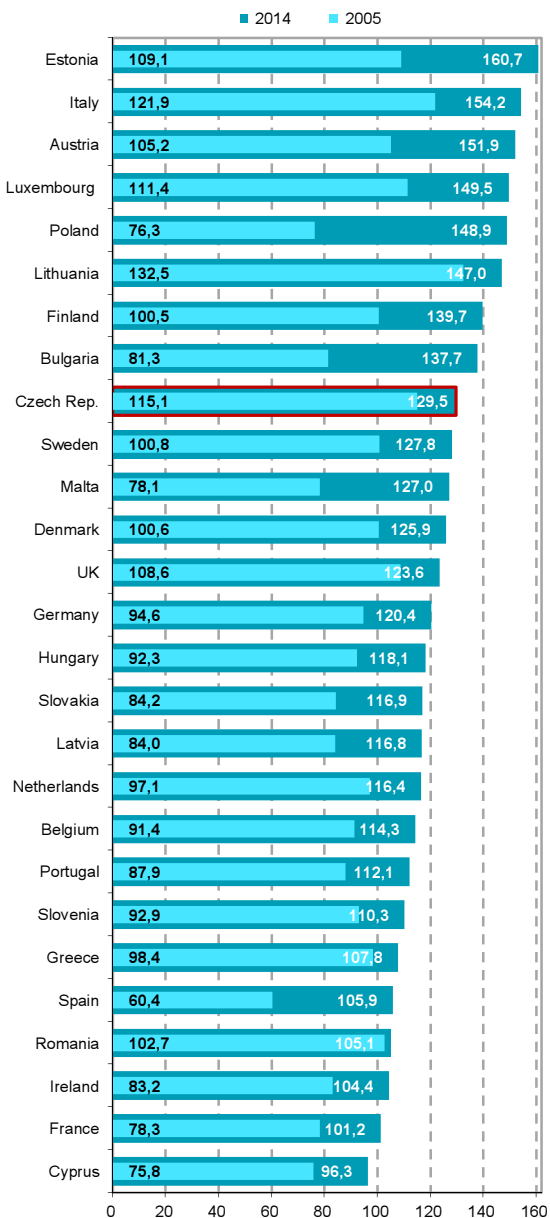


Figure A7 Total telephone traffic (mil. outgoing minutes)



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Figure A8 Mobile telephone network penetration in EU countries (subscriptions per 100 inhabitants)



Source: International Telecommunication Union, 2015

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Tab. A3 Top-level domains in (.cz) zone

| | 2012 | 2013 | 2014 |
|---|--------------|--------------|--------------|
| Total | 1 010 | 1 100 | 1 173 |
| of which with a security extension (DNSSEC) | 381 | 408 | 453 |
| by IP protocol | | | |
| IPv4 domains | 843 | 870 | 884 |
| IPv4+IPv6; IPv6 domains | 167 | 230 | 289 |

*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 A9 Top-level domains in (.cz) zone

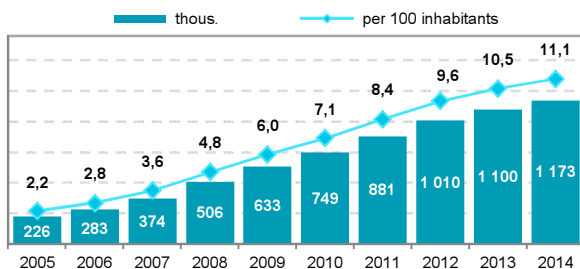


Figure A10 Top-level (.cz) domain registration and cancellation (thous.)

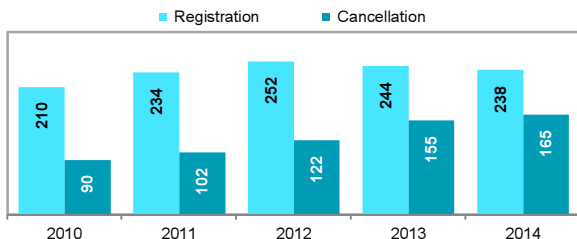
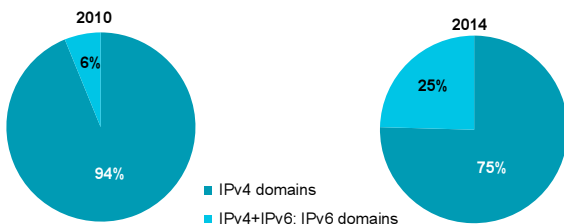


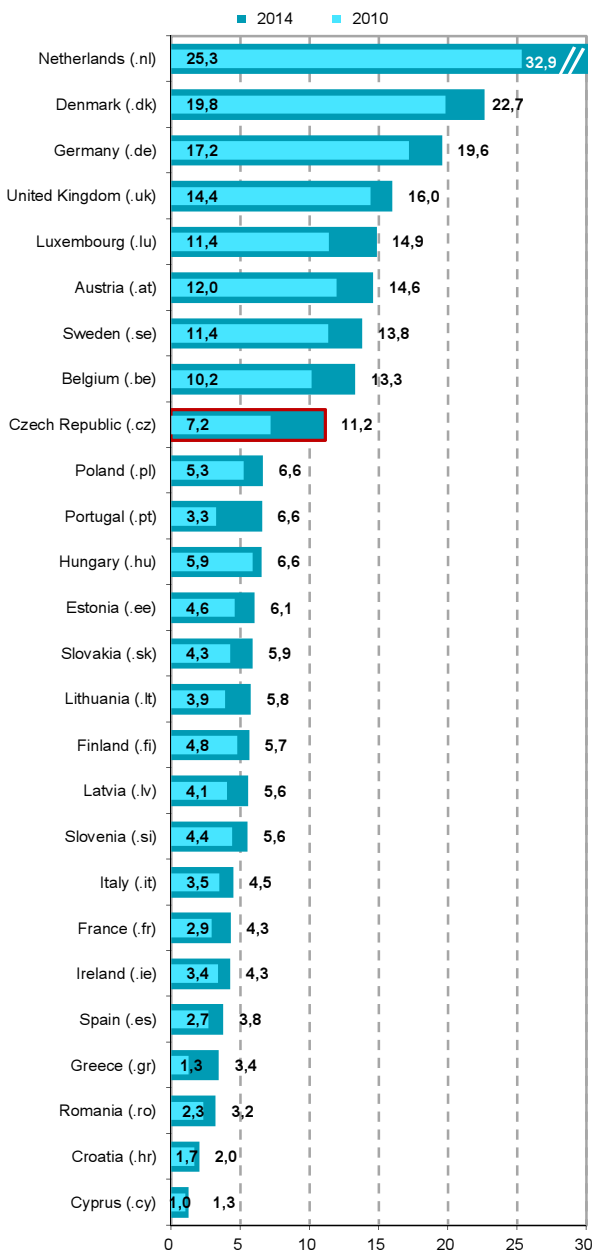
Figure A11 Top-level (.cz) domain by IP protocol



Source: CZ.NIC, 2015

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Figure A12 Country top-level domains penetration in EU countries (ccTLD per 100 inhabitants)



Source: CENTR.org and national administrators of ccTLD, 2015

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Tab. A4 Broadband internet network in the Czech Republic

| | 2012 | 2013 | 2014 |
|--|--------------|--------------|--------------|
| | thous. | | |
| Fixed-broadband subscriptions, total | 2 776 | 2 885 | 3 009 |
| DSL lines | 952 | 953 | 953 |
| Cable modem | 524 | 518 | 527 |
| Fibre (Fibre-to-the-home/building: FTTx) | 299 | 368 | 418 |
| Terrestrial fixed wireless access (FWA - WiFi) | 1 001 | 1 046 | 1 111 |
| Mobile-broadband subscriptions, total | 4 643 | 5 601 | 7 165 |
| Dedicated data subscription | 2 780 | 4 149 | 5 333 |
| Standard mobile subscription | 1 863 | 1 452 | 1 832 |

Figure A13 Fixed broadband internet network

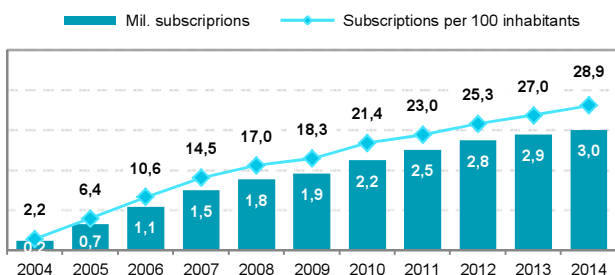


Figure A14 Fixed broadband subscriptions by speed

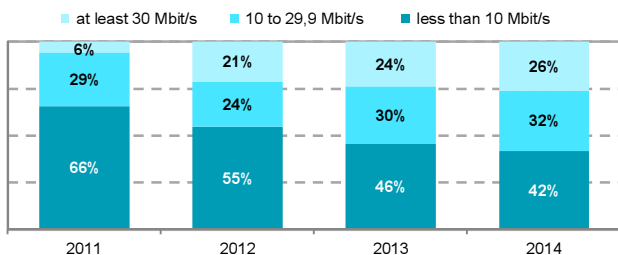
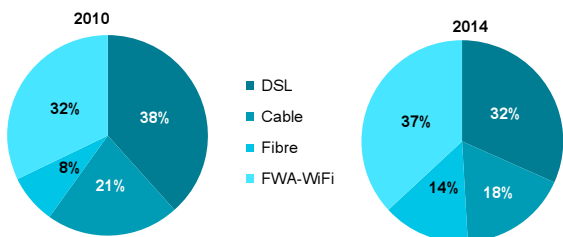
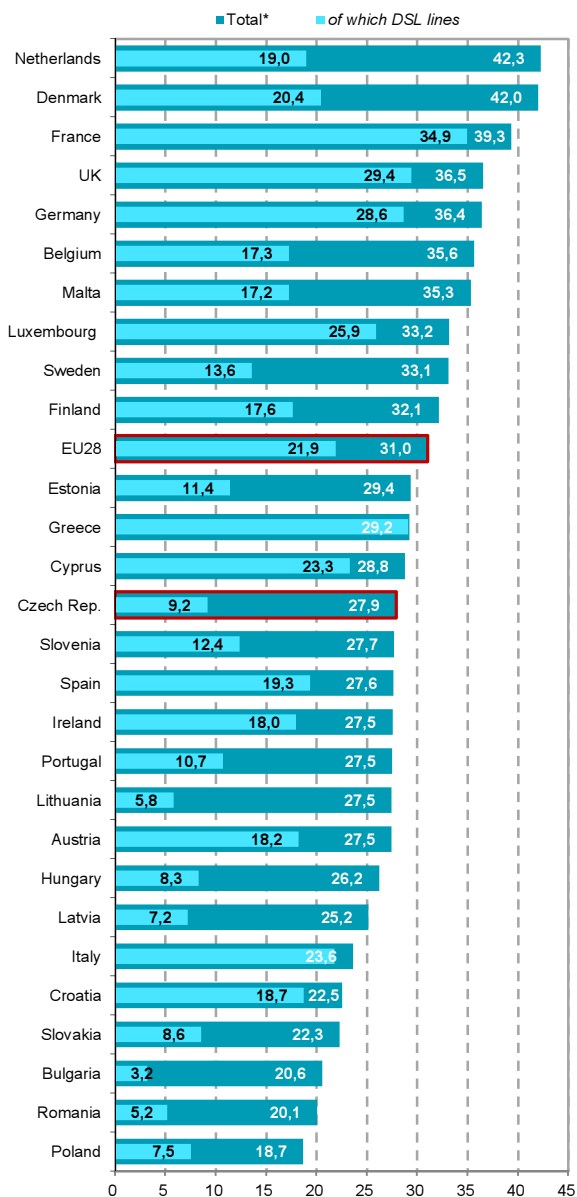


Figure A15 Fixed broadband subscriptions by technology



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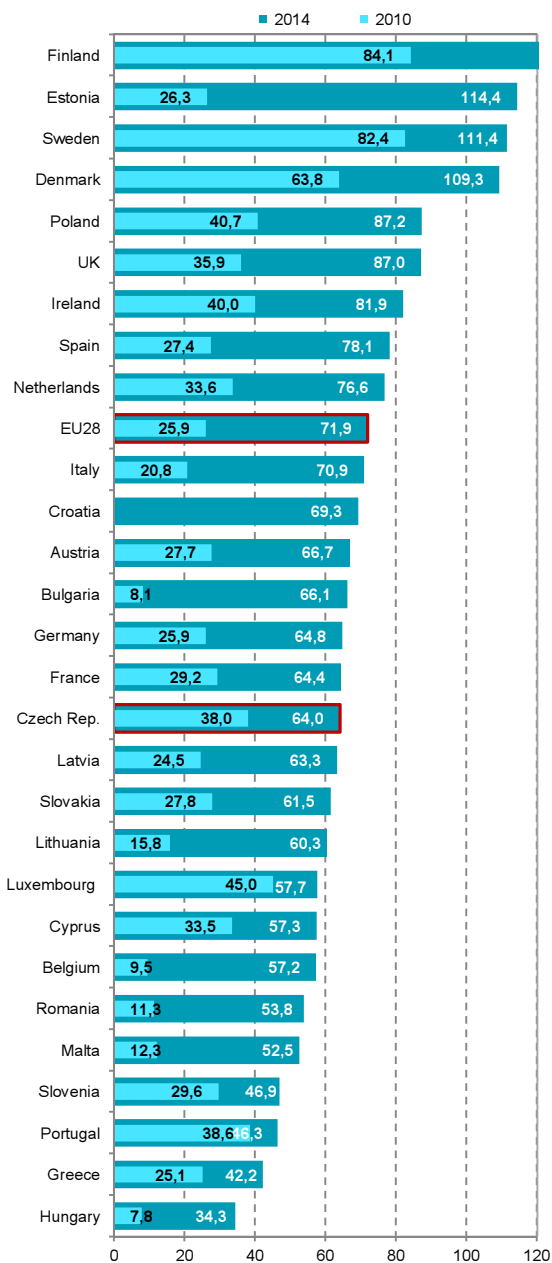
Figure A16 Fixed broadband penetration in EU countries, 2014
(subscriptions per 100 inhabitants)



* It also includes fixed wireless access via radio link based on WiFi technology, where the receiver is placed in a fixed location (house, apartment).

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Figure A17 Mobile broadband penetration in EU countries (subscriptions per 100 inhabitants)



Source: European Commission, 2015