Definitions

- **Broadband connection**: a connection enabling higher than 144 Kbit/s download speed. As of January 2010 it is estimated that 1-2 Mbps is the minimum download speed and that just a fraction of all retail broadband lines provide speeds of 144 Kbit/s.
- **Broadband penetration**: Broadband subscription lines as a percentage of population.
- **Incumbents**: Organisations having enjoyed special and exclusive rights or de facto monopoly for the provision of voice telephony services before liberalisation, regardless of the role played in the provision of access by means of technologies alternative to the PSTN.
- **New entrant**: Alternative telecommunications operators, as well as internet service providers (ISPs).
- **DSL**: Digital Subscriber Line.
- **Cable broadband**: Broadband connections by means of cable TV access.
- **Satellite**: Broadband connections via satellite.
- **NGA**: Next Generation Access Technologies including VDSL, FTTH, FTTB, Cable NGA and other NGA as defined below.
- **VDSL**: Very high bitrate digital subscriber line. It uses copper networks in the access. Typically the physical network interface at the delivery point at subscriber's home would be a RJ-11 type connector. Fibre to the Node + vDSL lines should be included in this category. VDSL is deployed over existing wiring used for analogue telephone service and lower-speed DSL connections.
- **FTTH**: Fibre to the Home. A communications architecture in which the final connection to the subscriber’s premises is Optical Fibre. The fibre optic communications path is terminated on or in the premise for the purpose of carrying communications to a single subscriber. In order to be classified as FTTH, the access fibre must cross the subscriber’s premises boundary and terminate:
  - inside the premises, or
  - on an external wall of the subscriber’s premises, or
  - not more than 2m from an external wall of the subscriber’s premises.

FTTH services may deliver just one application, but generally deliver several such as data, voice and video. This FTTH definition excludes architectures where the optical fibre terminates in public or private space before reaching the premises and where the access path continues to the subscriber over a physical medium other than optical fibre (for example copper loops, power cables, wireless and/or coax)\(^1\).

\(^1\) Source: FTTH Council
• **FTTB**: Fibre to the Building: An optical fiber reaches the boundary of the building, such as the basement in a multidwelling unit, and the final connection to the subscriber’s premises is a physical medium other than Optical Fiber.

• **NGA cable**: Lines transmitting very high-speed data transfer on an existing coaxial cable TV network. Typically the physical network interface at the delivery point at subscriber's home would be an F connector type.

• **Other NGA**: Technologies other than FTTH, FTTB, VDSL and Cable NGA, which are capable of at least 30 Mbps download (headline speed).

• **Fully unbundled lines**: Fully unbundled lines supplied by the incumbent operator to other operators (new entrants), excluding experimental lines. In the case of full unbundling, a copper pair is rented to a third party for its exclusive use. As fully unbundled lines (LLU) supplied by the incumbent operator to the new entrants could in principle be used for services other than broadband, the total number of LLU for access to internet will be lower than the total number of LLU.

• **Shared access lines**: Shared access lines supplied by the incumbent to other operators (new entrants), excluding experimental lines. In the case of shared access, the incumbent continues to provide telephony service, while the new entrant delivers high-speed data services over that same local loop.

• **Bitstream access**: It refers to the situation where the incumbent installs a high-speed access link to the customer premises, and makes this access link available to third parties (new entrants), to enable them to provide high-speed services to customers. Bitstream depends in part on the PSTN, and may include other networks such as the ATM network. Bitstream access is a wholesale product that consists of the provision of transmission capacity in such a way as to allow new entrants to offer their own, value-added services to their clients. The incumbent may also provide transmission services to its competitor, to carry traffic to a 'higher' level in the network hierarchy where new entrants may already have a broadband point of presence.

• **Simple resale**: In contrast to bitstream access, simple resale occurs when a new entrant receives and sells on to end users a product (with no possibility of value added features to the DSL part of the service) that is commercially similar to the DSL product provided by the incumbent to its own retail customers, irrespective of the ISP service that may be packaged with it. Resale offers are not a substitute for bitstream access because they do not allow new entrants to differentiate their services from those of the incumbent (i.e. when the new entrant simply resells the end-to-end service provided to him by the incumbent on a wholesale basis).

• **Mobile broadband**: Internet access on third generation technologies (3G) and higher speed mobile technologies (i.e. HSPA or LTE). In the case of UMTS the unit of reference is SIM/USIM cards (including modem/dongles). For the CDMA standard, the unit of measurement should be the number of User Equipments.

• **Mobile broadband – standard mobile subscriptions**: Number of subscriptions which have made an Internet mobile connection in the last 90 days through a standard mobile subscription. Standard mobile subscriptions are typical voice subscriptions which also provide access to the Internet but are not purchased separately. Standard mobile subscription excludes dedicated Internet mobile subscriptions. An Internet mobile connection is a connection to the open Internet using Internet Protocol (IP). Hence, subscriptions which only offer “walled
garden” or email-only services (or SMS/MMS only) as well as those offering access to the open Internet but that only have made access to "walled garden" and email-only services in the last three months will not be considered. Bundled offers (i.e., voice and data access) for a unique (flat rate) tariff are to be counted if a data connection has been made in last 3 months.

- **Mobile broadband - Dedicated data subscriptions for stand-alone services via cards/modems/keys only**: Number of subscriptions to dedicated data services over a mobile network which are purchased separately from voice services as a stand alone service (modem/dongle), i.e. excluding mobile handset users. All dedicated data subscriptions with a recurring subscription fee are included as “active data subscriptions”, regardless of actual use. Pre-paid mobile broadband plans (i.e. all non-recurrent fee subscriptions) require active use in previous 3 months. Subscriptions which only offer “walled garden” or email-only services (or SMS/MMS only) will not be considered. Bundled offers (i.e., voice and data access) are excluded.

- **Dedicated data subscriptions for add-on data package to a voice service requiring an additional subscription**: Number of subscriptions to dedicated data services over a mobile network which are purchased separately from voice services as an add-on data package to voice services which require an additional subscription (i.e. excluding datacards/dongles). Recurrent fee subscriptions (i.e., contract) are included automatically. Prepayment subscriptions (or any other type of non-recurrent subscription) need to pass the activity criterion (a usage occurred in the last 3 months). Subscriptions which only offer “walled garden” or email-only services (or SMS/MMS only) will not be considered. Bundled offers (i.e., voice and data access) are excluded.

**Methodology**

The data (except for broadband coverage and broadband retail prices) have been collected by the European Commission, Communications Networks, Content and Technology Directorate General, from national ministries and regulatory authorities except when noted. The definitions have been agreed in the Communications Committee (COCOM).

In some cases information for some types of access is not available. In a number of countries certain figures are estimates, as the National Regulatory Authorities had not received consolidated data from operators. It should also be noted that in some cases information only refers to major broadband access providers and that broadband access lines provided by small operators are not included.

This report includes information from all 28 Member States.

Data should be interpreted taking the below comments of Member States into consideration:

**Austria**

*Retails lines and speed*: NGA lines are estimated based on retail lines speeds. NGA includes all retail lines from 30 Mbit/s upwards. This does not apply to FTTH.
Operator switching: Average for DSL.

Bulgaria

Retail broadband lines: Data is based on the information received by CRC from 92.3% of the registered undertakings.

Croatia

Retail lines and speed: Some of the Fiber to the building connections are realised via VDSL. These connections are counted in VDSL. In VDSL data there are also BSA connections and ULL connections realised via VDSL.

Mobile broadband: Dedicated data subscriptions /traffic include M2M subscriptions/traffic.

Operator switching: 7 working days refers to process of switching in case of residential customer not having minimum contract duration with the existing operator. In case when there is minimum contract duration the time is extended for additional 8 working days in order to allow the existing operator to contact the customer and inform him about the penalties that he will have to pay because he terminates the contract before the minimum duration is expired.

Germany

Wholesale lines: Incumbent activated main lines including analogue, ISDN and All-IP access lines (retail). Wholesale unbundled lines, shared lines, bitstream access and simple resale are also included.

Retail lines and speed: VDSL included in new entrants' DSL figures for own network, Full LLU, shared access, bitstream access and DSL resale. New entrants' VDSL figures are based on estimates. New entrants' own network DSL figures are based on estimates. Full ULL includes wholesale DSL lines (bitstream access, DSL resale) supplied by alternative operators to other alternative operators on the basis of unbundled local loops provided by the incumbent. Bitstream access includes only bitstream access lines supplied by the incumbent to new entrants. For resale only DSL resale lines supplied by the incumbent to new entrants are included. For FWA number of subscribers are reported. In case of cable modem and cable NGA, lines on cable infrastructures based on FTTB/FTTH are excluded. In case of cable NGA, lines with a capacity equal to or higher than 30 Mbps are reported. Other wireline access supplied by new entrants refers to the estimated number of leased lines. Public access Wi Fi Hotspots: Data for the incumbent based on estimates. Data for new entrants not available. Data on other wireline access supplied by new entrants refers to the estimated number of leased lines. Fibre lines (FTTB/FTTH) including fibre lines provided by cable operators.
Lithuania

Wholesale lines: The same two agreements can be used and for fully unbundled lines and for shared access lines.

Retail lines: incumbents’ LLU lines are used in retail level by new entrants for the provision other data transmission services (e.g. VPN) and 3+70=73 lines are used for provision of broadband (BB) Internet access services.

Retail lines by speed: Ensured downstream speed rates are reported, thus is submitted slightly lower rate.

Operator switching:
Time needed to terminate a contract: from 1 to 30 days (depending on the operator).
Time needed to get connected: from 1 to 10 days (depending on the operator).

Luxembourg

Mobile broadband: Situation of 3 MNOs.

Portugal


Spain

Retail broadband lines: Substantial increase due to migration/upgrade to FTTH network.

Romania

Retail broadband lines: Data refers to internet broadband only.

Mobile broadband: Activity criterion refers to 180 days. Data subscriptions provided by mobile operators through a wireless router with SIM card, at fixed locations are also included.

Operator switching: Data corresponds to the market leader (alternative operator).

United Kingdom

Retail broadband lines: The drop in July 2016 resale lines figure for the UK is mainly due to the incumbent operator BT acquiring EE.