

Glossary

2G: Second-generation mobile network or service. Generic name for second generation networks, for example GSM.

3G: Third-generation mobile network or service. Generic name for third-generation networks or services under the IMT-2000 banner, for example W-CDMA and CDMA2000 1x.

3GPP: Third Generation Partnership Project. A cooperation between regional standards bodies to ensure global interworking for 3G systems.

Actuator: An actuator is the mechanism by which an agent acts upon an environment. The agent can be either an artificial intelligent agent or any other autonomous being.

ADSL: Asymmetric digital subscriber line. A technology that enables high-speed data services to be delivered over twisted pair copper cable, typically with a download speed in excess of 256 kbit/s, but with a lower upload speed. Corresponds to ITU Recommendation (standard) ITU-T G.992.1.

Analogue: Transmission of voice and images using electrical signals. Analogue mobile cellular systems include AMPS, NMT and TACS.

ARPU: Average Revenue Per User. Usually expressed per month but also per year.

Bandwidth: The range of frequencies available to be occupied by signals. In analogue systems it is measured in terms of Hertz (Hz) and in digital systems in bit/s per second (bit/s). The higher the bandwidth, the greater the amount of information that can be transmitted in a given time. High bandwidth channels are referred to as broadband which typically means 1.5/2.0 Mbit/s or higher.

Bit (binary digit): A bit is the primary unit of electronic, digital data. Written in base-2, binary language as a "1" or a "0".

Bit/s: Bits per second. Measurement of the transmission speed of units of data (bits) over a

network. Also kbit/s: kilobits (1'000) per second; Mbit/s: megabits (1'000'000) per second, and Gbit/s: Gigabits (1'000'000'000) per second.

Broadband: Broadband is defined, for the purposes of this report, as internet access with a minimum capacity of greater or equal to 256 kbit/s in one or both directions (see Technical notes). Fixed broadband is implemented through technologies such as digital subscriber line (DSL), cable modem, fibre to the home (FTTH), metro ethernet, wireless local area networks (WLAN) etc. Mobile broadband is implemented through technologies such as wideband CDMA, HSDPA, CDMA 1x EV-DO, etc.

Broadcast: Point-to-multipoint video transmitted only once over the entire service area.

Browser: Application that retrieves WWW documents specified by URLs from an HTTP server on the internet. Displays the retrieved documents according to the Hypertext Markup Language (HTML).

Byte: (1) A set of bits that represent a single character. A byte is composed of 8 bits.

(2) A bit string that is operated upon as a unit and the size of which is independent of redundancy or framing techniques.

CAGR: Compound annual growth rate. See the Technical notes.

Cable modem: A technology that allows high-speed interactive services, including internet access, to be delivered over a cable TV network.

CDMA: Code division multiple access. A technology for digital transmission of radio signals based on spread spectrum techniques where each voice or data call uses the whole radio band and is assigned a unique code.

CDMA2000: Code division multiple access 2000. A third-generation digital cellular standard under the IMT-2000 banner, first deployed in Korea, includes

CDMA2000 1x and 1xEV-DO (Evolution, Data Optimized).

Cellular: A mobile telephone service provided by a network of base stations, each of which covers one geographic cell within the total cellular system service area.

Channel: One of a number of discrete frequency ranges utilized by a base station to transmit and receive information from cellular terminals (such as mobile handsets).

Circuit-switched connection: A temporary connection that is established on request between two or more stations in order to allow the exclusive use of that connection until it is released. At present, most voice networks are based on circuit-switching, whereas the internet is packet-based. See also Packet-based.

Connectivity: The capability to provide, to end-users, connections to the internet or other communication networks.

Coverage: Refers to the range of a mobile cellular network, measured in terms of geographic coverage (the percentage of the territorial area covered by mobile cellular) or population coverage (the percentage of the population within range of a mobile cellular network).

Digital: Representation of voice or other information using digits 0 and 1. The digits are transmitted as a series of pulses. Digital networks allow for higher capacity, greater functionality and improved quality.

DSL: Digital subscriber line. DSL is a technology for bringing high-bandwidth information to homes and small businesses over ordinary copper telephone lines. See also xDSL, which refers to different variations of DSL, such as ADSL, HDSL, and RADSL.

E-commerce: Electronic commerce. Term used to describe transactions that take place online where the buyer and seller are remote from each other.

Encryption: The process of converting plain text into code to secure information from being read by unauthorized persons or those without special computing knowledge.

Fixed line: A physical line connecting the subscriber to the telephone exchange. Typically, fixed-line network is used to refer to the PSTN (see below) to distinguish it from mobile networks.

Frequency: The rate at which an electrical current alternates, usually measured in Hertz (see Hz). It is also used to refer to a location on the radio frequency spectrum, such as 800, 900 or 1'800 MHz.

FTTx: generally refers to broadband telecommunications systems based on fibre-optic cables directly to the homes or business.

GDP: Gross domestic product. The market value of all final goods and services produced within a nation in a given time period.

GNI: Gross national income. The market value of all final goods and services produced in a nation's economy, including goods and services produced abroad. GNI in constant prices, differs from GNP in that it also includes a terms of trade adjustment; and gross capital formation which includes a third category of capital formation: net acquisition of valuables.

GNP: Gross national product. The market value of all final goods and services produced in a nation's economy, including goods and services produced abroad.

GPRS: General Packet Radio Service. It refers to a standard for wireless communications that supports a wide range of bandwidths. It runs at speeds up to 115 kilobits per second and is particularly suited for sending and receiving small bursts of data, such as e-mail and Web browsing, as well as large volumes of data.

GPS: Global positioning system. Refers to a "constellation" of 24 "Navstar" satellites launched initially by the United States Department of Defense, that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic location. The location accuracy ranges from 10 to 100 metres for most equipment. A Russian system, GLONASS, is also available, and a European system, Galileo, is under development.

GSM: Global System for Mobile communications. European-developed digital mobile cellular

standard. The most widespread 2G digital mobile cellular standard, available in over 170 countries worldwide. For more information see the GSM Association website at www.gsmworld.com/index.html.

Host: Any computer that can function as the beginning and end point of data transfers. Each internet host has a unique internet address (IP address) associated with a domain name.

HTML: Hypertext Markup Language. A Hypertext document format used on the World Wide Web. Mark-up languages for translating Web content onto mobile phones include cHTML, WML and xHTML.

HSDPA: High-Speed Downlink Packet Access. An enhancement protocol to W-CDMA networks that allows a higher data capacity in the down link up to 14.4Mbit/s.

HSUPA: High-Speed Uplink Packet Access. An enhancement protocol to W-CDMA networks that allows a higher data capacity in the up link up to 5.76 Mbit/s.

HTTP: Hypertext Transfer Protocol. Hypertext is any text that cross-references other textual information with hyperlinks.

Hz: Hertz. The frequency measurement unit equal to one cycle per second.

IM: Instant Messaging. It refers to programs such as AOL Instant Messenger and ICQ that allow users to exchange messages with other users over the internet with a maximum delay of one or two seconds at peak times.

IMS: IP Multimedia Subsystem. Framework originally developed by the 3rd Generation Partnership Projects (3GPP and 3GPP2) for their third generation mobile networks.

IMT-2000: International Mobile Telecommunications-2000. Third-generation (3G) "family" of mobile cellular standards approved by ITU. For more information see the website at www.itu.int/imt.

Infotainment: The combination of information on current event and entertainment content or of their formats.

internet: Interconnected global networks that use the internet protocol (see IP).

IP Telephony: internet protocol telephony. IP telephony is used as a generic term for the conveyance of voice, fax and related services, partially or wholly over packet-based, IP-based networks. See also VoIP and Voice over broadband.

IPv4: Internet protocol version 4. The version of IP in common use today.

IPv6: Internet protocol version 6. The emerging standard, which aims to rectify some of the problems seen with IPv4, in particular the shortage of address space.

IPTV: The generic term describes a system where a digital television service is delivered using the Internet Protocol over a network infrastructure.

ITU: International Telecommunication Union. The United Nations specialized agency for telecommunications. See www.itu.int.

LAN: Local area network. A computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves. A system of LANs connected in this way is called a wide-area network (WAN).

LBS: Location-based services. LBS make use of information on the location of a mobile device and user, and can exploit a number of technologies for the geographic location of a user. Some of these technologies are embedded in the networks and others in the handsets themselves. Location capability is already available to some level of accuracy (approx. 150 m) for most users of cellular networks. Increased accuracy can become available through location technologies such as GPS.

Main telephone line: Telephone line connecting a subscriber to the telephone exchange equipment. This term is synonymous with the term 'fixed line' used in this report.

MMS: Multimedia Message Service. MMS will provide more sophisticated mobile messaging than SMS or EMS. A global standard for messaging, MMS will enable users to send and receive messages with

formatted text, graphics, audio and video clips. Unlike SMS and most EMS, it will not be limited to 160-characters per message.

Mobile: As used in this report, the term refers to mobile cellular systems.

NGN: Next generation networks. These are packet-based networks in which service-related functions are independent from underlying transport-related technologies. They are able to provide telecommunication services and make use of multiple broadband transport technologies.

Packet: Block or grouping of data that is treated as a single unit within a communication network.

Packet-based: Message-delivery technique in which packets are relayed through stations in a network. See also Circuit-switched connection.

PDA: Personal digital assistant. A generic term for handheld devices that combine computing and possibly communication functions.

Penetration: A measurement of access to telecommunications, normally calculated by dividing the number of subscribers to a particular service by the population and multiplying by 100. Also referred to as teledensity (for fixed-line networks) or mobile density (for cellular ones), or total teledensity (fixed and mobile combined).

PETS: Privacy enhancing technologies. Either stand alone solutions helping individuals and companies protect their privacy or add-on features designed to enhance the privacy of an existing system.

PPP: Purchasing power parity. An exchange rate that reflects how many goods and services can be purchased within a country taking into account different price levels and cost of living across countries.

Protocol: A set of formal rules and specifications describing how to transmit data, especially across a network.

RFID: Radio frequency identification. A system of radio tagging that provides identification data for goods in order to make them traceable. Typically used by manufacturers to make goods such as

clothing items traceable without having to read bar code data for individual items.

Robotics: A branch of engineering that involves the conception, design, manufacture, and operation of robots which is a mechanical device that performs a variety of often complex human tasks on command or through advanced programming.

Sensor: A device, such as a photoelectric cell, that receives and responds to a signal or stimulus.

Server: (1) A host computer on a network that sends stored information in response to requests or queries.

(2) The term server is also used to refer to the software that makes the process of serving information possible.

SIM: Subscriber identity module (card). A small printed circuit board inserted into a GSM-based mobile phone. It includes subscriber details, security information and a memory for a personal directory of numbers. This information can be retained by subscribers when changing handsets.

Skimming: Refers to the unauthorized capture by an intruder of electronic information contained in a chip or tag, such as a passport chip.

SMS: Short Message Service. A service available on digital networks, typically enabling messages with up to 160 characters to be sent or received via the message centre of a network operator to a subscriber's mobile phone.

Spectrum: The radio frequency spectrum of hertzian waves used as a transmission medium for cellular radio, radiopaging, satellite communication, over-the-air broadcasting and other services.

TD-SCDMA: Time Division Synchronous Code Division Multiple Access. A third-generation mobile standard under the IMT-2000 project. It uses spread spectrum CDMA technology in the TDD technique.

Teledensity: Number of main telephone lines per 100 inhabitants within a geographical area. Effective teledensity reports fixed-line teledensity or mobile density—whichever is higher—in a particular geographical region. See Penetration and Total teledensity.

Total teledensity: Sum of the number of fixed lines and mobile phone subscribers per 100 inhabitants. (See Technical notes). See Penetration.

Trust: The property of a system that it will behave in the expected manner for the intended purpose.

Universal Access: Refers to reasonable telecommunication access for all. Includes universal service for those that can afford individual telephone service and widespread provision of public telephones within a reasonable distance of others.

UWB: Ultra-Wide Band. Wireless communications technology that can currently transmit data at speeds between 40 to 60 megabits per second and eventually up to 1 gigabit per second. It uses ultra-low power radio signals.

VoIP: Voice over IP. The generic term used to describe the techniques used to carry voice traffic over IP (see also IP telephony).

W-CDMA: Wideband code division multiple access. A third-generation mobile standard under the IMT-2000 banner, first deployed in Japan. Known as UMTS in Europe. See also CDMA.

Wi-Fi: Wireless fidelity. A mark of interoperability among devices adhering to the 802.11b specification for Wireless LANs from the Institute of Electrical and Electronics Engineers (IEEE). However, the term Wi-Fi is sometimes mistakenly used as a generic term for wireless LAN.

WiMAX: Fixed wireless standard IEEE 802.16 that allows for long-range wireless communication at 70 Mbit/s over 50 kilometres. It can be used as a backbone internet connection to rural areas.

Wireless: Generic term for mobile communication services which do not use fixed-line networks for direct access to the subscriber.

WLAN: Wireless local area network. Also known as Wireless LAN or Radio LAN. A wireless network whereby a user can connect to a local area network (LAN) through a wireless (radio) connection, as an alternative to a wired local area network. The most popular standard for wireless LANs is the IEEE 802.11 series.

WLL: Wireless local loop. Typically a phone network that relies on wireless technologies to provide the last kilometre connection between the telecommunication central office and the end-user.

WMAN: Wireless Metropolitan Access Network. Refers to a wireless communications network that covers a geographic area, such as a city or suburb.

WSIS: The United Nations World Summit on the Information Society. The first phase of WSIS took place in Geneva (hosted by the Government of Switzerland) from 10 to 12 December 2003. The second phase will take place in Tunis (hosted by the Government of Tunisia), from 16 to 18 November 2005. For more information see: www.itu.int/wsis.

WWW: World Wide Web. (1) Technically refers to the hypertext servers (HTTP servers) which are the servers that allow text, graphics, and sound files to be mixed together. (2) Loosely refers to all types of resources that can be accessed.

xDSL: While DSL stands for digital subscriber line, xDSL is the general representation for various types of digital subscriber line technology, such as ADSL (asynchronous digital subscriber line), such as VDSL (very high-speed digital subscriber line).