

GLOSSARY, ACRONYMS AND ABBREVIATIONS

Access charge: Amount paid per minute, charged by network operators for the use of their network by other network operators. Also known as an interconnect payment.

Air time: The minutes of calls a subscriber makes from a mobilephone. Also referred to as talk time.

AMPS: *Advanced Mobile Phone System*. An analogue cellular telephone service standard utilizing the 800 to 900 MHz band (and recently also the 1800-2000 MHz band).

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.

ATM: *Asynchronous Transfer Mode*. A transmission mode in which the information is organized into cells; it is asynchronous in the sense that the recurrence of cells from an individual user is not necessarily periodic.

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.

Base station: A radio transmitter/receiver and antenna used in the mobile cellular network. It maintains communications with cellular telephones within a given cell and transfers mobile traffic to other base stations and the fixed telephone network.

Bluetooth: A radio technology that makes possible transmitting signals over short distances between mobilephones, computers and other devices.

CAGR: *Compound Annual Growth Rate* (see technical notes).

Call waiting: A subscriber, engaged on an existing call, is given an indication that another caller is

attempting to obtain connection. Call waiting service gives the option of ending on holding the original call to take the new one.

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.

CDMA IS-95: A digital cellular standard. For more information see the CDMA Development Group website at: <http://www.cdg.org/index.html>.

Cell: The geographic area covered by a single base station in a cellular mobile network.

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).

Churn: Term used to describe the turnover in the number of subscribers to a network, typically measured monthly. There are several different ways of measuring churn (for instance, based on the subscriber base at the start or the end of the month) which means that comparisons between companies or between countries are not always meaningful.

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).

CPP: *Calling Party Pays*. Billing option whereby the person making the call is charged. This is in contrast to billing the recipient of the call.

D-AMPS: See *TDMA*.

DCS-1800: GSM networks using the 1800 Mhz frequency.

DECT: *Digital Enhanced Cordless Telecommunications.* A standard for cordless telephony originally established by *ETSI* (see below).

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. Examples of digital cellular networks include GSM, CDMA, and TDMA.

Dual-mode (also tri-mode or multi-mode): Handsets that can work with more than one different standard and/or at more than one frequency.

EDGE: *Enhanced Data rates for GSM Evolution.* An intermediate technology, still under development, that brings second-generation GSM closer to third-generation capacity for handling data speeds up to 384 kbit/s.

Equity-based subscribers: See *Proportionate subscribers.*

ETSI: *European Telecommunications Standards Institute.* Telecommunication standards body for Europe. For more information see their website at: <http://www.etsi.org>.

Exchange: See *Switch.*

FDMA: *Frequency Division Multiple Access.* A cellular technology that has been used in the first-generation analogue systems (i.e., NMT, AMPS, and TACS).

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 (Hz). It is also used to refer to a location on the radio frequency spectrum, such as 800, 900 or 1800 Mhz.

Frequency reuse: The ability to use the same frequencies repeatedly across a cellular system. As each cell uses radio frequencies only within its boundaries, the same frequencies can be reused in other cells not far away with a limited possibility of interference. The reuse of frequencies is the key concept that enables a cellular system to handle a large

amount of calls with a limited number of channels.

GSM: *Global System for Mobile communications.* European-developed digital mobile cellular standard. For more information see the GSM Association website at: <http://www.gsmworld.com/index.html>.

GPRS: *General Packet Radio Service.* An enhancement for GSM, based on packet-switched technology enabling high-speed data transmission (115 kbit/s per second).

Hand-off: A central concept of cellular technology, enabling mobility for subscribers. It is a process by which the *Mobile Telephone Switching Office* passes a mobilephone conversation from one radio frequency in one cell to another radio frequency in another as a subscriber crosses the boundary of a cell.

HSCSD: *High Speed Circuit Switched Data.* An intermediary upgrade technology for GSM based on circuit-switched technology and enabling data service speed of 57 kbit/s.

HTTP: *HyperText Transport Protocol* (see WWW).

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

IMT-2000: *International Mobile Telecommunications.* The ITU third generation mobile cellular standard. For more information see the website at: <http://www.itu.int/imt>.

Incumbent: The (former) monopoly service and network provider in a particular country.

Interconnection: The physical connection of telephone networks owned by two different operators. Network operators typically charge a per minute fee for use of their network by other network operators (referred to as an "interconnect payment" or "access charge").

Internet: The collection of interconnected networks that use the Internet Protocols (IP).

ISDN: *Integrated Services Digital Network.* An integrated services network that provides digital connections between user-network interfaces.

ISP: *Internet Service Provider.* ISPs provide end-users, and other ISPs, access to the Internet. ISPs may also offer their own proprietary content and access to online services such as e-mail.

ITU: *International Telecommunication Union.* The UN specialized agency for telecommunication. For information, see <http://www.itu.int>.

Local loop: The system used to connect the subscriber to the nearest switch. It generally consists of a pair of copper wires, but may also employ fibre-optic or wireless technologies.

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

MTSO: *Mobile Telephone Switching Office.* A central point to which base stations of cells in a cluster are connected to, either by landlines or microwave. MTSO is normally located in the central cell of a cluster and is generally connected to the Public Switched Telephone Network (PSTN).

NMT: *Nordic Mobile Telephone system.* An analogue mobile cellular system developed in the Nordic countries.

Number Portability: The ability of a customer to transfer an account from one service provider to another without requiring a change in number.

OECD: *Organisation for Economic Co-operation and Development.* For information, see <http://www.oecd.org>.

Peak rate: Term used for calls made during the busy part of the working day, at full tariff. *Off-peak* refers to calls made at other times, with discounted tariffs.

PCS: *Personal Communication Services.* In the United States, refers to digital mobile networks using the 1900 Mhz frequency. In other countries, refers to digital mobile networks using the 1800 Mhz frequency (See DCS-1800). The term *Personal Communications Network* (PCN) is also used.

PDA: *Personal Digital Assistant.* A generic term for handheld devices that combine computing and communications 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).

POPs: The *population* within a mobile operator's licensed area. Confusingly, within the Internet world, the same abbreviation is used to describe *Points of Presence*.

Portal: Although an evolving concept, the term portal commonly refers to the starting point, or a gateway through which users navigate the World Wide Web, gaining access to a wide range of resources and services, such as e-mail, forums, search engines, and shopping malls. A *mobile portal* implies a starting point which is accessible from a mobilephone.

Proportionate subscribers: The number of subscribers of a mobile cellular operator based on ownership. Calculated by multiplying the mobile cellular operator's share of ownership (equity) in a particular subsidiary by the total number of subscribers.

PSTN: *Public Switched Telephone Network.* The public telephone network that delivers fixed telephone service.

PTO: *Public Telecommunication Operator.* A provider of telecommunication infrastructure and services to the general public. The term public relates to the customer rather than the ownership of the PTO.

Roaming: A service allowing cellular subscribers to use their handsets on networks of other operators.

SIM: *Subscriber Identity Module* card. A small printed circuit board inserted into a GSM-based mobilephone when signing on as a subscriber. It includes subscriber details, security information and a memory for a personal directory of numbers.

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 mobilephone.

Switch: Part of a mobile or fixed telephone system that routes telephone calls to their destination.

TACS: *Total Access Communications System.* An analogue mobile cellular system.

TDMA: *Time Division Multiple Access.* A digital cellular technology that divides frequency into time slots. It is the prevalent technology of the second-

generation digital cellular with three main versions: North American TDMA (IS-136); European TDMA (GSM); and Japanese TDMA (PHS/PDC).

TDMA IS-136: A digital cellular standard earlier referred to as D-AMPS. For more information see the Universal Wireless Communications Consortium website at: <http://www.uwcc.org>.

UMTS: *Universal Mobile Telecommunications System.* The European term for third generation mobile cellular systems. For more information see the UMTS Forum website at: <http://www.umts-forum.org>.

USO: *Universal Service Obligation.* Universal Service refers to availability, non-discriminatory access and wide-spread affordability of telephone service. The level of universal service is statistically measured as the percentage of households with a telephone.

UTRA: *UMTS Terrestrial Radio Access.* The European third-generation mobile standard ETSI has agreed on which draws upon both W-CDMA and TDMA-CDMA proposals.

VXML: *Voice eXtensible Markup Language.* A new standard under development that uses voice to browse the Web.

WAP: *Wireless Application Protocol.* A license-free protocol for wireless communication that enables the creation of mobile telephone services and the reading of Internet pages from a mobilephone, thus being the mobile equivalent of HTTP (HyperText Transfer Protocol).

W-CDMA: *Wideband Code Division Multiple Access.* (see CDMA)

WTO: *World Trade Organisation.* See <http://www.wto.org>.

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.

3G: *Third-generation mobile communication system.* See IMT-2000.