



SIBIS

IST-2000-26276

Statistical Indicators Benchmarking the Information Society

SIBIS – Work package 1: eEurope Benchmarking Framework

Definitions:

Task 1.1

Report Version: 1.0

Report Preparation Date: March 2001

Classification:

Contract Start Date: 1st January 2001

Duration: 30 Months

Project Co-ordinator: empirica (Germany)

Partners: Work Research Centre (Ireland), Danish Technological Institute (Denmark), Technopolis (UK), Databank Consulting (Italy), Stichting RAND Europe (Netherlands), Fachhochschule Solothurn (Switzerland)



Project funded by the European Community under the "Information Society Technology" Programme (1998-2002)

Table of Contents

1	DEFINITIONS AND METHODOLOGIES	3
1.1	Definitions relating to the New Economy, etc.	3
1.2	Telecommunications and Access Definitions	9
1.3	Internet for R&D	23
1.4	Security and Trust Definitions	31
1.5	Education Definitions.....	31
1.6	Work, Employment and Skills Definitions	32
1.7	Social inclusion definitions	35
1.8	eCommerce Definitions	41
1.9	eGovernment Definitions	42
1.10	Health Definitions	45
1.11	Statistical Terms	49
1.12	A Glossary of Terms	50
2	METHODOLOGIES AND APPROXIMATIONS	71

1 DEFINITIONS AND METHODOLOGIES

This section contains basic information on definitions, data sources and methodologies. An understanding of the definitions used and the methodologies used are important to a proper analysis of the statistical indicators presented. The section is divided into subsections corresponding to:

1. The New Economy, eEurope and the Information Society in general
2. Telecommunications and access
3. Internet for research
4. Security and trust
5. Education
6. Work, employment and skills
7. Social inclusion
8. eCommerce
9. eGovernment
10. Health
11. Transport
12. Statistics, indicator development, and other methodological issues
13. A Glossary of general ICT terms assembled from a variety of sources.

For simplicity, the information is organised into prototype tables, with columns corresponding to the term, a short verbal definition and, for terms corresponding to measurable quantities or indicators, an indication of likely data sources. In addition to contributing to 'your' sections, I'd like members to make suggestions for eliminating section 13.

I think the following ultimate definition structure (to which this list is input) makes sense:

- A. General definitions: a 2-column (name, definition) table of terms of art covering the general IS, the SIBIS topics, and the relevant disciplines (economics, statistics, ?)
- B. Specific definitions: a 3-column (name, definition, source(s)) table of specific indicators.

1.1 Definitions relating to the New Economy, etc.

The most generally used definitions of the major items and the sources of information about them are shown below. These definitions may not be implementable in common form in all countries, so it is necessary to note differences where unavoidable.

The terms can be further divided among broad general concepts, political terms, economic terms of art, etc.

Term	Definition	Data Source(s) (if relevant)
General Concepts		
Dematerialisation	Reducing the material 'footprint' of production, esp. through ICT	
Dependability of information infrastructures	Being aware up to what level you can depend on the information infrastructure	
Digital Economy		
Global network	A 'network of networks' including telecommunications, transport, energy and other networks.	

Term	Definition	Data Source(s) (if relevant)
Immaterialisation	Reducing the material 'footprint' of consumption, esp. through ICT	
Information Security	Measures taken to protect information systems against unauthorised use and attacks.	
Information Society		
Intangible Economy	That portion of the economy engaged in development, production and distribution of intangibles (sometimes 'information goods and services')	
Internet	The world's largest computer communication system, with an estimated 100-million users. Originated in the United States, though now operating world-wide, the Internet is a loose confederation of principally academic and research computer networks. It is not a network but rather the interconnection of thousands of separate networks using a common language. Developed by the Pentagon, the Internet first linked government agencies and colleges. Now the Net also connects thousands of companies and millions of individuals world-wide who subscribe to on-line services.	
Knowledge (-based) economy	That portion of the intangible economy engaged in the production, distribution and use of knowledge.	
Network	<p>Communication Networks correspond to a complete system of communications between user's terminals. Networks may be "point to point" (the transmission goes from a fixed origin to a fixed destination), "switched" (the transmission is switched so as to reach a single destination out of many) or "broadcast" (the transmission goes simultaneously to multiple destinations). Networks may be "public" (owned by an operator and open to any member of the public that subscribes) or "private" (owned or leased by an individual or company or group of companies exclusively for its own use).</p> <p>Other types of networks are involved in transport (of tangibles), energy, etc. In every case, 'pathways' or links connect the sending/receiving nodes.</p> <p>This can be differentiated from a (simplicial) <i>complex</i> in which the links themselves can act as nodes. The word node is replaced by the word 'vertex' – vertices are joined by edges, and edges by faces.</p>	
Network economy		
New Economy	Can refer to specific sectors, or to the economy as a whole, transformed by new technology.	

Term	Definition	Data Source(s) (if relevant)
New Economy sectors	<p>US: The US used to use the 1987 SIC (Standard Industrial Classification) system. se of the SIC system is being discontinued because SIC groupings have become outdated by changes in the economy. Most of the detailed data from the 1997 Economic Census are reported in the new North American Industry Classification System (NAICS) categories.</p> <p>OECD:</p> <p>Manufacturing classes 3000, 3130, 3210, 3220, 3230, 3312, 3313</p> <p>Service classes: 5150, 7123, 6420, 72</p>	
Secure network	Network security has three basic components: confidentiality, integrity and availability. Confidentiality refers to the protection of sensitive information from unauthorised disclosure. Integrity means safeguarding the accuracy and completeness of information and computer software. Availability relates to ensuring that information and vital services are available to users when required.	
Social inclusion/exclusion		
Social network		
Telecommunication network	Communication network	
Telecommuting	Working in one place on tasks in another. This can take place in real time (using continuous connections to simulate a virtual presence) or asynchronously (using sporadic transmission to exchange pieces of information).	
Telelearning	Distance education using electronic communication. This can take place in real time (using continuous connections to simulate a virtual presence) or asynchronously (using sporadic transmission to exchange pieces of information).	
Teleworking	Telecommuting.	
Weightless economy		
Business and Policy Terms		
B2B eCommerce	Business-to-business eCommerce (electronic transactions)	
B2c eCommerce	Business-to-consumer eCommerce (electronic transactions)	
eCommerce	Electronic transactions in goods and services. Covers shopping, negotiation, contracting, purchase, payment, fulfilment, etc.	
eEurope	On 8 December 1999 the European Commission has launched an initiative entitled "eEurope: An Information Society for All", which proposes ambitious targets to bring the benefits of the Information Society within reach of all Europeans. The initiative focuses on ten priority areas, from education to transport and from healthcare to the disabled.	

Term	Definition	Data Source(s) (if relevant)
eGovernment	The use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.	
eHealth	(Also, telemedicine) Maximising the services provided by the health system through the use of ICT.	
elearning	Telelearning	
iMode		
mCommerce	Mobile commerce – eCommerce that takes place using mobile connection devices.	
Economic terms		
Capital Expenditure	Value of purchases of fixed assets (assets that are used repeatedly in production processes for more than one year). The value is at full cost price. Sales of fixed assets are not deducted.	Sources include national statistical offices and OECD data collected in the Industrial Structures Information System (ISIS) collection exercise.
Employment	Total employment of the statistical units included in the ICT sector. It includes: employees and self-employed; full- and part-time personnel. It is measured in terms of the number of persons employed and not in full-time equivalent (FTE).	Source is usually national statistical offices, and OECD ISIS data. In some cases, data are only available on numbers of employees.

Term	Definition	Data Source(s) (if relevant)
International Trade	<p>Two main data items here are <i>imports</i> and <i>exports</i>.</p> <p><u>Imports of goods</u> = value of goods that enter the domestic territory of a country irrespective of final destination, valued on a free-on-board basis.</p> <p><u>Exports of goods</u> = value of goods that leave the domestic territory of a country, irrespective of processing in the domestic territory, valued on a cost-including-freight basis.</p> <p><u>Imports/exports of services</u> = value of services provided to residents of other countries (or received by residents of the domestic territory).</p>	<p>Data sources include the OECD's Foreign Trade Statistics database (FTS) and IMF Balance of Payments Statistics database. [Iceland and Mexico have no statistics for trade in services.]</p>
Number of ICT Enterprises	<p>The number of enterprises or legal entities operating within the ICT sector. In some countries, the definition of an enterprise may vary slightly from the legal entity basis described above.</p>	<p>Source is generally national statistical offices, and OECD ISIS data. Some data are available on numbers of <i>establishments</i>.</p>
Production	<p>Market value of all production undertaken during the period. It is thus very similar to the data item turnover and differs only in that it does not incorporate any allowance for a change in the stock of work in progress or finished goods. Production is valued at producers' prices and includes indirect taxes but excludes VAT and subsidies.</p>	<p>Source is generally national statistical offices, and OECD ISIS data. Some data on turnover are available.</p>
Research and development	<p>Research and development expenditure is the money spent on creative work undertaken on a systematic basis to increase the stock of knowledge and the use of this knowledge to devise new applications.</p>	<p>These data are sourced from the OECD's Business Enterprise R&D (BERD) or Analytic Business Enterprise R&D (ANBERD) databases. These databases contain data originally provided by Member countries, generally national statistical offices.</p>

Term	Definition	Data Source(s) (if relevant)		
SME	<p>A Small or Medium-sized entity. There are various definitions in terms of turnover, employee counts (or FTEs), etc. A further subdivision is ‘micro business’ – typically 10 employees or fewer. To be classed as an SME or a micro-enterprise, an enterprise has to satisfy the criteria for the number of employees and one of the two financial criteria, i.e. either the turnover total or the balance sheet total. In addition, it must be independent, which means less than 25% owned by one enterprise (or jointly by several enterprises) falling outside the definition of an SME or a micro-enterprise, whichever may apply. The thresholds for the turnover and the balance sheet total will be adjusted regularly, to take account of changing economic circumstances in Europe (normally every four years).</p>			
		Medium-sized	Small	Micro-enterprise
	Employees	<250	<50	<10
	Turnover (MECU)	<40	<7	N/A
	Balance-sheet total (MECU)	<27	<5	N/A
Value Added	<p>This data item is gross output minus intermediate inputs. It is valued at producers’ prices and includes all indirect taxes but excludes VAT and subsidies.</p>	<p>The source for this data item is generally national statistical offices sometimes based on the ISIS data collection exercise. It is often compiled on an establishment basis, otherwise known as “census value added”; on some occasions, however ICT data have been compiled on an enterprise basis and on these occasions the data item supplied will be industry gross product, which differs marginally in the intermediate inputs which are deducted from production.</p>		
Wages and salaries	<p>This measures gross earnings before taxation and other deductions. It therefore includes wages and salaries paid to employees, payments in kind, bonuses, commissions leave payments and the like. It also includes salaries and fees of directors and executives.</p>	<p>The source for this data item is generally national statistical offices, sometimes based on the ISIS data collection exercise. The data item is sometimes not available separately as national statistical offices do not collect data for that item. Sometimes the data may be collected as part of a “compensation of labour” data item.</p>		
Business sector indicator definitions				

Term	Definition	Data Source(s) (if relevant)
Business sector employment	Total dependant employment of the business sector plus the self-employed.	Original sources for the variable components are the national accounts of the countries. Aggregated data found in OECD Analytical Database.
Business sector value-added	<p>Value-added for the business sector is GDP of the business sector expressed at factor cost. The GDP for the business sector (GDPB) is expressed as: $GDPB = GDP - CGW - TIND + TSUB - CFKG$, where:</p> <p>GDP= gross domestic product, value, market prices</p> <p>CGW= government final wage consumption expenditure, value</p> <p>TIND= indirect taxes, value</p> <p>TSUB= subsidies, value</p> <p>CFKG= government consumption of fixed capital, value</p>	Value-added data for the business sector can be found in the OECD Analytical Business Enterprise R&D database.

1.2 Telecommunications and Access Definitions

<i>Term</i>	<i>Definition</i>
1G	First generation wireless: analogue mobile phones.
2.5G, 2G+	Interim stage between 2G and 3G, providing faster data services.
2G	Second generation wireless: digital mobile phones.
3G	Third generation wireless: digital plus high-speed data and global roaming. Known as IMT-2000 by the ITU and implemented in Europe as UMTS and cdma2000 in North America. Goals are high-quality multimedia and advanced global roaming (inhouse, cellular, satellite, etc.).
Access	The ability to retrieve data, graphics, sound, text etc whether on-line or offline.
Advanced Intelligent Network (AIN)	The integration of ISDN and Cellular Radio into a Personal Communications System (PCS). By adding wireless interfaces to ISDN a personal cellular telephone could be attached to the global ISDN from any worldwide location.
Analogue Mobile Phone System (AMPS)	The analogue cellular mobile phone system in North and South America and more than 35 other countries. It uses FDMA transmission in the 800Mhz band.

Term	Definition
Analogue	A continuous representation of a signal such as voice, sound, video, or any other information without discontinuities. It is the direct representation of a waveform, as opposed to digital which is a coded representation.
Asymmetric Digital Subscriber Line (ADSL)	A protocol allowing high-speed communication over existing copper wires. Able to reach speeds 500 times higher than plain modems, ADSL provides high-speed data transmission over standard phone lines whilst maintaining voice traffic on these same lines. The distance to the exchange is limited.
Asynchronous transfer mode (ATM)	A high-speed cell switching technology for LANs and WANs that handles multimedia data in cell format. It combines high efficiency with optimum bandwidth allocation. ATM uses fixed length cells in order to support multiple types of traffic. It is asynchronous in the sense that cells carrying a user's data do not need to be separated by specified time periods. It is the internationally agreed basis for broadband ISDN.
Backbone	The main line that ties networks, phone systems or computers together. There are many small connections (called nodes or terminals), branching off from the backbone.
Bandwidth	The physical characteristic of a telecommunications system that indicates the speed at which information can be transferred. In analogue systems, it is measured in cycles per second (Hertz) and in digital systems in binary bits per second. (Bit/s).
Base Rate Interface (BRI)	ISDN offering that allows two 64kbps "B" ("bearer" or voice) and one 16kbps "D" (signalling) channels to be carried over 1 typical single pair of copper wires. This is the type of service that would be used to connect a small branch or home office to a remote network. Through the use of BONDING (Bandwidth on Demand) the two 64kbps channels can be combined to create more bandwidth as it becomes necessary.
Basic Access	In ISDN, basic access consists of two 64kb/s B (bearer) channels and one 16kb/s "D" channel (2B+D). This is the minimum ISDN service available.
Bit	Short for "binary digit". A bit is the smallest possible unit of storage of computer information. It is the representation of a signal, wave, or state, and can be one of two values: 0 and 1, low and high, or on and off.
Bit rate	The number of bits (binary digits) transmitted in a specified length of time, usually expressed in bits per second (bps). This is considered the most accurate way of measuring the speed of a modem.
Bluetooth technology	Is an open specification for wireless communication of data and voice that describes how mobile phones, computers, and personal digital assistants can easily interconnect with each other and with home and business phones and computers using a short range wireless connection. It will enable users to connect a wide range of computing and telecommunications devices easily and simply, without the need to buy, carry, or connect, cables.
Bridge	A telecommunications "bridge" is used to connect several telephone circuits (for conference calls) or to link up computer networks.
Broadband	Broadband is generally defined as the capacity to transfer data at rates of 2Mbit/s (bits per second) or greater.

<i>Term</i>	<i>Definition</i>
Bundling	Bundling' generally means the tying of one service or product to the supply of others.
Byte	An 8-bit quantity of information, also generally referred to in data communications as an octet or character.
Cable	In the world of telephone companies, a cable is one or more insulated wires inside a common protective wrapper.
Cable modem	A modem used on coaxial cables. Speeds are up to 30 Mbps. It is inherently a one-way broadcast service that must be turned into a two-way cable to be viable for Internet access.
Carrier Pre-Selection	The facility offered to customers which allows them to opt for certain defined classes of call to be carried by an operator selected in advance (and having a contract with the customer), without having to dial a routing prefix or follow any other different procedure to invoke such routing.
CdmaONE	The name used by the CDMA (Code Division Multiple Access) Development Group (CDG) for CDMA networks (IS-95) using 2nd-generation digital technology.
Cdma2000	3G CDMA (Code Division Multiple Access) evolution from cdmaONE supported by cdmaONE operators. Phase 1 provides 144 Kbps data rate and Phase 2 up to 2 Mbps.
Cellular Network	A network of cells used to switch and route cellular phone traffic using different techniques for voice encoding and frequency bandwidth utilisation. It is connected to PTT exchanges and allows automatic handing-off of calls in progress from one cell to the next one, optimising the process by cell selection and best path allocation.
Cellular Radio	Technology employing low-power radio transmission as an alternative to local loops for accessing the switched telephone network; users may be stationary or mobile. When mobile they are passed under control of a central site from one cell's transmitter to an adjoining one with minimal switch-over delay.
Channel	In communications, a physical or logical path allowing the transmission of information; the path connecting a data source and a data sink, or receiver.
Channel capacity	Channel capacity is generally measured in bits per second (like bandwidth) but may be stated in many other ways. For example, a channel might be described as being able to carry so many voice conversations or television signals.
Circuit	A physical transmission path between two or more points. (See channel.)
Code Division Multiple Access (CDMA)	The term CDMA refers to any of several protocols used in so-called second-generation (2G) and third-generation (3G) wireless communications. As the term implies, CDMA is a form of multiplexing, which allows numerous signals to occupy a single transmission channel, optimising the use of available bandwidth. The technology is used in ultra-high-frequency (UHF) cellular telephone systems in the 800-MHz and 1.9-GHz bands. CDMA employs analogue-to-digital conversion (ADC) in combination with spread spectrum technology. Audio input is first digitised into binary elements. The frequency of the transmitted signal is then made to vary according to a defined pattern (code), so it can be intercepted only by a receiver whose frequency response is

Term	Definition
	programmed with the same code, so it follows exactly along with the transmitter frequency. There are trillions of possible frequency-sequencing codes; this enhances privacy and makes cloning difficult.
Data Compression	Application of several techniques that reduce the number of bits required to represent information in data transmission or storage, therefore conserving bandwidth and/or memory.
DECT	European cordless telephone standard.
Dedicated line	A direct, permanent connection between a phone or computer and something else externally. For example, a branch office might have a dedicated access line to the company's head office, for phone calls, data, or both.
Demodulation, demodulator	Demodulation converts data back and forth between digital and analogue. A demodulator is the technology that does this. (See modulation, modem.)
Dial-up	Describing the process of establishing a temporary connection via the switched telephone network.
Digital	The representation of data in a form of bits that have two states, "0" and "1".
Digital Cellular	Referring to cellular telephony using compressed digital speech and digital modulation, as opposed to analogue voice channels. Digital techniques will improve the use of available spectrum by factors of between 3 and 7 while reducing noise and allowing the efficient transmission of digital information. There is a gradual migration to digital cellular technology.
Digital compression	Techniques used to compress digital information so it can be sent using less bandwidth.
Digital data speed	This is the highest transmission speed of digital data service available to a subscriber. In some cases, the access line must be set up in a special way and/or dedicated for the subscriber. However some data lines are available on a "dial-up-as-needed" basis.
Digital Subscriber Loop (DSL)	A family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as "twisted copper pairs") into high-speed digital lines, capable of supporting advanced services such as fast Internet access and video-on-demand. ADSL (Asymmetric Digital Subscriber Line), HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL
Digital switched network (DSN)	A high-speed digital switched public network which allows access to a wide range of services such as telecommuting, videoconferencing, telemedicine, distance education and criminal identification at prevailing long distance rates and discounts.
Digitise	The way to convert analogue signals to digital form.
Dual-mode handset	Mobile phone that switches from analogue to digital or from land based to satellite or from cordless to cellular.
Enhanced Data rates for Global Evolution (EDGE)	An enhancement to the GSM and TDMA wireless communications systems that increases data throughput to 384 Kbps.

Term	Definition
Extranet	A network using Internet protocols, that allows external organisations (eg customers or suppliers) access to selected internal data. Essentially it is an Intranet (see Intranet), which gives external users restricted access (often password protected) to information through the firewall (see firewall)
Fibre optics transmission system (FOTS)	A system which uses glass fibres the size of human hairs through which modulated lightwave signals, generated by a laser or LED are transmitted. By changing the patterns of light sent through the lines, information is transmitted. These signals are then demodulated back into electrical signals by a light-sensitive receiver. Fibre optics generally allow for a much greater speed and bandwidth than transmitting over regular wires, microwave or satellite transmission methods.
File Transfer Protocol (ftp)	The process for transferring binary files across a network
Firewall	A secure gateway limiting access in and out of an internal computer network, such as an Intranet. A combination of settings on computer hardware, and software on computer servers, denies access to unauthorised users.
Fixed radio access	Fixed link telecoms service that connects the network to the consumer's premises by radio instead of copper line or fibre
Flat rate service	A service provided at a fixed monthly charge regardless of usage.
Frame relay	Packet switched data service (see packet service) providing for the interconnection of Local Area Networks (LANs) and access to host computers at higher speeds (up to 2 Mbit/s) than those provided by an X.25 service
Frequency	The number of repetitions per second of a complete waveform normally expressed in Hertz (Hz).
Gateway	A facility which adapts signals and messages of one network to the protocols and conventions of other networks or services.
General Packet Radio Service (GPRS)	Is the next step towards third-generation personal multimedia services, providing the platform for mobile data networking services. It will support mobile connections to IP networks forming a seamless gateway for Internet integration.
General Tariff	The official published rates and rules provided by a telecommunications common carrier.
Geostationary satellite	A satellite in a geosynchronous earth orbit (GEO) 22,300 miles above the earth, at a precisely timed speed and path to position it over a fixed location within a narrow band of the earth. From the earth, the satellite appears to be stationary. Communications satellites are geostationary satellites.
Global System for Mobile Communications (GSM) 1	A digital cellular phone technology based on TDMA (Time Division Multiple Access) that is the predominant system in Europe, but is also used around the world. Operating in the 900MHz and 1.8GHz bands in Europe and the 1.9GHz PCS band in the U.S., GSM defines the entire cellular system, not just the air interface (TDMA, CDMA (etc)). GSM phones use a Subscriber Identity Module (SIM) smart card that contains user account information. GSM provides a short messaging service (SMS) that enables text messages up to 160 characters in length to be sent to and from a GSM phone. It also supports data

Term	Definition
	transfer at 9.6 Kbps to packet networks, ISDN and POTS users.
Groupware	Software which allows several users to collaborate sharing information. Lotus Notes is one of the most common packages.
Handshaking	In communications, a predefined exchange of signals or control characters between two devices or nodes that sets up the conditions for data transfer or transmission.
High Rate Digital Subscriber Loop (HDSL)	Provides a symmetric bi-directional high-speed communication service over copper wires, up to T-1 (A 1.544 Mbps point-to-point dedicated, digital circuit provided by the telephone companies. The monthly cost is typically based on distance) speeds in each direction over a maximum distance of seven kilometres.
High speed	Refers to data communications systems operating at speeds above 9,600 bits per second.
HyperText Transfer Protocol (http)	The protocol used to transfer information across the WWW. It indicates that information is encoded in HyperText Mark Up Language (html).
i-Mode	A packet-based information service for mobile phones from NTT DoCoMo (Japan). i-Mode provides Web browsing, e-mail, calendar, chat, games and customised news. It was the first smart phone system for Web browsing and grew very quickly after its introduction in 1999. i-Mode is a proprietary system that uses a subset of HTML, known as cHTML, in contrast to the global WAP standard which uses a variation of HTML, known as WML. The i-Mode transfer rate is 9600 bps, but is expected to increase to 384 Kbps in 2001, using W-CDMA.
Independent Service Provider (ISP)	Entities which provide telecommunications services over fixed or mobile networks, or services with a telecommunication service component, to the public at large but do not own or operate telecommunications networks.
Indirect Access	a situation where a customer contracts to buy a telecommunication service from an operator to which the customer is not directly connected, and where the second operator pays the first operator for the use of that connection.
Integrated Services Digital Network (ISDN)	An international telecommunications standard for transmission of voice and data over dial-up lines running at 64 Kbps. It allows sharing of multiple devices on a single line (eg phone, computer, fax). Two B channels are for voice and data and one D channel is used for control as out of band signalling allowing special features. Basic Rate Interface (BRI or ISDN 2) provides two B channels at 64 Kbps each, and one D channel at 16 Kbps. Primary Rate Interface (PRI) provides two 32 Kbps B channels, plus a D channel at 16 Kbps.
Intelligent Agent	A piece of software using artificial intelligence techniques that operates autonomously using a particular set of rules. Commonly used to roam the Internet and search out information, or to filter incoming messages for items of interest.
Interactive Services	This term covers two forms of interactivity. The first is where viewers use the remote control to click to applications, which are included in the broadcast stream. The second form of interactivity is where the modem is used to communicate with a remote server.

Term	Definition
Interconnection	The physical and logical connection of two operators' networks thereby allowing customers of one system to connect with customers of the other, or to access services provided from the other system.
Interconnection Directive	An EU Directive which came into effect from January 1995, setting rules for, amongst other things, who has rights and obligations to interconnect and the terms on which it should take place.
Internet	The global 'network of networks', utilising the TCP/IP protocol for communications. Routing of traffic through the WWW is based on routers and routing protocols. The service is provided by Internet Service Providers (ISP), which establish points-of-presence (POP) for dialling into the network.
Internet Protocol (IP)	The IP part of the TCP/IP protocol, which routes a message across networks. Every entity on the Internet has a unique IP address for purposes of routing.
Internet Protocol version 6 (IPv6)	IPv6 is sometimes also called the Next Generation Internet Protocol or IPng. Internet Protocol Version 6 is abbreviated to IPv6 (where the "6" refers to it being assigned version number 6). The previous version of the Internet Protocol is version 4 (referred to as IPv4).
Internet Service Provider (ISP)	Companies that provide a service for accessing the Internet by establishing a POP, and allowing dialling into the network, or through fixed, leased-line connections. An ISP establishes agreements with other ISPs to allow the free flow of data between networks globally. Common services provided include email, FTP, NEWS, DNS, Authentication, Authorisation and billing, as well as HTTP
Interoperability	The technical features of a group of interconnected systems (includes equipment owned and operated by the customer which is attached to the public telecommunication network) which ensure end-to-end provision of a given service in a consistent and predictable way.
Intranet	An internal Internet – ie an internal network running using TCP/IP. Most intranets are connected to the Internet, and use firewalls to prevent unauthorised access.
Leased line	A private communication channel leased from the common carrier. It is usually a dedicated fixed-route link (e.g. point-to-point frame relay).
Line	A communications channel. Also called a circuit, trunk or facility. It often refers to access to the public switched telephone network (e.g., residence line, individual business line).
Local Area Network (LAN)	The most common way of connecting computers in a small area (typically inside a building or organisation) for sharing databases and communication facilities. The two most common versions are Ethernet and Token Ring. Implementation is based on coaxial cables or plain wires. Speed achieved ranges from 10 Mbps to 100 Mbps.
Local loop	A communication line between the customer and the local central office. The line is usually a two wire copper line for POTS. The expansion of services to the customer requires higher bandwidth and the utilisation of the local loop for the transmission of multimedia has been a source for substantial development

Term	Definition
	work such as HDSL, ISDN and other standards.
Local Loop Unbundling	Non-incumbent operators will be able to 'own' access to the network connection between the customers' premises and the local exchange (generally, the digital local exchange), which is usually a loop comprising of two copper wires. The customer would then be able to choose which supplier to provide services, and may cease to use the incumbent.
Local measured service (LMS)	A pricing structure for local calls which requires customers to pay according to usage, rather than simply paying a flat monthly fee.
Local multipoint communication systems (LMCS)	A wireless service capable of carrying basic and advanced communication services such as "wireless" cable TV, high speed Internet access, video conferencing and various other multimedia programming.
Loop start	In telephony, a local loop that signals an off-hook condition by allowing data communications current flow between the tip and ring conductors. Loop start is common for single line telephones.
Low speed	Data communications systems operating at speeds of less than 2,400 bits per second (bps). (See high speed, medium speed.)
Managed (private) network	The provision of all the necessary services to ensure that the owner or user of a private network is freed from all aspects associated with its operation and use, other than as a user of the services provided by the network.
Messaging Service	A service enabling customers to exchange messages with each other through 'mailboxes' embedded in network equipment. Both voice and text messaging services are available.
Metropolitan Area Network (MAN)	A network in a metropolitan area, usually encircling it or connecting a large proportion of the population
Microwave transmission system	A high-capacity transmission system that sends information using high-frequency radio signals called microwaves. Originally, microwave systems offered only analogue transmission. Today, microwave systems can be upgraded to digital.
Mobile communications	A wireless form of communication in which voice and data information is sent and received via microwaves. Mobile communications allow individuals to talk to each other and/or send and receive data while moving from place to place.
Mobile Network Operator (MNO)	Organisation with a license to operate a mobile network
Mobile satellite services (MSS)	Mobile satellite services (MSS) refers to networks of communications satellites intended for use with mobile and portable wireless telephones. There are three major types: AMSS (aeronautical MSS), LMSS (land MSS), and MMSS (maritime MSS). A telephone connection using MSS is similar to a cellular telephone link, except the repeaters are in orbit around the earth, rather than on the surface. MSS repeaters can be placed on geo-stationary, medium earth orbit (MEO), or low earth orbit (LEO) satellites. Provided there are enough satellites in the system, and provided they are properly spaced around the globe, an MSS can link any two wireless telephone sets at any time, no matter where in the world they are located. MSS systems are interconnected

Term	Definition
	with land-based cellular networks.
Modem	A device that converts digital computer output to signals suitable for transmission over switched communications channels. It is one of the most important devices in data communications and is widely used in home computers to access the Internet and other dial-up services. It stands for MODulator/DEModulator.
Multiplexing	A way of combining several communication channels into one.
Multipurpose Internet Mail Extension (MIME)	A standard format for encoding files sent over the Internet. It can handle special character codes and symbols, and is routinely used for sending email attachments.
Narrowband	A service or connection allowing only a limited amount of information to be conveyed, such as for telephony. It compares with broadband which allows a considerable amount of information to be conveyed
National Regulatory Authority	The body or bodies, legally distinct and functionally independent of the telecommunications organisations, charged by a Member State with the elaboration of, and supervision of compliance with, telecoms authorisations
Near video-on-demand (NVOD)	The transmission of a film or TV programme over several channels at the same time but with a short delay (eg of 15 minutes) between the screening on each successive channel to give the customer a choice of viewing times. It aims to approach the functionality of pure video-on-demand which allows the customer complete control over the time the film is watched.
Network	A group of nodes (voice or data terminals) interconnected by a series of communications channels; via an assortment of modems, multiplexers, and transmission equipment.
Network Architecture	The design of a communication system reflecting the underlying structure for access methods, as well as fundamental network issues such as redundancy, fall back mode, alternate routing, survivability, and recovery from different failure modes.
Network Computer	A desktop computer that provides connectivity to intranets and/or the Internet. It is designed as a "thin client" that downloads all applications from the network server and obtains all of its data from and stores all changes back to the server. The network computer (NC) is similar to a diskless workstation and does not have floppy or hard disk storage.
Network Embedded Services	Services provided by a network operator from within its network with service level advantages over customer premises equipment. Due to the network efficiencies that arise, service providers who are not network operators or owned by network operators would not ordinarily be able to compete in the provision of such services.
Network Operator	The licensed operator of a telecommunication network which provides, amongst other things, network services.

Term	Definition
Node	A point where one or more functional units interconnect transmission lines (ISO). A physical device that allows for the transmission of data within a network; an end point of a link or a function common to two or more links in a network, typically includes host processors, communications controllers, cluster controllers, and terminals.
Open Access	Where a network operator grants access to the network to any service provider who may reasonably request it.
Open Network Provision (ONP) Committee	A standing committee of member state national regulatory authorities and others (EC, PTOs and user representatives), which supervises the European Commission's development of the ONP programme. This covers measures aimed at ensuring that services which are not yet required to be liberalised in all member states are regulated in such a way as to guarantee their supply in accordance with certain standards of objectivity, transparency and non-discrimination.
Packet (Switched) Service	A service involving the transmission of data in the form of discrete blocks (packets) of information and, if necessary, the assembly and disassembly of data in this form.
Personal Communications Network (PCN)	High capacity digital cellular networks.
Personal Digital Communications (PDC)	A digital cellular phone system widely used in Japan. Based on TDMA, it transmits in the 810-826MHz and 1477-1501MHz bands. PDC is a 2G wireless system.
Plain Old Telephone Service (POTS)	The traditional telephone system and its services.
Point of Presence (PoP)	Used to indicate an access point to an ISP. Most providers provide PoPs on a national or international basis, giving clients access to the Internet for the price of a local telephone call.
Portability	Refers to telephone number portability between operators, which enables a customer to transfer from one operator to a second operator and retain the same number provided the customer remains at the same address.
Private Automatic Branch Exchange (PABX)	The telephone system at the customer's premises, used for internal and external calls. Modern PABXs are all digital and provide in-house services such as call forwarding.
Private Circuits	Point-to-point circuits for customers exclusive use covering speech, data or image communications. Also known as leased circuits.
Private Networks	A telecommunications network on the customer's side of a network termination point, which forms the boundary between a public telecommunication system run under a PTO licence and the user's network. At its simplest, a private network may consist of just one handset and a length of wiring.
Protocol	Formal set of rules governing the format, timing, sequencing, and error control of data exchange across a data network. May be public or proprietary.

Term	Definition
	of data exchange across a data network. May be public or proprietary.
Public switched telephony network (PSTN)	A network established and operated by a telecommunications company for the specific purpose of providing services over the telephone network to the public.
Public Telecommunications Operator (PTO)	Network operators providing services to the public with powers granted by the relevant statutory body to enable them to install their systems on public and private land, property etc.
Radio Fixed Access (RFA)	Technology that enables operators to provide customers with direct connection to the public telecommunications' network via a fixed radio link from the home or premises to the local exchange, instead of providing a 'wired' connection using copper cables or optical fibre.
Radio Spectrum	The range of frequencies used for broadcasting fixed and mobile telephony for radio, terrestrial television and satellite television
Remote Access	1) The ability of transmission points to gain access to a computer at a different location. 2) A private branch exchange (PBX) feature that allows a user at a remote location to access PBX features by wide-area telecommunications services (WATS) lines. Individual authorisation codes are often required for remote access.
Satellite	A device sent up into space used to relay telecommunications signals between two or more points. The main advantage of satellites is the relatively low cost of the earth station equipment needed to link up with satellites compared to stringing wire or fibre optic cable over very long distances.
Satellite communications	The use of geo-stationary orbiting satellites to relay transmissions from one sending earth station to another, or multiple other, earth stations.
Search Engine	A facility that allows Internet information to be searched using an index.
Service Provider (telecoms)	Provider of telecommunication services, or services with a telecommunication service component, to third parties whether over its own network or otherwise
Shared Access	An arrangement where two operators provide services over the same loop. One of the operators will be employing the lower frequency portion of the loop to provide voice telephony and the other will be using the higher frequencies to provide high-speed data services.
Short Message Service (SMS)	Is a wireless bearer service initially used in paging systems and now available on GSM. It is based on Time Division Multiple Access (TDMA) techniques and allows the exchange of short messages over digital control channels.
Significant Market Power (SMP)	The Significant Market Power test is set out in various European Directives, including the Interconnection Directive, the Amending Leased Lines Directive and the Revised Voice Telephony Directive. It is used by the NRA's to identify those operators who must meet additional obligations under the relevant directive. It is not an economic test, rather it requires a consideration of the factors set out in the test within a specified market.

Term	Definition
Smart phone	A digital cellular phone that has text messaging, Web access and other data services along with voice.
Spamming	The sending of bulk/junk emails to individuals and newsgroups
Splitter	Device which separates a local loop into two independent channels, so that different services can be run on it without interference
Station	One of the input or output points of a communications system.
Subscriber Identity Module (SIM)	A smart card inserted into GSM phones that contains the telephone account information. SIM cards can also be programmed to display custom menus on the phone's readout.
Switched	Relates to a telecommunications network comprising at least one exchange and capable of routing signals and messages from one line to all other lines comprised in the network.
Synchronous Digital Hierarchy (SDH)	A method of telephony transmission using digital techniques where the data is packed in containers which are synchronised in time enabling relatively simple modulation and demodulation at the transmitting and receiving ends. The technique is used to carry high capacity voice circuits over long distances.
Tariff	A document filed by a regulated telephone company with the state public utilities commission in order to establish rates charged for services offered. The tariff defines the service and the rate.
Telecommunications	Conveyance of speech, music and other sounds, visual images or signals by electric, magnetic, electro-magnetic, electro-chemical or electro-mechanical means
Telecommunications network	Transmission systems and, where applicable, switching equipment and other resources which permit the conveyance of signals between defined termination points by wire, by radio, by optical or by other electromagnetic means.
Teletext	A one-way information retrieval service normally provided by a cable TV channel with a special decoder that allows page selection from a computer.
Textphone	A device used by hearing and speech impaired people to communicate over networks in typed text rather than speech (ie the device is needed at both ends of the call).
Time Division Multiple Access (TDMA)	A multiple access technique where multiple users of a radio channel share the channel by time usage. Messages are always digital and transmitted in frames. Transmission time slots are controlled by a master station either from a reference frame or from an echo of transmitted frames re-clocked by the master station. Used as a multiple access technique in satellite and cellular telephone systems.
Time of day routing	The routing of calls to different destinations depending on the time of day or the day of the week,

Term	Definition
	according to instructions held in the network that relate to a particular customer. For example, an organisation may wish to advertise a single telephone number but have incoming calls directed to different locations at different times. Such routing usually requires use of a number translation service.
Total Access Communication System (TACS)	An analogue cellular phone system deployed mostly in Europe. It was modelled after the AMPS system in the U.S. In the U.K., ETACS (Extended TACS) transmits in the 871-904/916-949MHz band. International TACS (ITACS) and International ETACS (IETACS) are versions that operate outside the U.K. Narrowband TACS (NTACS) operates in the 860-870/915-925MHz band, and by using a narrower channel spacing, delivers more channels in the same amount of spectrum.
Transport or Transmission Control Protocol/Internet Protocol (TCP/IP)	The basic protocol of the Internet. TCP controls data transfer and the IP controls the routing. TCP/IP is a connectionless protocol system designed to work with a very wide assortment of computer equipment. While it is not formally standardised, it is widely used and highly developed, and therefore, very popular.
Tromboning	Sending traffic which comes from a fixed and is destined for a mobile network in the same country via a second country to take advantage of beneficial accounting rates for termination of international traffic on mobile networks
Universal Mobile Telecommunication System (UMTS)	The next generation of mobile communications system which will provide an enhanced range of multimedia services (such as high speed Internet access). Known as 'third generation' or '3G', these networks are expected to enter service in 2002/3 using radio spectrum in the 2GHz bands.
Universal Service	The basic level of telecommunications services which should be available to all customers.
Very High Speed ADSL (VHSADSL)	An ADSL service at speeds of 52 Mbps. Distances are limited to a few hundred meters.
Very Small Aperture Terminal (VSAT)	Digital satellite data network with small antenna diameter
Videoconferencing	Camera, microphone and monitors allow the transmission of visual images over a high speed link.
Virtual Private Network (VPN)	A private network that is configured within a public network. For years, common carriers have built Virtual Private Networks that appear as private national or international networks to the customer, but physically share backbone trunks with other customers. Virtual Private Networks enjoy the security of a private network via access control and encryption, while taking advantage of the economies of scale and built-in management facilities of large public networks. Today, there is tremendous interest in Virtual Private Networks over the Internet, especially due to the constant threat of hacker attacks. The Virtual Private Network adds that extra layer of security.
Webcasting	Broadcasting live video and audio over the Internet. Often used for conferences, where the images and sound are received over the phone line to the remote viewers computer.

Term	Definition
Wide Area Network (WAN)	A network allowing the interconnection and intercommunication of a group of computers over a long distance
Wideband-CDMA (WCDMA)	A 3G technology that increases data transmission rates in GSM systems by using the CDMA air interface instead of TDMA. In the ITU's IMT-2000 3G specification, W-CDMA has become known as the Direct Sequence (DS) mode.
Wireless Application Protocol (WAP)	WAP is a new protocol for delivering data over mobile telephone systems: it allows cellular phone sets and other mobile hand-set systems to access WWW pages and other wireless services.
Wireless communication	Sending signals without a physical connection using technologies such as cellular telephony or microwaves.
Wireless Generations	<p>The first generation (1G) of mobile cellular communications systems were analogue such as AMPS, TACS and NMT. Primarily used for voice, they were introduced in the late 1970s and early 1980s. Starting in the 1990s, second generation (2G) systems used digital encoding and include GSM, TDMA and CDMA. Except for GSM's SMS text message service, 2G systems have been used mostly for voice. Between now and the third generation (3G), which is expected in the 2003-2005 timeframe, a variety of 2G+, or 2.5G, techniques are being employed to improve the speed of data for enhanced e-mail and Internet access. These technologies include packet enhancements for GSM (GPRS), improved data rates for GSM and TDMA (EDGE) and improved data rates for CDMA (IS-95B and HDR).</p> <p>The third generation (3G) is defined by the ITU under the IMT-2000 global framework and is implemented regionally in Europe (UMTS), North America (cdma2000) and Japan (NTT DoCoMo). 3G is designed for high-speed multimedia data and voice. Its goals include high-quality audio and video and advanced global roaming, which means being able to go anywhere and automatically be handed off to whatever wireless system is available (in house phone system, cellular, satellite, etc.).</p>
Wireless LAN (WLAN)	An implementation of a LAN with no physical wires, using wireless transmitters and receivers. Used for interim periods of relocation and where wiring is very expensive.
World Wide Web (WWW)	The collection of pages in html which reside on web servers. Although www and the internet are different, the terms are increasingly becoming used interchangeably.
X.25	A widely available, low speed, packet switched data service operating at speeds below those offered by Frame Relay.

1.3 Internet for R&D

Term	Definition	Source
Acceptable use policy (AUP) (=Conditions of Use (COU))	AUP refers to the definition of what type of traffic or use is allowed on a network infrastructure.	Aiken 2000, p. 93
Applied research	Applied research is original investigation undertaken in order to acquire new knowledge. It is directed primarily towards a specific practical aim or objective.	OECD 1994, p. 69 (Frascati Manual)
Bandwidth	“The difference between the highest and lowest frequencies of a transmission channel (the width of its allocated band of frequencies). The term is often used erroneously to mean → data rate or capacity - the amount of data that is, or can be, sent through a given communications circuit per second.”	http://foldoc.doc.ic.ac.uk/foldoc
Basic research	“Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.”	OECD 1994, p. 68 (Frascati Manual)
Bibliometrics	Statistics on scientific publications	
Broadband	“A transmission medium capable of supporting a wide range of frequencies, typically from audio up to video frequencies. It can carry multiple signals by dividing the total capacity of the medium into multiple, independent bandwidth channels, where each channel operates only on a specific range of frequencies.”	http://foldoc.doc.ic.ac.uk/foldoc
Business enterprise sector (within OECD R&D statistics)	“The business enterprise sector includes: - all firms, organisations and institutions whose primary activity is the market production of goods or services (other than higher education) for sale to the general public at an economically significant price; - the private non-profit institutions mainly serving them.”	OECD 1994, p. 49 (Frascati Manual)
Citation	“A citation is a footnote or reference published with a scholarly journal article.”	Institute for Scientific Information (ISI) http://www.isinet.com/isi/search/glossary/index.html
Citation index	“A citation index is a bibliographic tool in print or electronic format that lists all referenced or cited source items published in a given time span. The tool is a useful method for tracking the historical development - backwards and forwards in time - of an idea or given topic within the literature published in a wide selection of journal titles. What distinguishes it from other indexes is that it includes all the cited references (footnotes or bibliographies) published with each article it covers.”	Institute for Scientific Information (ISI) http://www.isinet.com/isi/search/glossary/index.html

Term	Definition	Source								
Collaboratory	<p>The OECD provides two different meanings:</p> <p>1) Computing and communications system: “The “collaboratory” is an integrated, tool-oriented computing and communications system which supports scientific collaboration. It allows researchers to concentrate on the purpose and results, rather than the mechanics, of communication. It has been defined as “a centre without walls in which ... researchers can perform their research without regard to geographic location, interacting with colleagues, accessing instrumentation, sharing data and computational resources, and accessing information in digital libraries” (National Research Council, 1993). It is an environment in which networked facilities permit all of a scientists’ instruments and information to be virtually local, whatever their physical location.”</p> <p>2) Research group: “This is typically a large, unified, cohesive, co-operative research group that is geographically dispersed, yet co-ordinated as if it were at one location and under the guidance of a single director. It provides access to colleagues and to equipment, software and databases that are traditionally part of laboratory organisation, without regard to geography.”</p>	<p>OECD 1998, p. 44</p> <p>OECD 1998, p. 19</p>								
Data rate (=Transmission capacity)	<p>Number of bits that can be transmitted by a communications channel or a computing or storing device; units:</p> <table border="0"> <tr> <td>Kilobits/s</td> <td>1.000 Bit/s</td> </tr> <tr> <td>Megabits/s</td> <td>1.000.000 Bit/s</td> </tr> <tr> <td>Gigabits/s</td> <td>1.000.000.000 Bit/s</td> </tr> <tr> <td>Terabit/s</td> <td>1.000.000.000.000 Bit/s</td> </tr> </table>	Kilobits/s	1.000 Bit/s	Megabits/s	1.000.000 Bit/s	Gigabits/s	1.000.000.000 Bit/s	Terabit/s	1.000.000.000.000 Bit/s	
Kilobits/s	1.000 Bit/s									
Megabits/s	1.000.000 Bit/s									
Gigabits/s	1.000.000.000 Bit/s									
Terabit/s	1.000.000.000.000 Bit/s									
Data warehouse	<p>“A data warehouse is a “historical archive” of all the data relating to an organisation’s activities and business. It must be chronological, non-volatile, easily accessible and decisional support-oriented. It normally collects, correlates and integrates the information concerning the different processes coming from different applications and their databases.”</p>	EITO 2001, p. 211								
Digital library	<p>“The term “digital library ” does not refer to a library in the conventional sense of a central repository of information. Rather, the term encompasses a broad range of methods of storing materials in electronic format and manipulating large collections of those materials effectively.”</p>	National Science Board 2000, p. 9-30								
Electronic publishing (e-publishing)	<p>Publishing of research results on electronic media as Compact Disk - Read Only Memory (CD-ROM) or Digital Video Disk (DVD) or the Internet. Resulting publication forms are e-books (electronic books) or e-journals (electronic journals).</p>									

Term	Definition	Source
Experimental development	“Experimental development is systematic work, drawing on existing knowledge gained from research and practical experience, that is directed to producing new materials, products and devices; to installing new processes, systems and services; or to improving substantially those already produced or installed.”	OECD 1994, p. 70 (Frascati Manual)
Géant	Project co-ordinated by DANTE of Cambridge, U.K., and funded by the European Commission out of its IST programme that will interconnect the national → research networks with a transmission capacity of 2.5 Gigabit/s.	
Gross domestic expenditure on R&D (GERD)	GERD is total expenditure on R&D within a statistical unit performed on the national territory during a given period.	OECD 1994, p. 101 (Frascati Manual)
Gross national expenditure on R&D (GNERD)	GNERD is total expenditure on R&D financed by institutions of a country during a given period. It includes R&D performed abroad but financed by national institutions or residents; it excludes R&D performed within a country but funded from abroad.	OECD 1994, p. 101 (Frascati Manual)
Government sector (within OECD R&D statistics)	“The government sector is composed of: <ul style="list-style-type: none"> - all departments, offices and other bodies which furnish but normally do not sell to the community those common services, other than higher education, which cannot otherwise be conveniently and economically provided and administer the state and the economic and social policy of the community. (Public enterprises are included in the business enterprise sector.) - NPIs [non-profit institutions] controlled and mainly financed by government.” 	OECD 1994, p. 55 (Frascati Manual)
Grid	Distributed computing infrastructure for advanced science and engineering. A Grid needs Grid technologies, i.e. the protocols, services and software development kits needed to enable flexible, controlled resource (data, computers, sensors and other resources) sharing on a large scale.	Foster 2000 http://www.nature.com/nature/webmatters/grid/grid.html
Higher education sector (within OECD R&D statistics)	“This sector is composed of: <ul style="list-style-type: none"> - All universities, colleges of technology, and other institutions of post-secondary education, whatever their source of finance or legal status. It also includes all research institutes, experimental stations and clinics operating under the direct control of or administered by or associated with higher education establishments.” 	OECD 1994, p. 59 (Frascati Manual)
Hypertext	“... text with links to further information, on the model of references in a scientific paper or cross-references in a dictionary. With electronic documents, these cross-references can be followed by a mouse-click, and with the World-Wide Web, they can be anywhere in the world.”	CERN http://public.web.cern.ch/Public/ACHIEVEMENTS/WEB/whatis.html

Term	Definition	Source
Innovation	→ technological product innovation, technological process innovation	
Institutional Research Network (IRN)	→ research network	
Intellectual Property	<p>“Intellectual property, very broadly, means the legal rights which result from intellectual activity in the industrial, scientific, literary and artistic fields. Countries have laws to protect intellectual property for two main reasons. One is to give statutory expression to the moral and economic rights of creators in their creations and such rights of the public in access to those creations. The second is to promote, as a deliberate act of Government policy, creativity and the dissemination and application of its results and to encourage fair trading which would contribute to economic and social development.”</p> <p>“Intellectual property is divided into two categories: Industrial property, which includes inventions (patents), trademarks, industrial designs, and geographic indications of source; and Copyright, which includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Rights related to copyright include those of performing artists in their performances, producers of phonograms in their recordings, and those of broadcasters in their radio and television programs.”</p>	<p>WIPO, p. 3</p> <p>WIPO http://www.wipo.org/about-ip/en</p>
Intellectual Property Rights (IPR)	“Generally speaking, intellectual property law aims at safeguarding creators and other producers of intellectual goods and services by granting them certain time-limited rights to control the use made of those productions. Those rights do not apply to the physical object in which the creation may be embodied but instead to the intellectual creation as such, ...”	WIPO, p. 3
Invention	'Invention' means a solution to a specific problem in the field of technology. An invention may relate to a product or a process. (→ patent)	WIPO, p. 13
Journal	“A serial or periodical usually devoted to a specific field or subset of scholarly knowledge. A few scholarly journals (such as Science or Nature) are multidisciplinary in their approach to a broad range of inter-related fields of investigation. An article appearing in a scholarly journal is composed of different elements including an author abstract and a bibliography of works cited or referenced in the article.”	Institute for Scientific Information (ISI) http://www.isinet.com/isi/search/glossary/index.html

Term	Definition	Source
National Research (and Education) Network (NRN, resp. NREN)	→ research network	
Network research	<p>Long-term basic research on network protocols and technologies. There are many types of network research that can be roughly categorised into 3 classes:</p> <ul style="list-style-type: none"> • research on network transport infrastructure (i.e., the physical, data link, network, and transport layers) • research on “middleware” (components as email gateways or directory services), • research on the real applications (e.g., e-commerce, education, health care, et c.), network interfaces, network applications (e.g., e-mail, web, file transfer, et c.), and the use of networks and middleware in a distributed heterogeneous environment 	Aiken 2000, pp. 91-92
Open-source software (free software)	“ ... software released under a licensing scheme authorising users to freely access the source code, modify it, compile it, use the resulting executable and redistribute the possibly modified code.”	Aigrain 2000, p. 113
Organisational innovation	<p>“Organisational innovation in the firm includes:</p> <ul style="list-style-type: none"> • the introduction of significantly changed organisational structures; • the implementation of advanced management techniques • the implementation of new or significantly changed corporate strategic orientations.” 	OECD 1997, pp. 36-37 (Oslo Manual)
Other supporting staff in R&D projects	Besides → researchers and → technicians other supporting staff can be included among → R&D personnel if they provide support to → R&D activities. The OECD lists especially: skilled and unskilled craftsmen, secretarial and clerical staff participating in R&D projects or directly associated with such projects.	OECD 1994, p. 87 (Frascati Manual)
Pan National Research Network (PNRN)	→ research network	

Term	Definition	Source
Patent	<p>“A patent is a document, issued, upon application, by a government office (or a regional office acting for several countries), which describes an invention and creates a legal situation in which the patented invention can normally only be exploited (manufactured, used, sold, imported) with the authorization of the owner of the patent. 'Invention' means a solution to a specific problem in the field of technology. An invention may relate to a product or a process. The protection conferred by the patent is limited in time (generally 15 to 20 years).”</p>	WIPO, p. 13
Peer review process	<p>Process applied to secure the quality of scientific → journals. Submitted articles are read and evaluated by outside referees which usually are experts on the topic(s) of research.</p>	
Preprint and reprint archive	<p>Specific form of electronic publication where scientific → papers are printed before (preprint) or after (reprint) publication in a scientific → journal. The original and most widely copied model is the Los Alamos physics preprint server (http://xxx.lanl.gov).</p>	
Research and (experimental) development (R&D)	<p>“Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.” R&D covers three activities: → basic research, → applied research and → experimental development Not included in R&D are activities in the areas of education and training, other related scientific and technological activities, other industrial activities, and administration and other supporting activities.</p>	OECD 1994, p. 29 (Frascati Manual)
Researcher (= scientist)	<p>“Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods, and systems, and in the management of the projects concerned.” The OECD lists the following occupations of the ILO International Standard Classification of Occupations (ISCO-88) as researchers: physical, mathematical and engineering science professionals, life science and health professionals, college, university and higher education teaching professionals, business professionals, legal professionals, archivists, librarians and related information professionals, social science and related professionals, research and development department managers. According to this classification → technicians and equivalent staff as well as → other supporting staff are not classified as researchers but as research personnel.</p>	OECD 1994, pp. 86, 162 (Frascati Manual)

Term	Definition	Source
R&D expenditure	<p>Expenditure spent on R&D within a statistical unit (intramural) or outside it (extramural), whatever the source of the funds.</p> <p>The expenditures can be current expenditures such as labour costs for R&D personnel and costs for purchases of materials, supplies and equipment to support R&D. They can also be capital expenditures on land, buildings, instruments and equipment used for R&D activities.</p> <p>On a national level → gross domestic expenditure on R&D and → gross national expenditure on R&D can be distinguished as well.</p>	OECD 1994, pp. 91-100 (Frascati Manual)
R&D personnel	<p>All persons employed directly on R&D, as well as those providing direct services such as R&D managers, administrators, and clerical staff (→ researchers, → technicians and equivalent staff, → other supporting staff).</p> <p>Excluded should be services and indirect support activities as specific services to R&D (such as central computer departments, libraries), the services of central finance and personnel departments, security, cleaning, maintenance, canteens, etc.</p> <p>The measurement of number as well as of R&D activities in full-time equivalents (person-years) is recommended.</p>	OECD 1994, pp. 79-90 (Frascati Manual)
Research network (RN)	<p>“... production network, and which supports various types of domain specific application research. This application research is most often used to support the sciences and education but can also be used in support of other areas of academic and economic endeavour.”</p> <p>Different types of RN:</p> <ul style="list-style-type: none"> • An Institutional Research Network (IRN) is a network that supports universities, institutes, libraries, data warehouses, and other ‘campus’ like networks. • National Research Networks (NRNs), such as the Netherland’s Gigaport or Germany’s DFN networks, support IRNs or affinity based networks. • Pan National Research Networks (PNRNs) interconnect and support NRNs (e.g. Dante’s Ten-155 and the NORDUNET). 	Aiken 2000, p. 92
Scientific papers	<p>Papers are defined as regular scientific articles, review articles, proceedings papers, and research notes. Letters to the editor, correction notices, and abstracts are not counted in commercially available → citation indexes.</p>	Institute for Scientific Information (ISI) http://www.isinet.com/demos/esi/fs-open.htm
Scientometrics	<p>Statistics on the output of scientific research, sometimes also used for labelling the research on quantitative aspects of science; it is in the latter case the quantitative arm of the Science of Science, of Scientific Communication Studies and of Science Policy Studies</p>	

Term	Definition	Source
Technicians and equivalent staff	“Technicians and equivalent staff are persons whose main tasks require technical knowledge and experience in one or more fields of engineering, physical and life sciences, or social sciences and humanities. They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods, normally under the supervision of researchers. Equivalent staff perform the corresponding R&D tasks under the supervision of researchers in the social sciences and humanities.”	OECD 1997, p. 86 (Oslo Manual)
Technological process innovation	Technologically new (to the firm) or significantly improved process that has been used within a production process.	OECD 1997, p. 31 (Oslo Manual)
Technological product innovation	Technologically new (to the firm) or significantly improved product (good or service) that has been introduced on the market.	OECD 1997, p. 31 (Oslo Manual)
Transmission Control Protocol / Internet Protocol (TCP/IP)	Set of rules for the computer communication over the Internet	CERN http://public.web.cern.ch/Public/ACHIEVEMENTS/WEB/behaviour.html
Virtual Private Network (VPN)	Virtual Private Network (VPN) is used in the classical sense for a network tunnelled within another network (e.g. IP within IP, ATM VCs, etc.), and it is not necessarily a security based network.	Aiken 2000, p. 93

Bibliography

Aigrain, Philippe (2000): Open-Source Software for Research, in: Wouters, Paul; Schröder, Peter (Ed.): Access to publicly financed research. The Global Research Village III, Amsterdam 2000. Background papers. Amsterdam, pp. 113-116.

Aiken, Robert A. (2000): New Frontiers for Research Networks in the 21st Century, in: Wouters, Paul; Schröder, Peter (Ed.): Access to publicly financed research. The Global Research Village III, Amsterdam 2000. Background papers. Amsterdam, pp. 89-102.

European Information Technology Observatory - EITO (2001). Frankfurt am Main.

European Organization for Nuclear Research - CERN: <http://public.web.cern.ch/Public/Welcome.html>

Foster, Ian (2000): Internet Computing and the Emerging Grid, in: nature web matters, 7 December 2000. <http://www.nature.com/nature/webmatters/grid/grid.html>

Institute for Scientific Information - ISI: <http://www.isinet.com>

National Science Board (2000): Science and Engineering Indicators 2000. Volume 1. Arlington, VA.

OECD (1998): The Global Research Village: How information and communication technologies affect the science system. (<http://www.oecd.org/dsti/sti/sti/scs/prod/global.pdf>, also included as chapter 7 in OECD: Science, technology and industry outlook 1998. Paris 1998.)

OECD (1997): Proposed Guidelines for Collecting and Interpreting Technological Innovation Data: Oslo Manual. 2nd Edition. Paris.

OECD (1994): The Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys of Research and Experimental Development - Frascati Manual 1993. 5th Edition. Paris.

World Intellectual Property Organisation - WIPO: Intellectual property reading material. WIPO Publication No.476(E). <http://www.wipo.org/about-ip/en/ipworldwide/index.html>

1.4 Security and Trust Definitions

<i>Term</i>	<i>Definition</i>
Security and Privacy	The more accessible the site, the less citizens or visitors are obliged to provide personal information in order to easily download or upload material and responses
Communication infrastructure	The collection of hardware equipment and procedures (software, management) for transporting data needed by an application to deliver specified services to the users. Synonymous with information infrastructure.
Complex system	Collection of a large number of functional entities (equipment, procedures and humans) with a large number of interconnections among them.
Closed system	A system consisting of a known number of components or nodes, their characteristics both physical and as data sources or sinks, their location and their interconnections.
Open system	A system consisting of an unknown or partially known number of nodes or their characteristics both physical and as data sources or sinks. Connectivity is generally unknown or partially known.
Dependability	Property of a system that indicates its ability to deliver specified services to the user
Quality of service	The term (QoS) is used to measure the performance of data networks with respect to the transport of data.
Vulnerability	vulnerability of a system to a threat can be understood as a weakness or flaw in the system that eliminates or reduces its ability to deliver the specified services, or (in the context of critical infrastructures) is related to interdependencies between systems due to massive interconnections in systems-of-systems.

1.5 Education Definitions

<i>Term</i>	<i>Definition</i>
Trans-European network for electronic scientific communication (high-speed....)	A digital network for scientific communication among European researchers
Collaborate learning	Learning processes facilitated by collaboration between individuals or organisations.
Collaborate researching	Research facilitated by collaboration between individuals or organisations.

<i>Term</i>	<i>Definition</i>
World Wide Grid	Concept to facilitate collaboration between geographically dispersed teams in scientific disciplines
Virtual centre of excellence	Virtual network connecting researchers a.o. with specialized knowledge.
Campus networks	A digital network in e.g. a university campus
Innovative forms of learning	Effective, new learning forms e.g. e-learning.
Availability of teachers with IT-skills	Shortage of teachers with relevant IT skills makes it difficult to match demand and supply of IT skilled employees which might reinforce labour market bottlenecks.
Research networks	Collaboration between researchers, research teams or research institutions/departments.
E-learning	Software programs for learning specific topics, for creating digital learning sessions or digitally supported learning processes.
Digitally literate	A person who is IT skilled to a level that makes it possible for him/her to participate in work that involves the use of computers.
Literacy in the Information age	The ability to understand and use information. Literacy can be seen in relation to prose literacy, document literacy and quantitative literacy.
Life-long learning	Learning all life in working life and spare time - not only at school, universities etc.
Virtual schools, universities, education	Suppliers of education that only/primarily is based on e-learning.
IT skills	Skills that are relevant for using IT systems.
Distance learning	Learning where the pupil is geographically dispersed from the classes. Often web based learning.
Web based learning	Learning sessions distributed through the internet.

1.6 Work, Employment and Skills Definitions

<i>Term</i>	<i>Definition</i>
Labour force, active population	The sum of persons in work and unemployed persons.
Employment rate	The proportion of the population aged between 15 and 64 in work (EU convention, cf. EC: Employment in Europe 2000; US convention applied by US Bureau of Labor Statistics: total employment as % of population aged 16+). The employment rate can also be expressed in (→) full time equivalents.
Full time equivalents (FTE)	Another measure for the employment rate: dividing the total hours worked by the average annual number of hours worked in full-time jobs (and calculated as a proportion of total population aged between 15 and 64).

<i>Term</i>	<i>Definition</i>
Unemployment	Persons aged 15+ who are i) without work, ii) available to start work within the next two weeks and, iii) have actively sought employment at some time during the previous four weeks or have found a job to start later (definition according to the ILO – International Labour Organisation).
Unemployment rate	The proportion of unemployed persons aged between 15 and 64 of the active population of the same age.
Youth unemployment rate	The proportion of unemployed persons aged between 15 and 24 of the active population of the same age.
Long-term unemployment	Being unemployed for at least 12 months. The long-term unemployment rate are the long-term unemployed as a share of total active population.
Under-employment	Involuntary part-time working
Tax wedge	A micro-economic concept that refers to the difference between the total labour costs to firms and the net wages actually received by workers, thus measuring the burden of taxation on individual workers.
Implicit tax rate (ITR)	A macro-economic concept defined as the total amount of taxes on employed labour divided by compensation of employees. It measures the total burden of taxation and other charges in the economy or in individual sectors.
Disposable income	Net income plus received social and private transfers
Equivalent income	<p>In order to take account of differences in household size and composition in the comparison of income levels, the household's total income is divided by its "equivalent size", computed using the modified OECD equivalence scale: This scale gives a weight of 1.0 to the first adult, 0.5 to the second and each subsequent person aged 14 and over, and 0.3 to each child aged under 14 in the household.</p> <p>To calculate the share ratio, persons are first ranked according to their equivalent income and then divided into 5 groups of equal size known as quintiles. S80/S20 represents the share of the top 20% to that of the bottom 20%.</p>
Low income	The low income rate is measured in terms of the proportion of the population with equivalent income below 60% of the median equivalent in each country.
Employability	The possession of basic skills required to get a job.
Entrepreneurship	The required skills and mindset to start and/or run a business.
Labour productivity	Calculated either as GDP per person employed or as Gross Value Added per person employed. Usually GDP expressed in Purchasing Power Standard (EU15 = 100) is used. Person employed covers employees and self-employed. Labour productivity can also be expressed "per hour worked" (= GDP per hour worked).
Adaptability	The ability to cope with change, as individual workers and as enterprises.

<i>Term</i>	<i>Definition</i>
Telecommuting	<p>Working in one place on tasks in another. This can take place in real time (using continuous connections to simulate a virtual presence) or asynchronously (using sporadic transmission to exchange pieces of information. More specifically, the following organisational forms of telework can be distinguished:</p> <p>1) Permanent home-based telework: employees who spend more than 90% of their working time at home</p> <p>2) Alternating home-based telework: employees who spend at least one full working day but less than 90% of their working time at home</p> <p>3) Mobile telework: Frequent business travellers who work at least 10 hours per week away from home and the main place of work and use online communication links to their business when doing so</p> <p>4) Telework of self-employed: freelancers or self-employed whose main place of work is at home or who claim not to have a main place of work and who use ICT as a major means of exchange with their client(s)</p> <p>5) Supplementary telework: Type of home-based telework where employees do not spend regular working hours at home, but carry out additional tasks or only occasionally work from home</p>
Teleworking	Telecommuting
Flexible work	Working schemes giving the employee different options regarding the time and/or place of work rather than having strict working hours and places.
Telework-centre	An establishment that offers workplaces to employees of one or more organisations, or tele-mediated services to remote clients.
Freelancer	People who work mainly based on temporary contracts either for one or for several contractors
E-lancer	Freelancer who usually gets in touch with clients via the Internet, works as a teleworker and transfers work results via ICT networks
Virtualisation of labour markets	A labour market in which labour is – by analogy with eCommerce – just another commodity, traded freely ‘on the net’ like electronic products.
Virtual organisation	Temporary networks of individuals, small companies or parts of larger corporations that are set up for a specific purpose, mostly laid down in clearly defined goals. The network co-operates using ICTs, especially groupware and workflow systems. Although its individual components are largely autonomous, the virtual organisation operates a single ‘shop window’ to customers. Products and services are marketed in integrated form and under one brand.
e-work	The organisation and execution of work by actors in (partly or fully) virtual business communities. Alternatively, the term can also refer to specific new professions related to the internet and/or involving a high degree of ICT usage.

<i>Term</i>	<i>Definition</i>
High-tech sectors	Chemicals (NACE 24), mechanical and electrical engineering (NACE 29 and 31), office machinery (NACE 30), radio and TV (NACE 32), precision instruments (NACE 33), motor vehicles (NACE 34), other transport equipment (NACE 35), post and telecommunications (NACE 64), computing (NACE 72) and research and development (NACE 73). Eurostat definition (cf. EC: Employment Outlook 2000)
High-education sectors	Sectors with the highest share of workers with tertiary education, i.e. the following 8 NACE 2-digit sectors (in 1999): R&D, education, computers, manufacture of office machinery and computers, general business services, health and social services, activities of membership organisations and extra-territorial organisations (EC definition, Employment Outlook 2000)
Knowledge triangle	The combination of innovation, education and technology, describing the close relationship between skills and educational levels on the one hand and employment on the other.
ICT literacy	The possession of basic skills in operating digital information and communication technologies, e.g. the knowledge how to operate standard word processing programmes using a personal computer, how to use e-mail and how to retrieve information on the world wide web.
LFS (European Union Labour Force Survey)	Quarterly continuous survey by Eurostat, conducted in most European countries (the most notable exceptions being Germany and France). LFS delivers widely used and acknowledged standardised statistical data on employment and unemployment in Europe.

1.7 Social inclusion definitions

<i>Term</i>	<i>Definition</i>
Accessibility (of the Information Society, non-technically defined)	Relates to the concept of taking into account the different needs of the “end-users” with the overriding principle that all citizens should be participants in the Information Society. The concept is particularly relevant to the participation of people with disabilities and is related to the ‘Design for All’ concept.
“Bobby” approved site / “Bobby Test”	<p>A website that is interactive in a sense that designers interact with users who help them to identify the changes needed to enhance user friendliness, especially relevant for users with disabilities. The “Bobby” is a term used for this Web page authors’ tool. For example, a blind user will be aided by adding a sound track to a movie, and a hard-of-hearing user will be aided by a written transcript of a sound file on a Web page. “Bobby” will recommend that these be added if they do not already exist.</p> <p>The “Bobby Test” is an accessibility test provided on the Web by CAST (Centre for Applied Science and Technology), a non profit organisation which aims to expand the opportunities for people with disabilities through innovative development and application of technology.</p>

<i>Term</i>	<i>Definition</i>
Braille Display	Also known as “Dynamic Braille Display”. It uses, the Braille system, which is a universally used tactile method of writing for the blind, employing groups of dots to represent printed letters and numbers. The system's basic "Braille cell" consists of six raised dots grouped in different patterns to represent letters of the alphabet, numbers, punctuation signs, and certain speech sounds called contractions to be read by people who are blind, using their fingertips. The Braille display raises and lowers dot patterns on command from electronic device, usually a computer, resulting in a line of dynamic Braille (currently Braille displays range from one cell to an eighty cell line)
Community	A multidimensional term, denoting a group of people brought and maintained together by a collective, shared purpose, and shared interests and activities. Participating in communities is non-segmented, democratic, based on mutuality and free of coercion, while internal relations are not formally regulated and are based on the notion of fairness and justice. The members have a right to access appropriate information, services and facilities that such a group possesses. The advent of the Information Society presents some new opportunities as well as potential threats to communities.
Digital divide	This term is multidimensional in a sense that denotes the gap between individuals (citizens), groups of individuals, households, business establishments, geographic areas and countries with regard to access to and usage of information and communication technologies (ICTs), or the “Information Society”. At micro level, the main focus is on the differential among citizens and / or particular groups of citizens and / or communities in relation to their closeness to, and subsequently, their potential to benefit from the Information Society. The most relevant digitally “have nots” have already been identified: people with disabilities, people from generally disadvantaged background (e.g. unemployed), and people from ethnic minorities, with some overlapping between these categories. The majority of main underlying reasons behind digital divide at this level can be grouped under two broad headings – access and skills. The former relates to the level of country’s socio-economic and infrastructure development and its access-enhancing policies, coupled with the individual’s potential and motivation to access and participate in the Information Society. The latter relates to whether and to what degree are individuals equipped with relevant skills (i.e. skills in using various ICTs).
Design-for-All	Also referred to as “Universal design” is a concept / principle which seeks to take account of the needs of the maximum number of potential users of a product or service at the design stage. The aim is to achieve highest possible direct usage of and access to the ICTs for people with extremely varied abilities and circumstances, thus minimising the need for assistive devices and procedures, but nevertheless assuring that the design is at the same time compatible with assistive technologies. Although it has a particular relevance for people with disabilities, it has been recognised that products and services designed according to this principle are easier to use for everybody. Therefore, it is as much relevant for supporting diversity as it is for supporting any particular group of people.
Disadvantaged / Disadvantaged Groups in relation to the IS	This term can be used to describe any group which has to overcome some sort of barrier in order to obtain equality of access to ICT and/or to benefit from ICT. Disadvantage can be linguistic, gender, physical, cultural, economic, skills based, age, or a combination of some or all of these.

<i>Term</i>	<i>Definition</i>
Employability	This term unifies both health perspective and labour market perspective. The former refers to the promoting individual's well-being through sound health and safety practices and reintegrating and rehabilitating the groups of workers most at risk of exclusion such as older workers and physically impaired workers. The latter refers to individuals' possession of the skills and the existence of retraining opportunities in the socio-economic context needed to allow people to change / get jobs. The concept of employability is relevant to determine whether or not someone is employable in today's competitive marketplace and knowledge economy, and if rehabilitative training is necessary (e.g. after the spell of illness or occupational injury, to help people with disabilities prepare for, obtain and maintain employment).
Employment rate	The proportion of the population aged between 15 and 64 in work (EU convention, cf. EC: Employment in Europe 2000; US convention applied by US Bureau of Labor Statistics: total employment as % of population aged 16+). The employment rate can also be expressed in "full time equivalents" (FTE) . FTE means dividing the total hours worked by the average annual number of hours worked in full-time jobs (and calculated as a proportion of total population aged between 15 and 64).
Equivalent content	Digital contents are equivalent when both fulfil essentially the same function from the user perspective. The distinction on primary and equivalent content is also relevant in this area. In relation to people with disabilities, the equivalent content has to fulfil essentially the same function for the person with disability as the primary content does for the person without any disability. Thus the main emphasis is on providing equivalent information and making (digital) documents accessible to people with disabilities. Since text content can be displayed as synthesised speech, braille and visually displayed text we can distinguish between text equivalents (for graphic and audio information) and non-text equivalents (e.g. an auditory description of graphics, sign language translations).
Instrumental Activities of Daily Living (IADL)	Instrumental activities of daily living (IADL) are activities related to independent living (e.g. preparing meals, managing money, shopping or personal items, performing light or heavy housework, and using telephone). If a person has any difficulty performing an activity by himself or herself and without special equipment, or did not perform the activity at all because of health problems, and this condition is chronic, then the person can be categorised as having a limitation in that activity.
Limitation of activity	Refers to a long-term reduction in a person's capacity to perform the usual kind or amount of activities associated with his or her age group that has arisen due to a chronic condition. It can be operationalised by gauging limitations in ability to perform activities due to physical, mental, or emotional problems, limitations in daily activities and instrumental activities of daily living, leisure, education, work, and difficulty in walking or remembering.

<i>Term</i>	<i>Definition</i>
Less Favoured Regions (LFRs) / Objective 1 and 2	<p>This term refers to regions in the European Union which are lagging behind in terms of development or which are (in need of) undergoing (economic) restructuring. These are known as Objective 1 and Objective 2 status regions respectively.</p> <p>Objective 1 regions are those regions whose per capita GDP is less than 75% of the Community average, but also include Finnish and Swedish regions covered by the former Objective 6 (development of regions with an extremely low population density, the most remote regions (French overseas departments, the Canary islands, the Azores and Madeira</p> <p>Objective 2. There are four types of areas concerned: industrial, rural, urban, and areas dependent on fisheries. A total of 18% of the European population is covered by Objective 2. Each type of area must meet a certain number of criteria:</p> <ul style="list-style-type: none"> • Industrial areas <p>Eligible NUTS III level areas must meet the following three conditions:</p> <ul style="list-style-type: none"> • an unemployment rate above the Community average; • a higher percentage of jobs in the industrial sector than the Community average; • a decline in industrial employment. <ul style="list-style-type: none"> • Rural areas <p>Eligible NUTS III level regions must meet two of the following four criteria:</p> <ul style="list-style-type: none"> • A population density less than 100 inhabitants per km² or a rate of agricultural employment equal to or higher than double the Community average; • An unemployment rate higher than the Community average or a decline in the population. <ul style="list-style-type: none"> • Urban areas <p>Eligible areas must meet one of the following five criteria:</p> <ul style="list-style-type: none"> • a long-term unemployment rate above the Community average • a high level of poverty • acute environmental problems • a high crime rate • a low level of education <ul style="list-style-type: none"> • Areas dependent on fisheries <p>Eligible areas must have a substantial percentage of the population employed in the fishing industry and, at the same time, a significant reduction in employment in this sector.</p>

<i>Term</i>	<i>Definition</i>
Long-term unemployment	A spell of unemployment that is at least 12 months long
Mainstreaming (in relation to social inclusion of disabled into the IS)	The principle supporting a notion that social inclusion should be mainstreamed in all policies relating to the Information Society, while making specific references to people with disabilities as a group that is at risk from social exclusion, consistent with the view that social inclusion is best achieved by mainstreaming needs when creating all policies, rather than having just one policy specifically for this group, in isolation.
National poverty rate	The percentage of the population living below the poverty line determined by the country' authorities. It is usually an estimate based on household surveys.
Peripherality	This term is used to refer to regions which are geographically located on the perimeters of the European Union.
People with disabilities	<p>An umbrella term denoting people's health characteristics within the context of their individual life situation and environmental impacts. The term is based on the fact that disabilities are produced, reproduced and acquired as a result of the interaction of the individuals' health characteristics and contextual factors (broadly known as a social definition of disability).</p> <p>Medical definition for disability is also relevant for the purpose of survey questions and for the operationalisation of the concept defining a disability as a general term that refers to any long- or short-term reduction of a person's activity / capacity as a result of an acute or chronic condition.</p>
Physician	Graduate of any faculty or school of medicine working in the country in any medical field (practice, teaching, research).
Public expenditure on social security	Indicates the level of governments' intervention in relation to provide compensation for loss of income to the vulnerable groups (unemployed, disabled, elderly, the children). It is measured as a percentage of total government expenditure ¹
Rural exclusion or Rural disadvantage	In addition to the general disadvantage or digital divide factors outlined above, rural exclusion or disadvantage is often compounded by geographical location and/or demographics. This often takes the form of limited access to physical communications infrastructure because it is not economic for PTOs to provide it, and exacerbated problems of access to ICT and/or training – often owing to lack of transport, skilled trainers, etc..
Social capital	Refers to the institutions, relationships, and social norms impinging upon the quality and quantity of social interactions within a society. In a broad sense it includes the social and political framework that shapes both these norms but also the relevant social structures.

¹ (a note of caution is in order here since higher expenditure can also be a result of a high unemployment rate)

<i>Term</i>	<i>Definition</i>
Social disadvantage	An adverse outcome of social and economics processes (e.g. social exclusion, the adverse effects of the free market) with individuals and / or groups of people experiencing some observable difficulties
Social exclusion	<p>The term relates to those individuals and groups of people whose quality of life and ability to fully participate in society is severely curtailed. For the purpose of simplicity and consistence it is² defined as an opposite of social inclusion – it is visible in terms of distance / gap, it negates a sense of belonging / creates the sense of alienation, and it is a process that adversely affects particular groups / individuals in a society. In the real life, it is manifested when individuals and / or group(s) of people are experiencing (usually a combination of linked) problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health, at a higher than average rate. The normal cause and effect path does not apply to the concept of social exclusion: its causes are interconnected, and its effects themselves become causes of further exclusion; for example, poverty is both a key cause of social exclusion and its key effect.</p> <p>It is also defined as a process whereby any person becomes marginalised in society on the basis of ethnicity, gender, disability employment status or any other attribute.</p>
Social inclusion	<p>A complex, context-dependent social phenomenon that is discernible and defined at three levels:</p> <p>Proximity (defined as a “distance” or “gap”, either social or economic)</p> <p>A sense of belonging / acceptance / positive reciprocity/ having positive interactions with the rest of society</p> <p>The process conducive to the enhancement of capacities, capabilities, and competencies of groups and individuals.</p>
Social Insurance	Public sector provided insurance funds and services to combat ill health, disability and unemployment. Also known sometimes as Social Welfare.
Unemployed persons / people	Persons aged 15+ who are i) without work, ii) available to start work within the next two weeks and, iii) have actively sought employment at some time during the previous four weeks or have found a job to start later (definition according to the ILO – International Labour Organisation).
Universal Access	Access to both infrastructure and services (usually used in reference to telecommunications, such as talking specifically about access to broadband, for example, but increasingly used in a wider context, such the access) available to (almost) everybody free of charge, or at modest cost. Universal access should not require any particular specialised effort, knowledge or skill.
Web Accessibility Initiative (WAI)	The initiative and commitment by the World Wide Web Consortium (W3C) to achieve the Web’s full potential, particularly by promoting a high degree of its usability for people with disabilities. The work of the WAI spans five major areas : technology, guidelines, tools, education and outreach, and research and development.

² (although doing it this way is not necessarily correct in sociological arena)

1.8 eCommerce Definitions

<i>Term</i>	<i>Definition</i>
Authentication	a mechanism that allows the receiver of an electronic transmission to verify the sender and the integrity of the content of the transmission through the use of an electronic "key" or algorithm shared by the trading partner. That algorithm is sometimes referred to as an electronic signature.
Encryption	a process of transforming clear text (data in its original form) into cipher text encryption output of a cryptographic algorithm) for security or privacy.
EDI	Electronic Data Interchange - the computer-application- to-computer-application exchange of business information in a standard electronic format. Translation software aids in the exchange by converting data extracted from the application data base into standard EDI format for transmission to one or more trading partners.
E-tailing	is the selling of retail goods on the Internet. Short for "electronic retailing," e-tailing is synonymous with business-to-consumer (B2C) transaction.
Extranet	An extranet is a private network that uses the Internet protocol and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company.
Firewall	A firewall is a set of related programs, located at a network gateway server, that protects the resources of a private network from users from other networks.
Intranet	An intranet is a private network that is contained within an enterprise. It may consist of many interlinked local area networks and also use leased lines in the wide area network. The main purpose of an intranet is to share company information and computing resources among employees. An intranet can also be used to facilitate working in groups and for teleconferences.

1.9 eGovernment Definitions

<i>Term</i>	<i>Definition</i>
Climate for eBusiness	<p>This is covered elsewhere to some degree. The focus here is on government policy that provides a good business climate. Key elements include:</p> <ul style="list-style-type: none"> • Existence of policies and regulation ensuring effective competition among communication and information services providers. • Transparency and predictability of regulatory implementation, openness of government, rule of law, and general business risk (political stability, financial soundness). • Adaptation of competition, consumer protection, etc. frameworks to eBusiness needs. • Adequacy of the taxation system to cope with eCommerce. • Openness to financial and personal participation by foreign investors in ICT businesses. • Ability of the financial system to support electronic business transactions.
Connectivity	<p>The ability to exchange information, goods, and services with the rest of the world, including affordable information and communications technology and services, reliable electrical power, and a reasonable transportation system for people and goods, is a necessary but not sufficient condition for participation in the networked economy. Connectivity addresses the overall availability and reliability of these infrastructures. Key elements include:</p> <ul style="list-style-type: none"> • Availability of wire line (fixed) and wireless (mobile) communication services, community access centres (free and paid), and networked computers in businesses, schools, and homes. • Affordability and reliability of network access, including the cost of service, downtime, and the prevalence of sharing access among individuals. • Underlying infrastructure, including the reliability of electrical supply for business-critical computer operations, and the ease of importing and exporting goods and of transporting them within a country.
Digital Divide	<p>Term used to refer to division of citizens in terms of their ‘proximity’ to the Information Society. The term has been introduced in a range of studies and refers especially to divisions along ethnicity and income lines (though it may also have geographical and other dimensions). The division can combine:</p> <ul style="list-style-type: none"> • Motivation –groups differ in terms of their reasons to engage with the IS • Access –wealth, infrastructure penetration, etc. may result in differential technical (outside the individual’s capability) ability to participate in the IS. • Skills – differences in the possession of ICT skills. <p>This term is included in eGovernment because it is a key target of many eGovernment initiatives and because the digital divide strongly affects the focus, success prospects and performance of such policies.</p>
Efficiency	<p>A potential measure of the size and distribution cost of costs associated with electronic transactions. This should reflect the resources required to complete an end-to-end transaction with the government, <i>as measured by the citizen, business or other initiating party</i>. This qualification is added because eGovernment often results in massive reallocation of activity and responsibility in ways that increase or decrease transaction counts as measured by the government.</p>

<i>Term</i>	<i>Definition</i>
eGovernment	<p>The use of ICT to improve the efficiency, effectiveness, transparency and accountability of government. This can be divided in various ways. One popular scheme divides communications with different parties:</p> <ul style="list-style-type: none"> • citizens. This can be further divided to separate G2C (information access, eDemocracy, service delivery, etc.) and C2G (e.g. tax filing, census, etc.) or by ministry/sector of government activity (e.g. tax, health, safety, transport,...) • business. Again, can divide G2B and B2G, or divide by sector of government activity. • other government agencies at the same 'level.' This means inter/intra-agency communication. • other levels of government. This means communication between e.g. federal and regional/local government. • the wider public sector. This can subsume the 'other level' type, and can also be interpreted to include NGOs as well. • foreign governments and supranational entities (including EU)
eLeadership	<p>The scope and nature of government efforts to promote the networked world within a country and to promote the country as a regional or global centre in the networked world. (The current regulatory and institutional environment for e-business is rated under E-Business Climate, below.) Key elements include:</p> <ul style="list-style-type: none"> • Priority given by government to promoting the development of an e-society on a national level. • Extent of demonstrated progress on e-government, including efforts to automate governmental processes. • Quality of partnerships between industry leaders and government to improve E-Readiness. • Level of effort to promote access for all citizens.
Electronic transactions	<p>A frequent target of government web strategies or eGovernment initiatives. The broadest definition of electronic transactions includes systematic phone dealings (for instance, via a call centre), existing ,electronic data interchange (used between some large companies and government agencies), computer payments, kiosk or ATM transactions, and Web or e-mail connections. It also includes all payments by departments made to citizens through bank accounts, even though departments have been developing this kind of capability for many years, which hence has little to do with information age government. For measurement purposes, it is useful to fix on a narrow definition, and to measure separately the</p> <ul style="list-style-type: none"> • current 'workload' of transactions • percentage of transactions completed electronically • capacity for completing transactions electronically. <p>It should be remarked that transaction counts are very technology-dependent: a single face-to-face transaction may require several electronic transactions, or <i>vice versa</i>. The 'efficiency' of electronic transactions (see below) is an attempt to capture this.</p>
Freedom of Information Acts (FOIA)	<p>Legal provisions for citizen access to government (and other public or publicly-held) information. The ICT connection comes from:</p> <ul style="list-style-type: none"> • the fact that electronic databases facilitate (and in some cases automate) FOI • the fact that on-line or electronic provision of data has different characteristics (in terms of scope, authority, usability, etc. • the practice of making some FOI information available via electronic 'reading rooms' rather than on request.
Human Capital	<p>This is also covered in other SIBIS topics. The key aspects for eGovernment cover the policies designed to build and preserve necessary skills, motivation and labour markets that operate in the public interest.</p>

<i>Term</i>	<i>Definition</i>
Information Security	(Not quite the same as network security) At base the question is one of trust. Obsolete laws or weak enforcement to protect the creation, maintenance, and dissemination of information make an inhospitable environment in which to conduct e-business. Poor protection of intellectual property can stunt the growth of the national software development industry. Inadequate protection of personal data creates barriers to information exchange. Failure to recognise electronic signatures or to permit the use of encryption undercuts trust in the new ways of doing business. Key elements include: <ul style="list-style-type: none"> • Strength of legal protections and progress in protecting intellectual property rights, especially for software. • Extent of efforts to protect electronic privacy. • Strength and effectiveness of the legal framework to address and prosecute computer crimes, authorise digital signatures, and enable public key infrastructures.
Specific attributes (Candidates for additional indicators)	
Disability access	Accessibility of sites to citizens with disabilities.
eDemocracy	This touches on FOI and other sub-topics. Specific services fostering G2C interaction include: Email; comment, consultation; Email updates/lists; push technology; search; chat rooms; broadcast; personalisation.
ePayment	Whether government sites allow on-line payment of user charges, licence fees, etc.
Foreign language access	Self-evident.
Privacy	Availability (and extent) of privacy policy, protecting personal information from unauthorised access, reuse for unintended purposes, etc. may include rights relating to <ul style="list-style-type: none"> • access (letting citizens see government database information relating to themselves) • correction (letting citizens demand correction of inaccurate or outdated information) • timeliness (putting a time limit on the holding of information) • etc.
Publications	Availability of government publications online. May include: <ul style="list-style-type: none"> • Legal documents (laws, regulations, etc.) • Legal decisions (from courts, regulatory bodies, etc.) • Forms (keep separate track of whether they can be filled out and submitted online) • Databases of statistics, ratings and other public information • Policy documents (e.g. green and white papers) – keep separate track of whether electronic consultation is used • Links to publications of related agencies, organisations
Range of services provided	May include, e.g. <ul style="list-style-type: none"> • Ordering publications • Subscription to case information • Filing complaints • Filing (and/or paying) taxes • Reserving lodging • Ordering vital records • Renewing vehicle registration
Security	Availability of policies (and information) regarding site security. Can cover authentication, privacy, integrity. Typically requires use of special technology (e.g. SSL)
Website Attributes (cf. http://www.cyprg.arizona.edu/waes.html)	
<u>Transparency</u>	<i>The effort an agency makes to make information available through its website.</i>
Citizen consequences, responses	Responsibilities placed on citizens by the organisation, responses a citizen can or must make.
Contacts/reach ability	How and whom to contact with regard to the organisation's operations
Issue information	Policy issues addressed by the organisation.

<i>Term</i>	<i>Definition</i>
Organisational information	Organisational structure and operation
Ownership	Evidence that the organisation cares about the site.
<i>Interactivity</i>	<i>The ease with which visitors can use information provided on the website</i>
Citizen consequences, responses	Ability to easily follow chains of responsibility, accountability.
Contacts/reach ability	Evidence that the organisation is willing to receive input at the gateway (the webmaster within the agency) and the senior level
Issue information	How the organisation deals with its policy issues.
Organisational information	Ability to easily contact members of the organisation.
Information Security	
Security and Privacy	The more accessible the site, the less citizens or visitors are obliged to provide personal information in order to easily download or upload material and responses
Communication infrastructure	The collection of hardware equipment and procedures (software, management) for transporting data needed by an application to deliver specified services to the users. Synonymous with information infrastructure.
Complex system	Collection of a large number of functional entities (equipment, procedures and humans) with a large number of interconnections among them.
Closed system	A system consisting of a known number of components or nodes, their characteristics both physical and as data sources or sinks, their location and their interconnections.
Open system	A system consisting of an unknown or partially known number of nodes or their characteristics both physical and as data sources or sinks. Connectivity is generally unknown or partially known.
Dependability	Property of a system that indicates its ability to deliver specified services to the user
Quality of service	The term (QoS) is used to measure the performance of data networks with respect to the transport of data.
Vulnerability	vulnerability of a system to a threat can be understood as a weakness or flaw in the system that eliminates or reduces its ability to deliver the specified services, or (in the context of critical infrastructures) is related to interdependencies between systems due to massive interconnections in systems-of-systems.

1.10 Health Definitions

<i>Term</i>	<i>Definition</i>
Acute condition	A medical condition that has lasted less than 3 months and has involved either a GP / physician visit (i. e. medical attention) or restricted activity.
Assistive technologies (AT)	The term describing technological products / systems especially designed to assist people with disabilities and elderly people allowing them to use and benefit from ICTs. In principle, ATs can be any product / system / piece of equipment that increases, maintains, or improves functional capabilities of individuals with cognitive, physical, sensory or communication disabilities. The most relevant ATs for online participation of people with disabilities are screen readers and magnifiers, speech synthesisers, voice input software operating in conjunction with graphical desktop browsers, and alternative keyboard devices.

Term	Definition
Asynchronous communication of health information	Communication which takes place on a “store and forward” basis, using some type of pre-recording. The examples include accessing health information on the web, transferring electronic patients records, electrocardiography recordings, still images (dermatology / pathology, X-ray radiographs and ultrasound, CT / MR scans)
ATM (an acronym for Asynchronous Transfer Mode)	A high-speed broadband network which is used mostly in large hospitals. It allows massive X-ray files, like thorax X-rays, to be transferred in a matter of seconds from one hospital to another. ATM also allows the simultaneous use of several applications, for instance one could use real-time videoconferencing while transferring X-ray and microscopic images..
Biostatistics	Applied statistics in the medical and biological domains used to plan and interpret experiments and observations. (also used – biometry).
Chronic condition	Refers to any medical condition lasting 3 months or more but any condition can be classified as chronic regardless of its time of onset (for example, diabetes, heart conditions, emphysema, and arthritis).
DataNet	A LAN interconnection service (used widely in Finland) which is suitable for transferring still-images, particularly when the volume is large, as is usually the case in teleradiology. It is ideal for hospitals and large health care centres which have significant data transfer needs
Disability	Any condition, physical or psychological, which leads to the social construction of disability. Reductions in physical or psychological functional capacity lead to reduced abilities to interact with the world, expressing themselves as disability.
Dispensing doctor	Doctor authorised to prescribe and dispense prescriptions for patients who either have difficulty reaching a chemist due to inadequate transport means, their disability, living in a rural area
Computer-based patient record (CPR)	Administrative and medical patient data electronically stored in a consistent way. A computer-based patient record may contain characters, signals, images, and sounds
Consumer empowerment (in health area)	Providing conditions and removing constraints for access to information and resources that enables and compels action that is in the best interest of general public / consumers (This initiative should also be accompanied by the drive to enhance accountability of health care providers) From the consumer’s point of view , it relates to gaining knowledge and playing a more active role in managing own health and making informed healthcare decisions, thus increasing the ownership of such decisions.
Definition study	The investigation at the beginning of the development of an information system in which the user demands are inventoried, how these demands can be fitted within their organisation and what is the connection with other information systems
Distributed System	A set of computer systems interacting via a network and using data communications standards in which various computers collaborate in common tasks
eHealth	Any health related service provided / accessed remotely, usually via the Internet. Ranges in form from information provision, remote diagnosis and monitoring, to information transmission.

<i>Term</i>	<i>Definition</i>
Employability	This term unifies both health perspective and labour market perspective. The former refers to the promoting individual's well-being through sound health and safety practices and reintegrating and rehabilitating the groups of workers most at risk of exclusion such as older workers and physically impaired workers. The latter refers to individuals' possession of the skills and the existence of retraining opportunities in the socio-economic context needed to allow people to change / get jobs. The concept of employability is relevant to determine whether or not someone is employable in today's competitive marketplace and knowledge economy, and if rehabilitative training is necessary (e.g. after the spell of illness or occupational injury, to help people, including people with disabilities, to prepare for, obtain and maintain employment).
Ethical issues in eHealth	Comprises accountability of health care providers and confidentiality in relation to privacy and security of patient data
Geographic Information Systems (GIS)	A system designed for the collection, storage, and analysis of objects and phenomena where geographic location is an important characteristic. Data in a GIS has two components – spatial data (representation of features that have a known location on earth expressed in tangible quantitative terms e.g. longitude and latitude) and attributed data (any relevant information linked to the spatial data). The term is increasingly relevant for eHealth, since modern health systems are increasingly using GIS.
General Practitioner (GP)	a) A primary care physician, providing, health care services and practising in the context of family and community b) A graduate of a faculty or school of medicine working in the country providing primary health care to the general public, having satisfied the regulations of national health authorities. GPs can either be office-based or community / municipality health centre-based; can be self-employed or salaried public employees (self-employed generally treat public patients for a capitation fee). In most EU countries they are the first point of call and the focal point in primary medical care provision, both as family doctors providing continuity in health care and as gatekeepers to specialist and hospital care
GP partnership practice	A partnership backed by financial arrangement between two or more practitioners
HIS - Hospital Information System	An information system used to collect, store, process, retrieve, and communicate patient care and administrative information for all hospital-affiliated activities and to satisfy the functional requirements of all authorised users
Health Information Systems	A set-up that provides information for the management of a health programme or health system and for monitoring health activities, with the aim to make it an integral part of the health system
Health and Medical Informatics - HMI	Health and Medical Informatics (previously referred to as 'medical informatics' or 'health informatics') comprises the knowledge, skills and tools that enable the sharing and use of information to deliver healthcare and promote health, reflecting a widespread concern to define an information agenda for health services which recognises the role of citizens as agents in their own care, as well as the major information-handling roles of the non-medical healthcare professions. Health informatics is thus an essential and pervasive element in all healthcare activity. It is also the name of an academic discipline developed and pursued over the past decades by a world-wide scientific community engaged in advancing and teaching knowledge about the application of information and communication technologies to healthcare – the place where health, information and computer sciences, psychology, epidemiology and engineering intersect.

Term	Definition
Instrumental Activities of Daily Living (IADL)	Instrumental activities of daily living (IADL) are activities related to independent living (e.g. preparing meals, managing money, shopping or personal items, performing light or heavy housework, and using telephone). Relevant term for identifying people with disabilities in surveys is as follows – If a person has any difficulty performing an activity by himself or herself and without special equipment, or did not perform the activity at all because of health problems, and this condition is chronic, then the person can be categorised as having a limitation in that activity.
Interactive health Communications (IHC)	<p>a) The interaction of an individual (consumer, patient, caregiver, professional) with or through an electronic device or communication technology to access or transmit health information, or to receive or provide guidance and support on health related issues.</p> <p>b) Technologies and applications that allow user / customer to locate, share, search, select, and access the desired health information (e.g. using www, listservers, CD-ROMs, stand alone kiosks, dial online services)</p>
Interoperability	<p>a) The ability of systems, units, or forces to provide services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together</p> <p>b) The condition achieved among communications-electronic systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined in relation to specific cases</p>
Isochronous mode of communication (relevant to eHealth)	Communication takes place in real time. Typical examples include audio (teleconsultations, transmitting of cardiac and pulmonary sounds) and video communication (telesurgery, teleophthalmology, teleeducation, video teleconsultation) while some can be either and / or combination of both (e.g. remote home motoring). In addition, some asynchronous modes of communications can take place in real time (e.g. transferring patients' ECG, EEG data in real time)
Limitation of activity	<p>Refers to a long-term reduction in a person's capacity to perform the usual kind or amount of activities associated with his or her age group that has arisen due to a chronic condition.</p> <p>It can be operationalised by gauging limitations in ability to perform activities due to physical, mental, or emotional problems, limitations in daily activities and instrumental activities of daily living, leisure, education, work, and difficulty in walking or remembering.</p>
National health expenditure	National health expenditures estimate the amount spent for all health services and supplies and health-related research and construction activities consumed during the calendar year / budget year. Detailed estimates are available by source of expenditures (for example, out-of-pocket payments, private health insurance, and government programs)
Open system architecture	The layered hierarchical structure, configuration, or model of communications or distributed data processing system that (a) enables system description, design, development, installation, maintenance, to be performed at a given layer / layers, (b) that allows each layer to provide a set of accessible functions that can be controlled and used by the functions in the layer above (c) enables each layer to be implemented without affecting the implementation of other layers, and (d) allows the alteration of system performance by the modification of one or more layers without altering the existing equipment, procedures and protocols at the remaining layers

<i>Term</i>	<i>Definition</i>
Physician	Graduate of any faculty or school of medicine working in the country in any medical field (practice, teaching, research).
Private health expenditures	Private health expenditures are outlays for services provided or paid for by non-governmental sources--consumers, insurance companies, private industry, philanthropic, and other non-patient care sources.
Public expenditure on health	Recurrent and capital spending from government budget, external borrowing, grants and social health insurance funds.
Public expenditure on social security	Indicates the level of governments' intervention in relation to providing compensation for loss of income to the vulnerable groups (the unemployed, the disabled, the elderly, the children). It is measured as a percentage of total government expenditure ³
Scalability	The term denoting the ability of technology to "migrate" into / acquire / be compatible with expanded capabilities without total replacement. The ability to acquire special features / functions on optional, add-on basis is also considered as an integral part of scalability of technology
Social Insurance	Public sector provided insurance funds and services to combat ill health, disability and unemployment. Also known sometimes as Social Welfare.
Telemedicine	Telemedicine is the location independent and technology mediated delivery of care to patients where critical medical expertise is combined with appropriate ICTs. The term care is used broadly and comprises for example, the transmission of information to provide that care. It also includes the diagnosis, treatment, monitoring, and education of patients using systems that allow ready access to expert advice and patient information. It involves a spectrum of technologies including facsimile, medical data transmission, audio-only format (telephone and radio), still images, and full-motion video. Robotics and virtual reality interfaces have been introduced into some experimental applications. Telemedicine should be understood as a process, not just a technology that enhances the proximity of the expert knowledge and the patient.

1.11 Statistical Terms

<i>Name</i>	<i>Definition</i>
Coverage	The scope of the data in terms of geographical regions, sectors, time periods, etc.
Indicator	A measurement constructed from statistical or other data and used to provide an indirect measurement of a quantity or quality that cannot be directly measured.
Pilot indicator	A test specification of an indicator used to investigate stability, robustness, validity and other properties.

³ (a note of caution is in order here since higher expenditure can also be a result of a high unemployment rate)

<i>Name</i>	<i>Definition</i>
Price deflator	A conversion factor used to place prices measured in different time periods on a common footing. Price deflators are usually quantity-weighted averages of specific prices (based on a 'bundle' of goods and services defined in the 'base period'). Price deflators adjust for overall inflation. To deal with issues of changing patterns of demand (e.g. convergence, appearance/disappearance of goods/services, etc.) it is necessary to compute price indices.
Region	A geographical area. The EU has defined several different levels of regions, indicated by the so-called NUTS level.
Efficiency	An efficient estimator has minimum variance among unbiased estimators in its class.
Unbiased	An estimator of a quantity is unbiased if its expected value equals the true value
Consistency	An estimator is consistent if it approaches the true value as the sample size increases. (In other words, it is unbiased and the variance disappears).
Significance	An estimate is statistically significant if the probability that it differs from 0 (in the true population) is less than a threshold (the significance level) based on the sample size and other properties.
Sample	A sample is a proportion of a larger group (the population) selected for measurement. If the characteristics of the sample are similar to those of the population, the sample is unbiased. The quality of a sample increases with the sample size (up to the population). Typically, samples are not unbiased: what matters is whether the bias is correlated with the quantity being measured. If individual entities (sample points) nominate themselves for inclusion, for example, we may suspect <i>selection bias</i> .

1.12 A Glossary of Terms

The following Table lists a variety of ICT-related terms drawn from a variety of sources, including the Fifth Framework Programme, the ISPO, the WTO, the ITU and the World Bank. They may be considered for eventual inclusion in the more focused tables above.

<i>Name</i>	<i>Definition</i>
3D	Three Dimensional
ACTS	Advanced Communications Technologies and Services (FP4 Programme)
Adapter	It is the PC translator that converts information to tidy packages that neatly flow down networks wires. Every PC on a corporate network has one of these adapters, which comes in the form of circuit boards.
Addressability	The facility by which the subscriber's home equipment may be controlled remotely by a cable operator, in order to allow the provision of pay-per-view programmes, changes in the level of the service, or disconnection.
ADSL	Asymmetrical Digital Subscriber Line

<i>Name</i>	<i>Definition</i>
AL	Action Line
Allowable costs	See Eligible Costs
Ambient Intelligence	A concept in IST that explores what should come beyond the current "keyboard and screen" interfaces to enable ALL citizens to access IST services wherever they are, whenever they want, and in the form that is most natural for them. It involves new technologies and applications both for the access to, and for the provision of applications and services. It calls for the development of multi-sensorial interfaces which are supported by computing and networking technologies present everywhere and embedded in everyday objects. It also requires new tools and business models for service development and provision and for content creation and delivery.
analog	A method of data transmission which is wave like. It decides values by pitch. For example, take a sound wave - the greater the voltage and frequency the louder/higher the sound, not just on or off. (see also digital)
Applications	Telematic services available in the professional and private spheres such as telework, telemedicine, tele-education and teletraining or telemanagement of traffic.
ASCII (American Standard Code for Information Interchange)	It is the standard code system used on PCs. This is the de facto world-wide standard for the code numbers used by computers to represent all the upper and lower-case Latin letters, numbers, punctuation, etc. There are 128 standard ASCII codes each of which can be represented by a 7 digit binary number: 0000000 through 1111111.
ASICs	Applications Specific Integrated Components
Assessments:	Type of Take-up measure. See definition in Annex 1.
ASYMMETRICAL Digital Subscriber Line (ADSL)	Existing telephone networks upgraded to allow VCR-quality video images (but not live or high-definition signals) to be transmitted.
ATM	Asynchronous Transfer Mode, or Automatic Teller Machine, or Air Traffic Management Asynchronous Transfer Mode is an international packet switching standard established by the CCITT. It is a system for organising a digital signal in such a way as to allow very high speed transmission of the signal while making optimum use of the network's transmission capacity. A standard agreed for B-ISDN networks.
ATP	Advanced Technology Program (US - NIST)
authentication	Security feature that determines a user's identity and therefore access to systems by using various digital methods.
bandwidth	The range of transmission frequencies that a network can carry. The greater the bandwidth, the greater the amount of data that a cable can carry. Bandwidth is measured in bits per second (bps) for digital signals, or in hertz (Hz) for analogue signals. Highest for fibre optic, lowest for copper telephone wire.

<i>Name</i>	<i>Definition</i>
Baud	Numerical data transmission speed unit. 1 baud correspond to 1 bit/second. The minimum speed of a modem is 9,600 bauds nowadays.
Best Practice actions	Type of Take-up measure. See definition in Annex 1.
bin hex	A method for encoding an email message for transmission predominantly used by Macintosh users.
B-ISDN (Broadband ISDN)	A single network capable of carrying several different types of service, based on voice, data, still or moving image - by means of digital transmission techniques. The ISDN (Integrated Services Digital Network) currently being deployed in Europe carries a communication of up to 2 Megabits/second (Narrowband ISDN). Future networks will carry higher speed communications (Broadband ISDN).
Bits/Bytes	The smallest discrete elements in a binary system: eight bits comprise one byte.
bookmarks	A feature built into web browsers that allow users to keep a record of pages they want to revisit.
bounce (email)	The action of an email which was not delivered to the intended recipient, either because it was addressed incorrectly or because of a technical glitch.
bps	Acronym for bits per second - the rate at which data is transmitted between computers.
BRI	Basic Rate Interface
Broadband	A popular way to move large amounts of voice, data and video. Broadband technology lets different networks coexist on a single piece of heavy-duty wiring. It isolates signal as a radio does; each one vibrates at a different frequency as it moves down the line. Its opposite is baseband, which separates signals by sending them at timed intervals.
browser	A specialist software package through which users can view the World Wide Web.
bulletin board (Web) aka discussion group	A web page which allows people to interact with each other on various topics via email.
Bureautique	Hardware and software used in the framework of an office (e.g. word processing).
Bursary: (international co-operation training bursary)	Granted for training activities only e.g. to allow the applicant to learn a new scientific technique or to work on a particular experiment or set of experiments where the host institution has particular expertise and which cannot be performed in the home institution of the candidate.
byte	A measurement unit of data made up of eight bits (1's or 0's) in a certain order which reflects a known entity (for example, a capital A).

<i>Name</i>	<i>Definition</i>
Cable	A reception system available in areas that are cabled. Opposite to the satellite, the reception of a cable broadcast does not need an aerial on the roof or balcony.
Call for Proposals	As published in the Official Journal. Opens parts of the workprogramme for proposals, indicating what types of actions (RTD projects, Accompanying measures etc.) are required. A provisional timetable for such Calls is included in the workprogramme
CALS	Computer-aided Acquisition and Logistic Support
Carte à puce (Smart Card)	It is a card that is able to store digital information. It was created in 1974 and used for many purposes since (e.g. credit cards, telephone cards).
CATV	Community Antenna Television, Cable Television
CEN/CENELEC	Comite Europeen de Normalisation / Comite Europeen de Normalisation Electrotechnique (www.cenorm.be)
CEN-ISSS	Information Society Standardization System. The mission of CEN/ISSS is to provide market players with a comprehensive and integrated range of standardization-oriented services and products, in order to contribute to the success of the Information Society in Europe.
Certification (of a proposal)	The process by which the Co-ordinator may apply a digital signature to the proposal, before it is submitted to the Commission.
CGI	Acronym for Common Gateway Interface. A 'behind the scenes' programming system which allows internet users to interact with web pages by, for instance filling in web forms and entering search queries.
Client	A client is usually a PC that communicates over a network both with its peers, other clients, and with a large computer, called a server, which typically stores data that many workers need to use. The client has just one user, the server many. Alternatively, type of program which receives information from a centralised electronic point, for example a web browser (client) receiving information from a server.
Cluster	A group of RTD projects and/or other cost-shared actions and/or accompanying measures that address a common theme or area of interest.
CMOS	Complementary metal-oxide semiconductor
Coaxial Cable	Better known as coax, this is the old fat wire used by cable TV companies and some data networks. It has more capacity than standard copper phone wire, but quite a bit less than fiber-optic lines.
Community Antenna Television, Cable Television (CATV)	A public network for the delivery of television programmes to the home by cable. Existing systems use coaxial cable and are limited in Europe to approximately 30 channels of television. Future Broadband systems will carry up to 500 channels.

<i>Name</i>	<i>Definition</i>
Compact Disc Interactive (CD-I)	The interactive multimedia platform developed by Philips, based on a Motorola 68000 processor and compact disc drive, with universal technical specifications. CD-I supports three levels of audio in stereo and mono, four graphics formats at various levels, four images planes, in/out devices including a remote control unit and keyboard, and output to ordinary TV sets, under its own dedicated operating system (CD-RTOS).
Compact Disc Read Only Memory (CD-ROM)	The CD format principally devoted to text and data (and occasionally, audio and graphics).
Compression	The technique of reducing the amount of data in a signal in order to reduce the amount of required transmission capacity, the signal being reconstructed in its original form at the receiving end. A device to do this is a "codec" (coder-decoder).
Concerted Actions	Type of actions supported by the Programme: See definition in Annex 1.
Continuously Open Call	One having no fixed closure date, but with a periodic evaluation of received proposals.
Contractor	a project participant who has a wide-ranging role in the project throughout its lifetime
Convergence	One of the driving socio-economic forces necessitating research under the Fifth Framework Programme. Generic term that covers: <ol style="list-style-type: none"> 1. Technological Convergence 2. Market Convergence 3. Regulatory Convergence 4. Policy Convergence
Co-operative research project (for SMEs)	Projects enabling at least three mutually independent SMEs from at least two Member States or one Member State and an Associated State to jointly commission research carried out by a third party.
Co-ordinator (Co-ordinating contractor)	Lead contractor in a Community action, delegated by the consortium for the role of co-ordination with the Commission.
COST	Cooperation europeenne dans le domaine de la recherche scientifique et technique (www.belspo.be/cost/)
CPA or CPC or CPT	Cross-programme Action or Cluster or Theme (in IST Programme)
CT2-CAI	Second generation Cordless Telephone ; also used in " telepoint-phonepoint " systems
CUG	Closed User Group
Cyberspace	Word invented by the writer William Gibson in his play "le Neuromancien". It describes the virtual space in which the electronic data of worldwide PCs circulate.
Data Discman	A portable device created by Sony that allows book reading. The books are under the shape of small laserdiscs (8 cm diameter).

<i>Name</i>	<i>Definition</i>
DAVIC	Digital Audio-Visual Council (www.davic.or)
DBS	Direct Broadcasting by Satellite
DCS 1800	Digital Cellular System at 1800 MHz
dial-up connection	Also called a switched line. A low-cost connection to the Internet through a communications line (telephone line) which is not strictly dedicated to being an internet connection.
Didactic Software	Educative Software
Diffusion	Making information available to a wider audience about the work and outcome of a project with the aim of increasing the speed of uptake of its results.
digital	A method of data transmission where the data is sent in a combination of 1's and 0's, or either on or off.
Digital Compression	A way of reducing the number of bits (ones and zeros) in a digital signal by using mathematical algorithms to eliminate redundant information thereby reducing the space it occupies when being transmitted or recorded.
Digital European Cordless Telecommunications (DECT)	DECT is the time division multiple access (TDMA)-based digital standard chosen by the European Telecommunications Standards Institute (ETSI) for future advanced wireless phones, wireless PBX, and radio-based public access telecom services.
Digital Transmission	In a digital telecommunication service, the original source is transformed into and transmitted as a series of digits in binary code (i.e. 0s or 1s). Voice, text, image or data are all equally capable of being coded as a digital signal, so that a single network can handle all four forms of transmission (multimedia). The string of binary digits can be abbreviated and then re-expanded on arrival, thus economising transmission capacity. Different strings of binary digits can be interleaved and transmitted together, thus permitting several separate conversations on a single line (multiplexing). The string of digits can be encrypted prior to transmission, to ensure a high level of information security and privacy. Through digitalization, even a severely degraded transmission can be reconstructed to reproduce perfectly the original source.
Digital Video Interactive (DVI)	DVI is a mode of image compression conceived by Intel for use by PC micro-computers. Microsoft adopted it for their software Video for Windows, Apple for QuickTime, etc.
Direct Broadcasting by Satellite (DBS)	The use of satellite to transmit high-power TV signals in the BSS band for reception via small antennae direct to home (DTH). Such services can also be carried on cable.
Diskette	Storing device used to save information from computers and other instruments such as digital picture cameras.

<i>Name</i>	<i>Definition</i>
DNS	Acronym for Domain Name System. The distributed naming service used on the Internet. For example, open.gov.uk is the domain name for the UK Government's home page. The DNS organises groups of computers on the Internet using a specific hierarchy of domains.
domain	The most detailed subdivision of the Internet, which is usually by country (for example, .uk for United Kingdom, .au for Australia, .fr for France) or type of entity (for example, gov for government or com for commercial).
domain name	The complete domain name address, including the domain and the unique name of the organisation.
Domotique	Control over the house appliances via a PC.
download	The act of one computer transferring data to another computer that is remotely located.
DVB	Digital Video Broadcasting
EC	European Commission (europa.eu.int)
EC	Electronic Commerce
EDI	Electronic Data Interchange
eEurope Initiative	On 8 December 1999 the European Commission has launched an initiative entitled "eEurope: An Information Society for All", which proposes ambitious targets to bring the benefits of the Information Society within reach of all Europeans. The initiative focuses on ten priority areas, from education to transport and from healthcare to the disabled.
Electronic data interchange (EDI)	A way for unaffiliated companies to use networks to link their businesses. While electronic mail between companies is common, electronic data interchange passes bigger bundles that replace large paper documents such as bills and contracts. Besides saving paper, computers could save time by taking over transactions like regular purchase orders that now require human intervention.
Electronic-mail (E-mail)	The most common use of networks. It is a service which allow computer users to send electronic messages to other computer users. The use of sophisticated software ensures that the sent message will find its way along different networks until it reaches the address.
Eligible costs	Costs that are reimbursable in full or in part by the Commission, under the terms of the Contract that is the basis for the project.
encryption	A method of securing privacy on networks through the use of complex mathematical codes.

<i>Name</i>	<i>Definition</i>
Enhanced Television	Designates a TV system which retains the scanning standards of the existing 625-line 50-field or 525-line 60-field systems, whilst providing various improvements in the quality of the picture and additional features, such as the wide screen 16:9 aspect ratio, resulting from new signal processing, with or without modification of the transmission standards.
EPN	Electronic Platform Highway
ESA	European Space Agency (www.estec.esa.nl)
ESPRIT	FP4 Programme - European Strategic Programme for R&D in IT
Ethernet	The most common sort of network used in corporations. Its op speed is 10 million bits/second. Because it works like a party line, if too many people try to send messages at once, the network slows dramatically.
ETSI	European Telecommunications Standards Institute (www.etsi.org)
EU	European Union
EUREKA	A Europe-wide Network for Industrial R&D (www.eureka.be)
Evaluation	The process by which proposals are retained with a view to selection as projects, or are not retained. Evaluation procedures are fully transparent and published in the Evaluation Manual. Evaluation is conducted through the application of published Evaluation Criteria.
FAQ	Acronym for Frequently Asked Questions. Often seen on web sites.
Fiber	Fiber-optic cable, made of glass fibers instead of copper strands. Data, expressed as pulses of light rather than electrons, is transmitted by lasers or other devices. Optical fiber can carry billions of bits a second, many times more than coaxial or copper wire, and is less sensitive to electrical interference.
Fiber to the Curb (FTTC), Fibre to the Home (FTTH)	Future optical fibre networks may extend the optical fibre to the individual home (FTTH), or the fibre may terminate at a "blackbox" located in the street, where the optical signal is converted to an electrical signal and carried the remaining distance to each home on the pre-existing copper wiring (FTTC).
firewall	A mechanism that protects parts of a network that is connected to the Internet from being accessed by unauthorised users.
Flaming	Bombardment with messages by users of the Internet of any other user or advertiser who breaks the "etiquette" of the network. Can run to billions of bites of useless data, intended to clog up the offender's computer.
FP	Framework Programme (EU - Fourth FP is FP4, etc.. - www.cordis.lu)
FPGAs	Field Programmable Gate Arrays
freeware	Software and other goodies made available free to users over the Internet.

<i>Name</i>	<i>Definition</i>
FTP	Acronym for File Transfer Protocol. The standard method used to transfer files from one computer to another.
Full motion	Video images that run in "real time". Full motion is defined as 30 frames per second, double the current rate possible on most multi-media applications, such as video conferencing.
Galileo	A constellation of 24 to 30 Medium Earth Orbit (MEO) Satellites supporting a Global Navigation service. This primary vocation will, in time, permit the developmemnt of various Value Added Services.
Gateway	The most common usage for the term is an on-line service company that gives customers access to a server or a network as Internet. Inside a company, the term usually refers to special hardware that connects two different types of systems, such as a main-frame to a local-area network. Alternatively, a machine which translates from one service to another. Sometimes the term is used incorrectly to refer to firewalls.
Gb (or 'Gig')	Acronym for gigabyte. A measurement unit for data, usually found when describing either the data capacity (bandwidth) of an internet connection or the memory/hard drive capacity of a computer.
Generic Service	A service, such as electronic mail, that can be used for a multitude of purposes and adapted to the needs of a particular application.
GIF	Acronym for Graphical Interface File. A type of graphic file commonly used on the Web.
Gigabit Network	A gigabit network means one that operates at a billion bits a second-100 times Ethernet's speed.
GIP	Global Inventory Project
GIS	Geographic Information System
Global System for Mobile Communications (GSM)	GSM is a pan-European standard for digital mobile telephony which provides a much higher capacity than traditional analogue telephones as well as diversified services (voice, data) and a greater transmission security through information encoding for users across Europe.
GMES:	Global Monitoring for Environment and Security - http://gmes.jrc.it/
GNSS	Global Navigation Satellite Systems
gopher	A popular service developed by the University of Minnesota that allows clients to access files and directories across the Internet. A Gopher client can search and retrieve information from gopher servers, but does not have a graphical interface.
GPL	General Public Licence
GPRS	General Packet Radio Service
GSDI:	Global Spatial Data Infrastructure - http://www.gsdi.org

<i>Name</i>	<i>Definition</i>
GSM	Global System for Mobile Communication
hacker	A person who explores other people's computer systems and networks from a sense of personal passion.
Hard Disc	High capacity (up to 4 giga-octets= million characters) storing device for computers.
HD-Mac	Europe's HDTV broadcast transmission standard supporting 1250-line resolution pictures, 50 Hz, in the 16:9 aspect ratio with digital stereo sound.
HFSP	Human Frontier Science Program (www.hfsp.org)
High Definition Television (HDTV)	System designed to allow viewing at about three times the picture height, such that the system is virtually, or nearly, transparent to the quality of portrayal that would have been perceived in the original scene or performance by a discerning viewer with normal visual acuity. Such factors include improved perception of depth.
homepage	The 'entry' or 'main' page of a website.
host	Any computer system or device attached to the Internet.
HTML	Acronym for Hypertext Markup Language. The scripting language used to create web documents. Some confusion may develop when you notice that some file names have .htm as an extension and some have .html. All this means is that the author has used a PC or Macintosh respectively to create the document.
HTTP	Acronym for HyperText Transport Protocol. The network protocol used by the World Wide Web.
hypertext (aka hotink hyperlink)	A link between one document and other related documents located either in the same website, or elsewhere on the Web. By clicking on a word or phrase that has been highlighted, a user can skip directly to files related to that subject.
IBC	Integrated Broadband Communications
ICT	Information and communications technology - an acronym applied to the combined developing telecommunications and information technology
IDEIS	International Dialogue and Information Exchange for the Development of a Global Information Society
IETF	Internet Engineering Task Force (www.ietf.org)
IMS	Intelligent Manufacturing Systems Initiative (http://www.ims.org/)
IN	Intelligent Network

<i>Name</i>	<i>Definition</i>
Information Superhighway	Something that can't be seen or touched, though it can be talked about ad nauseam. Networking devices and computers, allowing them to operate at a higher speed and carry heavy traffic such as video files.
Integrated Broadband Communications (IBC)	The global term for the future overall communications environment, embracing Broadband-ISDN, Narrowband-ISDN, mobile telephony and existing conventional telephone services together with data communications and cable TV.
Integration	Application of synergy, by which different fields of endeavour are brought together to yield results of far greater significance than would have been possible through individual and independent actions.
Inter-activity	Interactivity in a service implies a close control by the user of the service by means of ongoing system of two-way communication between the user and the service provider.
Inter-connectivity	Devices (computers, lines, application programmes, etc) are inter-connected when they can communicate with each other, that is send and receive data. They use the same communication protocols, for example OSI (Open Systems Inter-Connection).
Interface	That which facilitates the communication between the computer and its user. It may be a graphic interface or a textual interface. An interface can also be that which facilitates communication between two appliances (e.g. the PERITEL jack links a TV to a videotape recorder or a videodisc player).
internet service provider (ISP)	A company or other organisation that offers connections to the Internet through its own computers, which are part of the Internet.
Inter-operability	Devices, in particular application programmes, are inter-operable when, in addition to communicating with each others, they can also execute together a common task. They co-operate. This requires additional standards, such as API (Application Programme Interfaces) .
intranet	An internal corporate web site that operates using the same protocols as the Internet. Intranets are either not connected to the Internet or are shielded from external internet users by a firewall.
IP	Internet Protocol; sometimes Intellectual Property (in the context of Micro- and Opto-electronics)
IPR	Intellectual Property Rights)
IPv6	Internet Protocol version 6
IS	Information Society
ISDN	Acronym for Integrated Services Digital Network. A telecommunications standard being offered by telephone companies which enables the rapid transmission of voice, data, and certain images over telephone lines.

<i>Name</i>	<i>Definition</i>
ISDN (Integrated Services Digital Network), N-ISDN, B-ISDN	A single network capable of carrying several different types of service, based on voice, data, still or moving image - by means of digital transmission techniques. The ISDN currently being deployed in Europe carries a communication of up to 2 Megabits/second (Narrowband ISDN). Future networks will carry higher speed communications (Broadband ISDN).
ISO:	International Standard Organisation - http://www.iso.org
IST	Information Society Technologies. The 2nd Thematic Programme of research and technological development within the European Union's Fifth RTD Framework Programme (1998-2002), addressing research issues towards a user-friendly Information Society.
ISTAG	Information Society Technologies Advisory Group
ISTC	Information Society Technologies Committee
IT	Information Technology
ITU	International Telecommunications Union (www.itu.org)
java	A scripting language used to add features, such as animation, to web documents.
JPEG, MPEG	Compression standards for still (JPEG) and moving pictures (MEPG) expert groups.
JRC	Joint Research Centre (EC)
JTC:	Join Technical Committee, an association between ISO and the IEC (Information Engineering Committee)
JV	Joint Venture
KA	Key Action (in FP5)
keywords	key words that are used when searching for information on the Internet (for example, when using a search engine)
Kiosk	A freestanding electronic information point which aims to provide information or services to users without the need for the assistance of staff. Kiosks can incorporate touch-screen technology and video conferencing facilities
KPBS	Acronym for Kilobits per second. A rate of transmission for data most commonly found when describing modem speed.
LAN	Acronym for Local Area Network. A group of computers and other devices that are directly connected to each other to enable data to pass between them over limited geographical areas. Most local authorities will have a number of LANs networking computers, printers, plotters and scanners in the office.

<i>Name</i>	<i>Definition</i>
Laserdisc	Also known as CDV (Compact Disc Video) or Video Disc. Originally launched by Philips. It was renamed Laserdisc by Pioneer, Philips, Matsushita and Sony in 1990. It stores analogous images and digital sound. The quality of the images is excellent. Laserdisc players can be connected to TVs and Hi-fi systems.
Latency	Time which elapses between ordering information and receiving it through an interactive system. PC users on a crowded Ethernet network get a demonstration of latency.
LEO	Low Earth Orbit
Letterbox	Format used to describe a TV image with black bands at the top bottom of the screen to fit a movie format into a 4:3 TV screen format.
list serv (or list server)	A type of group discussion that is email based. A user subscribes to a list serv and joins the mailing list for information and discussion. A list serv can be moderated (all emails are filtered by an administrator) or unmoderated (free-for-all).
Local Area Network (LAN)	A network for communication between computers confined to a single building or in a closely located group of buildings, permitting users to exchange data, share a common printer or master a common computer, etc. Linked groups of LANs extended over a larger area are termed Wide Area Networks (WANs). WANS may connect users in different buildings or countries. Networks which extend over city-wide areas are called Metropolitan Area Networks (MANs).
Local loop	The section of the telephone transmission network between the local telephone exchange and the subscriber's premises, which currently consists of copper wiring. In the future, optical fibre or wireless will also be used.
Low Earth Orbit (LEO), LEOS (Low Earth Orbit Satellite)	Proposed system of personal telecommunications based on communication via a number of satellites in low orbit. The best known of these proposal is called the "Iridium" project.
MAN	Metropolitan Area Network
Marie Curie	Training fellowships supported by FP-5. Of these, IST itself only supports "Host" fellowships for young researchers.
Mb (aka 'Meg')	Acronym for megabyte. A measurement unit for data, usually found when describing either the data capacity (bandwidth) of an internet connection or the memory/hard drive capacity of a computer.
MEO	Medium Earth Orbit
Metropolitan Area Network (MAN)	Network which extends over city-wide area.
MIME	Acronym for Multipurpose Internet Mail Extensions. A method of encoding an email message for transmission widely used by PC users.

<i>Name</i>	<i>Definition</i>
Minitel	It is the first global experience of telematics and started in France in 1984. It was the precursor of the electronic highway. France Telecom is currently working on a network "Télétel Vitesse Rapide" which allows to obtain information far more quickly.
MITI	Ministry of International Trade and Industry (www.miti.go.jp)
MM	Multimedia: The concept of closely combining voice, text, data, as well as still and moving image. A multimedia database, for example, would contain textual information, images, video clips, tables of data, all equally easy to access. A multimedia telecommunications service (such as B-ISDN) would permit the user to send or receive any of these forms of information, interchangeability at will. (Multimedia on ISPO)
Mobile Telephone, Cellular	A system of mobile telephony whereby a country is divided into thousands of small areas (cells), each of which is served by its own "base station" for low-powered radio transmissions. This allows a user in one cell to transmit on the same frequency as another user in another cell without interfering in each other's conversation. Cellular networks may employ analogue or digital transmission. Existing networks are largely analogue, while new networks use the European GSM digital standard.
Mobile Telephone, CT2 (2nd Generation Cordless Telephone, "Telepoint")	An economical system of cellular telephony. Unlike full cellular, the user may not move from cell to cell during the call. The service is commercialized as "Bi-Bop" in France, "Greenpoint" in the Netherlands, "Pointer" in Finland, etc.
modem	(From modulation-demodulation). A piece of equipment that connects a computer to the Internet or other remote service via a telecommunications line, translating the digital data to analogue for transmission, and back to digital again for use.
Modem (MODulator-DEModulator)	Device which transforms analogous signals transmitted by telephone lines into digital signals which can be transmitted by computer and vice versa.
MOEMS	micro-opto-electro-mechanical
MPT	Ministry of Posts and Telecommunications (www.mpt.go.jp)
Multimedia (MM)	The concept of closely combining voice, text, data, as well as still and moving image. A multimedia database, for example, would contain textual information, images, video clips, tables of data, all equally easy to access. A multimedia telecommunications service (such as B-ISDN) would permit the user to send or receive any of these forms of information, interchangeability at will.
Multiplexed Analogue Components (MAC)	TV transmission system, pioneered in the UK in the early 1980s, in which the colour signals are time division multiplexed, thus, interference between chrominance and luminance does not occur as in PAL. In the D2-MAC version, sound is carried as digital data sent in a duobinary form (hence the "D" letter) at 10.125 Mbits/s.

<i>Name</i>	<i>Definition</i>
Multiplexing	In telecommunications terminology, this term means carrying multiple signals on a communications carrier channel. In recent cable programming terminology, it refers to "cloning" one cable channel, like MTV or HBO, into multiple, complementary channels to reach a broader audience. The device that makes this possible is called a "multiplexer" or "mux".
MUSE (Multiple Sub-Nyquist Encoding)	The signal compression methods developed in Japan for the satellite delivery of HDTV signals.
Natural Language	Possibility of interact with a PC using words of daily language.
Navigator's Guide	In interactive TV it is the system to choose among the proposed programme.
Network	Communication Networks correspond to a complete system of communications between user's terminals. Networks may be "point to point" (the transmission goes from a fixed origin to a fixed destination), "switched" (the transmission is switched so as to reach a single destination out of many) or "broadcast" (the transmission goes simultaneously to multiple destinations). Networks may be "public" (owned by an operator and open to any member of the public that subscribes) or "private" (owned or leased by an individual or company or group of companies exclusively for its own use).
Network Operating System	Software that allows a PC or a larger server machine to manage files and handle other central networking functions.
Network, Data	A network specialised in the transmission of data rather than voice. Among such networks are Circuit Switched Data Networks (CSDN), Packet Switched Data Networks (PSDN), Frame Relay Networks and Switched Multimegabit Data Service Networks (SMDS).
Network, Intelligent	An intelligent network includes sophisticated features superior to those of the ordinary telephone service, such as advanced software allowing the customisation of the services provided to individual customers. For example, it allows the called party to redirect calls intended to another terminal (e.g. from a home phone to an office phone). It allows calls to be billed wholly or in part to somebody else than the caller ("free phone" services). It also provides virtual private network services.
newsgroup (aka discussion group)	A discussion forum using the Internet as an interface. Users are able to respond to each other using a method similar to email.
N-ISDN (Narrowband ISDN)	A single network capable of carrying several different types of service, based on voice, data, still or moving image - by means of digital transmission techniques. The ISDN (Integrated Services Digital Network) currently being deployed in Europe carries a communication of up to 2 Megabits/second (Narrowband ISDN). Future networks will carry higher speed communications (Broadband ISDN).
NIST	National Institute of Standards and Technology (www.nist.gov)
Node	Point of connection and conversion between fibre optic and coaxial cable.

<i>Name</i>	<i>Definition</i>
NSF	National Science Foundation (http://212.208.8.14/nsf.htm)
NVOD	Near Video On Demand
OECD	Organisation for Economic Co-operation and Development (www.oecd.org)
OEM	Original Equipment Manufacturer
OGC:	Open GIS Consortium - http://www.opengis.org
OMG	Object Management Group (www.omg.org)
ONP	Open Network Provision
Open Network Provision (ONP)	Principle of non-discriminatory opening of telecommunication networks to all telecom operators and service providers on the basis of the harmonisation of access and usage conditions of telecommunications infrastructures with the view to develop a trans-European information market. The ONP is being applied to leased lines, packet switching transmission services and ISDN, and will be applied to voice telephony in 1998.
Optical Fibre Network	Telecommunication networks based on fined glass fibres, down which signals may be sent by flashing a laser.
ORA*	Opportunities for applications of information and communication technologies in Rural Areas (1990-1994); Specific programme of research and technological development (EEC) in the field of telematic systems in areas of general interest - Telematics systems for rural areas.
PABX (Private Automatic Branch Exchange), PBX (Private Branch Exchange)	The private switchboard located on one's premises and by which a business subscriber controls the calls on his own internal telephones.
PAL (Phase Alternation Line)	West German-developed colour TV systems used in most of Europe, Africa, Australasia and South America. Like SECAM, PAL produce interlaced 625-line, 25 frame/second pictures.
Pay-per-view	Programming sold on a per-occasion or per-title basis. Access can be controlled electronically in response to subscriber orders using an addressable cable converter. Digital Signals switching the service off or on are sent to that converter's unique "address".
PC	Personal Computer
PCM (Pulse code modulation)	The most common way of converting an analogue source into a digital form.
PDF	Acronym for Portable Document Format. A type of file that takes large documents and represents them graphically. If you encounter a document with this extension, you will need a special program called Adobe Acrobat Reader to open it. You can download the Acrobat Reader free from http://www.adobe.com to your own computer.

<i>Name</i>	<i>Definition</i>
permanent modem connection	An internet connection that is permanently dialled up through an Internet Service Provider to the Internet, allowing 24 hour access for users.
Personal Communication Network (PCN)	A form of cellular telephone network specifically adapted for personal portable use based on a technology known as DCS 1800. Such services are currently being deployed in Europe. Similar services in the USA are referred to as PCS (Personal Communication Services).
Personal Digital Assistant (PDA)	A pocket sized personal computer with advanced features and communications facilities, where text is introduced by handwriting on a screen, also referred to as "notepad" computer.
plug-in	A specialist piece of software that 'connects' itself to a web browser to enhance its capabilities. Plug-ins are usually available via the web.
POP	Acronym for Point of Presence. The regional hub used by an Internet Service Provider to connect users to a network. Acronym for Post Office Protocol. A protocol which allows a user to access their email.
Portability	Used in reference to a computer programme, portability means that the programme can be executed on a number of different computers without or with only minimal changes.
Pre - Registration	Procedure by which proposers notify the Commission of their intention to submit a proposal
PRI	Primary Rate Interface
Protocol	Standard rules that govern how computers talk together.
PSTN (Public Switched Telephone Network)	The everyday telephone network used for the transmission of voice conversations, fax images and for low speed data transmission.
PTO	Public Telecommunication Operator
Radio messaging	Sending of messages via radio waves.
RAM	Acronym for Random Access Memory. Memory capacity of a computer that can be used for carrying out functions.
RAS	Acronym for Remote Access Server. A product which allows remote computers to dial into a particular LAN server in order to access files and run programs. This mechanism requires a certain level of security to be implemented onto the IAN. Your network administrator should be able to provide more information on security issues.
Research Infrastructures	Facilities necessary for conducting research or for supporting the researchers. These may include research institutions, laboratories, test beds and other specialised research equipment, communications networks dedicated to research (including the Internet), libraries, learned bodies and other sources of knowledge.

<i>Name</i>	<i>Definition</i>
Research Training Networks	Promote training through research especially of researchers at pre-doctoral and at post-doctoral level
Roadmap	Part of the workprogramme indicating which Action Lines are opened in each Call for Proposals, and at which time. The roadmap provides a means of focusing attention on areas or sub-areas of the Programme in any specific Call, thereby optimising opportunities for launching collaborative projects and establishing thematic networks.
RPI	Retail Price Index
RTD	Research and Technology Development. RTD is also used to indicate one of the "types of actions addressed" in the Action Lines description. It then refers to R&D, Demonstration or Combined projects as defined in the Guide for Proposers.
Sampling	The transformation of an analogous signal (Sound Image) into a digital code. Sampling consists of the analysis of electronic signals at regular and brief intervals. A large number of synthesisers produce sounds created by sampling.
Satellite Dish	Device necessary to get channels broadcast via satellite. The diameter varies from 60cm on.
SDH	Synchronised Digital Hierarchy
search engine	Website designed specifically to allow users to search the web by entering key words, which the engine then uses to locate matching sites.
Security of Information and Systems	It has three basic components: confidentiality, integrity and availability. Confidentiality refers to the protection of sensitive information from unauthorised disclosure. Integrity means safeguarding the accuracy and completeness of information and computer software. Availability relates to ensuring that information and vital services are available to users when required.
Server	The machine that talks to clients. More precisely, anything from a PC to a supercomputer that shares files and other services with multiple users.
shareware	Free evaluation copies of software made available via the Internet by software developers. The most useful types of programs include graphics programs, HTML editors and web design programs. A good site to start looking for shareware is Shareware.com which you can find at http://www.shareware.com
SiC	Silicon Carbide
SiGe	Silicon Germanium
Smart Card	It is a card that is able to store digital information. It was created in 1974 and used for many purposes since (e.g. credit cards, telephone cards).

<i>Name</i>	<i>Definition</i>
SMTP	Acronym for Simple Mail Transfer Protocol. The standard internet protocol for sending and receiving email.
SOC	Systems on a- hip
Software	That which belongs to the domain of intellectual creation in contrast to the appliances which facilitates their reproduction. The programmes for computers, CD-ROM and video games are all software.
SOI	Silicon on -insulator
Subcontractor	For specific tasks of a fixed duration, a proposal / project may include sub-contractors, who do not participate in the project and do not benefit from the intellectual property rights acquired through achievements of the project.
Submission Date	Equivalent to the closure date of a Call. The precise date and time by when proposals need to have been received by the Commission Services.
S-UMTS	Satellite-Universal Mobile Telecommunications System
Switchable	Ability of a communication network to allow subscribers to conduct two-way dialogue, or the number of screens on a network.
Synthetic Image	An image created by computer software. Many of the sequences featuring dinosaurs in Jurassic Park were created using 3D synthetic images.
Take-up measures	Measures stimulating diffusion and utilisation of technologies developed under RTD projects. A specific form of Accompanying Measure
TCP/IP	Acronym for Transmission Control Protocol/Internet Protocol. Default protocol used by UNIX systems to route information packets over a local or wide area network. The standard protocol upon which the Internet is based.
TDAB	Digital Audio Broadcasting
TDVB	Terrestrial Digital Video Broadcasting
Telematics	The application of information and communications technologies and services, usually in direct combination. A Telematics Application is a system or service meeting User needs. (Telematics Applications within the 4th Framework Programme)
Telematics Infrastructure	The assemblage of telecommunications and information-processing systems and services that offers a base for telematics applications.
Teleservice	A service provided from a remote location using the telematics infrastructure.

<i>Name</i>	<i>Definition</i>
Teleworking	Work carried out using the telematics infrastructure at a place other than that where the results of the work are needed. This definition covers home, mobile or "telecottage"-based teleworkers employed by an organisation, independent workers and teleservice companies offering specific services to both firms and individuals.
Telnet	Internet service similar to Gopher which provides access to, and use of, the services of a remote computer.
TIC	Technologies of Information and Communication
Token Ring	The networking scheme most closely associated with International Business Machines Corp. The term comes from a type of data packet, called a token, that is used to keep multiple computers on a network from talking at once. Each user's turn comes as the token passes in turn around the ring of computers of the network.
Trials (for users and suppliers)	Type of Take-up measure supported by the Programme: See definition in Annex 1
Ubiquitous	Refers to "anywhere any time"
UMTS	Universal Mobile Telecommunications System
Universal Service	A set of basic services that must be made available at an affordable price to all users by public or private operators irrespective of the user's geographical location.
UNIX	a standard operating system which runs on many servers and minicomputers
URL	Acronym for Uniform Resource Locator. An address for a web site. For example, typing http://london-research.gov.uk brings you to the opening screen, or homepage, of the London Research Centre.
USENET	A distributed, internet-wide bulletin board system that is the basis of network news.
User	A person or organisation using a Telematics Application.
uuencode	A method for encoding an email message for transmission. Not suitable for use with some email programs, as the receiver requires a program called uudecode to turn the email into readable data.
Value Added Service (VAS), Value Added Network Service (VANS)	Services other than those under monopoly may be offered by other service suppliers which use national network as the basic transmission medium but "add value" to the basic transmission facility. What is exactly included in the notion depends on the regulatory situation of each country.
VANS	Value Added Network Services
VAS	Value Added Services

<i>Name</i>	<i>Definition</i>
Video-on demand	Systems that enable the viewers to order and see a given programme at the exact time the viewer specifies. Near-video-on-demand (NVOD) systems approximate this capacity. This can be accomplished by staggering the start of a programme every 15 or 30 minutes.
Virtual Reality	Computer-based systems that supply the visual and aural effects to project the viewer into an imaginary environment beyond the screen. The user is supplied with computer-generated images and sounds giving the impression of reality. The user interacts with the artificial world by means of sensors and apparatus including helmets ("visiocasque") and gloves which link the user's perceptions and movements and the audio-visual effects. Future work in virtual reality is directed towards increasing the impression of reality, for example by means of 3D images, and transmitting "virtual reality worlds" to users located remotely from the source computer.
Virus	Small informatics programme able to disrupt the functioning of other programmes.
Visiopass	It is a decodificator that enables the user to contact a video on demand service.
VOD	Video On Demand
VPN	Virtual Private Network
VR	Virtual reality
VSAT	Very Small Aperture Terminal, digital satellite data network with small antenna – diameter
W3C	World-Wide Web Consortium
WAN	Acronym for Wide Area Network. A physical communications network that operates across large geographical distances.
WAP	Wireless Application Protocol
WDM	Wavelength Division Multiplexing
Wide-Area Network (WAN)	A complement to LAN. A WAN consists of multiple local networks tied together, typically using telephone-company services. WANs may connect users in different buildings or countries.
Winsock	(From Windows Sockets). A protocol for allowing Windows programs to communicate with the Internet.
WWW	Acronym for World Wide Web (or just plain Web). An internet service that allows users to view and interact with documents, through graphical interface software called a web browser.
XML	Extensible mark-up language

2 METHODOLOGIES AND APPROXIMATIONS

This section collects some methodological remarks on indicator construction. They are included here as an *aide-memoire*, and contributions are encouraged.

In compiling statistics on the ICT sector, a number of methodologies and approximations have to be adopted. The most important of these are outlined below and should be added to as appropriate, and borne in mind in developing indicators. Statistics will be compiled on the basis of information made available by Member countries, in most cases the national statistical agencies, and by utilising indicators developed from data held in other internationally available databases.

Alignment of Sector Definitions

It is not always possible to develop indicators that align precisely to the standard definition. This is mainly because countries generally use an industrial classification developed specifically for their own country and this often differs to some degree to the International Standard Industrial Classification (ISIC). Data are also shown for different time periods and hence there may be some differences occurring because of changes in industrial classification over the period under review. We should note where definitions differ from those used in national statistical publications; the statistics reported will be different.

Telecommunications Industry Data

In some cases, data are not available for the telecommunications industry from national sources. In such cases, data must be compiled from other databases designed to measure the telecommunications industry. In these cases the original data source is generally the published reports of the major telecommunications carriers operating in a particular country.

International Trade Data

International trade data can be derived from the OECD's Foreign Trade Statistics database and the IMF's Balance of Payments database. These databases contain information about commodities. Industrially classified international trade data is derived by summing commodities into industries on the basis of the industry of which each particular commodity is considered to be "primary". Within ISIC, commodities are "primary" to one, and only one, industrial class. For trade in ICT services, the following categories have been selected by OECD: Communications services, and Computer and information services. For trade in ICT goods, data are from the manufacturing industries (in ISIC Rev. 3) included in the OECD ICT sector definition.

Research and Development

Research and development expenditure data are mainly derived from OECD databases (the R&D and ANBERD databases) containing business expenditure R&D data. The original source for these data are the agencies that undertake national R&D surveys in Member countries. In this connection, we should note that some countries go far beyond the common level. We may wish to use these as indicators, acknowledging that coverage is limited. Where data are only available at a more aggregated level than required to meet the ICT sector definition, data can be prorated to industrial classes.

Data should be placed on a common currency basis on the basis of OECD derived purchasing power parity price indices. OECD's economy-wide PPPs are not the most suitable for sectoral price comparisons, as they do not reflect price differences at the sectoral level. However, they are the only measure that is available to adjust for aggregate price differences between countries.

Derivation of ICT Intensity Measures

To present an indication of the importance of the ICT sector it is necessary to develop measures of ICT intensity in each country. This can be approximated (cf OECD report) by comparing the ICT sector to

the the business enterprise sector along a range of dimensions – employment, value added, research and development and total trade (imports plus exports). This gives a set of measures of ICT intensity. To arrive at an overall measure, individual ICT intensity measures can be broken into groups containing approximately equal numbers of countries: high, medium and low intensity measures. These indicators can be brought together in such a way as to enable broad country groupings to be formed. This implicitly involves *weighting* the indicators. As there is no objective way of arriving at a precise set of weights, final groupings are somewhat subjective. Thus, no attempt should be made to rank countries within their final groupings.

