04

annual report 2004

ETSI

European Telecommunications Standards Institute

What is ETSI?

The European Telecommunications Standards Institute – ETSI – is an independent, non-profit making organisation, one of the largest international technical associations in the field of information and communication technologies (ICT), including telecommunications and broadcasting. Based in Sophia Antipolis in the south of France, ETSI currently numbers over 600 Members from 56 countries around the world – including manufacturers, network operators, administrations, service providers, research bodies and users – an impressive array of international expertise, all working together towards the ultimate goal of a universal information network.

- **ETSI is dynamic** – designed to meet the needs of a demanding age, it is responsible for standardising some of the most important technologies today.
- **ETSI is innovative** – the youngest of the three European Standards Organisations, founded in 1988 to help establish an integrated communications infrastructure in the newly formed European Market, it was created at a time of change, with a structure and an attitude intended to get things done.
- **ETSI is in touch with the market** – it prides itself on the speed with which it can respond to market need, adapting its working procedures to accelerate time to market.
- **ETSI has a global perspective** – although established as a European body and still having specific European responsibilities, ETSI responds to the global aspirations of many of its members by seeking to have its standards adopted worldwide.
- **ETSI is successful** – officially recognised by the European Union and the European Free Trade Association (EFTA) as the region's competent body for standardisation in telecommunications and related aspects of broadcasting and information technology, ETSI can justifiably lay claim to the success of numerous technologies which we take for granted today – technologies such as the Global System for Mobile communication (GSM™) and Digital Enhanced Cordless Telecommunications (DECT™). Today, ETSI is helping to develop the Universal Mobile Telecommunication System (UMTS™), Electronic Signatures, Broadband Radio Access Networks (BRAN), Digital Video Broadcasting (DVB) and Terrestrial Trunked Radio (TETRA). ETSI's activities are enabling broadband technologies, Voice over Internet Protocol, emerging Next Generation Networks, cable communications, intelligent transport, user accessibility...

Standardisation is an essential requirement for the open exchange of information; without it, the network simply will not work.
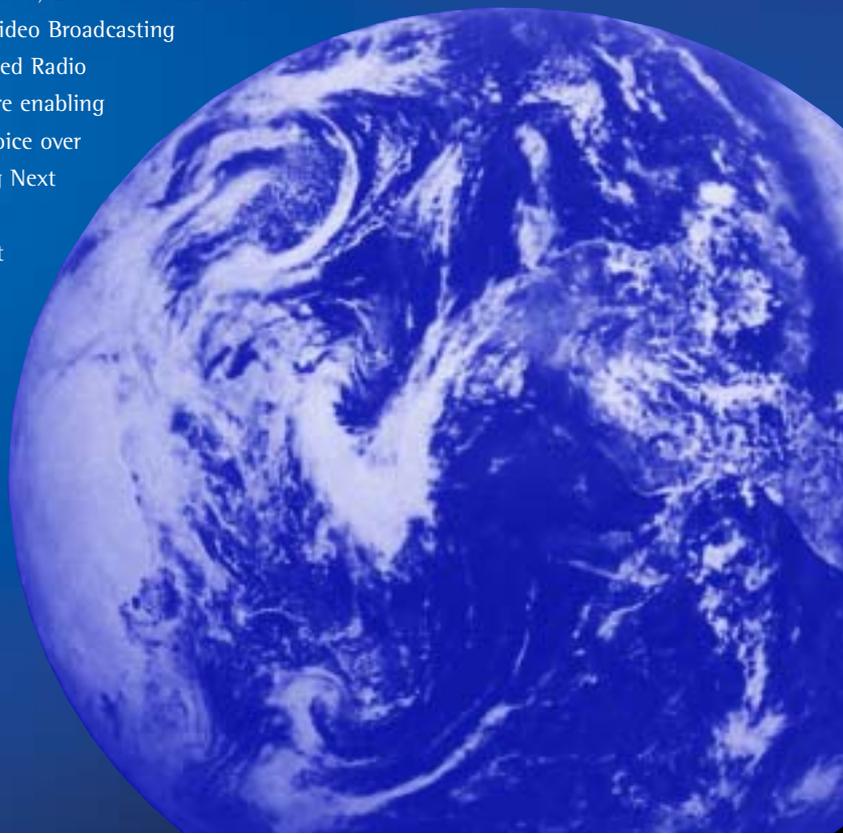
Enabling the Present, Influencing the Future

Looking back on 2004, let us first consider a few statistics.

• ETSI published about 1 400 standards and specifications in 2004; by the end of the year, a total of almost 14 000 deliverables had been produced since the Institute was established in 1988.

• Altogether, 48 Specialist Task Forces (STFs) and other funded projects were active in ETSI during 2004, involving 170 experts and costing a total of about 3,7 M€.

• The STFs target areas where the need for standardisation is particularly urgent. The majority of ETSI's technical work, however, is undertaken in 150 permanent committees and other working groups, which bring together hundreds of experts from organisations all over the world.

ETSI's responsibilities include standardisation in areas as varied as satellite communications, third generation mobile communication, radio spectrum matters, access networks and terminals, telecommunications security, broadcasting, testing, improving user accessibility, quality and low power radio devices. The diversity in ETSI is enormous. Our work influences the next generation of telecommunications technology but at the same time aims to make the most of legacy equipment and services.

Our responsibility is to manufacturers, administrations, service providers and network operators, and, at the end of the line, to each individual user. Our role is crucial to the future of Information and Communication Technologies (ICT). With our standards being adopted both within Europe and throughout the world, ETSI is a major player on the global standardisation scene.

The scope of the task which ETSI performs is awe-inspiring – and more so because most of our experts volunteer their time, seconded from their employment by our members who recognise the importance of standardisation to the market, the economy as a whole and ultimately the user.

Looking back, our successes are well known, though many are unaware whom to credit for the enabling of, for example, Euro-Integrated Services Digital Networks (Euro-ISDN), the Global System for Mobile communication (GSM™), Digital Enhanced Cordless Telecommunications (DECT™), the Universal Mobile Telecommunication System (UMTS™) ...

We can perhaps already pinpoint what may comprise some of our successes in the future. Current innovative projects include mobile communications, broadband technologies and Next Generation Networks (NGN), intelligent transport and emergency telecommunications... This report therefore chronicles some of the achievements of one particular year, but it also points to the future.

Karsten Meinhold
Chairman of the General Assembly
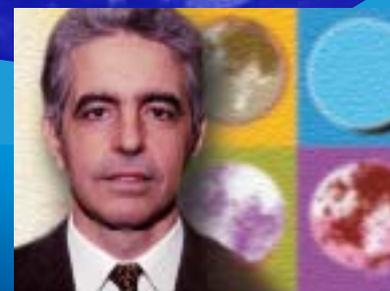
Francisco da Silva
Chairman of the ETSI Board
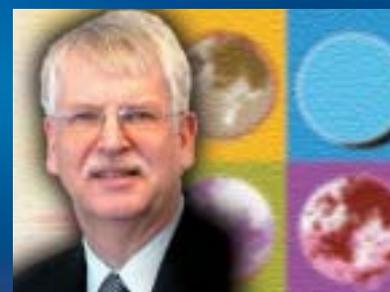
Karl Heinz Rosenbrock
Director-General

Setting the Standards for a New Generation

Technical Highlights of 2004

There were significant achievements in most technical areas. A number of these are highlighted on the next few pages: Next Generation Networks, which will accommodate the diversity of applications inherent in emerging broadband technologies; third generation mobile communications; emergency telecommunications; Intelligent Transport; and human factors in telecommunications, which include some of ETSI's efforts to help ensure that everyone can take advantage of these exciting new developments.

But there are many other accomplishments worthy of mention across the full range of technical areas in which ETSI works. The following are just examples.

Terrestrial Trunked Radio (TETRA)

Compared with figures in 2003, TETRA experienced a 90% increase in the number of contracts placed in 2004 and a 30% increase in the number of countries where TETRA is deployed – now in over 70 countries. Good progress is being made in the development of the TETRA Release 2 suite of standards, which is scheduled for publication in 2005.

Speech Processing, Transmission and Quality Aspects (STQ)

3GPP™ has approved the Distributed Speech Recognition (DSR) Extended Advanced Front-end (XAFE), developed by the Aurora group in ETSI TC STQ, as the recommended codec for Speech Enabled Services for 3GPP Release 6.

Security Algorithms

Work began on the development of new security algorithms for the Universal Mobile Telecommunications System (UMTS™) radio interface (UTRA), which will serve as alternatives in case of a possible future breach of security.

Methods for Testing and Specification

Working with the support of various member organisations, ETSI TC Methods for Testing and Specification (TC MTS) launched a new website to provide an easy-to-use guide to anyone involved in writing (or reading) communications standards to ensure the highest possible quality. The website is based on the Committee's immensely successful paper book version of 'Making Better Standards' that was first published in 1996. The third edition of the Testing and Test Control Notation version 3 (TTCN-3) specification was also completed.

Electronic Signatures

Good progress was made on the specifications needed to enable secure information exchange between European Union and US government agencies and for public sector services, in areas such as education and health.

Broadband Radio Access Networks

The first version of HiperMAN, fully harmonised with IEEE 802.16-2004, was published in 2004. The first HiperACCESS-compliant products rolled out at the end of 2004.

NGN@Home

Standardisation work on NGN@Home progressed well throughout 2004. The first NGN@Home Release is expected to be published in 2005.

Multimedia Messaging Service (MMS)

Major progress was achieved in 2004 with the publication of the base set of specifications required for MMS for fixed networks, including solutions based on IP.

Powerline Telecommunications (PLT)

Two important ETSI Technical Reports were published in 2004: one on emissions characteristics and measurement methods of state of the art PLT communication networks; the other covering statistics, results and measurement methods for emission, attenuation and noise.

ETSI standards reach the summit – the highest Base Tranceiver Station in the world, at 4000m, in Tibet. Implementation of the GSM for Railways (GSM-R) standard continued to spread in 2004, both in Europe, where it was adopted by the ten new European Union (EU) Accession countries, and further afield, in China and India.
Photo courtesy of Nortel

Low Power Radio Devices

ETSI TC Electromagnetic Compatibility and Radio Spectrum Matters (TC ERM) is involved in diverse applications of low power radio devices.

The market for Radio Frequency Identity Devices (RFIDs) is beginning to experience significant growth, as major retail chains are recognising the value of RFIDs as an alternative to bar coding. Their use took a significant step forward in 2004 with ETSI's approval of a new standard for a UHF RFID. Its impact has been increased by the fact that the Frequency Management Working Group of the European Conference of Postal and Telecommunications Administrations (CEPT) has since agreed to make the frequency band associated with this standard available in their 46 Member countries.

Following a series of avalanches in Chamonix, France, ETSI was mandated by the EC to develop a standard for avalanche beacons, which was duly published in February 2004.

There has also been further growth in the standardisation of implantable medical devices.

TC ERM is creating the necessary standards to enable various Ultra Wideband (UWB) devices. A Harmonised Standard is being produced to prevent short range communication devices interfering with other services including 3G cellular telephones and radio astronomy. A second Harmonised Standard in this area, to cover ground and wall probing radar (to pinpoint plastic pipes, gas mains, buried bodies etc), is due for publication in 2005, and new work has begun on tank level probing radar.

Short Range Device (SRD) technology is developing with the proposed introduction of listen before talk protocols to improve spectrum efficiency; TC ERM expects to see the relevant standardisation in place during 2005.

The standards for Dedicated Short Range Communications (DSRC) used in the electronic fee collection area, developed in collaboration with the European Committee for Standardisation (CEN278), were finalised in 2004.

DECT™

ETSI Project DECT (EP DECT) has been responding to the growing demand for the support of data services and the constant desire to increase available data rates by adding high bitrate modes to DECT. With the introduction of broadband DECT, a bitrate of about 20 Mbit/s can now be supported. This capability will permit, for example, very fast Internet access and the creation of Wireless Local Area Networks (WLANs) based on DECT. In 2004 the coding for the high rate mode was extended to further improve the transmission quality.

Building upon the tremendous success of the DECT Generic Access Profile (GAP) standard, which has been implemented in 99% of DECT products on the market today, EP DECT has produced the DECT Open Data Access Profile (ODAP) specification. In the home, this means that applications such as automatic voice calling or messaging when a fire or smoke alarm goes off, as well as remote control for home appliances, can be connected through a DECT base station to users. In an industrial environment, sensors can be monitored reliably using the protected DECT frequency band and the DECT Dynamic Channel Selection (DCS) mechanism – the best known vaccine against interference and for ensuring high communication capacity.

Smart Cards

A major achievement in 2004 in the evolution of the smart card platform was the completion of Release 6, which includes the specification of large files to allow, for instance, the storage of Multimedia Messaging Service (MMS) files used by 3G systems on the card. The amount of data stored is now limited only by the memory available on the card, while previously it had been restricted to about 65k bytes. At the same time, a higher interface speed was introduced to cater for such large quantities of data. A new Technical Specification on Extensible Authentication Protocol (EAP) support in the Universal Integrated Circuit Card (UICC) was also completed, which specifies the use of a smart card as a secure access device to a WLAN and makes the execution of certain security processes in the PC obsolete.

ETSI and GlobalPlatform, both leading contributors to the standardisation of smart cards and smart card solutions, have aligned their specifications for downloading applications and management commands to smart cards over-the-air. The result of combining ETSI's UICC Specifications and the GlobalPlatform multi-application infrastructure specification is that together they will now provide one end-to-end solution for secure, flexible and remote smart card application life cycle and file management. It means that smart cards which have already been distributed in the field can be updated dynamically and cost effectively over-the-air, whilst ensuring the highest possible security schemes are retained.

Satellite Earth Stations & Systems

Satellite Digital Radio (SDR) systems have proved a huge success in several geographical areas – in the United States, in Japan and Korea – and, less than three years after service launch, have attracted over 3 million subscribers. A new Working Group has been set up in ETSI to provide Europe with a successful system.

Electronic Communications Networks & Services

In February 2004, ETSI's group on Electronic Communications Networks & Services (ETSI OCG/ECN&S) published a Special Report on the EC's new Regulatory Framework Directive. The group's next task is to revise and update the draft list of standards for publication in the EU Official Journal in 2005, thereby initiating a two-way flow of information on standardisation and regulation.

Next Generation Networks (NGN)

Communication services can now be delivered over multiple technology platforms and received via a range of terminals – using fixed and mobile, terrestrial and satellite systems. With this increasing convergence and integration, it is widely expected that the telecommunication services of the future will be delivered seamlessly over the most appropriate access network, with users roaming between domains and networks unaware of the underlying mechanisms that enable them to do so. ETSI is already heavily committed to and is well advanced in developing the necessary standards to bridge these disparate networks and domains and enable them to interoperate.

The new network model based on the extensive use of Internet Protocol (IP), which is designed to accommodate the diversity of applications inherent in emerging broadband technologies, has been dubbed Next Generation Networks (NGN). No single definition of NGN exists so far (and indeed is unlikely ever to exist), but it is generally acknowledged that its architecture relies on a few general principles: a shared core network for all access and service types, packet-based transport technologies, open standardised interfaces between the different network layers (transport, control and services), support for user adaptable interfaces and variable access network capacity and type.

Towards a converged Wireline and Wireless NGN

With the rapid growth of mobile communications and broadband technologies, it is becoming increasingly apparent that fixed and mobile telecommunications are likely to converge on technically similar core network and service platforms. The mobile Session Initiation Protocol (SIP)-based IMS (IP-based Multimedia Subsystem), developed by the Third Generation Partnership Project (3GPP™) in collaboration with the Internet Engineering Task Force (IETF), is IP end-to-end, so that advanced applications and services can be supported seamlessly across all networks. Since SIP-based IMS is at the heart of both 3GPP (GSM™ evolved) and 3GPP2 (cdma evolved) networks, it thus represents a global view – which means that tomorrow's *entire* multimedia mobile world is likely to be IMS-based. SIP is also at the heart of the Internet, particularly for the support of interactive multimedia sessions, and offers inherently advanced features such as Presence Management, Instant Messaging and Group Communications Management. There is therefore an obvious economic benefit in creating a truly converged mass market based on IMS platforms, with potentially enormous economies of scale.

In addition, the development of NGN is timely; there is strong demand from industry, both for new generation multimedia services using xDSL or wireless access, and to furnish a replacement for the obsolescing Public Switched Telephone Network (PSTN).

Standardising NGN

ETSI's work on NGN is being managed by its Technical Committee TISPAN (Telecommunications and Internet converged Services and Protocols for Advanced Networking). Responsible for all aspects of standardisation for present and future converged networks, TC TISPAN has established eight working groups targeting services, architecture, protocols, numbering and routeing, Quality of Service (QoS), testing, security and network management aspects.

Work on the first Release of TISPAN_NGN deliverables progressed well throughout 2004 and looks on schedule for completion by mid-2005. It will focus on IMS specifications to support xDSL and Wireless Local Area Network (WLAN) access. Release 2, which will address access resource optimisation and new access systems, while also consolidating inter-network domain interfaces, is scheduled for a year and a half later, and Release 3, currently anticipated for 2008, is expected to provide ubiquitous services and enable full nomadicity between various network domains, including between fixed and mobile, with seamless roaming and hand-over.

TC TISPAN is working closely with 3GPP on Mobile/Fixed Convergence, using the IMS core network platform as a starting point and co-ordinating the evolution of their IMS specifications in their respective work plans. Issues being explored by the two groups include: security mechanisms through the use of the Universal SIM Card (USIM) for authentication in NGN, IMS signalling protection and the related Network Address Translation (NAT) and firewall implications (IPv4 and IPv6 support), various security threats and countermeasures, charging, audio and video codecs, bearer QoS classes, service capabilities and the SIP profile. In addition, it has already been agreed that TISPAN_NGN will re-use IMS enablers such as Presence, Messaging, and Groups Management and Conferencing. The concepts of WLAN/3G interworking have also been adopted as the basis for a potential generic IP-access network to achieve true access technology independence in NGN.

If work continues to progress as planned, within a few years, the same core IMS implementation should be possible for both fixed and mobile telecommunications, and the industry will be ready to deploy and exploit multimedia applications for the ultimate benefit of the end-user.

The Third Generation

The Future of 3GPP™

In November 2004, representatives of the operator and manufacturer communities from the mobile communications industry met at a workshop in Toronto, Canada, to examine the long term evolution of 3G radio interfaces defined by the Third Generation Partnership Project (3GPP). They concluded that 3GPP should continue to specify mobile systems until at least 2010, guaranteeing the Project its crucial ongoing role in the development of 3G.

The radio interface between the user's terminal and the base station, and the current architecture of the Radio Access Network are evolving to further enhance customer experience and improve efficiency in the use of a scarce resource – the radio frequency spectrum – while at the same time minimising the requirements for throughput for the last mile of the access network backhaul.

This evolution is centred on packet switching and the use of Internet Protocols (IPs), which will address increased throughput and bitrate, reduced set-up and round-trip delays (vital for most multimedia services), more efficient use of the radio spectrum, and assured interworking between systems using different radio access technologies, including those used for Wireless Local Area Networks (WLANs).

Building on the Toronto workshop, 3GPP will now look at ways of ensuring the continued competitiveness of 3GPP systems in the longer term (typically a 10 year timeframe). The focus is on the radio interface and thus on issues such as modulation techniques, new spectrum arrangements and so on. 3GPP will be looking for economically sound solutions that will provide greater bandwidth, maximise the use of the radio spectrum and offer increased flexibility for the delivery of future services. The purpose is to identify and then standardise the evolutionary path for the 3GPP technology, in the same way that GSM has been evolved from a basic voice system to the General Packet Radio Service (GPRS) and Enhanced Data Rates for GSM Evolution (EDGE).

Release 6

Each 3GPP Release provides mobile operators and equipment manufacturers with a stable reference platform to build networks and terminal equipment. During 2004, the Project's work was dominated by the preparation of specifications for Release 6, which was functionally frozen in December. Over 530 new Technical Specifications and Reports for Release 6 were produced during the year.

At the same time, earlier Releases stabilised. Release 99 – to which initial Universal Mobile Telecommunications System (UMTS™) networks have been built – was confirmed as a solid platform on which to develop commercial service, and the number of approved changes necessary to Releases 4 and 5 also declined sharply, pointing the way for evolution of UMTS networks over the next few years.

The most significant features of Release 6 include IP Multimedia Services (IMS) interworking, the enhanced uplink and WLAN interworking. 2004 saw an explosion of effort to produce the complex and comprehensive test specifications to guarantee that terminals of all provenances can interwork with each other and make full use of the services offered by UMTS networks.

The main features of Release 6 include:
- IMS Phase 2, including...
  - Interworking IMS to circuit switched networks; IMS – non-IMS networks; Interoperability and Commonality (with 3GPP2, IMSCOOP)
  - Group management (Presence, Messaging, Conferencing)
  - IMS Charging
  - Lawful interception
- Multimedia Broadcast/Multicast Services (MBMS)
- Enablers for services like Push-to-Talk over Cellular (PoC) (with OMA)
- WLAN interworking
- Enhanced uplink
- Push services
- Speech recognition and speech-enabled services
- Digital Rights Management (with OMA)
- Adaptive Multi Rate-Wideband + (AMR-WB+) for high audio quality
- Packet streaming (Packet Switched Service)
- Generic User Profile
- Presence
- Charging management for WLAN, PoC etc

Numerous new features are now being specified for Release 7 including:
- MIMO
- 7.68 Mcps Time Division Duplex (TDD)
- GSM/EDGE Radio Access Network (GERAN) conversational services
- Access Class Barring and Overload Protection
- Various enhancements - IMS, Location Services, video and voice services

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Third Generation Partnership Project (3GPP)

ETSI is one of the founding partners of 3GPP, in which the Institute comes together with five other regional standardisation organisations in Asia and the USA, plus market associations and several hundred individual companies. Established to develop globally applicable specifications for third generation mobile telecommunications (the International Telecommunication Union's (ITU's) IMT-2000 family), 3GPP is also responsible for the maintenance and evolution of the specifications for the enormously successful Global System for Mobile communication (GSM™), which was defined by ETSI, and for transitional technologies, including GPRS and EDGE.

Further information is available at:
www.3gpp.org

Emergency Telecommunications

Co-ordination is one of the keys to effective emergency telecommunications. To be able to communicate, it is crucial that both people and the various types of terminals being used can understand each other. This is the task of standards.

Project MESA

The Asian Tsunami tragedy at the end of 2004 graphically highlighted the inadequacy of modern communications when faced with widespread disruption to public telecommunications infrastructures and electricity supplies.

Project MESA (Mobility for Emergency and Safety Applications) is a transatlantic partnership project, established in 2000 by ETSI and the North American Telecommunications Industry Association (TIA), although membership has expanded and the Project now also has members in Canada, India, Korea, Australia and Japan. Its aim is to define a digital mobile broadband system which will revolutionise the efficiency of first responders and rescue squads. It represents the first international initiative to directly involve users and organisations from the public protection, disaster response and civil defence sectors, and brings them together with industry, to produce global telecommunications standards for public safety applications.

Revolutionary Technology

A MESA-capable communications system will directly improve the effectiveness of law enforcement, disaster response, fire fighting, emergency medical services and peacekeeping, and will provide the basis for public safety data systems into the next decade. It will be shared by all the emergency services, which will be able to communicate together and exchange information and resources. And it will be capable of managing anything from a rural traffic accident to an incident of the scale of September 11. Typical applications include the sending of vital information about operators, the transmission of building maps and plans, video monitoring, robotic control, suspect identification and the sensing of hazardous material.

In an emergency or a disaster, the data rates needed for advanced services plus the demand for mobility reach far beyond the scope of current established wireless standards. A MESA system is foreseen as being rapidly deployable at incident locations. The MESA network will be flexible, adaptable, reconfigurable, scalable, ad hoc self-organising, in that network connections will be established automatically once units arrive on the scene without manual configuration.

A Matter of Increasing Urgency

To provide a speedier solution than the development of brand new technologies, Project MESA has adopted a 'System of Systems' approach. No single technology is likely to suffice, and the need to interface with a variety of existing systems will drive a multiplicity of technologies, with communications operating on a variety of networks and systems, from personal area networks, via Wireless Local Area Networks (WLANs) to commercial networks like third generation mobile. Where

necessary, Project MESA will also identify the technical specifications for any new technologies required to provide services not already catered for. The key factor will be interoperability among the technologies and between existing technologies and any new solutions.

Throughout 2004, efforts were concentrated on mapping user requirements onto the technical specifications of the system. Data is now being collected from users and, by the end of 2005, Project MESA should be in a position to define the system technical requirements. By 2006, work is expected to begin on drawing up the final MESA technical system specifications and producing a roadmap for future standardisation activities.

EMTEL

ETSI's Special Committee Emergency Telecommunications (EMTEL) is responsible for identifying the operational and technical needs of those involved in the provision of emergency telecommunications, and for co-ordinating activities in this area within ETSI and with outside agencies.

In 2004 EMTEL made good progress with work on communication between authorities, and between authorities and individual citizens, which will result in the publication of two Special Reports during 2005. Work on communication between citizens is ongoing.

A number of other ETSI committees also deal with aspects of emergency telecommunications, including: EP TETRA, TC TISPAN, TC SES, JTC Broadcast, TC ERM, TC AT, EP DECT™, EP SCP, TC ESI and TC LI, as well as 3GPP™.

One of the targets of the European Commission's eSafety initiative to accelerate the use of intelligent integrated safety systems and improve road safety is the harmonised introduction throughout Europe of eCall, a system of vehicle-based emergency call generation. Several ETSI committees will be involved in providing the necessary standardisation to enable the initiative.

The Future Generation – the Human Angle

The Information Society offers huge potential to enrich everyone's lives. But with new opportunities come challenges. Technology makes things quicker, easier, better. But it is also more complex – and that can make it difficult to use. We must never lose sight of the ultimate aim of all our technological progress – to improve life for the user.

New technologies might well exclude large user groups, especially children, older people and people with disabilities. ETSI has developed many standards to achieve 'eAccessibility' – making Information and Communication Technologies (ICT) accessible to all. Significant support has been provided by the European Commission (EC), under its eEurope initiative, to accelerate the work of ETSI's Human Factors committee (TC HF).

Human Factors is the use of scientific knowledge about human capabilities and limitations, with the aim of making products, services and environments safer, simpler to use and more efficient. Human Factors is thus a key element in the commercial success of new ICT products.

TC HF consults with users and consumer groups to ensure that its work meets their needs, and the committee is working on a number of new technical developments which will improve access for everyone. For example, ETSI's pioneering work on Universal Communications Identification (UCI) will eventually enable all telecommunication users to be identified by a name rather than a long string of characters. But the committee also recognised the enormous potential of UCI to help improve communications specifically for the young, the elderly and disabled people and published an ETSI Guide (EG) on the subject in May 2004.

Design for All and Assistive Technologies

TC HF observes two design principles in its standardisation activities: 'Design for All' is an approach intended to ensure that products are usable by all people, to the greatest possible extent, without the need for specialised adaptation. One of the committee's major achievements in recent years was the publication of Design for All Guidelines for ICT products and services, setting out the characteristics of users and their disabilities and describing the human-centred design process.

Where a Design for All solution is not reasonably achievable, perhaps because a person's abilities are very severely impaired, one possible solution is the use of Assistive Technology (using a technical interface to allow an assistive device to be used to compensate for a handicap). Together, the device and its technical interface enable a user, who is not otherwise able, to access a mainstream device. TC HF published an ETSI Technical Report analysing the results of two surveys on Assistive Technology in January 2004.

By adopting the Design for All approach and ensuring that Assistive Technologies are considered as part of the design process, it is possible to widen access to the Information Society to groups which might otherwise be excluded from its benefits.

TC HF has undertaken and continues to perform ground-breaking standardisation work in other, diverse areas including:
- Generic spoken command vocabulary for basic telephone services and ICT devices, opening up the opportunities for disabled people to access electronic products and services by speech.
- Multimodal interaction, communication and navigation at the user interface of ICT systems and terminals.
- The use of alternatives to visual icons, symbols and pictograms in multimodal interfaces, to accommodate the needs of people with disabilities and the elderly.
- Access to ICT by young children.
- The characters of different European languages on telephone keypads.
- Human factors in call centres.

Standardising the Man-Machine Interface in Telecommunications

To illustrate the timeliness of TC HF's work, we need look no further than one of the fastest changing areas of new technology – the roll-out of 3G mobile communications.

The creation of common, basic interactive elements would make it easier for users to switch from one terminal device or service to another. This would improve the overall usability of the entire interactive mobile environment and encourage the uptake of this new technology. TC HF's work on the harmonisation of basic man-machine interfaces in mobile phones and services resulted in the publication in August 2004 of an ETSI Guide on this subject. The work is being extended in 2005.

New Projects

During 2004, work started in four new eEurope-funded STFs, including a project aimed at producing guidelines on the appropriate design of ICT for young people. Other STFs continue to work on Duplex Universal Speech and Text (DUST) communication (to provide textphone communication for deaf people); the management of user profiles; and Telecare for Intelligent Homes.

Four more STFs were approved to begin work in 2005 on guidelines for real-time person-to-person communication services; mobile eServices; access symbols for use with video content and ICT devices; and users' handling of language issues in broadband and narrowband multimedia communications.

Intelligent Transport

Intelligent Transport covers the use of ICT for road, rail, water and air transport and navigation.

The allocation of spectrum for anti-collision radar in road vehicles is an ongoing issue for the automotive industry. Among the significant decisions of 2004 was the establishment of the use of 24 GHz as an interim measure for anti-collision Short Range Radar (SRR) devices in vehicles. During the year, ETSI Technical Committee EMC and Radio Spectrum Matters (TC ERM) completed the necessary Harmonised Standard, which included a manual switch-off facility to prevent interference with radio astronomy applications. New work was started in October to accommodate automatic switch-off, which should be completed by the end of 2005, well before the deadline for its mandatory use in 2007. Work to enable the use of SRR devices in the 79 MHz range, which will replace 24 MHz by 2013, is ongoing.

Also on the automotive side, the Automotive EMC Directive was revised in 2004. ETSI's contribution helped ensure that non-safety-critical items would not be subject to the more rigorous approval regime required under the Directive. TC ERM also brought the relevant parts of the existing series of standards on EMC compatibility for radio equipment and services into line with the latest version of the Automotive EMC Directive, and the standard for automotive radar for automatic cruise control and anti-collision devices was completed. The standards on Dedicated Short Range Communications (DSRC) technologies, used for electronic fee collection of road tolls and the like, have been finalised.

TC ERM established a new Task Group on Intelligent Transport Systems, dealing with road traffic and transport telematics. Among other issues, it will work on the CALM (Continuous Air-interface Long and Medium Range) technologies used in communication systems for car-to-roadside and car-to-car communication. TC ERM is now also involved with eCall standardisation, a system of vehicle-based emergency call generation.

Achievements in the maritime area included the revision of standards affected by the EC's Inland Waterways Decision and a range of other updates to reflect changes in the work of the International Maritime Organisation (IMO).

Implementation of the GSM-R standard – the Global System for Mobile communication (GSM™) standard which is specific to Railway and Private Mobile Radio (PMR) operations – continued to spread in 2004, both in Europe, where it was adopted by the 10 new members of the European Community, and further afield. China Railways and Indian Railways have both announced that they have adopted the GSM-R standard for their networks. This is a major breakthrough for the introduction of GSM-R as a PMR system in transport telecommunications in Asia. Another milestone in 2004 was the successful establishment of the first cross-border GSM-R communications between the Netherlands and Germany.

On the aeronautical side, ETSI accepted the EC Mandate on the Single European Sky. In response to the Mandate on the Air Traffic Management Network (ATMN), TC ERM will establish a task force in collaboration with other interested parties to identify standardisation needs in this area. Work continued on VHF Digital Link Mode 4 (VDL Mode 4) technology, part of a system which will allow pilots to 'view' other aircraft in their locality without the need for ground support.

In the field of satellite communications, two standards covering the use of Earth Stations on board Vessels (ESV) are nearing completion, which will include the ability for passengers to use the Internet on board ships. One standard covers maritime electromagnetic compatibility for ESVs, the other is a Harmonised Standard for ESVs operating in Ku bands. In 2005 this will be extended with a Harmonised Standard for ESVs operating in the C band.

In November 2004, ETSI and its sister European Standardisation Organisations (the European Committee for Standardisation (CEN) and the European Committee for Electrotechnical Standardisation (CENELEC)) hosted a major conference in Brussels entitled 'Transport – Getting There With European Standards'. The event highlighted how voluntary standardisation, allied to European legislation, can help the transport business to achieve greater efficiency and to strengthen its position against competition from outside Europe.

In-house highlights

Working in Partnership

- A new structured set of partnership agreements has been drawn up to accommodate different types of relationships. Among the numerous agreements signed in 2004 to cement our collaboration with organisations all over the world were Memoranda of Understanding (MoUs) with the China Communications Standards Association, the NATO Standardisation Agency and the Electronic Communication Committee (EEC) of the European Conference of Postal and Telecommunications Administrations (CEPT). In May, ETSI's co-operation agreement with the Telecommunications Industry Association (TIA) of the United States was renewed for another three years.
- In February 2004, the three European Standards Organisations (the European Committee for Standardisation (CEN), the European Committee for Electrotechnical Standardisation (CENELEC) and ETSI), together with the Open Group and the World Wide Web Consortium (W3C), signed a contract with the European Commission (EC) for the establishment of the Co-operation Platform for Research and Standards (COPRAS). COPRAS will provide information on ICT standards and Research and Technology Development, and will help improve standards awareness.
- Forapolis continues to provide support services to the Open Mobile Alliance (OMA). Forapolis is actively seeking new contracts and negotiated with a number of potential clients in 2004.

A busy year for our hard-working Secretariat

- To provide greater flexibility, technical support resources were reorganised in 2004, with the establishment of two new Competence Centres: Fixed and Radio.
- Completion of the purchase of our premises in Sophia Antipolis from France Télécom.
- Publication of the new ETSI Intellectual Property Rights (IPR) Guide, which places special emphasis on the 'timely disclosure of Essential IPRs', together with the undertaking to grant license on FRAND (Fair, Reasonable And Non Discriminatory) terms and conditions. A total of 106 companies made IPR Information Statements and Licensing Declarations to ETSI. By September 2004, ten years after the adoption of the ETSI IPR Policy, the Institute's on-line database had topped 12 500 entries.
- Establishment of a High Level Review Group (HLRG) to review ETSI, its tasks, structure, strategy, standardisation policy, financing and directives.
- Completion of the reorganisation of the ETSI Secretariat, with positive results.
- The Secretariat with its many teams continues to work at a very high level of efficiency. Further refinements were also undertaken in the Information and Services area. The Secretariat successfully obtained renewal of its ISO Quality Certificate (ISO 9001:2000) for another three years. The auditor commented: 'The level of professionalism in the ETSI Secretariat is far beyond what you find elsewhere!'. The Quality Team carried out internal audits and launched a new newsletter to inform staff about Quality actions.

Standards for Europe and Beyond

With the spread of technological development, regional boundaries are becoming blurred; the harmonisation of standards around the globe is essential for effective international communications. As a result, although responsible for standards within Europe, ETSI's influence worldwide continues to grow. Throughout 2004, the Institute supported a number of projects which have had a significant impact on different regions of the world. In particular, three EC-funded initiatives featured prominently in ETSI's activities in 2004.

eEurope

ETSI has continued to respond to public policy issues, including the EC's eEurope initiative. eEurope-funded work related to broadband infrastructure, security, eHealth and eInclusion was ongoing throughout 2004. Negotiations with the EC continued on several fronts throughout the year to secure funding for new proposals, and financing was awarded for activities on IPv6 testing, further work on eInclusion, Broadband Satellite Multimedia, security criteria, background noise and to support three interoperability events.

@LIS

ETSI is heavily committed to @LIS, a four-year co-operation programme to enhance collaboration between Europe and Latin America on issues related to the Information Society. Within this framework, ETSI is responsible for designing and implementing a 'Dialogue on Standardisation' to promote the European standardisation system, as well as establishing medium/long term partnerships in the development of telecommunication standards. Initial tasks have concentrated on establishing key contacts in Latin America, defining the deployment strategy and introducing and promoting the dialogue among Latin American institutions and stakeholders. ETSI has attended numerous meetings, exhibitions, seminars and other events throughout Latin America, and our plan of action for the second year has been endorsed by the EC.

Matchmaker

The Matchmaker programme was launched in 2003 to help prepare the accession states before they joined the European Union (EU) in May 2004. ETSI's contribution was a series of seminars in each country to introduce the European standardisation process, the EU Directives on telecommunications, the Single European market and the economic benefits of standardisation. ETSI marked the formal end of the Matchmaker initiative in August 2004 with a wrap-up meeting in Sophia Antipolis. Altogether under this initiative, ETSI held 15 meetings, taking its message to all 10 accession countries plus four states which hope to join the EU in the future.

Promotional activity

In another busy year, ETSI issued 46 press releases and hosted a number of conferences and exhibitions for partner fora, including the Pulver Executive Summit. During the year, ETSI and Sun Microsystems organised a major conference on the Future Generation, looking at the technical, social and legislative influences on ICT, and four workshops on Standards and Services of the Future, organised in co-operation with the Casa Nova Project at the University of Nice, were held at ETSI headquarters.

ETSI, together with CEN and CENELEC, organised a major conference on Intelligent Transport Systems in Brussels in November.

ETSI Competence Centres

To support its technical bodies, ETSI has developed competence and service centres, which concentrate key skills and serve the whole organisation in a way which increases efficiency, streamlines ETSI's processes and better addresses market needs. To provide greater flexibility, technical support resources were re-organised in 2004, with the establishment of two new Competence Centres: Fixed and Radio.

Fixed Competence Centre (FCC)

The Fixed Competence Centre supports a broad spectrum of committees: Next Generation Networks (NGN) is the key focus, but other important work is being undertaken in areas such as security, quality of service, lawful interception, electronic signatures, human factors and the fixed network multimedia messaging service (F-MMS).

The NGN work is led by Technical Committee TISPAN, with the major objective of ensuring seamless fixed-mobile convergence from a service perspective. The TISPAN_NGN work programme has 31 work items in its initial phase, focussing on services and requirements; network management; architecture and the protocols to support supplementary services.

Mobile Competence Centre (MCC)

The Mobile Competence Centre continues to provide support to 3GPP and the related ETSI committees, TC Mobile Standards Group (TC MSG), EP Railway Telecommunications (EP RT) and EP Smart Card Platform (EP SCP).

As predicted, there has been an increasing demand for the development of Testing and Test Control Notation (TTCN) test suites, including those for the low chip rate Time Division Duplexing (TDD) mode being developed in China. This work is being accelerated by the voluntary contribution of a number of experts from Chinese industry.

The early Releases of the 3GPP system specification are now rapidly stabilising. Release 6 was frozen in December 2004, with a consequent rise in the number of Change Requests (CRs) being processed.

Radio Competence Centre (RCC)

The Radio Competence Centre provides a focal point for support activities for committees involved in radio standards, including activities in the field of satellite communication (specifically the Galileo project), public safety, broadcasting (especially DVB and digital radio) and in the transport sector, particularly the automotive (intelligent transport systems) and aeronautical areas (the Single European Sky). The RCC also liaises with radio regulators, the European Conference of Postal and Telecommunications Administrations (CEPT) and the European Commission on radio spectrum policy issues. In addition, work in 2004 included assistance to ETSI Project Terrestrial Trunked Radio (EP TETRA), towards the finalisation of the high speed standard TETRA Enhanced Data Service (TEDS) – a major step for TETRA Release 2 – and helping to raise awareness of the Partnership Project MESA.

The Protocol and Testing Competence Centre (PTCC)

The PTCC assists ETSI committees with technical support and the management of protocol specification and protocol testing standardisation activities, helping to improve the technical quality of ETSI standards and shorten standardisation time.

In 2004, the PTCC assisted the MTS IP Testing group in the development of an IPv6 test framework, and organised the TTCN-3 User Conference, which proved so successful that it is to be repeated on an annual basis. Continued support was given to 3GPP terminals conformance testing, to TISPAN_NGN and to TISPAN/CN5/Parlay Group activities.

Validation of HiperACCESS progressed, using advanced specification methods. Virtual protocol testing based on the User Datagram Protocol/Internet Protocol (UDP/IP) was used as an economic and fast-track alternative to traditional approaches.

New test specifications are now under development for IPv6 Interoperability, Digital Mobile Radio (DMR) and Dedicated Short Range Communication (DSRC).

Plugtests™

2004 marked a milestone for Plugtests, the ETSI Interoperability Service. It was a very busy year; 18 events were mounted compared with 13 in 2003. In October 2004, with the 5th IPv6 test event, the service notched up its 50th Plugtests event since its creation in 1999. Altogether, over the last five years, Plugtests has organised 57 test events, mobilising more than 900 companies and 2 500 participants.

The Plugtests Service is a professional unit specialising in running interoperability test events for a wide range of telecommunications, Internet, broadcasting and multimedia converging standards. Plugtests events provide feedback into standards-making, enhancing the quality of the final deliverable. They also help guarantee interoperability, which is crucial to the successful deployment of new technology.

In response to market demand and the needs of ETSI members, the service extended its range in 2004, adding new topics such as e-business (ebXML), GRID, F-MMS, Public Key Infrastructure (PKI) and Electronic Numbering (ENUM). At the same time, it continued to host events to support technologies such as Signalling Transport (SIGTRAN), Smart Cards, Digital Subscriber Line (DSL), Powerline Telecommunications (PLT) and Speech Quality, which are consistently well subscribed. In particular, the demand for the third Speech Quality test event was so large that it was necessary to organise one event in Europe in June and a twin event in the US in September.

The Plugtests service also supports the European Commission in its eEurope initiative, organising numerous events to help enable the widening of broadband access and the delivery of a range of 'e-services'.

Standards Production

Compared with 2003, the number of deliverables published in 2004 dropped (from more than 1 800 to about 1 400). This fluctuation is due in large part to the pattern of work involved in the preparation of 3GPP Release 6. A large number of specifications were published in the first few weeks of 2005; indeed output in 2005 is predicted to be ETSI's second highest record ever.

By the end of 2004, ETSI had published a total of almost 14 000 deliverables since the Institute was established in 1988.
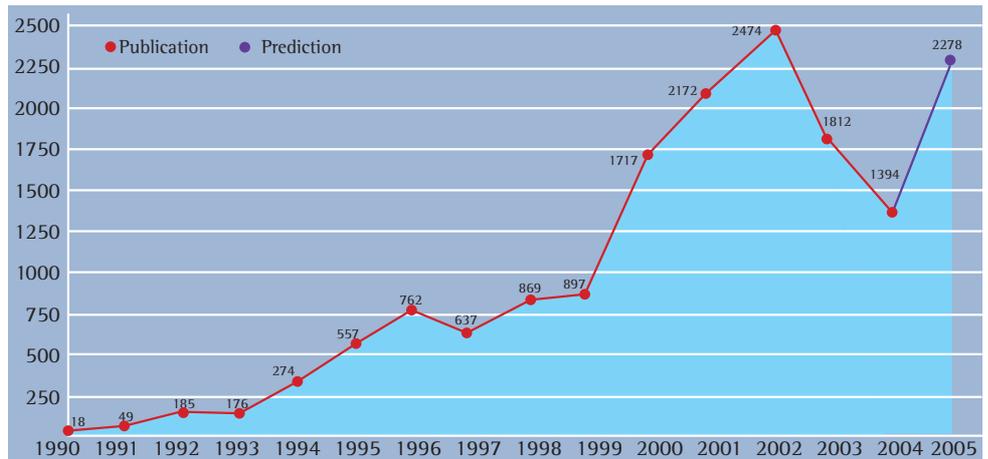
The number of deliverables published, for each of the years 1990 – 2004 and the prediction for 2005.

Distribution by type of published deliverable

in 2004
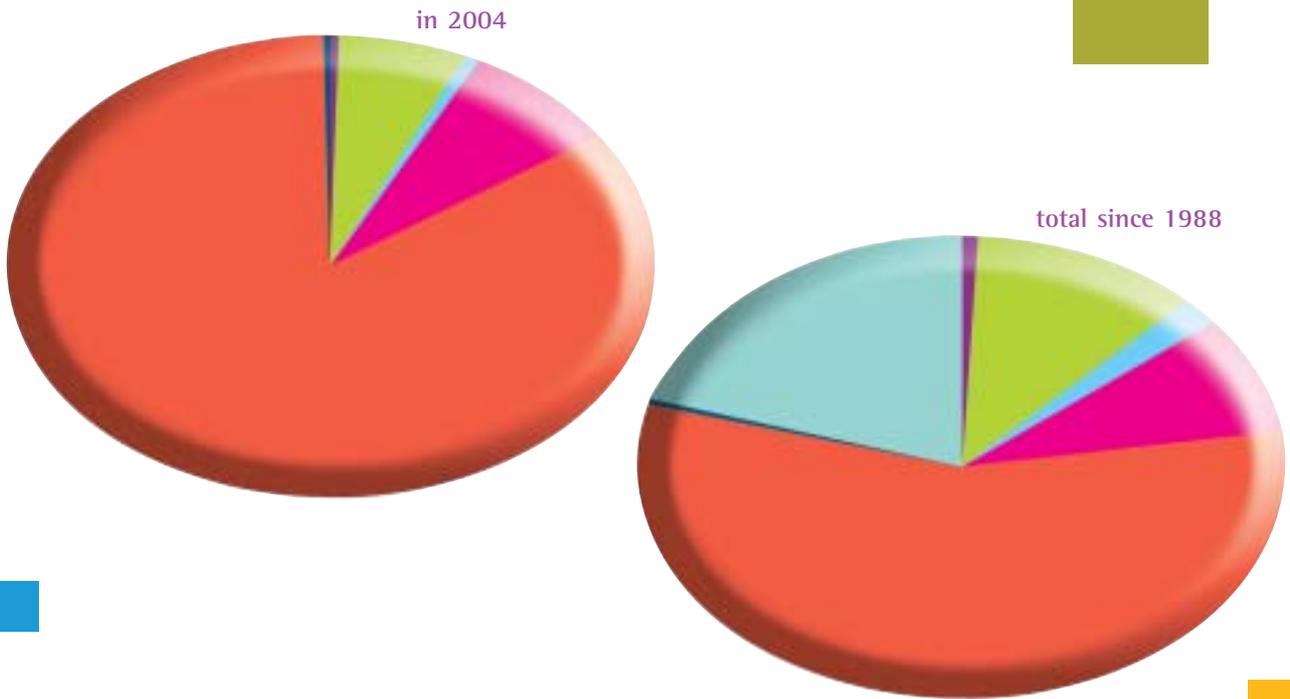
total since 1988

	in 2004	total since 1988
ETSI Guide (EG)	8	151
European Standard (telecommunications series) (EN)	118	1916
ETSI Standard (ES)	12	255
Technical Report (TR)	109	921
Technical Specification (TS)	1142	7704
Special Report (SR)	5	39
Old deliverable types	0	2999

Specialist Task Forces and Other Funded Projects
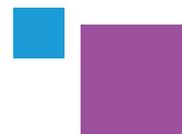
Specialist Task Forces (STFs) are groups of highly skilled experts brought together from different ETSI Member organisations for limited periods to perform specific technical work under the direction of an ETSI committee.

At the end of 2004, a new Letter of Engagement was put in place to better define the experts' position when working in STFs, the working conditions and the outcome expected from their contribution.

In 2004, STFs were funded from the ETSI budget, the voluntary contributions of Members, and the European Commission (EC) and the European Free Trade Association (EFTA), mainly under the eEurope initiative. The total amount spent on experts' work in 2004 was about 2,2 M€.

ETSI also organises funded projects, which run along similar lines as STFs, to provide technical support to 3GPP partners for codec evaluation and terminal testing, and to answer study and investigation contracts from the EC and EFTA. In 2004, this work amounted to 1,5 M€.

Altogether (including Mobile Competence Centre Tasks), 48 STFs and other funded projects were active during 2004, involving 170 experts and costing a total of about 3,7 M€.

About 3,7 M€ was invested in ETSI STFs and other funded projects in 2004, covering the following areas:
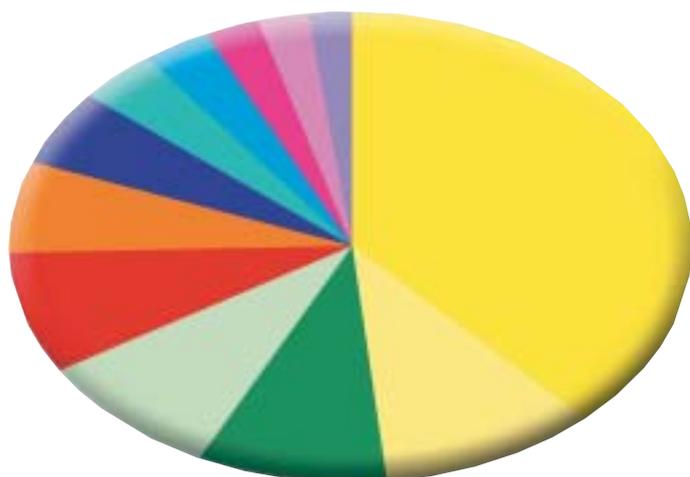
Technical area	€
3GPP™	1 300 000
Human Factors (HF)	461 216
TISPAN	354 518
Broadband Radio Access Networks (BRAN)	339 200
Methods for Testing and Specification (MTS)	268 000
EC contracts	200 000
EMC and Radio Spectrum Matters (ERM)	155 241
DECT™	130 200
Electronic Signatures and Infrastructures (ESI)	129 400
Access and Terminals (AT)	121 684
TETRA	120 500
Others	109 700
TOTAL	**3 689 659**

EC/EFTA funding

For the year 2004-05, the EC and EFTA contribution to the ETSI standardisation infrastructure was nearly 2,2 M€.

The EC/EFTA contribution to the activities to be performed in specific standardisation contracts under their 2004 budget line included 1,95 M€, to support the eEurope 2005 initiative. 350 k€ was received in two further specific standardisation contracts related to EC/EFTA mandates. All of the contracts were signed in December 2004.

The funding provided to cover the eEurope standardisation activities will be used between 2005 and early 2007. The activity responding to mandates will cover support to the Electronic Fee Collection (EFC) Directive (through the provision of conformance test specifications for the existing European Standards (ENs) on Digital Short Range Communications (DSRC)) and also action to assist in the production of a programme of work to support the Single European Sky Interoperability Regulation.

Membership

The recent downturn in the telecommunications industry seems to be abating at last. Membership of ETSI continued to decline during 2004, falling by 11% from 699 to 621 between the end of 2003 and the end of 2004. However, we expect the improving situation in the industry to be reflected soon in our membership statistics. Certainly interest in membership of ETSI is still high; during 2004 there were 47 new applications for membership (32 for Full Members, 13 for associate membership and 2 for Observer). Efforts to enhance relationships with existing members and to target new ones where relevant were undertaken as part of the 2004 business plan.

Full membership dropped by 9,5% compared with 2003 figures, to 486, drawn from 36 European countries. Yemen joined ETSI; at the end of 2004 the total number of countries represented in all categories of membership rose to 56. Associate membership was 99, representing 20 non-European countries, and at the end of 2004, there were also 36 Observers from 19 different countries.

The European Commission and the European Free Trade Association Secretariat, which hold special roles as Counsellors, attend the General Assembly and the ETSI Board and continue to play an active part in ETSI's work.

Evolution of ETSI Full Membership – totals of Full Members

Bar chart values:
1988: 126, 1989: 187, 1990: 249, 1991: 289, 1992: 316, 1993: 330, 1994: 365, 1995: 387, 1996: 418, 1997: 457, 1998: 512, 1999: 567, 2000: 607, 2001: 654, 2002: 581, 2003: 537, 2004: 486
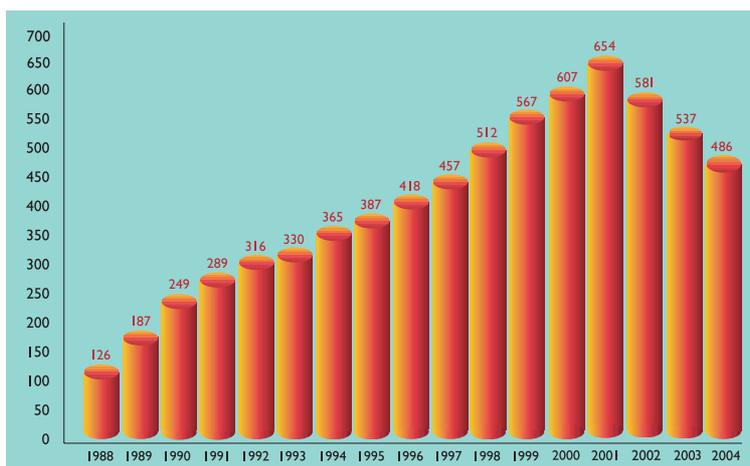
Full and Associate Membership by category

- Manufacturers: 300, 51%
- Network Operators: 87, 15%
- Service Providers, research bodies and others: 110, 19%
- Administrations: 59, 10%
- Users: 29, 5%
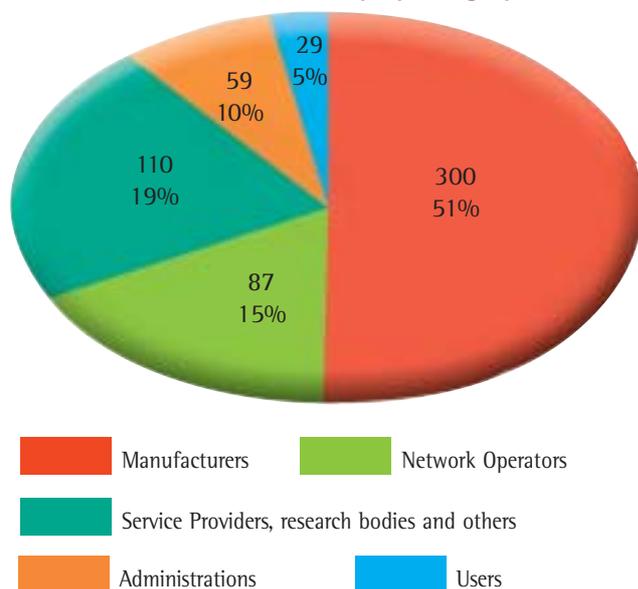
Membership by type

	01-01-2004	31-12-2004
Full Members	537	486
Associate Members	126	99
Observers	36	36
Total	699	621

Membership by country
(Full and Associate Members and Observers)

Albania	1	Japan	1
Algeria	1	Korea	1
Andorra	1	Latvia	3
Australia	3	Lithuania	1
Austria	12	Luxembourg	4
Belgium	25	Malaysia	1
Bosnia Herzegovina	2	Malta	2
Bulgaria	4	Netherlands	27
Canada	12	Norway	8
China	8	Poland	5
Croatia	3	Portugal	2
Cyprus	1	Romania	4
Czech Republic	5	Russian Federation	5
Denmark	18	Singapore	1
Egypt	1	Slovakia	2
Estonia	1	Slovenia	2
Finland	16	South Africa	4
France	65	Spain	16
Georgia	1	Sweden	22
Germany	80	Switzerland	16
Greece	5	Taiwan	7
Hungary	2	Tunisia	1
Iceland	2	Turkey	7
India	4	Ukraine	1
Iran	1	United Arab Emirates	2
Ireland	12	United Kingdom	110
Israel	6	United States of America	46
Italy	27	Yemen	1
56 countries in total			**621**

The Financial Situation

The management of the finances of ETSI is described by
- the budget report
- the financial statements (balance sheet and income and expenditure statement) which are established according to French laws and regulations.

Mr Philippe Aumeras, nominated auditor by the 43rd General Assembly, has audited the 2004 ETSI accounts and certified that the annual financial statements are true, sincere and give a fair view of the activities carried out during the past financial year.

Budget Maintenance

The key points of the budget management, compared with 2003, are the following:

Expenditure – In total, expenditure decreased by 2,5% and the budget has been underspent by 1%. Secretariat costs, which represent 38% of expenses, decreased by 9% due to a cost-saving programme. 5,8 M€ were spent on the Mobile Competence Centre (MCC) and 1,7 M€ on the Protocol & Testing Competence Centre (PTCC). The remaining Funded Work Programme Budget amounted to 1,5 M€, which was spent on Specialist Task Forces (STFs). 1M€ were spent on Plugtests activities for the preparation and support of interoperability events.

Income – Members' contributions increased by 4%. 56% of the budget was funded by Members' contributions (11,7 M€). The contribution of the 3GPP Partners (2M€) decreased due to cost reduction within 3GPP. EC/EFTA payments amounted to 3,5 M€, mainly for the development of the eEurope programme and the annual performance contract. Income generated by support services supplied to fora and consortia (Forapolis) doubled.

2004 Budget

INCOME (k€)		EXPENDITURE (k€)	
Members' contributions and Observer fees	11 593	Secretariat	7 988
EC/EFTA funding	3 509	Special Projects	1 103
3GPP & MESA Partners	1 992	Mobile Competence Centre (MCC)	5 844
Forapolis	1 193	Protocol & Testing Competence Centre	1 699
Sales	460	Funded Work Programme	1 489
Plugtests	446	Plugtests	1 024
Financial income	158	Forapolis	1 193
Other income	1 426	Provision and losses	437
TOTAL INCOME	20 777	TOTAL EXPENDITURE	20 777

Financial Statements for the Year 2004

The final accounts and the balance sheet are summarised below.
The fiscal accounting period is 1 January 2004 - 31 December 2004.

Statement of Income and Expenditure Year 2004

	Income (€)	Expenditure (€)
Income	20 481 442	
Purchases		10 473 213
Expenses		10 243 124
Investment management	169 613	26 187
Extraordinary income & expenses	126 246	15 357
Corporate Income Tax		19 420
TOTAL	**20 777 301**	**20 777 301**

For 2003, income balanced expenditure.

Summary of the Balance Sheet

Assets

Net amounts at:	31 December 2003 (€)	31 December 2004 (€)
Fixed Assets	1 546 516	5 346 892
Debtors	3 334 308	2 383 209
Securities/cash	11 717 892	7 182 658
Adjustment accounts	30 910	99 174
TOTAL ASSETS	**16 629 626**	**15 011 933**

Liabilities

Net amounts at:	31 December 2003 (€)	31 December 2004 (€)
Equity	8 331 645	8 331 645
Provisions	150 000	150 000
Creditors	7 042 631	6 163 188
Adjustments	1 105 350	367 100
TOTAL LIABILITIES	**16 629 626**	**15 011 933**

ETSI-NEWS

ETSI-NEWS is an electronic newsletter that provides the latest information on the activities of ETSI Technical Bodies, ETSI press releases, forthcoming ETSI meetings, ETSI and 3GPP events etc...

To register to receive ETSI-NEWS and regular electronic news updates hot off the press, directly in your mail-box, send an e-mail to: listserv@list.etsi.org, mentioning 'subscribe ETSI-NEWS' in the body of the message.

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