annual report 2005

Enabling

Preserving

Protecting

05 Sharing

Connecting

Securing

Evolving

Developing

ETSI

European Telecommunications Standards Institute

Introducing – ETSI

ETSI is an independent, non-profit making organisation, one of the largest international 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 well over 600 Members from 59 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 established 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's work includes New Generation DECT, third generation mobile communications such as the Universal Mobile Telecommunication System (UMTS™) – and beyond, and Next Generation Networks. The Institute's activities are providing Electronic Signatures and enabling Broadband Radio Access Networks (BRAN), Ultra Wide Band devices, Digital Video Broadcasting (DVB) and Terrestrial Trunked Radio (TETRA). ETSI is helping to develop broadband technologies, Voice over Internet Protocol, cable communications, intelligent transport, user accessibility...

ETSI – enabling the next generation of technologies

Karsten Meinhold
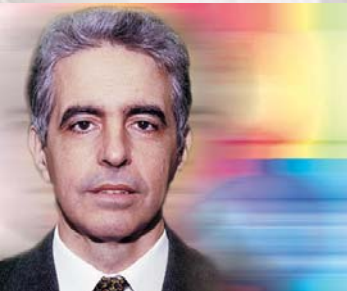Chairman of the General Assembly

Francisco da Silva
Chairman of the ETSI Board

Karl Heinz Rosenbrock
Director-General

ETSI is about standards. And measured by our output, 2005 was one of our best years yet. With over 2 300 standards and specifications published – the second highest number ever recorded in a year – we are now delivering at a rate of more than 10 publications every working day. By the end of 2005, a total of over 16 300 deliverables had been produced since the Institute was established in 1988.

But success should be measured by quality as well as quantity, and 2005 was a very successful year when judged by our technical achievements too. This was the year that the first set of specifications for Next Generation Networks (NGN) was published. TISPAN_NGN Release 1 will be used as a basis for the development and implementation of NGN systems. It consists of over 70 deliverables which fulfil two fundamental market requirements: the support of advanced multimedia services on the one hand and the smooth convergence of fixed and mobile networks and services on the other.

In mobile communications, 2005 was also the year that was dominated by the completion of the detailed protocol work for the 3GPP Release 6 specification set and the new features to be included in Release 7. Over 2 000 new or updated Technical Specifications and Technical Reports were approved in 3GPP in 2005, making it a record year for 3GPP deliverables too. At the same time, the earlier 3GPP Releases are becoming increasingly stable, which has allowed a substantial increase in the number of commercial UMTS networks around the globe.

There were also major achievements in security areas, in Smart Cards, and in efforts to improve accessibility to ICT. Exciting projects using Ultra Wide Band devices are emerging to help make the world a better, safer place, and new work has been initiated to improve road safety. The world we will leave to the next generation will be far different from the one we inherited; it will offer far greater potential.

ETSI's sphere of influence continued to expand in 2005. As new technologies emerge and converge, our experts are applying their knowledge and skills beyond our traditional areas of expertise. For example, ETSI's ability to write successful conformance test specifications is increasingly being directed at an extended range of technologies including WiMAX, demonstrating an appreciation of the Institute's expertise by the wider ICT industry.

Some of our achievements are described in the following pages – but only a representative sample. In 2005, 48 Specialist Task Forces and other funded projects were active in ETSI, involving 170 experts from 22 different countries and representing an investment of more than 4,1 M€. In addition, over 100 permanent committees and other working groups bring together thousands of experts from organisations all over the world to form the backbone of ETSI's ongoing technical activity. This army of dedicated experts has produced an enormous range of standards too numerous to include here in its entirety.

However, we must not lose sight of the fact that all this effort and achievement has come at a time when the Institute has been suffering, along with our Members, from the downturn in the telecommunications industry. Over the last few years, we have seen our membership decline by one-third as belts have been tightened, with serious consequences for our own staffing and resource levels. It is an enormous credit to our Secretariat that, despite the constraints on our staffing and budgets during this time, they have continued to provide such effective support to our technical work. The achievements of 2005 are due in no small part to their commitment and unstinting endeavours.

New efforts were made in 2005 to recruit members, including the launching of a series of ICT Roadshows to emphasise the benefits of membership. Positive results from this and other initiatives are already beginning to show. In 2005, for the first time in three years, there was a rise again in ETSI membership. The Institute now brings together more than 630 Members from 59 countries all over the globe. The tide has turned at last.

As we move together into 2006, therefore, we can justifiably expect to see ever more great achievements.

1

Preserving – the Interests of the User

We must never lose sight of the ultimate aim of all technology – to improve life for the user. Technological progress for its own sake is pointless if it is never used. Indeed, it is questionable whether products that are developed without people in mind are really necessary.

One of the jobs of standards is to preserve the interests of users. ETSI has always had one ear open to the needs of users. The Institute's membership includes all the players involved in the telecommunications arena, and their views are considered equally; manufacturers, network operators, administrations, service providers and regulators sit side by side with research bodies and users. By considering the needs of all, ETSI ensures that the standards it produces will be acceptable to the market and will be implemented. In this way, standards can also be a crucial factor determining the success of a new technology.

An Ongoing Dialogue with Users

ETSI's User Group is specifically dedicated to the needs of users. Its task is to monitor users' views, producing reports which both help guide the standardisation process to meet users' needs, and tell users about products and services that are being developed. In 2005, for instance, the User Group published a guide on user interoperability criteria which explains to consumers how far interoperability is provided in devices or services they are purchasing, and informs standards developers about user requirements and priorities. Two Special Reports were also approved, one on users' views of ETSI's work, and a second on the standardisation needs of small and medium-sized enterprises (SMEs) as users of Information and Communication Technologies (ICT). Ongoing work includes a guide on user-related Quality of Service (QoS) issues, and reports on definitions and on a global user-centric ICT service framework.

Increasing Access

The ordinary man or woman in the street is not primarily interested in what happens inside a PC or how one mobile phone speaks to another; he or she is only concerned with how to make best use of the technology – what services and applications are on offer, and at what cost. With the growing sophistication of telecommunications products and services, ease of access is becoming a crucial issue. An effective e-society relies on the fact that all citizens actually can use modern electronic tools (PCs, PDAs, Internet, mobile phones etc) and there is growing concern about whether new technology will be fully accessible to all people, especially children, older people and people with disabilities. ICT could help these groups to maintain and enhance their quality of life, their integration and independence but, if they cannot use these technologies, then, conversely, ICT will bring isolation, dependency and inequality.

ETSI has been a leading force in developing standards to achieve 'eAccessibility' – making 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 Technical Committee on Human Factors (TC HF). TC HF has a special responsibility within ETSI to ensure that the needs of all users, including those who are older, young or disabled, are considered.

TC HF has an international reputation for its work on diverse projects but recently there has been a shift in emphasis away from simple issues of keypad layout or hardware arrangements to service configuration and design. In 2005 this was embodied in a number of practically-oriented projects. For example, an ETSI Guide was finalised which, for the first time, offers the telecommunications industry and service providers a description of the attributes of young children at various stages in their development and their requirements for ICT services. Of particular importance are the guidelines dealing with safeguards for the use of children's personal data and location-based services. The next step in the programme, which is expected to begin in 2006, is to develop guidelines for Internet service providers which offer services specifically for young children, under the age of 12 years.

Work on Duplex Universal Speech and Text (DUST) communication (to provide textphone communication for deaf people) was completed in 2005 with the publication of an ETSI Guide. Other projects on assistive technology included work on the use of symbols on videos and televisions to indicate the availability of special access services for users with disabilities, for example to show that a film or programme can be viewed with subtitles or audio description. This work was prompted by a need identified by the UK's Royal National Institute for the Blind and is aimed at achieving an ETSI Standard by the end of 2006 to ensure that the threatened proliferation of different symbols throughout Europe is avoided.

Other current projects include user profiles, and delivery of health and social care services in and outside of homes (Telecare for Intelligent Homes). Work on user interface elements for mobile terminals and services will lead to two new ETSI Guides: one on set-up procedures for mobile terminals and services, providing help to designers of user interfaces; the other on user education. A project on the handling of multicultural issues in broadband and narrowband multimedia communications aims to remove or reduce cultural barriers that can exclude people from communicating.

Emergency Telecommunications

ETSI is involved in a number of projects aimed at protecting the citizen in times of emergency. Project MESA (Mobility for Emergency and Safety Applications), for example, is a transatlantic partnership project, established 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 during an emergency or a disaster. At these times, the data rates needed for advanced services, together with the demand for mobility, reach far beyond the scope of current established wireless standards.

To provide a speedier solution than the development of brand new technologies, Project MESA has adopted a 'System of Systems' approach, which involves linking together a variety of existing and foreseen technologies and systems. The key factor is interoperability. In 2005 Project MESA updated the user requirements, taking into account a larger user base, and finalised a System Overview document that will serve as a starting point for the future technical system specifications.

ETSI's Emergency Telecommunications committee (EMTEL) is attended by large numbers of representatives of emergency organisations, which makes it ideally placed to identify user needs, and its scope includes national security and Public Protection and Disaster Relief (PPDR). In 2005 EMTEL virtually completed its three projects on communications involving authorities and citizens in emergency situations. New work began on the suitability of the Short Message Service (SMS) and Cell Broadcast Service (CBS) for emergency messaging and was nearing completion by the end of the year. Work to address emergency communications network resiliency continues, and a new project was launched to study emergency calls and Voice over IP (VoIP).

Safety

Throughout 2005, ETSI was heavily committed to work related to the EC's Physical Agents Directive, which, from April 2008, will place new obligations on employers to protect their employees from undue Radio Frequency (RF) energy. Other safety work includes monitoring electrical safety in telecommunications, the safety of lasers used in fibre optic communications and increasingly acoustic and radio safety aspects. In collaboration with the European Committee for Electrotechnical Standardisation (CENELEC) and in response to the EC's safety of batteries Mandate, ETSI is also working to safeguard human exposure to the rapid discharge of cellphone batteries and other communications devices.

As part of the EC's eSafety initiative, ETSI began work in 2005 on eCall, an in-vehicle emergency call service which will automatically relay data about an accident from the vehicle involved to the emergency services, providing a faster and more effective emergency response. Drafting of the necessary specifications has begun and is expected to be finalised in the middle of 2006.

ETSI's work on emergency telecommunications and other aspects of safety and security makes the world a safer place.

ETSI is creating the standards to enable anti-collision Short Range Radar (SRR) devices in vehicles. In 2005, the automatic switch-off facility to prevent interference with radio astronomy applications was completed for devices operating in the temporarily allocated 24 GHz band. Work to enable the use of SRR devices in the 79 GHz range, which will replace 24 GHz by mid-2013, is ongoing.

Other work in this area is helping to enable Ultra Low Power Implantable Medical Devices and numerous life-saving applications of Ultra Wide Band (UWB) devices (see page 9) to provide, for example, a non-invasive method of checking decay in bridges, enabling the insertion of sensors into tools to prevent accidents, or on assembly lines.

Work continues 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. Four parts of this standard were published in July.

Security

Work in security ensures that networks and infrastructures are economically safe and that confidentiality is protected so that the Internet can be used for e-Commerce, e-Health and e-Government applications (see pages 6-7).

Standardised products, networks, services and applications are interoperable. One of the most basic benefits of standardisation for manufacturers and suppliers is the fact that conformity to standards enables even small enterprises to create products or services which are compatible with other products and services, and thus to find a market. The benefits of this are enjoyed by businesses of all sizes; the more successful a technology in the market place, the cheaper it becomes – which benefits the consumer again, this time in his pocket.

Secondly, by increasing interoperability, standards increase choice. Particularly as technologies are converging, ETSI's standardisation activities have a crucial role to play in widening the potential for access to ICT. Broadband is just one example. The multiple means of providing Broadband over different access mechanisms – fixed and mobile networks, using cable, powerline and terrestrial and satellite wireless access – is opening up opportunities for users who previously were excluded by geography or economics.

Ultimately, all of ETSI's work to support the development of modern technologies benefits the consumer. For example, 2005 saw progress with the NGN@Home project, which is aimed at home automation, remote maintenance of home or business devices (such as heating systems and white goods), home working etc. ETSI's other achievements in 2005 included developments in measuring the quality of speech transmission, Broadband Radio Access Networks, the use of GSM on railways....

Photo courtesy of Nortel

The GSM-R Tibet Railway line culminating at 4 500 m

DECT™

The popularity of Digital Enhanced Cordless Telecommunications (DECT) is continuing to spread throughout the world. The system has now been adopted in over 110 countries, there are already 200 million DECT terminals on the market and numbers are growing faster than originally expected.

ETSI has been responding to the evolution of the fixed communication network which is moving to a new generation – Next Generation Networks (NGN). Voice over Internet Protocol

(VoIP) and IP-based value-added services are expected to generate new services for the end-user and new revenues for suppliers and operators. As the dominating technology for in-home distribution of voice services, DECT technology is also moving to a new generation especially scaled for Next Generation communication networks – the 'New Generation DECT'. In September 2005, ETSI and the DECT Forum began a project to jointly drive the standardisation, development and market preparation for New Generation DECT technology and its products. The most important features of the new specification are the support of wide band speech and audio-streaming and improved capabilities for accessing IP services.

Smart Cards

Smart Cards play a crucial part in the growth of mobile commerce, by developing and maintaining the specifications for Integrated Circuit Cards to secure financial transactions over mobile communications systems. Good progress was made in 2005 on Release 7 of the Smart Cards specifications, which is scheduled for completion in 2006. New work was initiated on the requirements for the connectivity to a Smart Card Web Server located in the UICC, including potential backward compatibility issues. In addition, the requirements for a High Speed Protocol to run between the UICC and the terminal were specified. This will allow the exploitation of new chips with large memory – for example, (Universal) Subscriber Identity Modules ((U)SIMs) for 2G and 3G telecommunication systems, which could transform current (U)SIMs into a very powerful platform for secure value added services such as multimedia file management and the storage of the Man-Machine Interface of the terminal.

Satellite Technologies

Throughout 2005, ETSI worked on the technical specifications to enable the provision of digital radio systems over Europe by satellites, along similar lines to the successful systems operating in the United States. The first task is a Technical Report to compare the technologies available to deliver the required services and to identify the new standardisation that will be required. Such is the significance of this development that meetings of the ETSI working group are now attended by all the operators interested in developing digital radio broadcast via satellite over Europe, and new members have joined ETSI as a result.

Work on earth stations on board vessels is being extended to earth stations on board trains. New work has started aimed at enabling the provision of wide band signals to staff and passengers via a satellite dish on the roof.

Broadcasting

ETSI is already preparing for the next generation of DVD – Blu-ray Discs. The ETSI Technical Specification for the Globally Executable Multimedia Home Platform (MHP) – GEM – which defines a set top box for digital interactive services, independent of the delivery mechanism, and ensures that the boxes are compatible around the world, was updated in 2005. The revised specification includes extensions for packaged media such as Blu-ray Discs. This new optical disc format will enable recording, rewriting and playback of high-definition video as well as the storage of large amounts of data – more than five times the storage capacity of traditional DVDs. This extra capacity, combined with the use of advanced video and audio codecs, will offer consumers an unprecedented viewing and listening experience.

Communication services can now be delivered over multiple technology platforms and received via a wide range of terminals – using fixed and mobile, terrestrial and satellite systems. With this increasing convergence and integration, the telecommunication services of the future are likely to be delivered seamlessly over the most appropriate access network, with users roaming between domains and networks unaware of the underlying mechanisms and technologies that enable them to do so.

The new network model which is designed to accommodate the diversity of applications inherent in emerging broadband technologies has been dubbed Next Generation Networks (NGN) and is based on the extensive use of Internet Protocol (IP). NGN 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.

ETSI's task is to develop the necessary standards to bridge the disparate networks and domains, allowing them to interoperate. The work is being managed by Technical Committee Telecommunication and Internet converged Services and Protocols for Advanced Networking (TC TISPAN).

A Major Milestone – Release 1

The highlight of the year's work on NGN came in December with the finalisation of TISPAN_NGN Release 1, the first set of specifications to be used as a basis for the development and implementation of NGN systems. Release 1 consists of over 70 deliverables – 12 Technical Reports, 39 Technical Specifications and 20 ETSI Standards – which fulfil two fundamental market requirements: the support of advanced multimedia services on the one hand and the smooth convergence of fixed and mobile networks and services on the other.

Release 1 encompasses the base architecture and major interface protocols for the support of a first set of service capabilities required for conversational multimedia services, including the network attachment control, the resource and admission control, and IP and the multimedia control subsystems which make up the overall TISPAN_NGN system architecture. The specifications govern service capabilities such as IP Session Control, Presence Management, Messaging and Group Management for the support of high priority, real-time conversational multimedia, in addition to the more conventional Internet-based applications.

TC TISPAN has adopted the IP Multimedia Subsystem (IMS) defined by the Third Generation Partnership Project (3GPP™) as a base component to support real-time conversational services (voice, videotelephony, messaging etc). The adaptations or enhancements required to the relevant 3GPP Specifications for accessing the IMS via fixed lines (eg Asynchronous Digital Subscriber Line (ADSL)) have been the subject of extensive efforts within TC TISPAN and have been co-ordinated with the 3GPP community. The Short Message Service (SMS) over NGN service definition was completed in 2005 and the Multimedia Messaging Service (MMS) over NGN service definition will follow soon.

Pioneering work in ETSI is helping to ensure that, one day soon, users will be able to roam seamlessly between networks – fixed and mobile, satellite and terrestrial.

A Global Network

TC TISPAN has contributed significantly to the work of the Telecommunications standardisation sector of the International Telecommunication Union (ITU-T), particularly the NGN Focus Group Release 1 which mirrors the TISPAN_NGN Release 1 scope in a more generalised, abstract framework. The plan is to submit the full TISPAN Release 1 specifications to the ITU-T for integration in their NGN Global Standardisation Initiative (NGN-GSI), and to relevant Study Groups and Questions, particularly to ITU-T Study Group 11, which is responsible for the signalling requirements and protocols which constitute a significant part of the standards required to enable real NGN developments and deployment.

TC TISPAN also liaises with the Alliance for Telecommunications Industry Solutions (ATIS) in the USA and the Parlay Group, and works closely with other ETSI committees on different aspects of NGN. For example, during 2005, activities on Emergency Telecommunications in the NGN environment progressed well.

TC TISPAN benefits from the strong support of operators, vendors, service providers, and research and government representatives, with up to 200 delegates from 45 organisations attending meetings. This is recognition of the importance of TISPAN specifications to the telecommunications community, and their growing impact on industry developments.

The Future

Release 2, which will address access resource optimisation and new access systems, while also consolidating inter-network domain interfaces, is scheduled for 2007, and Release 3, currently anticipated for beyond 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. 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.

Security on the Move –
Mobile Telecommunications

Without appropriate security provisions, the wireless infrastructure that terminals use to access the network could make mobile technologies very vulnerable to attack. New services on mobile phones (such as messaging, the transmission of pictures and the availability of videos and music) have all required additional security mechanisms; the definition of these has been accomplished by updates to various existing security specifications and the preparation of new 3G-specific documents by the Third Generation Partnership Project (3GPP™), of which ETSI is a founding partner.

The most recent release of the 3GPP specifications (Release 6) addresses a long list of features including network sharing and Digital Rights Management (DRM) to control payment for copyright material such as music and films. The new 'Priority' service will allow users of the appropriate category (typically the emergency services) high priority to network services in crisis conditions caused by natural or civil disasters, or when there is a danger of overloading the network.

Lawful Interception

Lawful interception (LI) plays a crucial role in helping law enforcement agencies to combat terrorism and serious criminal activity. It is therefore an essential part of the infrastructure supporting electronic transactions.

The ETSI Standard providing specifications for the handover interface for the lawful interception of telecommunications is now fully operational in the Netherlands – the first official international standard designed for this purpose. This particular standard refers to both packet data and switched-circuit communications. Increasingly, however, attention in ETSI is turning to the handling of IP traffic.

Among the other achievements of 2005 was the completion of a study into the issues and challenges regarding the lawful interception of public Internet access by means of Wireless Local Area Network (WLAN) technology. Other ongoing projects are addressing data retention, IPCablecom, satellite systems, TETRA and NGN, and, in co-operation with 3GPP, LI for the Universal Mobile Telecommunications System (UMTS™) and GSM.

Algorithms

ETSI creates cryptographic algorithms and protocols to be built into its standards to prevent fraud, unauthorised access to public and private telecommunications networks and to provide customer privacy. Recent achievements include the design of a privacy algorithm for GSM – A5/3 – based on the 3GPP algorithm Kasumi, the encryption algorithm for UMTS, and a new example authentication algorithm for GSM, based on Milenage. Both Kasumi and Milenage were also designed by ETSI.

Work in 2005 was dominated by the development of two new security algorithms for the UMTS radio interface (UTRA). An encryption algorithm (UEA1) and an integrity algorithm (UIA1) already exist, but alternatives were required in case of a possible future breach of security. Two completely different algorithms have now been developed, UEA2 and UIA2.

Security is vital for Information and Communication Technologies (ICT) systems and infrastructures. The rapid growth of the Internet and the use of new technologies have created many new opportunities for both business and personal use, but they have also created many new risks – risks which are intensified by the increasing complexity of ICT networks and systems and the growing ingenuity of those who would exploit them for illegal gain. Information has to be secure in transit, come from where it claims and it must be safe from modification. The networks themselves have to be securely managed and protected against compromise or attack; criminals have to be prevented from misusing them and the potential for fraud has to be blocked. Otherwise, consumers will not trust ICT – and will not use them. In this way, security can be a winning driver that enables the overall success of a technology.

ETSI has been a leader in setting security standards since its foundation in 1988. The Institute achieved outstanding success with the standardisation of GSM™, the Global System for Mobile communication, which included authentication, anonymity and customer privacy – the first full world-wide commercial deployment of encryption and smart cards. Many other standards have built on ETSI's expertise in encryption used for authentication, privacy and the integrity of information. Other major achievements have included Digital Enhanced Cordless Telecommunications (DECT™), Terrestrial Trunked Radio (TETRA), video standards, Multimedia Internet Protocol (IP) and subsequent mobile and fixed services.

Today ETSI's standardisation activities cover a broad spectrum of security issues, from lawful interception to algorithms, from electronic signatures to smart cards and protecting systems from crime, and they relate to every aspect of ICT. In addition, ETSI is working towards the establishment of effective telecommunications systems to protect citizens in an emergency (see page 3) and on security issues in Next Generation Networks (NGN).

Smart Cards

ETSI is active in smart card standardisation – for mobile communications, mobile commerce and other applications. The main thrust of ETSI's current work aims to allow users access to global roaming by means of their smart card, irrespective of the radio access technology used. A new Technical Specification on Extensible Authentication Protocol (EAP) support in the UICC was recently approved, specifying the use of a smart card as a secure access device to a WLAN and for PC security functions.

In 2005 two major Technical Specifications, which form core elements of Release 7 of the smart card specifications, were finalised and published. One of these addresses identity files and procedures on a UICC; the second concerns the UICC Security Services Module (USSM). The USSM offers security services to applications on the UICC through an Application Programming Interface (API) with standardised functions, and can store and manage access to sensitive data. Possible areas where the USSM could add significant value are Digital Rights Management (DRM), secure e-mail, payments, banking and application download (to both the card and the terminal device). Work in this area will continue in 2006 with the development of Stage 2 of the USSM.

Other ongoing work on smart cards includes the requirements for UICC-external peripherals data exchange, in particular to provide an interface for the UICC to access contactless technology in the terminal. This would allow the terminal to be used as a contactless device, for instance, for accessing subway systems and offices, as well as for making micro-payments using an electronic purse on the UICC.

Electronic Signatures

Standardisation activities in co-operation with the European Committee for Standardisation (CEN) under the European Electronic Signature Standardisation Initiative (EESSI) resulted in numerous standards to support the development of a European electronic signature infrastructure. Maintenance and enhancement of these standards continues.

Electronic signatures are playing an important role in the growth of e-Government. With the introduction of a new European Union (EU) mandate, digitalisation of public registers is becoming a top priority throughout Europe. Over the next two years, the growth in the number of users of Qualified Certificates to enable this is expected to be enormous. ETSI's specifications have a crucial role to play in this expansion of the role of electronic signatures; indeed, ETSI's specifications for Qualified Signatures are the most referenced in the world.

The reverse mapping between the US Federal Public Key Infrastructure Bridge (FPKI) Policy and the ETSI Qualified Certificate Policy (QCP) was completed in 2005. The US FPKI has formally recognised the ETSI QCP as equivalent to the Medium Level Bridge Policy, enabling the establishment of trust in electronic transactions between EU and US government agencies and for public sector services, in areas such as education and health.

ETSI specifications also form the basis of Asia's PKI specifications and, in 2005, presentations were made to both the Asia PKI Forum in Beijing and the PKI International Conference in Taipei.

Other issues in which ETSI is involved include e-Invoicing, an issue which is gathering momentum as companies seek both to reduce costs and increase efficiency. New projects are now underway aimed at producing profiles for Electronic Signatures Formats and on the format and policies for signing legal and accounting documentation, especially with a view to long term archival needs. Attention is also turning to the standardisation of registered e-mail, which will allow origin authentication, proof of delivery and long term availability. Digital accounting, supported by a Trusted Third Party, is also expected to become a hot topic, as a more resilient and trustworthy alternative to paper-based accounting.

and much more...

Other new work recently initiated in ETSI includes Radio Frequency Identification (RFID) for storing and remotely retrieving data, guidelines on making products less susceptible to criminal activities, work related to TETRA and satellite communication services and applications (including mobile and broadcasting).

To identify new security threats – and conceive ways of tackling them – an ETSI workshop on 'Future Security – the Risks, Threats and Opportunities', was organised for January 2006.

Evolving – the Third Generation

A Record Year

Each 3GPP Release provides mobile operators and equipment manufacturers with a stable reference platform to build networks and terminal equipment. Activity in 2005 was dominated by the completion of the detailed protocol work for the Release 6 specification set and the new features to be included in Release 7. Over two thousand new or updated Technical Specifications and Technical Reports were approved in 3GPP in 2005, making it a record year for 3GPP deliverables.

At the same time, the earlier Releases are becoming ever more stable, which has allowed a substantial increase in the number of commercial Universal Mobile Telecommunications System (UMTS™) networks around the globe.

Looking Forward – Release 7

Ongoing work for Release 7 includes features such as Multiple Input/Multiple Output (MIMO) antennas. 2005 saw renewed enthusiasm for the higher capacity which the technology could bring to an evolved 3G radio access network. MIMO techniques are being considered for both the base station and the mobile terminal.

A feasibility study into All-IP Networks (AIPNs) was also completed, paving the way for the ultimate abandonment of circuit-switching in favour of networks based on packet-switched Internet Protocol (IP). This will be reflected in a simpler, more adaptable (and therefore cheaper) network architecture.

Improvements in the radio interface have led to UMTS radio technology being extended into a number of different bands, including those once the sole province of GSM. A 7,68 Mcps Time Division Duplex (TDD) variant has been specified, as has a 3,84 Mcps TDD uplink enhancement. Meanwhile the record-breaking GSM technology continues to be enhanced and extended with the addition of new frequency bands.

With the gathering momentum of the concept of a core network based on the IP Multimedia Subsystem (IMS) now being actively pursued by fixed networks and, more recently, cable TV networks, measures have been taken to open up the 3GPP system specification to generic access. For example, there have been significant enhancements to the Short Message Service (SMS) and the Multimedia Messaging Service (MMS).

Following a European Commission research project, work has been initiated on the transference of emergency call data (eCall), the objective of which is automatic notification of the emergency services in case of road traffic accidents.

Long Term Evolution

3GPP endeavours to ensure the continued competitiveness of 3GPP systems over the longer term (typically a 10 year timeframe).The current focus is on the radio interface and thus on issues such as modulation techniques and new spectrum arrangements. 3GPP is 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 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).

Studies into Radio Access Network (RAN) Long Term Evolution (LTE) and System Architecture Evolution (SAE) activities continued throughout 2005 and are expected to bear fruit in 2006. The work aims to minimise the number of technical solutions to ensure interoperability, reduce any redundant 'mandatory' features and support mobility between the different access networks that exist in the real world.

By 2010, the 3GPP radio access technology should allow at least a ten-fold increase in data rates, maximised for slow-moving terminals, but presenting respectable service even at high-speed train rates (350 to 500 km/h). With enhancements such as High Speed Packet Access (HSPA), the 3GPP radio access technology will be highly competitive for several more years to come. However, to ensure competitiveness in an even longer timeframe, issues such as reduced latency, higher user data rates, improved system capacity and coverage and future additional 3G spectrum allocations are being addressed.

Future enhancements to the radio interface need also to be reflected in upgrades to the core network architecture, so that the full benefits of system evolution can be realised. The developments will also be aligned with work (in ETSI and elsewhere) on Next Generation Networks, to maintain the current drive for fixed-mobile convergence.

Developing – Ultra Wide Band

Ultra Wide Band (UWB) is a technology for the transmission of data using techniques which cause a spreading of the radio energy over a very wide frequency band, with a very low power spectral density. This low power spectral density limits the possibility of interference with conventional radio systems, and the high bandwidth can allow very high data throughput for communications devices, or high precision for location and imaging devices.

In response to a European Commission (EC) mandate (M/329), ETSI is developing Harmonised Standards under the Radio and Telecommunications Terminal Equipment (R&TTE) Directive to enable various applications of Ultra Wide Band technology. The work includes UWB for short-range devices, automotive applications and for positioning, for example to pinpoint buried objects.

Responsibility for this work within ETSI falls to its Technical Committee Electromagnetic Compatibility and Radio Spectrum Matters (TC ERM). TC ERM is providing the technical solutions to allow exciting UWB services to co-exist in the radio spectrum, and works closely with the European Conference of Postal and Telecommunications Administrations (CEPT), which is mandated to provide appropriate harmonised frequency allocations.

Radar applications
Ground-probing and wall-probing radar

The Harmonised Standard governing ground-probing and wall-probing radar, together with the European Standard covering the EMC implications, were published in September 2005. This work has some very practical applications, for example, providing a non-invasive method of checking decay in bridges, locating the presence of pipes, or enabling the insertion of sensors into tools to prevent accidents.

Tank Level Probing Radar
ETSI completed the Harmonised Standard governing tank level probing radar in 2005 and publication is expected early in 2006. This standard will enable a UWB device to measure, for example, water levels in reservoirs.

Location Application for Emergency Services (LAES)
New work has recently started on LAES, using UWB technology in a precision positioning system which can be used to track fire-fighters in burning buildings. A System Reference Document has been published which defines the requirements for radio frequency usage and a Technical Specification is being developed.

New Areas
Technical Reports and Harmonised Standards are also being developed to cover applications of UWB sensors in the analysis and classification of building materials and object discrimination and characterisation. Work has also begun on object identification for surveillance purposes (pinpointing the presence of a heartbeat).

Automotive Radar
Ultra Wide Band technology is also used in automotive radar for anti-collision Short Range Radar (SRR). This is being developed as part of a system to warn drivers of a pending collision, to prompt evasive action, or, where collision is unavoidable, so that the vehicle can also prepare itself (for example by applying brakes, pre-tensioning seat belts etc) to minimise injury to passengers and others.

In 2004 the use of 24 GHz for this purpose was opened as an interim measure, allowing equipment to be marketed in the short term. But this band is also used by other radio services that would suffer interference if too many radar devices were operated simultaneously in the same area. For this reason, this band will be closed for the introduction of new devices before usage becomes too dense. A 'permanent' band has therefore been allocated at 79 GHz, allowing for long-term development of this radar service, and will replace 24 GHz by mid-2013.

TC ERM has developed the necessary Harmonised Standard for operation in the 24 GHz range. The radar has to be switched off within a certain distance of radio astronomy stations to avoid interference, and initially this was achieved by the manual intervention of the driver. In 2005 the automatic switch-off facility, based on geographical location information, was added, well before the deadline for its mandatory use in 2007.

Work to enable the use of SRR devices in the 79 GHz range is also ongoing.

Short Range Communications Devices
The EC is keen to see a European version of a short-range device for communications which has been developed in the USA. This has enormous potential, providing for high data rate transfer between computers, printers, potentially cameras, video recorders etc. ETSI has a mandate to develop the necessary standards and specifications and is attempting to resolve concerns about potential interference.

The existing System Reference Document for UWB for communications purposes is being updated to take account of new technological developments. TC ERM expects to finalise a Harmonised Standard to prevent short range UWB communication devices interfering with other services such as 3G cellular telephones and radio astronomy in the first half of 2006. To support this development, the committee is also producing four Technical Reports covering UWB technologies, mitigation techniques, test methods for RF compliance and protocol compliance testing. At the same time, TC ERM is contributing to the activities of CEPT to ensure coherence between the Harmonised Standard and the frequency allocation.

Reporting... in-house highlights

Notable developments in 2005 included:

Working in Partnership

- ETSI remains heavily committed to @LIS, a four-year co-operation programme funded by the European Commission (EC), which aims to enhance collaboration between Europe and Latin America on issues related to the Information Society. In 2005 the @LIS team organised or attended a number of events aimed at promoting ETSI standards and the European standardisation system in Latin America including EXPO COMM in Mexico (February), and ITU Telecom Americas 2005 and Futurecom 2005, both held in Brazil in October. There was also a noticeable rise in the number of participants from Latin America in ETSI workshops and interoperability testing events.

- As part of the @LIS goal of creating a dialogue on standardisation, in March ETSI launched @METIS to forge links between European Union (EU) and Latin American organisations involved with interoperability profiles for public sector initiatives such as e-Government.

- Among the numerous agreements signed in 2005 to cement collaboration with organisations all over the world were co-operation agreements with the Open Mobile Alliance (OMA), the European Organisation for Civil Aviation Equipment (EUROCAE) and the WiMAX Forum. The Memorandum of Understanding (MoU) with the Telecommunications Technology Association (TTA) of Korea was also renewed for another three years. ETSI now has a portfolio of 60 co-operation agreements, with 13 more in the pipeline. A review of existing partnerships is taking place, and account managers within the ETSI Secretariat have been nominated to maximise the potential of these partnership arrangements.

- Following a review of relations with the EC, new initiatives have been introduced to enhance ETSI's relationships with relevant Directorates General (DGs). In particular, this has involved DG INFSO (now DG Media and Information Society), with the aim of involving ETSI at the early stages of policy discussions such as reviewing the EU ICT policy, i2010.

- Good progress was made throughout the year with regulatory and mandated work, particularly supporting the EC's Radio and Telecommunications Terminal Equipment (R&TTE) and Electromagnetic Compatibility (EMC) Directives.

- The Forapolis service is now well established and ideally placed to expand. The provision of support services to the OMA has now been running for two and a half years. A new contract with the Home Gateway Initiative (HGI) to provide secretariat and hosting services began early in 2005 and ran successfully throughout the year. Consultations were held with a number of potential new clients and in June a framework contract was agreed with the Global Certification Forum (GCF). Initially this will involve the installation of a server to host web and database services, and further services are being introduced.

Another busy year in the Secretariat

- A new campaign of Roadshows was launched to recruit Members to ETSI and to attract new work. Five were held in the UK in November 2005. Subsequent Roadshows are scheduled for Germany and France early in 2006, to be followed by a second phase of activity from March to June 2006 which will include two user-oriented Roadshows.

- ETSI addressed the key issues of Open Standards and Technical Interoperability by hosting two workshops on the subject in 2005. An Internet discussion forum was opened and a third workshop in the series was planned for February 2006.

- The Secretariat organised nearly 400 ETSI meetings in Sophia Antipolis, which were attended by over 7 000 participants.

- Various events were also hosted on ETSI premises. Particularly noteworthy was the tenth meeting of the Global Standards Collaboration in September which attracted more than 100 delegates from around the world.

- Promotional activities have continued to highlight the role of the Institute and its work. 39 press releases were sent out by ETSI in 2005, attracting considerable publicity for the Institute.

- The external auditor, KEMA, carried out its annual surveillance audit for conformance with ISO9001:2000 in February and ETSI passed with flying colours. A number of publications have been produced to keep people up to date with quality developments, and internal auditing continues on a regular basis.

- The contract for the purchase of the Einstein building was signed in July by the Chairman of the General Assembly and the Director-General. This has reduced the annual cost of the building by 35% compared with the present rent, and improves the day-to-day management of the ETSI Secretariat.

- A Special Committee on Intellectual Property Rights (IPR) has been established to help address IPR issues.

- In response to changing needs, the Customer Service Centre was formed out of a merger between the former IT Helpdesk, the ETSI infoCentre, and the PC support and EDH co-ordination functions. New tools for more effective handling of fault reports, general queries and maintenance actions and automated inventory keeping of IT hardware and software have been installed.

- Significant new and improved IT services were implemented or are being planned.

To support its technical work, 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.

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 Telecommunications and Internet converged Services and Protocols for Advanced Networking (TC TISPAN), with the major objective of ensuring seamless fixed-mobile convergence from a service perspective. Release 1 of the TISPAN_NGN work programme was completed in December 2005. This initial phase focuses on services and requirements; network management; architecture and the protocols to support supplementary services. Release 2 work is already underway in collaboration with the Third Generation Partnership Project (3GPP™).

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), TC Railway Telecommunications (TC RT) and TC Smart Card Platform (TC SCP).

The management of the 3GPP Release sets of Technical Specifications and the implementation of Change Requests continues to be the prime function of MCC. 3GPP held 182 meetings of its Technical Specification Groups, their Working Groups and subgroups in 2005, some of which brought together as many as 500 delegates, and for the vast majority of which MCC acted as Secretary. The year saw the completion of Release 6 and the start of Release 7. Meanwhile, the Long Term Evolution and System Architecture Evolution groups laid the foundation for the future of the 3GPP system over the next five years.

The European Friends of 3GPP (EF3) is a loose association of ETSI member companies, active in 3GPP, which share the costs of hosting 3GPP meetings by contributing to a common fund. The value of that fund in 2005 was over half a million Euros, and was used to host 41 meetings around Europe. EF3 is administered by and the meetings organised by MCC on a cost-neutral basis. Two new companies joined EF3 during the year.

Following initiatives by the European Commission (eSafety), MCC personnel were heavily involved in 2005 with the work on eCall (emergency calls automatically generated by vehicles involved in road accidents, and accompanied by data relating to the accident).

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. Other current activities include Short Range Devices, Ultra Wide Band, Radio Frequency Identification (RFID) and Broadband Wireless Access.

The Protocol and Testing Competence Centre (PTCC)

There was an upsurge of interest in testing and testing-related activities in 2005. The PTCC responded to requests to prioritise issues related to interoperability with numerous activities which included producing interoperability testing specifications for IPv6, studying how to best perform testing of the Internet Protocol Multimedia Subsystem (IMS) and NGN, maximising the complementary roles of conformance testing and interoperability testing, looking at pragmatic validation techniques and investigating the feasibility of creating an IMS testbed network at ETSI.

The PTCC has now expanded its technical scope to include tests for electronic vehicle toll collection and Digital Mobile Radio (DMR). The Centre also continued to manage and lead the expert teams producing conformance test specifications for HiperMAN/WiMAX and 3GPP High Speed Downlink Packet Access (HSDPA) UMTS terminals.

Finally, in conjunction with Technical Committee Methods for Testing and Specification (TC MTS), the PTCC contributed to the third edition of the ETSI scripting language, Testing and Test Control Notation version 3 (TTCN-3), and organised the second International TTCN-3 User Conference. This event, which included presentations on the use of TTCN-3 in the web services, banking and the railway and automotive sectors, was a major success, demonstrating that TTCN-3 is a key tool for efficient and cost effective validation and testing in a variety of applications.

Plugtests™

Plugtests, the ETSI interoperability service, organised 12 successful interoperability events in 2005. Some of these covered recurrent topics but new ones were also introduced such as Wireless Local Area Networks, Electronic Numbering (ENUM), RFID and WiMAX.

The fourth Digital Subscriber Line (DSL) interoperability event, including Triple-Play test capabilities, was held in June and was a major success. More than 120 engineers representing 38 companies from 10 countries tested the interoperability of their latest developments in services including Voice over IP, Video-over-DSL and Broadband Internet Surfing.

Another outstanding event was the Grids@work, which took place over five days in October. Comprising a series of interoperability activities, conferences and tutorials, it attracted more than 200 participants. This enhanced event was an opportunity for various activities and meetings related to standards and solutions for Grid computing, including the second Grid Plugtests.

Plugtests is now a mature service providing key services to the ETSI community and serving at the same time as an efficient, strategic development tool to generate activities and to support and maintain existing ones. For events organised in 2005 and those planned for 2006, it is encouraging to note that 90% of all activity is undertaken in collaboration with and with the active support of ETSI's Technical Committees.

Standards Production

Compared with 2004, the number of deliverables published in 2005 rose substantially (from about 1 400 to over 2 300). A significant part of this increase was due to the large number of specifications published for 3GPP Release 6. Indeed, output in 2005 was ETSI's second highest record ever.

By the end of 2005, ETSI had published a total of over 16 300 deliverables since the Institute was established in 1988.
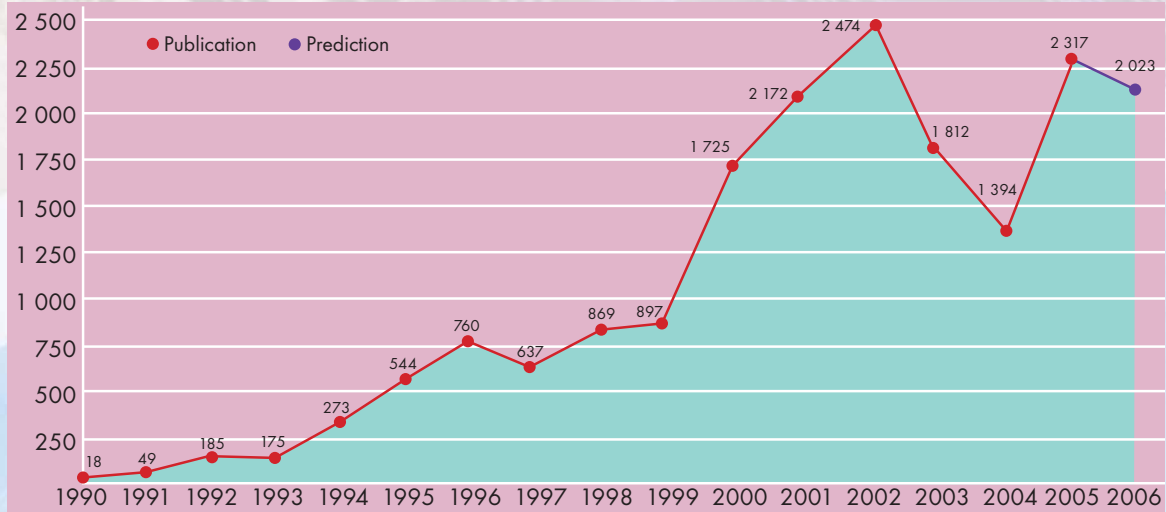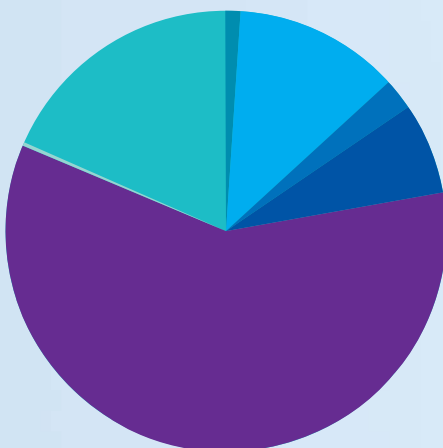

The number of deliverables published, for each of the years 1990 - 2005 and the prediction for 2006.

in 2005
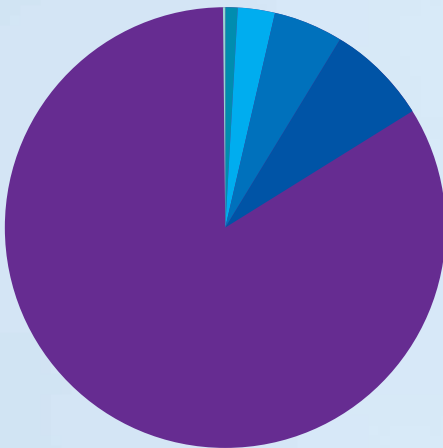
total since 1988

	in 2005	total since 1988
ETSI Guide (EG)	21	172
European Standard (telecommunications series) (EN)	63	1 979
ETSI Standard (ES)	118	373
Technical Report (TR)	172	1 093
Technical Specification (TS)	1 939	9 642
Special Report (SR)	4	43
Old deliverable types	0	2 999

Distribution by type of published deliverable

# 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. A similar mechanism has been adopted for activities funded by Third Generation Partnership Project (3GPP™) partners, R&D and promotion projects funded by the European Commission (EC) and the European Free Trade Association (EFTA) and for subcontract laboratory studies, mainly in the area of GSM™ and 3G technology.

During 2005, the new Letter of Engagement, which defines the experts' working conditions and the outcome expected from their contribution, was successfully applied. This new contractual concept has improved control of project schedules and clarified the responsibilities of the different parties involved in the execution and management of STF work. Targets for budget and timescales for STF activity were met again in 2005.

Altogether (including Mobile Competence Centre (MCC) Tasks), 48 STFs and other funded projects were active during 2005, involving 170 experts and representing an investment of more than 4,1 M€. This is an increase in funding of over 10% on 2004. Experts from 22 different countries participated in these activities.

In 2005, 33% (1,35 M€) of STF work was funded from the ETSI budget or the voluntary contributions of Members, 41% (1,68 M€) came from the EC and EFTA and 26% (1,07 M€) was provided by 3GPP partners (this figure excludes MCC contracted experts).

Sources of funding for STFs and funded projects in 2005
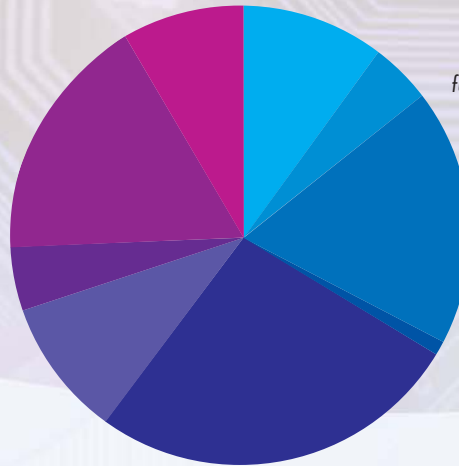
ETSI budget/voluntary contributions of Members
- ETSI budget contribution to the Protocol and Testing Competence Centre (PTCC): 10%
- Voluntary contributions to the PTCC: 4%
- ETSI budget contribution to the Funded Work Programme (FWP): 18%
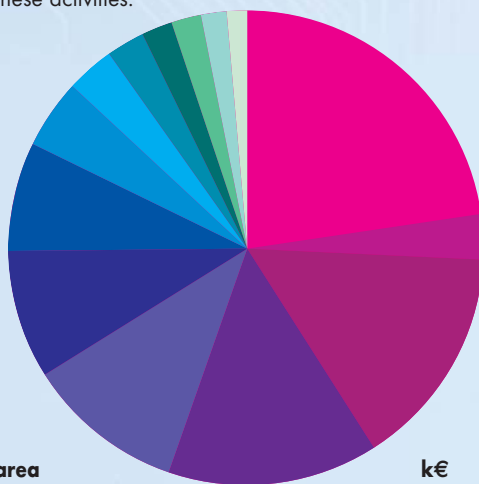- Voluntary contributions to the FWP: 1%

EC/EFTA funding
- Contribution to the FWP: 27%
- Contribution to the PTCC: 9%
- Special contracts: 5%

3GPP
- 3GPP Partners: 18%
- Voluntary contributions: 8%

Technical areas in which resources were invested

Technical area	k€
3GPP - Tasks	938,4
- subcontracts	125,5
Human Factors (HF)	612,5
EMC and Radio Spectrum Matters (ERM)	587,2
TISPAN	444,8
Methods for Testing and Specification (MTS)	360,0
Broadband Radio Access Networks (BRAN)	306,0
EC special contracts	195,4
Electronic Signatures and Infrastructures (ESI)	135,5
Speech Processing, Transmission and Quality Aspects (STQ)	104,1
Satellite Earth Stations and Systems (SES)	97,1
Terrestrial Trunked Radio (TETRA)	90,8
Implications of the R&TTE Directive	72,3
Others	40,4
TOTAL	**4 110,0**

EC/EFTA funding

For the year starting May 2005, the EC and EFTA contribution to the ETSI standardisation infrastructure was 2,1 M€.

The EC/EFTA contribution for specific standardisation contracts under their 2005 budget line provided funding of a further 1,03 M€ to support the eEurope 2005 initiative. As in previous years, all of the contracts were signed in December 2005. A further 1,5 M€ of successfully evaluated proposals for funding were not handled in 2005 but will be funded out of the 2006 EC/EFTA budget; it is hoped that they will be provided for signature by early April 2006.

The funding provided to cover the eEurope standardisation activities will be used between 2006 and 2008. Financing was also provided in 2005 to support the Single European Sky Interoperability Regulation; the work was completed within the year.
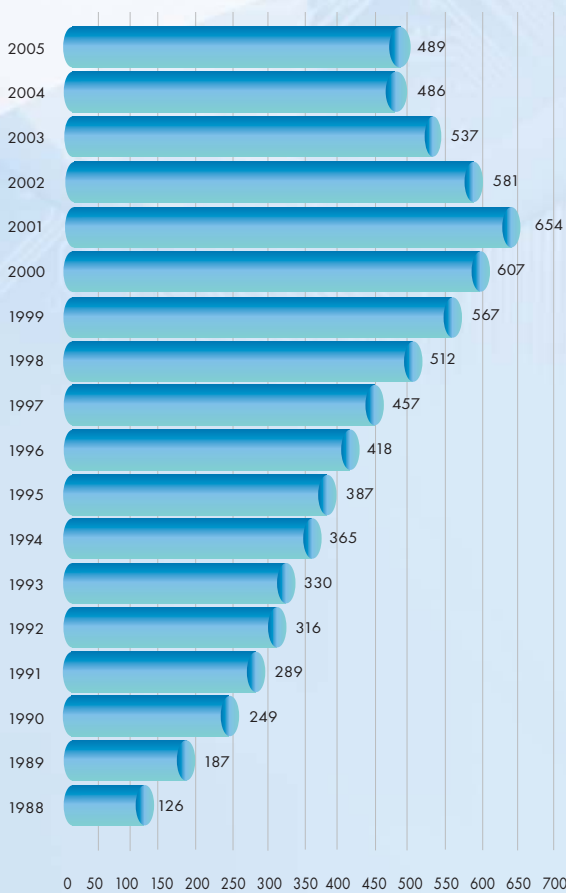
Membership

For the first time in three years, there was a rise again in ETSI membership. The Institute now brings together more than 630 Members from 59 countries all over the globe. The declining numbers, which mirrored the downturn in the telecommunications industry, have been reversed but, during this period, ETSI lost one-third of its Members, with serious consequences for staffing and other resources. The number of new applications for membership which we are now seeing (61 for Full and Associate Membership in 2005) is also encouraging, as is the fact that some Members have increased substantially their contribution to the Institute.

In accordance with the Business Plan, the Secretariat has been making concerted efforts to recruit new members. For example a series of ICT Roadshows has been introduced to emphasise the benefits of membership. Positive results from this and other initiatives are expected in 2006.

Full membership rose slightly compared with 2004 figures, to 489, and is now drawn from 36 European countries. Brazil, Lichtenstein and Uzbekistan all now participate in ETSI; at the end of 2005 the total number of countries represented in all categories of membership rose to 59. Associate membership was 103, representing 21 non-European countries, and at the end of 2005, there were also 39 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 -
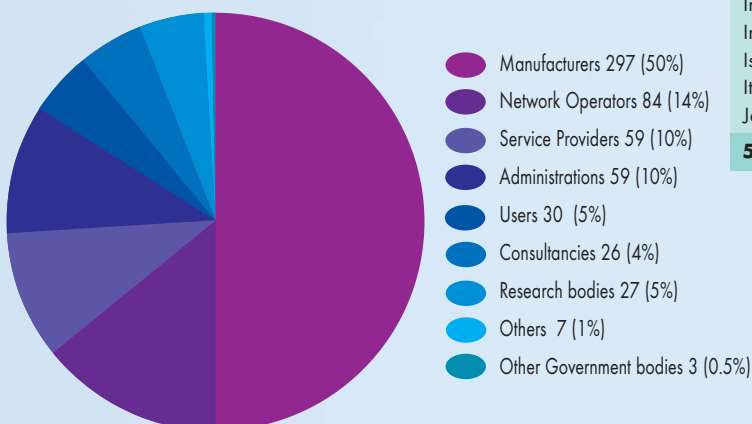totals of Full Members

Year	Members
2005	489
2004	486
2003	537
2002	581
2001	654
2000	607
1999	567
1998	512
1997	457
1996	418
1995	387
1994	365
1993	330
1992	316
1991	289
1990	249
1989	187
1988	126

Full and Associate Membership by category

- Manufacturers 297 (50%)
- Network Operators 84 (14%)
- Service Providers 59 (10%)
- Administrations 59 (10%)
- Users 30 (5%)
- Consultancies 26 (4%)
- Research bodies 27 (5%)
- Others 7 (1%)
- Other Government bodies 3 (0.5%)

Membership by country
(Full and Associate Members and Observers)

Country		Country	
Albania	1	Korea	1
Algeria	1	Latvia	2
Andorra	1	Lichtenstein	1
Australia	2	Lithuania	1
Austria	11	Luxembourg	5
Belgium	25	Malaysia	1
Bosnia Herzegovina	2	Malta	2
Brazil	1	Netherlands	28
Bulgaria	4	Norway	9
Canada	8	Poland	5
China	9	Portugal	2
Croatia	4	Romania	4
Cyprus	2	Russian Federation	5
Czech Republic	3	Singapore	3
Denmark	18	Slovakia	2
Egypt	1	Slovenia	3
Estonia	1	South Africa	4
Finland	16	Spain	16
France	73	Sweden	21
Georgia	1	Switzerland	17
Germany	80	Taiwan	9
Greece	5	Tunisia	1
Hungary	4	Turkey	6
Iceland	1	Ukraine	1
India	3	United Arab Emirates	2
Iran	1	United Kingdom	107
Ireland	11	United States of America	47
Israel	7	Uzbekistan	1
Italy	26	Yemen	1
Japan	2		
59 countries in total			**631**

Membership by type

	01-01-2005	31-12-2005
Full Members	486	489
Associate Members	99	103
Observers	36	39
Total	621	631

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 2005 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 2004, are the following:

Expenditure – In total, expenditure increased by 3,8%. Secretariat costs, which represent 38% of expenses, increased by 3,2% (slightly more than inflation). 5,1 M€ were spent on the Mobile Competence Centre (MCC) and 2,2 M€ on the Protocol & Testing Competence Centre (PTCC). The remaining Funded Work Programme Budget amounted to 1,9 M€, which was spent on Specialist Task Forces (STFs). 0,7 M€ were spent on Plugtests™ activities for the preparation and support of interoperability events.

Income – Members' contributions increased by 2%. 55% of the budget was funded by Members' contributions (11,8 M€). The contribution of the 3GPP Partners (1,5 M€) decreased due to cost reduction within 3GPP. EC/EFTA payments amounted to 3,9 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) increased by 53%.

2005 Budget statements

INCOME (k€)		EXPENDITURE (k€)	
Members' contributions and Observer fees	11 825	Secretariat	8 221
EC/EFTA funding	3 947	Special Projects	1 190
3GPP Partners	1 464	Mobile Competence Centre (MCC)	5 145
Voluntary contributions	693	Protocol & Testing Competence Centre	2 218
Forapolis	1 680	Funded Work Programme & TISPAN support	2 085
Sales	436	Plugtests	672
Plugtests	191	Forapolis	1 680
Financial income	112	Provision and losses	350
Other income	1 160	TOTAL EXPENDITURE	21 561
TOTAL INCOME	21 508	DEFICIT	-53

The 2005 financial result is a deficit of 53 k€.

Financial Situation

Financial Statements for the Year 2005

The final accounts and the balance sheet are summarised below.
The fiscal accounting period is 1 January 2005 - 31 December 2005.

Statement of Income and Expenditure Year 2005

	Income (€)	Expenditure (€)
Income	21 304 000	
Purchases		10 778 218
Expenses		10 731 441
Investment management	142 858	7 746
Extraordinary income & expenses	61 110	24 496
Corporate income tax		19 051
Deficit		-52 984
TOTAL	21 507 968	21 507 968

Summary of the Balance Sheet

Assets

Net amounts at:	31 December 2004 (€)	31 December 2005 (€)
Fixed Assets	5 346 892	7 258 239
Debtors	2 383 209	14 079 630
Securities/cash	7 182 658	4 832 254
Adjustment accounts	99 174	76 369
TOTAL ASSETS	15 011 933	26 246 492

Liabilities

Net amounts at:	31 December 2004 (€)	31 December 2005 (€)
Equity	8 331 645	8 331 645
Provisions	150 000	150 000
Result of the year		- 52 984
Creditors	6 163 188	6 725 885
Adjustments	367 100	11 091 946
TOTAL LIABILITIES	15 011 933	26 246 492