ETSI

World Class Standards

annual report 2007

ETSI is:

- a producer of Information and Communications Technologies (ICT) standards for global markets, including fixed, mobile, radio, converged, broadcast and Internet technologies.

- officially recognised by the European Commission as a European Standards Organisation. Its standards help ensure the free movement of goods within the single European market and allow enterprises in the EU to be more competitive. The high quality of its work and its open approach to standardisation has helped it evolve from European roots to extend global branches.

- a not-for-profit organisation with more than 700 member organisations worldwide, drawn from 62 countries and five continents. Members include the world's leading and most innovative companies in ICT and broadcast.

- a world-renowned organisation with a solid reputation for technical excellence. It makes its expertise in interoperability and the standardisation of some of today's most important technologies available to its Members and customers through a range of services for growing ideas and enabling technology.

2007 and Beyond

In our 20th Anniversary year, it is with great pride that I look back at so many excellent ETSI achievements, many of them truly global. The General Assembly has a strong record of adapting and preparing ETSI to meet the current and future needs of Members and their customers, particularly around important periods of change or evolution.

Globalisation and its inevitable consequences now present ETSI with an opportunity, and many would say duty, to secure the Institute's future by accelerating our development through a fresh look at the impact of the latest advances in Information and Communication Technologies (ICT).

ETSI Members are increasingly addressing global markets, adding significant value for their customers by creating new applications running on the advanced communications infrastructure they helped to create. This is surely a key factor and we must seek new challenges and exploit opportunities if we are to help ensure our Members' futures, and ourselves prosper, amidst increasingly competitive industry environments worldwide.

The European Commission study into the specific policy needs for ICT standardisation is an important source of inspiration to help set innovative and challenging targets for ETSI. Others exist elsewhere. In considering past achievements, let us continue to look at what ETSI could contribute to the world of electronic communications in the future – and prepare the Institute for the next 20 years.

John Phillips
*Chairman of
the General Assembly*

It is always a pleasure for me to look back over a year in ETSI and to recall how much has been achieved. The diversity of our technical activities means success in many different areas.

For example, in 2007 we published the first specifications to enable New Generation DECT™. Then, in the Third Generation Partnership Project (3GPP™), we made significant progress in the Long Term Evolution of 3G mobile communications.

There were also major developments in the areas of: Smart Cards; Digital Mobile Radio; GSM™ for Railways; and children's use of ICT. We consolidated the Fixed-Mobile Core IMS into one place – 3GPP, and we established new, wider co-operation with the WiMAX Forum on network testing, leveraging two of ETSI's strengths – a focus on system design and a practical capability in formal methods for testing and specification.

Looking to 2008 and beyond, one of the Board's tasks is to highlight key developments which are important to ETSI Members' businesses. Two new committees have been established: to pursue work on Intelligent Transport Systems (ITS), and Reconfigurable Radio Systems (RRS), and other new strategic topics are being considered, for example, in the domain of the interconnection of IP-based services and service-oriented architectures.

The Board continues its task as an enabler, but it is up to ETSI Members now to come and make these initiatives the technical successes of the future.

Francisco da Silva
Chairman of the Board

ETSI's support to the business success of its Members worldwide is enabled by a professional and proactive Secretariat.

Subsequent to an internal reorganisation in May 2007 we have improved our organisational structure with a new configuration which efficiently addresses the fundamental challenges for ETSI's future:
• produce world class standards for European and global use
• drastically improve links to new technologies in ICT
• improve interoperability in the market place

With a fresh Executive Team we are laying the foundations for the ETSI Secretariat to be a catalyst to the highest quality standards, both as a European Standards Organisation (ESO) and as an international partner in the production of global standards. ETSI Members know they can rely on the Secretariat's commitment to them and trust in our experience and expertise to excel in both capacities.

We have made excellent progress by establishing several promising co-operation arrangements with leading researchers and scientists, thus positioning ETSI as a reliable and active partner in bringing new technologies into standardisation.

The number of innovative ETSI standards-enabling services has been increased and given a more commercial approach in order to provide industry and end-users with the highest level of interoperability in complex products through unique offerings such as 'Forapolis' and the newly-created 'Interopolis'.

We are dedicated to developing ETSI into the leading standards organisation in the ICT world by bringing added value to the businesses of our 700 Members worldwide.

Walter Weigel
Director-General

Innovation and Success

An annual report is traditionally an occasion to look back. As this report goes to press, ETSI is celebrating its 20th Anniversary year. Founded in 1988 as the third European Standardisation Organisation, who could have predicted what lay ahead?

Two decades on, our work has enabled some of the most important Information and Communication Technologies (ICT) today. We have helped to shape the world we live in with the Global System for Mobile communication (GSM™) and international roaming, Digital Enhanced Cordless Telecommunications (DECT™), the Subscriber Identity Module (SIM), Terrestrial Trunked Radio (TETRA), euro-ISDN, xDSL, the Lawful Interception handover, electronic signatures, Digital Video Broadcasting (DVB) system specifications ....

To this list of past achievements we can add a raft of new success stories from 2007: GSM onboard aircraft which, thanks to ETSI, is now finally possible, progress with Next Generation Networks (NGN), major developments in Smart Cards, our contribution to achieving the latest milestone in mobile communications, the freezing of 3GPP Release 7 and the Long Term Evolution of 3G, Digital Mobile Radio, publication of the first specifications to enable New Generation DECT, GSM for Railways, medical implants, user accessibility....

But it is appropriate that we should also look forward, both to new developments in our existing areas of expertise and to what could become the success stories of the future. Intelligent Transport Systems, eHealth and Reconfigurable Radio Systems are just three of the exciting areas where we are launching new initiatives.

The market demands that standardisation should keep pace with the latest technological developments. As ETSI embarks on the standardisation of new technologies, we are strengthening our relationships with R&D and academic institutions. In this way, we will be able to input to emerging applications at the earliest opportunity.

Although ETSI is primarily a European Standards Organisation (ESO), many of our standards have found enormous success on the world stage. Indeed, many of our Members are based outside of Europe. As our networked world becomes ever more interconnected, standards are required that provide for interoperability at the global, rather than the regional, level. Our Members' businesses are becoming increasingly international with the globalisation of markets. Consequently, standards are required that can be applied and implemented worldwide. ETSI is, in turn, being proactive in establishing a global 'footprint' in support of global standardisation.

2007 has been a good year.

Stability has characterised our financial situation, our Membership base is growing and we are attracting new Members from all over the world. Our standards production is increasing year-on-year, and ETSI is now widely perceived as an innovator in terms of IPR policy. We have extended our partnerships with organisations all over the world and, recognising the special needs of developing markets, we are reaching out to the Far East, Latin America and India.

ETSI is also emerging as the leading Standards Development Organisation (SDO) for standardisation support services, with a special focus on interoperability, which is the main issue in complex technical standards today. We are enhancing our services to our Members and customers, through Forapolis, our 'technology-enabling' service, and by launching Interopolis, our new 'product-enabling' service. Together, Forapolis and Interopolis will offer complete 'Idea to Product' solutions for growing ideas and enabling technology, from market requirements to placing products or services on the market.

By taking a fresh look at the impact of the latest advances in ICT, by exploring the wider opportunities created by global markets and doing what we are best at – evolving in response to the changing needs of our Members – ETSI can look forward to another exciting and successful 20 years.

Mobile Telecommunications – the Future is Here

ETSI and the Third Generation Partnership Project

ETSI is one of the founding partners of the Third Generation Partnership Project (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 the General Packet Radio Service (GPRS) and Enhanced Data for GSM Evolution (EDGE).

Further information at: www.3gpp.org

Each Release of the 3GPP system specifications for third generation cellular telecommunications provides mobile operators and equipment manufacturers with a stable reference platform to build networks and terminal equipment. The latest Release, Release 7, has had the longest development period of any Release so far. Begun shortly before the freezing of Release 6 at the end of 2004, Release 7 was frozen during 2007. The work has involved the usual enhancements to the system, designed to bring new revenue-producing potential to network operators and cost reduction to equipment suppliers – aspects vital in an era of falling 'revenue-per-subscriber'.

Release 7 comprises some 130 new features and feasibility studies – nearly twice the number in Release 6, nearly four times the number in Release 5. In all, Release 7 is the result of around 470 individual work items. It includes nearly 900 individual Technical Specifications and Technical Reports – double the number which comprises the first 3GPP Release, R99.

Over 100 separate features are being incorporated in Release 7 and others have already been identified for Release 8. Among the more significant are:

- Improvements to location-based services made possible by the availability of the Galileo satellite specifications will enable an Advanced Global Navigation Satellite System (A-GNSS) in systems based on both the GSM/EDGE Radio Access Network (GERAN) and the UMTS Radio Access Network (UTRAN).

- eCall, the in-vehicle emergency call service being developed in co-operation with ETSI's Mobile Standards Group Technical Committee (TC MSG), which will automatically relay data about a road accident from the vehicle involved to the emergency services, providing a faster and more effective emergency response.

- A Public Warning System will allow public authorities a reliable means of passing messages and instructions to users of cellular terminals, to warn of impending disasters.

- The Short Message Service (SMS) has proved immensely popular over the years, with usage exceeding initial estimates by several orders of magnitude. In Release 7, the feature 'Routeing of Mobile Terminated Short Message Service (MT-SMS) via the Home Public Land Mobile Network (HPLMN)' allows the SMS receiving terminals' home network to control the flow of SMS messages even when the receiving terminal is roaming in other networks. This will give the operator a greater ability to filter out spam and spoof messages. It will also allow greater control over delivery costs and enable new services such as SMS forwarding.

- Another feature giving operators more control over traffic flow during periods of potential congestion is Access Class Barring and Overload Protection (ACBOP). Networks can experience unexpectedly high traffic levels, for example during traffic jams, demonstrations etc, resulting in cell-level or even wider area congestion. The mechanisms being developed are applicable to both 2G and 3G access networks and the core network.

Output (MIMO) antenna technology should enable ten times as many users per cell as 3GPP's original Wideband Code Division Multiple Access (W-CDMA) radio access technology.

To suit as many frequency band allocation arrangements as possible, both paired (FDD) and unpaired (TDD) band operation is supported. LTE can co-exist with earlier 3GPP radio technologies, even in adjacent channels, and calls can be handed over to and from all of 3GPP's previous radio access technologies.

Running parallel with the development of LTE, 3GPP's core network has been undergoing System Architecture Evolution (SAE), developing a framework for an evolution or migration of the 3GPP system to a higher-data-rate, lower-latency system, optimised for packet mode and in particular for the Internet Protocol Multimedia Subsystem (IMS) which supports all access technologies, including wire-line.

As of December 2007, 60-80% of the specifications work for Release 8 had been completed. This figure is expected to reach between 80 and 95% by the end of March 2008.

And there is more yet to come. Late in 2007, 3GPP agreed to work on evolution beyond what have been traditionally considered 3G systems (as defined in the context of the ITU's IMT 2000). Among the proposals for LTE and SAE are an instantaneous downlink peak data-rate of 100 Mbps within a 20 MHz downlink spectrum allocation (5 bps/Hz) and uplink peak data rate of 50 Mbps (2.5 bps/Hz) within a 20 MHz uplink spectrum allocation, latency less than 50ms, at least 200 users per cell and mobility across the cellular network will be maintained at speeds from 120 km/h to 350 km/h (or even up to 500 km/h, depending on the frequency band). LTE is considered to be one of the main contenders for 4G, or, as it is now becoming known, IMT-Advanced.

Meanwhile, most of the stage 1 specifications for Release 8 features were frozen in 2007, leaving a clear picture for the stage 2 architectural analysis and subsequent stage 3 protocol and functionality work to progress in 2008. Indeed, work has already started on the requirements stage of several Release 9 features including:

- Interworking of 3GPP radio access technologies – including LTE – with WiMAX
- Remote management of USIM applications for machine-to-machine environments
- Security (key management) enhancements
- Home base station ('femto-cell') security.

3GPP is supported by ETSI's Mobile Competence Centre (MCC), which has compiled detailed reviews of the features of Releases 99, 4, 5 and 6, bringing together information formerly spread across hundreds of meeting contributions and reports. An equivalent document for Release 7 will be available in the first half of 2008.

Long Term Evolution – a misnomer?

Although the development of High-Speed Packet Access (HSPA) ensures that all 3GPP-based Universal Mobile Telecommunications System (UMTS™) radio access network technology will remain competitive for the foreseeable future, work has already commenced on radio access technology for what was once called '4G' and more recently 'Long Term Evolution' (LTE).

The LTE project has focussed on enhancing the Universal Radio Terrestrial Radio Access (UTRA) and optimising 3GPP's radio access architectures. The original targets were to have average user throughput of three-four times the downlink levels of High-Speed Downlink Packet Access (HSDPA) in Release 6 (100 Mbps) and two-three times the High-Speed Uplink Packet Access (HSUPA) levels in the uplink.

What was then 'long term' is now upon us, and the first raft of Evolved UTRAN (E-UTRAN) Technical Specifications has been issued. An aggressive timescale has been set to complete this work within 3GPP Release 8, and it is expected to be nearing maturity and ready for commercial implementation by the end of 2008.

E-UTRAN will be extremely flexible, using a number of defined channel bandwidths between 1,25 and 20 MHz (contrasting with UTRA's fixed 5 MHz channels). Spectral efficiency is increased by up to fourfold compared with UTRA, and improvements in the architecture and signalling have reduced round-trip latency. Multiple Input/Multiple

Internet Protocol Multimedia Subsystem (IMS)

The Internet Protocol Multimedia Subsystem (IMS) is one of the greatest success stories of the Third Generation Partnership Project (3GPP™). Originally designed to deliver Internet Protocol (IP) multimedia to mobile users, IMS has become the core component within 3G, cable TV and next generation fixed telecommunications networks.

IMS specification began in 3GPP Release 5, as part of the core network evolution from circuit-switching to packet-switching, and was subsequently refined in Releases 6 and 7. Initially IMS was an all-IP system designed to help operators deliver next generation interactive and interoperable services over an architecture which provided the flexibility of the Internet. Session Initiation Protocol (SIP) was selected as the signalling mechanism for IMS, which allowed voice, text and multimedia services to traverse all connected networks.

The confirmation of the IMS concept as being applicable beyond the bounds of mobile cellular systems has allowed its wholesale adoption by the fixed network community, and ETSI's Telecommunication and Internet converged Services and Protocols for Advanced Networking Technical Committee (TC TISPAN) decided to place it at the heart of its Next Generation Networks (NGN) standards. 2007 saw a conclusion of the strategic discussions between 3GPP and TC TISPAN on the harmonisation of a common core IMS functionality. That standardisation activity will be concentrated in the future in 3GPP – home of IMS – and maintenance and further development of the variants for NGN will be taken over by the 3GPP working groups, with a view to there being one – and only one – IMS.

The (principally North American) cable TV community has also adopted IMS and, through participation in 3GPP, is allowing the technical specifications to cover their particular needs too.

With the adoption of IMS by other industry sectors, the potential of a mass market to bring about substantial economies of scale will provide affordable broadband wireless access, regardless of how and where users connect.

High-Speed Downlink Packet Access (HSDPA)

Parity between DSL-type broadband speeds and mobile broadband moved a step closer with the arrival of High-Speed Downlink Packet Access (HSDPA), delivering up to 14 Mbps in the downlink, and High-Speed Uplink Packet Access (HSUPA) returning 5,8 Mbps in the uplink.

Both HSDPA and HSUPA build on the standards work in 3GPP Release 99 for 3G/W-CDMA and have been made possible largely by using a software upgrade to existing UMTS radio access networks. The specifications for HSDPA and HSUPA are included in Release 5 and Release 6 respectively. Improvements in the use of the existing radio bandwidth of UMTS have been achieved through new modulation techniques, reduced radio frame lengths and new functionalities within radio networks. As a result, throughput has increased and latency has been reduced.

By the end of 2007, there were over 166 HSDPA networks in 75 countries, with a further 38 networks committed to deployment.

HSUPA was first launched commercially early in 2007; by the end of the year, 24 networks had been launched. According to the Global mobile Suppliers Association (GSA), over 45 networks had launched, were testing or planned to deploy HSUPA.

And the work goes on…. As a result of studies undertaken during the preparation of Release 7, an evolution of HSPA has been specified which adds multiple input/multiple output (MIMO) antenna capability and 16QAM (uplink)/64QAM (downlink) modulation. Coupled with improvements in the radio access network for continuous packet connectivity, this means that HSPA+ will allow uplink speeds of 11 Mbps and downlink speeds of 42 Mbps within the Release 8 timeframe – ie around the end of 2008.

Breaking down the Barriers

The increasing complexity of our networked lives has raised concerns about aspects of 'eInclusion' and the development of society and the economy – whether the benefits of emerging technologies are accessible to all segments of the population, including those who are disadvantaged due, for example, to education, the effects of ageing or sensory, motor or cognitive impairments. ETSI's Human Factors committee (TC HF) is a leading force in developing standards to achieve eInclusion and has earned an international reputation for its work in this field.

In Europe and elsewhere the commercial response to these concerns has been a growing acceptance of Corporate Social Responsibility. The issue of 'social Europe' is also high on the agenda for the European Commission (EC), along with a requirement for the portability of socially based services across national boundaries. In responding to these shifts in both commercial focus and public policy, the emphasis in TC HF has continued to move away from its traditional role in providing detailed specifications for user interface design to more general technical guidance on the impact of ICT on the wider aspects of daily life and its effect on both social and commercial needs.

Among a number of projects aimed at improving access to the European Information Society, the TC is collaborating with the European Committee for Standardisation (CEN) and the European Committee for Electrotechnical Standardisation (CENELEC) to examine the impact of EC Mandate 376 on procurement and the accessibility of ICT – procurement by the EC and by local and national government.

Children's usage of ICT is also still a pressing concern for TC HF. We live in a media saturated society, and it is now widely recognised that, in this new 'connected' world, the industry must provide better safeguards for young child users, especially in their earliest formative years. One of the driving themes of TC HF's work is to reverse the usual trend of scare stories about the harm communications technology is doing to young children by highlighting the potential benefits, while at the same time producing standards and specifications to deal effectively with the potential negative effects on children. In 2007, in a report to the EC's 'Safer Internet Programme', TC HF called upon industry players to become more 'child aware' and sought support for new industry initiatives to introduce child awareness into the design process for ICT equipment. An ETSI Guide is due to be published in 2008 to provide assistance for service providers who offer services to children.

Another hot topic for the committee is multicultural studies, with the aim of removing or reducing cultural barriers that can exclude people from communicating. An ETSI Guide on the handling of language issues in broadband multimedia communications was published.

Work on Telecare services (the delivery of health and social care services in and outside of homes) was concluded in 2007 with the completion of an ETSI Guide on user experience guidelines. A new ETSI Standard was also published on telephone keypad design, along with an ETSI Guide on real-time communication services and a Technical Specification on commands for assistive mobile device interfaces.

Work continues on 3G/Universal Mobile Telecommunications System (UMTS™) generic user interfaces, a spoken command vocabulary for ICT devices and services, telecommunications relay services, pubic Internet access points and to enable a harmonised relay service for text telephones.

These are just some examples of the diverse range of activities undertaken by TC HF in response to technological progress and its effects. The value chain for the delivery of ICT is now complex, with many players needing to be part of the consensus to find a solution that can be taken forward to standardisation. A key element of the way TC HF works is that it is prepared to go out, meet people and engage in dialogue with the different stakeholders who have an interest in the use of ICT. Change and innovation in ICT are now the norm rather than the exception, and the shock of the new must not be a barrier to enjoying the additional benefits on offer. Wide scale accessibility is crucial for the successful take-up of new technologies and, in this, ETSI's work on Human Factors continues to lead the way.

Smart Cards

The potential of Smart Cards – micro-processor equipped tokens which can store and process information – is growing well beyond their original purpose in telecommunications and IT, beyond even the latest applications in banking and healthcare.

It is ETSI's task to maintain the smart card platform specifications for 2G and 3G mobile communication systems which provide users with access to global roaming by means of their smart card, irrespective of the radio access technology used. But the Institute is also now working to enhance the capabilities of Smart Cards to turn the ordinary mobile phone into a multipurpose terminal, a lifestyle tool and personal security device by establishing a second, contactless communication channel. The Institute is well equipped for this challenge – ETSI was responsible for the original specification of the Subscriber Identity Module (SIM) for GSM™ – the world's most successful smart card application ever, with more than 10 billion SIMs deployed.

During 2007, as well as the publication of new documents and the maintenance of specifications, a large number of new features and functionality were introduced into Release 7 of ETSI's Smart Card Platform specifications. Release 7 was closed in 2006 with respect to the definition of new requirements. By the end of 2007 all but one of the technical realisations and enhancements (the contactless interface of the UICC) were also closed.

To be able to use Smart Cards for mass storage and (high capacity) applications requiring a fast throughput – 2007 saw field trials with SIMs providing up to 1 Gb of memory for such purposes – as well as a device for use in the Internet world, it had been agreed previously that USB IC (Inter Chip) technology should be used as the basis for the new high speed protocol for Smart Cards. In May 2007 ETSI completed the definition of the technical realisation itself.

The protocol allows a nominal speed of 12 Mbps – even today's advanced SIMs and handsets work with a typical speed of only about 400 kbps per second. For the communication between smart card and terminal, two of the hitherto unassigned three contacts of the smart card are used.

Significant progress was also made on the other main topic for Release 7; in October 2007 the Technical Specification for the contactless interface for the multi-application platform – the UICC – was approved. This allows applications on the UICC to communicate directly with the outside world via a Near Field Communication (NFC) chip in the terminal. Potential uses are ticketing and access control for public transport as well as payment by means of a credit card or an electronic purse residing on the UICC. The so-called 'Single Wire Protocol' connects the smart card, via the only remaining unassigned contact, with the NFC chip in the terminal. In this way, applications residing, for instance, on a SIM can communicate 'contactless' with the outside world without involving the mobile phone. Publication of this specification now enables manufacturers of both terminals and Smart Cards to begin their hardware development. Standardisation of the management level for the contactless interface will be finalised in 2008.

Other achievements in 2007 included a specification to enable a Smart Card Web Server, developed in collaboration with the Open Mobile Alliance (OMA). This will provide a PC web server-like graphical user interface (GUI) for Internet access via, say the SIM, and will give the user a completely new experience for applications residing on the SIM compared with today's services based on the SIM Application Toolkit.

A specification on the technical realisation of the USSM, the UICC Security Service Module, was also approved, which could add significant value to applications such as Digital Rights Management (DRM), secure e-mail, payments, banking and application download (to both the card and the terminal device).

ETSI's priorities for 2008 include further developments for USB and the Single Wire Protocol, the definition of requirements for the new Release 8 of the specifications and, in particular, the machine-to-machine (M2M) requirements and their realisations for the smart card. ETSI has previously worked on related topics such as an extended temperature range for Smart Cards for use in an automotive environment. The implications of its work, however, are much wider than this, ranging from emergency units in cars to electricity meters, office equipment to household goods, burglar and fire alarms to industrial maintenance. Smart Cards could, for example, provide early warning if the bearings in a windmill generating electricity are about to malfunction. The potential is limited only by the imagination.

GSM™ Operation Onboard Aircraft

ETSI achieved a major breakthrough for aircraft communications in 2007 with the completion of its work to enable the use of mobile phones onboard aeroplanes.

The first Harmonised Standard covering the essential requirements of the Radio and Telecommunication Terminal Equipment (R&TTE) Directive and the Technical Specifications governing the technical and operational requirements of onboard base stations and the radiated power outside the aircraft have been approved and are expected to be published in 2008.

For many years, airlines refused the use of cellular telephone technology in-flight – for a number of reasons. While aircraft safety has not proved a significant risk, it has been necessary to protect ground cellular networks which are constructed for terrestrial communication and which cannot communicate with airborne terminals in an effective way. Poor market demand, probably due to the perceived high cost and lack of personalised features that users now enjoy in their personal mobile phones, have meant that previously attempted technologies, such as the Terrestrial Flight Telecommunication System (TFTS) and Boeing's more recent 'Connexion' service, have not been successful.

However, ETSI has taken its enormously popular GSM – which now boasts over 2,8 billion users in over 200 countries on all five continents, with over 1,6 million new subscriptions every day and 82% of the global mobile market – and adapted it for use onboard aeroplanes.

Early research showed that reasonably reliable mobile-network connections could be established for aircraft flying below about 3 000 metres (ie during take-off and landing), and experience has shown that some connections are possible even at cruising altitude (around 10 000 metres). However, the high speed of the aircraft and wide area coverage due to the altitude cause frequent and erratic handover from cell to cell. This leads to connection failures and degradation of terrestrial services due to interference and the sheer amount of control signalling required in managing these handovers.

In 2005 a novel approach was suggested whereby a low-power base station would be carried on board the aircraft itself, and an associated unit would emit radio noise in the GSM band, raising the noise floor sufficiently to shield terminals and prevent them from accessing ground base stations. Thus mobile terminals activated at cruising altitude would not 'see' any terrestrial network signal, but only the aircraft-originated cell. Power levels would only need to be low (since mobile and base station would be in very close proximity), and thus interference would be minimised. Liaison between the aircraft-borne base station and terrestrial network(s) would be via satellite.

Recent developments in relevant European regulatory groups, including the decision that the complete system falls under the R&TTE Directive, and considerable consensus around a regulatory framework in the Asia Pacific region, meant that the time was right for a GSM onboard service.

GSM onboard aircraft (GSMOBA) mobile services will allow airline passengers to use their own mobile terminals during certain stages of flight. Passengers will be able to make and receive calls, send and receive SMS text messages and use GPRS functionality. The system provides mobile visited network access, meaning that the onboard network is run by a licensed operator with roaming agreements with the passengers' home operators, so the call will be billed to the user like any other roaming call. For reasons that are mainly technical, the frequencies used for onboard communications are in the GSM1800 band.

Naturally, there are issues related to the offering of GSMOBA that extend beyond the purely technical and regulatory. There are social issues, such as how a system can be managed to prevent annoyance to other passengers. The aviation industry will need to address issues of aircraft and system type approval, taking account of the wide variety of aircraft configurations to be accommodated. Finally, of course, GSMOBA will only be deemed a success if it meets passengers' demands and satisfies the commercial expectations of its promoters. But, thanks to ETSI, the service can now be launched.

Intelligent Transport Systems

Intelligent Transport Systems (ITS) concerns the provision of services to improve the safety, reliability, efficiency and quality of transport. Two aspects of ITS Service provision make it particularly important: the safety of life through the reduction of road deaths and injuries; and the efficient use of transport systems to minimise pollution emissions.

In July 2007, discussions at the twelfth Global Standards Collaboration meeting (GSC-12) in Kobe, Japan, recognised that ITS had become an area of strategic importance. The European Commission has also recognised its significance. ITS service provision, especially the more advanced services, relies on communications – both backbone system telecommunications and wireless communications with and between vehicles. This makes ITS an area of strategic relevance to ETSI and one where ETSI leadership is required, particularly in relation to the European requirements for the provision of ITS Services.

Recognising all these factors, ETSI therefore established a dedicated committee in 2007 to bring together the different aspects of its work in ITS – communication services and provisions. This move is also expected to increase the active participation of companies and organisations in the automotive and equipment supply sectors.

The new Intelligent Transport Systems Technical Committee (TC ITS) held its first meeting in December 2007. Its primary target was to organise the work and it set up five Working Groups to cover different aspects of ITS: User and application requirements; Architecture, Cross Layer and Web Services; Transport and Networks; Media and Medium related issues; and Security.

As well as taking over numerous existing ITS-related projects from other ETSI committees, TC ITS has adopted five new work items:

• Geo addressing and forwarding
• Preserving Vehicular Communication
• Security for passive Radio Frequency Identification (RFID) systems
• Security for active RFID systems
• Security for battery assisted RFID systems

Other topics will be added and strategies defined as meetings begin in 2008.

The potential applications of ITS are numerous and exciting. They include car-to-car communication, car-to-roadside communication and the networks behind this communication, police and emergency services, traffic controls, signs in cars and parking services.

The EC has already demonstrated its support for this initiative by providing funding for a Specialist Task Force to assist TC ITS and ETSI's Human Factors committee (TC HF) with their work on the use of ITS in vehicles.

New Generation DECT™

The popularity of Digital Enhanced Cordless Telecommunication (DECT) is unabated. Adopted in over 110 countries, the most marked growth in 2007 was in the new markets that have opened up in the United States, now that DECT operation is permitted in the 1920-1930 MHz band. The first DECT products were launched in the US in early 2006 and in less than two years DECT communication devices have reached a 17,9% value share in the United States.

But DECT is not standing still. The fixed communication network 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 the in-home distribution of voice services, DECT technology is also looking to a new generation especially scaled for Next Generation communication networks – the 'New Generation DECT'.

In close co-operation with the DECT Forum, ETSI is responding to this evolution and a project has been initiated to drive the standardisation, development and market preparation for New Generation DECT technology and appropriate products. The first two parts of an ETSI Technical Specification to enable New Generation DECT were published in 2007. Part 1 covers the support of wideband speech and improved capabilities for accessing IP services. Part 2 defines the support of IP-based data services. The DECT base standard has also been updated to include the protocol elements required for these new functions.

Part 3, which is planned to be completed by early in 2008, will cover additional features such as several supplementary telephony services and a new 'no emission' mode, which provides the ability to deactivate all radio transmissions.

New Generation DECT will become an integral part of home gateways, so interoperability is an important driver for these standardisation activities. This new activity has already attracted many supporters and the new features will provide an additional push for the continuously growing DECT market.

Next Generation Networks

Next Generation Networks (NGNs) offer the convergence of fixed and mobile telecommunications services and data networks – all based on the same architecture as the Internet. They are an answer to the market reality that 'fixed' voice telephony – although a major part of the telecommunications business – is no longer the only feature that users want from their phone service provider. NGNs add mobility to Triple Play services (Voice, Internet and TV) and the opportunity for further bundling of high revenue services for customers.

At the core of the harmonised 'All-IP' Next Generation Network is the IP Multimedia Subsystem (IMS), developed by the Third Generation Partnership Project (3GPP™), which provides an 'access independent' platform for a variety of access technologies (GSM, 3G, wi-fi, Cable and xDSL).

ETSI's Telecommunication and Internet converged Services and Protocols for Advanced Networking Technical Committee (TC TISPAN) has adopted the 3GPP core IMS specifications for NGNs, using Internet (SIP) protocols to allow features such as Presence, Internet Protocol Television (IPTV), messaging and conferencing to be delivered, irrespective of the network in use. ETSI NGN standards also use WLAN/3G interworking concepts, further expanding the network's potential for broadband services.

In 2007, TC TISPAN succeeded in meeting the immense challenge of finalising a large majority of the work on NGN Release 2. Output in 2007 was unprecedented, with about 400 documents being issued with every meeting and around 200 revisions. Release 2 focuses on enhanced mobility and new services and content delivery, with improved security and network management. It builds upon and enhances the architecture of Release 1 and introduces home gateways aspects, network support for IPTV and NGN solutions for corporate networks. The few remaining issues for Release 2 are expected to be completed early in 2008 and work has now begun on Release 3.

The main features to be included in Release 3 are not yet finalised, but are likely to include consolidation of Voice over IP (VoIP) (including Quality of Service, security and interworking), evolution of the IPTV Service (blended services), Ultra Broadband (fixed and wireless) access to the NGN, interconnect (naming, numbering) and network harmonisation (to improve interoperability with other NGNs and other, non-IMS networks). Release 3 will also offer increased network resilience and robustness. The preliminary estimate is that Release 3 will be completed by the end of 2009.

The scope of 3GPP has recently been extended to include, as well as mobile, "an evolved IMS developed in an access independent manner". To ensure that IMS continues to develop without fragmentation of the system, in 2007, ETSI successfully managed the transfer of its work on the Common IMS to 3GPP. 3GPP and ETSI will continue to work together to define a harmonised core for both wireless and wireline networks and to develop and validate the standards to support tomorrow's converged fixed and mobile high speed networks.

TC TISPAN also made good progress in 2007 on home devices and home networking, and its first deliverables were completed in 2007. New aspects are now being addressed such as interworking with NGNs, specifically the effect on IMS and the synergies between home devices and networks and enterprise networks. A top priority for the group is the definition of standards for the customer network, concentrating on end device interfaces. TC TISPAN is therefore seeking to involve manufacturers of consumer electronics to broaden its perspective.

TC TISPAN benefits from the strong support of operators, vendors, service providers and research and government representatives, with some 150 delegates regularly attending meetings. TC TISPAN provides the definition of NGNs principally from a European viewpoint, but 20% of participants come from outside Europe. This large and geographically diverse participation is recognition of the importance of TISPAN specifications to the telecommunications community globally, and their growing impact on developments in the industry. The market is looking for standards-based NGN solutions to avoid bespoke clients, proprietary solutions and interworking problems and, especially since the Global Standards Collaboration designated ETSI the primary Standards Development Organisation for NGNs, it looks to ETSI for the answers.

Railway Telecommunications

Railway radio networks are changing. A new wireless communications platform has been developed specifically for railways, based on the spectacularly successful GSM. This technology – GSM-R – represents a cost-efficient replacement for all existing analogue railway radio networks and offers a secure platform for voice and data communication between railway and operational staff. It delivers features such as group calls (VGCS), voice broadcast (VBS), functional addressing, location-based connections and call pre-emption in an emergency. The applications it can support include cargo tracking, video surveillance both on board trains and in stations, and passenger information services.

The benefits of this system are widely accepted; the spread of GSM-R now reaches all five continents and represents another huge standardisation achievement for ETSI. In the Far East, 2007 saw GSM-R extend beyond India and China into Australia, where networks will soon be implemented, there are now several lines up and running and a huge development programme is planned for coming years. In North Africa, Tunisia, Algeria and Morocco have adopted the system. In South America, Argentina, Mexico, Venezuela and Brazil are looking into the European Rail Traffic Management System (ERTMS), the new rail management system for Europe which combines the European Train Control System (ETCS) with GSM-R, as a possible global system for their rail operation.

In Europe, GSM-R is being combined with the General Packet Radio Service (GPRS) to form a basis for an Intelligent Transport System to offer railways the means to improve the efficiency of rail operations and offer new services to users. Sweden, Norway, Italy, Spain, Germany and Switzerland are already using GSM-R, and projects have been initiated for the operation of high speed lines in France, Italy, Spain and Belgium.

The roaming agreements for implementing cross-border GSM-R between France, the Netherlands, Germany and Belgium have now been signed and cross-border freight traffic is running freely in Europe. GSM-R on border-crossing trains will become a reality within most European countries in 2008.

ETSI accomplished the original standardisation to enable GSM-R and now maintains the specifications and develops new standards to accommodate new capabilities. For example, the introduction of Direct Mode Operation (DMO) within GSM-R for its use for GSM in Professional Mobile Radio (PMR) is an important evolution which answers not only the requirements of the railways but could also fulfil the needs of the blue light emergency services.

During 2007 ETSI began standardisation work on the use of DMO in GSM-R telecommunications systems. The intention is to use DMO GSM-R for communications related to the requirements of the Technical Specification for Interoperability (TSI) for safety in railway tunnels.

ETSI has also been working to allow short range radio devices to be used on railways; good progress was made in 2007 on two European Standards for Eurobalise (part of the automatic train protection system) and Euroloop (designed to improve communications for the railways).

Broadcasting Standards

During 2007, JTC Broadcast (the Joint Technical Committee which brings together the European Broadcasting Union (EBU), the European Committee for Electrotechnical Standardisation (CENELEC) and ETSI) responded to the high level of interest in delivering TV services to handheld devices (such as mobile phones). The committee has been actively working on several standards for terrestrial transmissions (DVB-H & Forward Link Only) and for mixed satellite/terrestrial transmissions (DVB-SH).

Various standards for DVB-IPDC (IP Datacasting) were published in 2007. In particular, these include 'Content delivery protocols', 'Electronic service guides' and 'Service purchase & protection' mechanisms which are intended to enable consumers to select (and pay for) video services delivered via DVB-H.

New standards for DAB and DVB have been published to take advantage of new compression schemes, such as MPEG-4 AAC for audio and MPEG-4 AVC for video. Similarly, the range of standards for DAB has been extended to allow delivery of new text-based services (Intellitext), whilst the DVB standards have been extended to cover 'Generic Stream Encapsulation' – which is a more flexible version of 'Multi-protocol encapsulation' allowing transmission of data services over MPEG-2 transport streams.

Radio Frequency Identification

A Radio Frequency Identification (RFID) system enables items or people to be identified by attaching to them a small radio transponder (known as a tag). When a tag comes within range of an interrogator, it is activated and transmits its identity. The response from the tag is picked up by the RFID interrogator and processed according to the needs of a particular application. With the ability to store and transmit very large amounts of data, RFID can be used to identify, track, sort or detect a wide variety of objects. As such, it is a key enabling technology in the 'Internet of Things' and has been identified as one of ETSI's top technical priorities in its Strategy for 2007 and beyond.

ETSI has been collaborating closely with major retail companies which recognise the value of RFID devices as an alternative or a complement to bar coding. In 2007, following the success of tests on the installation and operation of RFID systems in warehouse conditions, ETSI undertook a major revision to its European Standard on RFID. The principal changes involved the introduction of the 4-channel plan, which will improve reading performance and is much more spectrum efficient, and removal of the mandatory requirement for 'listen before talk'. This will bring significant benefit to the industry by permitting the simultaneous operation of large numbers of interrogators on the same site.

Independent marketing reports point to a dramatic growth in RFID over the next 15 years. To ensure that adequate spectrum is available to meet future needs, ETSI is investigating the availability of additional frequency bands. If successful, this will further improve the functionality of RFID and align its frequency of operation more closely with the rest of the world.

Ultra Wide Band

ETSI is producing a set of standards to enable various Ultra Wide Band (UWB) devices. In 2007 new activities were introduced for level probing radar (for open air applications) and conformance testing for steel pipes used for level gauging applications. A Harmonised Standard to prevent short range UWB communication devices interfering with other services such as 3G cellular telephones and radio astronomy was published.

ETSI made good progress on applications of UWB for the analysis and classification of building materials, object discrimination and characterisation, and location tracking, and published several Technical Reports. European Standards are now being produced in these areas, along with one for power tools. This work has some very practical applications; for example, UWB sensors provide a non-invasive method of checking decay in bridges, and they can be inserted into tools to prevent accidents. Work on object identification for surveillance purposes (for example, to pinpoint the presence of a heartbeat in a collapsed building) is also ongoing.

Medical Devices

Work on standards for Ultra Low Power implantable medical devices came to fruition in 2007 with the publication of a set of European Standards to enable a range of applications such as the remote monitoring of blood, cranial and heart pressures, cardiac devices and insulin delivery systems. The EMC standards relating to medical implants are also being updated now.

eHealth

With the cost of national health systems exploding, everybody, including governments, hopes to see future technologies develop within eHealth to arrest, or at least slow, this trend. In 2007, ETSI established a new ETSI Project 'eHealth'. It held its first meeting in April.

As eHealth is a very 'horizontal' topic in standardisation terms, the Project will concentrate on the co-ordination of existing ETSI activities which already contribute in the eHealth domain. At the same time, gaps will be identified where new provision might be needed and the Project will produce standards to plug those gaps which are not being covered by other ETSI bodies.

Vital aspects to be considered initially include the security and safety of systems and data, the quality of services, interoperability and validation by testing, and usability.
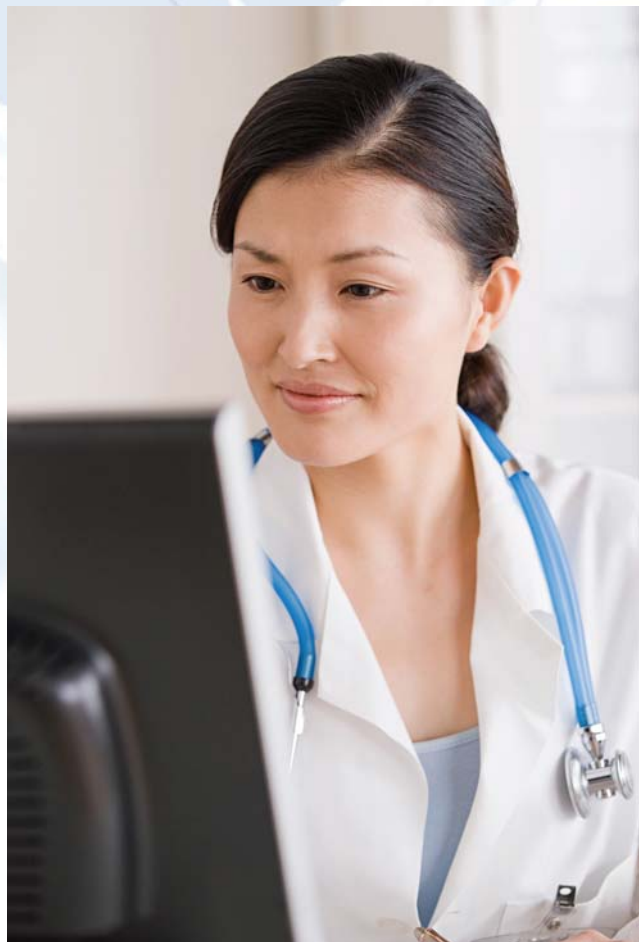
Grid

ETSI's new Grid Technical Committee (TC GRID) shot off to a flying start in 2007. Work has begun on Grid services and telecom networks and meetings have been well attended. Support has been provided from the European Commission to fund a Specialist Task Force to accelerate work, and a highly successful Grid Plugtests™ event was held as part of Grids@Work in Beijing, China.

TC GRID has been established to address issues associated with the convergence of Information Technology (IT) and telecommunications. The committee is tasked with developing interoperable Grid applications and services based on global standards, along with the validation tools to support these standards.

A Grid environment consists of interoperable elements ranging from small devices up to supercomputers, and it will serve communities ranging from individuals to whole industries. Standardisation is essential to enable many different pieces of hardware, software, operating systems, databases etc, connected by global networks, to interoperate. ETSI's experience in interoperability will be invaluable in Grid standardisation.

Grid technology is widely regarded as a key element of a future service-oriented ICT infrastructure, with the potential to make a significant impact on business and society.

ETSI recognises that it needs to complement existing standards development activities in other bodies and TC GRID is establishing and reinforcing links with other Grid players. A Memorandum of Understanding has been signed between with the Open Grid Forum, which is the major forum for developing Grid service standards.

Aeronautical and Maritime

The major achievement in the aeronautical area was approval of the first Harmonised Standard and the specifications to enable the Global System for Mobile communication (GSM™) onboard aircraft (see page 8). Other work is being undertaken to support the implementation of the European Air Traffic Management Network (EATMN) and the Single European Sky legislation for air traffic management systems, constituents and associated procedures which are being integrated into the EATMN. Work on meteorological aids was completed in 2007 with publication of two European Standards on meteorological aids using radiosondes.

Highlights in the maritime sector included new standards for navigation on inland waterways, Digital Selective Calling (DSC) and communications in the VHF bands for Global Maritime Distress and Safety System (GMDSS) and non-GMDSS applications. In response to an EC Mandate, new work was initiated on active radar target enhancers.

Digital Mobile Radio

The new ETSI standards on Digital Mobile Radio (DMR) were finalised in 2007, and the first products have already reached the market. This innovative technology offers the potential for new services and features: ETSI's standardisation of DMR focused principally on providing low cost and low complexity PMR equipment with enhanced features for users. The result is a technology with compelling benefits: enhanced radio coverage, longer battery life and advanced 'reverse channel' features, plus significant cost savings through increased spectral efficiency and reduced equipment requirements. Not surprisingly, the technology is proving popular on a global level. DMR has been selected in the US for use by the Association of Public-Safety Communications Officials (APCO) and there is interest in the technology in China.

Speech Quality
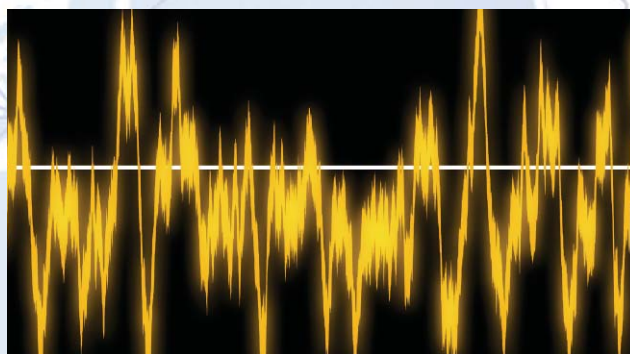
ETSI has also been working to improve the quality of wideband speech applications by developing a standardised performance testing and evaluation methodology for the transmission of background noise. Work on the second phase, developing a model to qualify speech and noise, was completed in 2007 with the finalisation of the third part of a three-part ETSI Guide (EG).

This work is essential for the high quality wideband communications needed by applications such as eHealth and eLearning, which often involve hands-free operation where background noise is unavoidable. It will also be important in business and education, for conference calls and multimedia services. This work is now being extended to cover narrowband speech and VoIP terminals and equipment.

Satellite Digital Radio

In 2007, ETSI published several technical specifications to enable the provision over Europe of digital radio systems by satellites, along similar lines to the successful systems operating in the United States. Digital radio broadcast via satellite services may deliver hundreds of high-quality audio channels with associated services, using terrestrial 'gap-fillers' to provide coverage in specific areas, such as dense urban environments where the satellite-only reception quality of service is not adequate.

Mobility for Emergency and Safety Applications (MESA)

Working with its international partners, ETSI made major progress in 2007 in the production of global technical specifications for an integrated and innovative digital mobile broadband 'System of Systems' for the public protection and disaster response sectors. This will pave the way for the co-ordination of regional and international responses to manage emergencies, disasters, planned events and day-by-day monitoring.

A MESA system will provide services in hostile and harsh conditions. It will be part of an established network and also rapidly deployable at incident locations, enabling effective communications for first responders. The MESA network will be flexible, adaptable, reconfigurable, self-healing, scalable and ad hoc self-organising, in that network connections will be established automatically once units arrive on the scene. Typical applications could involve area-wide deployments of infrastructure covering specific geographic areas, or roving hot spots. Typical data applications include the transmission of vital information about operators, the transmission of building maps and plans, video-monitoring, robotic control, suspect identification, the sensing of hazardous material, the accessing of related databases and other crucial information that is required in a public safety operation, while maintaining constant communication with other first responders and the command and control centre. The Public Safety and Public Protection Community in Europe and North America is convinced that the type of communications specifications envisaged is critical to the future of public safety and protection.

The MESA plan is to exploit existing technologies and, where necessary, identify any technical specifications and new technologies required to provide services that are not already catered for. The key factor will be interoperability among the various technologies used.

To accelerate the work, two Focus Groups were set up in 2007, comprising North American and European representatives. In particular, the US group has been working to reconcile the differences between the United States 700 MHz Broadband requirements and those of the MESA project. New initiatives have been adopted to increase participation by users and from industry. Weekly conference calls for the US-based Focus Group are helping to accelerate processes and meet the requirements of US Public Safety regulatory changes. Finally the work has received the formal support of the international Association of Public-Safety Communications Officials, International Inc. (APCO) on behalf of its 16 000 Members and the British Association of Public Safety Communications Officials (BAPCO) on behalf of its 1200 Members.

By early 2008, it is expected that the next generation of the high-level architecture will be complete, and there will have been significant progress on the gap analysis and the development of the first set of technical specifications.

Fighting the War against Computer Fraud

In January 2007, ETSI made a significant contribution in the battle to protect computers, telecommunications and their networks against criminals, by publishing its fifth White Paper, on 'Product Proofing against Crime'.

'Proofing Products against Crime' describes the act of integrating or embedding crime-prevention features into products and services. This aims to reduce their potential to become targets of criminal activity (such as theft, fraud and damage), as well as preventing their use as instruments of crime. It is essential that information is secured so that it cannot be read or modified by unauthorised parties, and that its origin and destination can be proved. In addition, the networks themselves have to be securely managed and protected against compromise or attack. The success of eCommerce, eHealth, eGovernment all depend on it.

The European Commission believes that standardisation could contribute significantly to the crime proofing of products and services. Over time, product proofing could become not only an effective means of crime prevention but also a competitive marketing tool. The challenge is to create standards for product proofing that will give life to products and services in the real world.

Making Future Communications Secure

In addition to those using the web broadcast, over 120 people attended the second ETSI Security Workshop in January 2007. The main theme was 'Future Security' and topics included security issues in electronic signatures, lawful interception, mobile telecommunications, security algorithms and Smart Cards. The workshop achieved a broad assessment of the current situation in security, and provided opportunities for collaboration and co-ordination, as well as direction for future work. The Security Workshop is now established as a regular annual event, attendance is rising and a third workshop was organised for 2008.

Growing Ideas, Enabling Products

While providing standards for both the European and global markets, ETSI has amassed an enormous wealth of expertise in diverse technical areas. Since its standards are designed to enable products and services worldwide to work together, the Institute also has considerable experience in interoperability.

These competences are made available firstly for the benefit of ETSI Members but also to others – through Forapolis, which provides services to fora and consortia. Forapolis focuses on the important initial step of the identification of the idea to develop a technology through to when the first stable specifications are available which enable the production of products or services. In this way, Forapolis serves as a facilitator for 'growing ideas'.

The next stage in the life of a forum is the development of best practices leading from the stable specifications to the production of interoperable products or services.

ETSI's strategy for 2007 recognised that the Institute has a 'service providing' role. In 2007, the opportunity was seized both to develop the services available to external organisations and to expand and enhance the Institute's interoperability and testing services. To assist in the second stage of the life cycle of a forum, ETSI is therefore launching a new 'product-enabling' service: Interopolis.

Testing and Interoperability

As standards become increasingly complex, interoperability presents a growing challenge. ETSI's Protocol and Testing Competence Centre (PTCC) and the ETSI Plugtests™ service have earned the Institute a reputation as the leading Standards Development Organisation in support of interoperability and testing. In 2007 the activities of these two services were combined to form a new unit, the CTI – Centre for Testing and Interoperability. The CTI collects these complementary activities under one umbrella and maximises the synergy between formal testing and interoperability initiatives.

In 2007 technical support was provided in the development of test specifications for 3GPP™, IPv6, Digital Mobile Radio (DMR)/Private Mobile Radio (PMR), TISPAN OSA/Parlay and TISPAN NGN (IMS). Of particular interest was the development of Network-to-Network Interface (NNI) interoperability test specifications for the Internet Protocol Multimedia Subsystem (IMS).

The co-operative testing activity with WiMAX, run on behalf of ETSI's Broadband Radio Access Networks Technical Committee (TC BRAN), has continued successfully. WiMAX Forum certification, based on these tests, is now in progress.

In 2007, CTI organised 12 successful ETSI Plugtests events, the highlight of which was the first ETSI IMS Plugtest held in Turin, Italy. Other events included Lawful Interception, the WiMAX Plugfest, GPON, DSL Triple Play, SIGTRAN and SIM/Handsets.

Commercial customer services provided by CTI are now offered under the Interopolis brand.

Forapolis was established within ETSI to provide effective support to any forum or consortium involved in relevant technical specification activities. It provides services for process management and support for IT, logistics, meetings, legal and financial requirements, marketing and communications. In this way, its dedicated technology-enabling services help finalise and stabilise new technologies.

Improvements to the service in 2007 included the development of the Forapolis Portal Platform which allows customers to manage their website and web applications through a web interface. A sales service was also established to further develop Forapolis' customer and service portfolio, which continued to grow in 2007 and currently includes:

- Open Mobile Alliance (OMA)
- The Home Gateway Initiative (HGI)
- Linux Phone Standards (LiPS) Forum
- Next Generation Mobile Networks (NGMN)
- The Global Certification Forum (GCF)
- The Open IPTV Forum

In addition, a short term project was undertaken in 2007 for the Electronic Communications Committee (ECC).

In a major new initiative to develop ETSI's interoperability services, preparations for the launch of this new service in January 2008 dominated the latter part of 2007. Interopolis is a *product*-enabling service, to complement the *technology*-enabling role of Forapolis. Interopolis will offer customers:

- Test methodology & development
- Test tool engineering
- Pragmatic operational interoperability initiatives (including Plugtests interoperability events)
- Training (for example in testing methodologies and best practice)
- Technologies validation.

Even before the official launch of Interopolis, ETSI began delivering these services to the WiMAX Forum.

Together, Forapolis and Interopolis will offer complete 'Idea to Product' solutions to support standardisation activities, from market requirements to placing products or services on the market. The establishment of Interopolis marks a major step forward for all those with a stake in seeing improved ICT interoperability.

Reaching Out and Bridging Gaps

One consequence of globalisation and the growing number of players and different models of standardisation involved is that the business of producing standards is becoming increasingly complex and international. ETSI has always recognised the benefit of working with others to ensure that the standards it creates are widely accepted and implemented. Collaboration and co-operation are high on its agenda and, in 2007, significant new partnerships were established.

At a horizontal level, and in line with its Strategy for 2007, ETSI is working particularly to bridge the gap between research and standardisation by seeking to increase collaboration with eminent research bodies and academic institutions.

Latin America

@LIS, the four-year co-operation programme funded by the European Commission (EC) to enhance collaboration between Europe and Latin America on issues related to the Information Society, came to an end in March 2007. Considerable achievements resulted from the project, particularly in the areas of fixed-mobile convergence and interoperability, and ETSI will continue to build on these in the future. A second phase of the project is under consideration.

China

In October, ETSI and the EU-China Trade Project together organised the high-level symposium, 'IPRs, Standards and Competition' in Beijing. The event, which was supported by the Ministry of Commerce of the People's Republic of China, was a great success, attracting 120 participants. ETSI also co-organised the fourth Grids@Work Plugtests™ interoperability event and the 'TTCN-3 User Conference Asia 2007' in Beijing, China, and participated in the conference on 'Technical Standards and Innovation in China' organised by the National Bureau of Asian Research.

A Memorandum of Understanding (MoU) was signed with the China Electronic Standardisation Institute (CESI) which will focus on several areas for co-operation including protocol testing and interoperability, RFID, Digital Audio and Video Broadcast and joint promotional activities such as workshops and conferences. This MoU with CESI complements ETSI's longstanding partnership with the China Communication Standards Association (CCSA), CESI's sister organisation responsible for standardisation in the communication sector.

Activities in China have been supported by the Seconded European Standardisation Expert in China, who is well established now and is successfully promoting the three European Standardisation Organisations (ESOs – the European Committee for Standardisation (CEN), the European Committee for Electrotechnical Standardisation (CENELEC) and ETSI), the EC and the European Free Trade Association (EFTA). A European Union/China Standards Information Portal is also being considered.

Partnerships

ETSI's partnership portfolio was extended in 2007 with the signing of MoUs with the Organisation for the Advancement of Structured Information Standards (OASIS) and the European Research Consortium for Informatics and Mathematics (ERCIM). A Co-operation Agreement was signed with the IP Sphere Forum, and the partnerships with the American Telecommunications Industry Association (TIA) and the DSL Forum were renewed.

Looking ahead, ETSI remains committed to reinforcing dialogue and extending collaboration by establishing partnerships with new industry organisations. Recognising the changing international standardisation landscape, ETSI is placing special emphasis on partnerships with new actors in emerging markets (such as India).

ETSI is also looking to develop new partnerships with research and academic institutions. Standardisation should be considered early in the R&D cycle in order to facilitate the maximum development of markets for industry. At the same time, involvement in R&D at the earliest stage puts ETSI in an ideal position to identify new standardisation needs. The MoU with ERCIM connects ETSI to a network of European research institutes and helps build strong links with the research community. ETSI and ERCIM have already co-operated by co-organising a seminar in the 'Infinity Initiative' series in November 2007, which demonstrated how research and standards, supported by the EC, can benefit society and business. ETSI is also working with the EC's Joint Research Centre (JRC).

Standards Production

The number of standards and reports published in 2007 was up on 2006 (a rise of over 18% to nearly 2 000). By the end of 2007, ETSI had published a total of almost 20 000 standards, specifications, reports and guides since the Institute was established in 1988.

The number of deliverables published, for each of the years 1990 - 2007 and the forecast for 2008
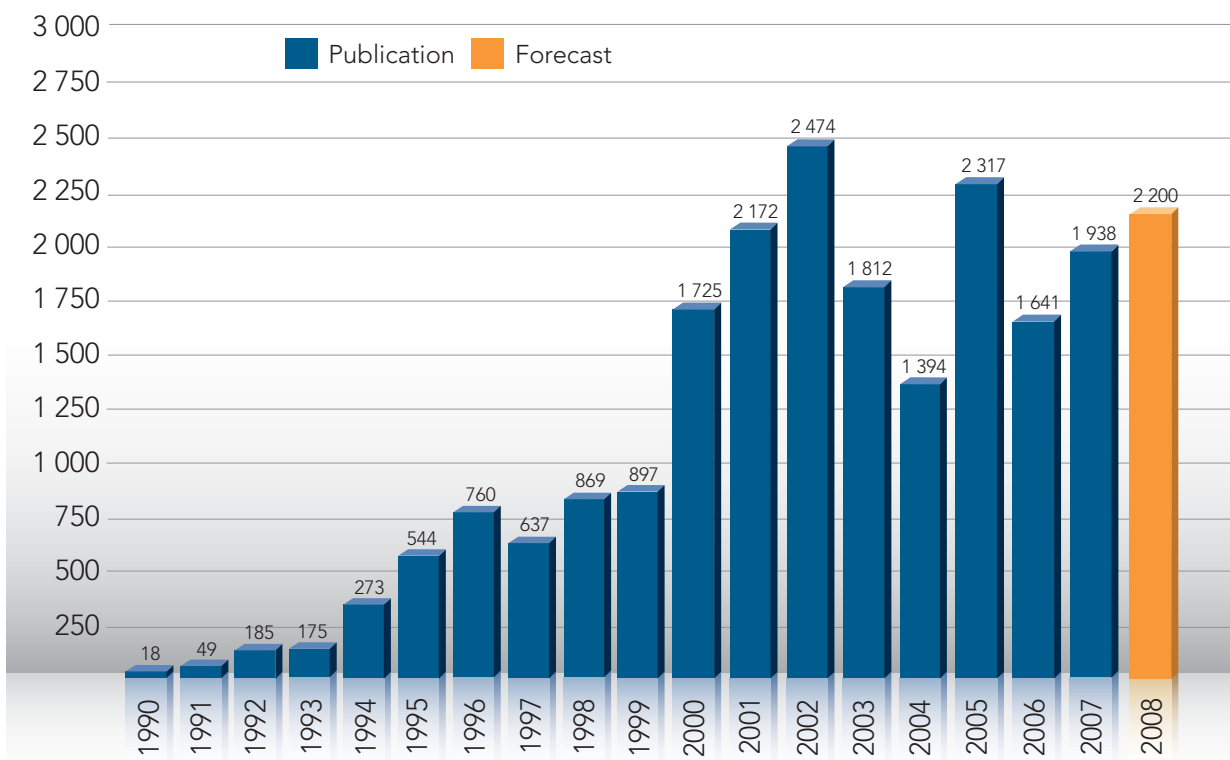
Distribution by type of published document

	In 2007	Total since 1988
Technical Specification (TS)[1]	1 658	13 065
Technical Report (TR)[2]	147	1 922
ETSI Standard (ES)	49	487
European Standard (telecommunications series) (EN)[3]	68	4 156
ETSI Guide (EG)	11	197
Special Report (SR)	5	53
TOTAL	**1 938**	**19 880**

[1] Includes GSM Technical Specification (GTS)

[2] Includes old deliverable types: Technical Committee Technical Reference Report (TCR-TR), Technical Committee Technical Report (TC-TR) and ETSI Technical Report (ETR)

[3] Includes amendments and old deliverable types: European Telecommunication Standards (ETSs), Interim ETSs (I-ETSs) and Technical Bases for Regulation (TBRs).

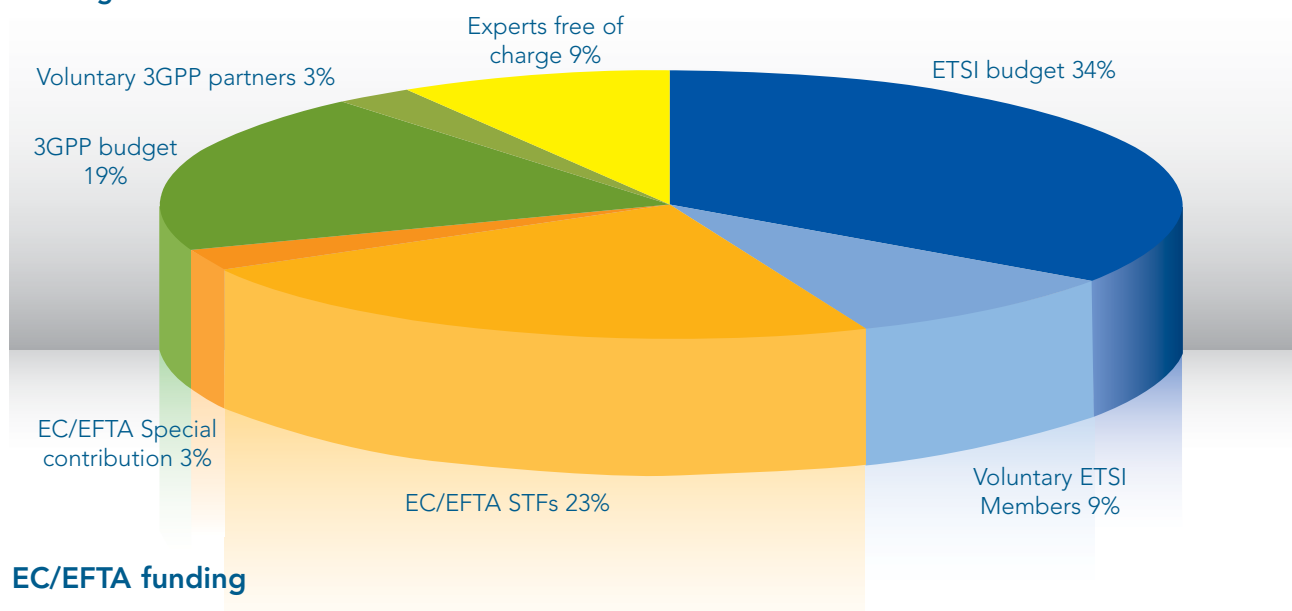# Specialist Task Forces and Other Funded Projects

Specialist Task Forces (STFs) are groups of highly skilled experts sent by ETSI Members to work together for limited periods to perform specific technical work under the direction of an ETSI committee. A similar mechanism has been adopted to support 'funded projects' for the Third Generation Partnership Project (3GPP™) partners and R&D for the European Commission (EC) and the European Free Trade Association (EFTA).

Altogether, 47 STFs and other funded projects were active during 2007, involving 132 experts and representing an investment of over 3,5 M€.

Technical areas in which resources were invested

Technical area	k€
3GPP Tasks	850,0
Broadband Radio Access Networks (BRAN)	583,4
Human Factors (HF)	562,4
Next Generation Networks (NGN)	556,2
Methods for Testing and Specification (MTS)	272,7
Digital Enhanced Cordless Telecommunication (DECT™)	131,7
Terrestrial Trunked Radio (TETRA)	117,2
Electronic Signatures and Infrastructures (ESI)	108,2
EC/EFTA special contracts	100,0
Electromagnetic Compatibility and Radio Spectrum Matters (ERC)	78,0
Operational Co-ordination Group (IOP/R&TTE/ECN&S)	56,9
Grid	49,8
Speech Processing, Transmission and Quality Aspects (STQ)	48,7
Power Line Telecommunications (PLT)	40,0
TOTAL	**3 555,0**

Funding sources in 2007

Experts free of charge 9%
Voluntary 3GPP partners 3%
3GPP budget 19%
EC/EFTA Special contribution 3%
EC/EFTA STFs 23%
ETSI budget 34%
Voluntary ETSI Members 9%

EC/EFTA funding

The EC and EFTA contribution to the ETSI standardisation infrastructure for 2007 was set at 2,63 M€ via the Operating Grant.

The EC/EFTA contribution for specific standardisation contracts under their 2007 budget line provided funding of almost 2 M€ to support the ICT 2006 and 2007 Standardisation Work Programmes, with the work itself to be performed from 2007 through into 2010. Successfully evaluated proposals for funding not handled in 2006, worth 1,3 M€, were funded out of the 2007 budget, and the related action grants were signed during 2007. The successful proposals made in 2007 were all signed in December 2007 and work will begin early in 2008.

Membership

Continuing the trend of recent years, ETSI Membership increased again in 2007 to bring the total number of Members to 675. At the end of the year, ETSI had 520 full Members drawn from 39 European countries. With the addition of Lesotho and Serbia in 2007, the total number of countries represented in all categories of Membership was 62, drawn from five continents. In 2007, Associate Membership stood at 118, representing 20 non-European countries and provinces, and there were 37 Observers.

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.
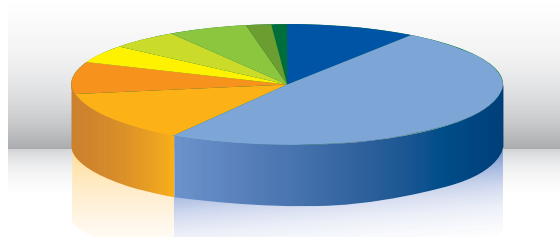
Evolution of ETSI Full Membership

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Members	126	187	249	289	316	330	365	387	418	457	512	567	607	653	672	537	486	505	506	520
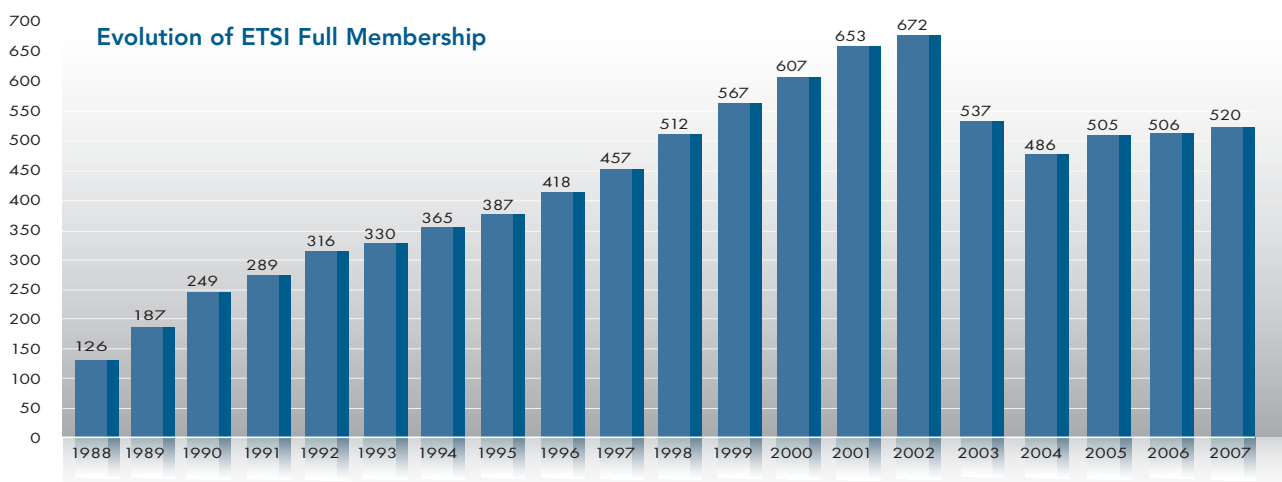
Membership by type

	01-01-2007	31-12-2007
Full Members	506	520
Associate Members	113	118
Observers	39	37
TOTAL	658	675

Full and Associate Membership by category

	Category	Number	Percentage
	Administrations	62	(9,72%)
	Manufacturers	313	(49,06%)
	Network Operators	87	(13,64%)
	Service Providers	55	(8,62%)
	Users	30	(4,70%)
	Consultancies	33	(5,17%)
	Research bodies	38	(5,96%)
	Others	12	(1,88%)
	Other Government Bodies	8	(1,25%)

Overall Membership by country/province

Country/province	Number	Country/province	Number
Albania	1	Jordan	1
Andorra	1	Korea	2
Australia	2	Latvia	2
Austria	11	Lesotho	1
Belgium	21	Lichtenstein	1
Bosnia Herzegovina	2	Lithuania	1
Brazil	1	Luxembourg	5
Bulgaria	3	Malaysia	1
Canada	9	Malta	2
China	7	Netherlands	28
Taiwan (Province of China)	9	Norway	8
Croatia	4	Poland	5
Cyprus	2	Portugal	2
Czech Republic	4	Qatar	1
Denmark	20	Romania	4
Egypt	1	Russian Federation	7
Estonia	2	Serbia	1
Finland	15	Singapore	1
France	68	Slovakia	3
Former Yugoslav Republic of Macedonia	1	Slovenia	3
Georgia	1	South Africa	3
Germany	83	Spain	14
Greece	6	Sweden	23
Hungary	6	Switzerland	22
Iceland	1	Turkey	5
India	6	Ukraine	1
Iran	1	United Arab Emirates	2
Ireland	11	United Kingdom	122
Israel	7	United States of America	62
Italy	27	Uzbekistan	1
Japan	7	Yemen	1
TOTAL			62

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 2007 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 2006, are the following:

Expenditure – In total, expenditure increased by 1,6%. Secretariat costs increased by 4% but were 0,8% less than budgeted due to posts left vacant for some months awaiting the outcome of the Secretariat reorganisation. As in 2006, 5 M€ were spent on the cost of technical experts for Specialist Task Forces and for other standardisation activities.

Income – Members' contributions increased by 7,5% due to new Members joining and existing Members increasing their contributions. 57% of the budget was funded by Members' contributions (12,4 M€). The contribution of the 3GPP™ Partners (1,6 M€) remained constant. EC/EFTA payments amounted to 4 M€ to cover expenses related to the operation of the European standardisation platform and standardisation projects. Income generated by support services supplied to fora and consortia (Forapolis) increased by 7,5%.

In 2007, income balanced expenditure.

2007 Budget Statements

Income	k€
Members' contributions and Observer fees	12 406
EC/EFTA contracts	4 009
3GPP Partners	1 628
Voluntary contributions	375
Forapolis	2 189
Sales	332
Plugtests	270
Financial income	299
Other income	982
TOTAL INCOME	**22 490**

Expenditure	k€
Secretariat staff costs	10 255
Other Secretariat costs	6 132
Special Projects	268
European Friends of 3GPP	525
Provision and losses	310
Experts costs	5 000
TOTAL EXPENDITURE	**22 490**

2007 Financial Statements

The fiscal accounting period is 1 January 2007 - 31 December 2007.
The final accounts and the balance sheet are summarised below.

Statement of Income and Expenditure

	Income (€)	Expenditure (€)
Income	22 082 893	
Purchases		11 334 501
Expenses		11 133 161
Investment management	299 085	22 134
Extraordinary income & expenses	108 172	354
TOTAL	**22 490 150**	**22 490 150**

Summary of the Balance Sheet

Assets

Net amounts at:	31 Dec 2006 (€)	31 Dec 2007 (€)
Fixed Assets	7 033 651	6 908 609
Debtors	18 045 108	14 641 812
Securities/cash	3 713 282	6 741 469
Adjustment accounts	119 031	145 329
TOTAL ASSETS	**28 911 072**	**28 437 219**

Liabilities

Net amounts at:	31 Dec 2006 (€)	31 Dec 2007 (€)
Equity	8 331 645	8 278 661
Provisions	150 000	150 000
Balance carried forward	- 52 984	0
Creditors	7 155 244	6 930 785
Adjustments	13 327 167	13 077 773
TOTAL LIABILITIES	**28 911 072**	**28 437 219**

- Broadband Wireless Access

- Broadcast

- DECT™

- Digital Mobile Radio

- Electromagnetic Compatibility

- Emergency

- Environmental Aspects

- Fixed-line Access

- Grid

- Human Factors

- Intelligent Transport

- Medical

- Mobile

- Next Generation Networks

- Open Service Access

- OSS

- Powerline

- Protocol Specification

- Quality of Service

- Radio

- Regulation & Legislation

- Safety

- Satellite

- Security

- Smart Cards

- Testing

- Terrestrial Trunked Radio (TETRA)

- ...

ETSI

World Class Standards

06921 Sophia Antipolis Cedex, France
Tel +33 4 92 94 42 00
Fax +33 4 93 65 47 16
info@etsi.org

www.etsi.org