

## The Wireless World – New Opportunities for All

a report by

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Karl Heinz Rosenbrock has been Director-General of the European Telecommunications Standards Institute (ETSI) since November 1990. Prior to joining ETSI he was Head of the Standardization Division of the Ministry of Posts and Telecommunications (BMPT) in Bonn, Germany. His earlier positions have included project leader and Head of Section for the digitalisation of the telephone network and the introduction of integrated services digital network (ISDN) in the former Federal Ministry of Posts and Telecommunications in Bonn. He has also served as Head of Department at the Telecommunications Centre (FTZ) in Darmstadt for telephone and ISDN technology, planning, operation, testing and services and Head of Section for international switching. He joined the Deutsche Bundespost in 1967 upon receiving his Diplom-Ingenieur from the Technical University of Braunschweig.

Based in France, the European Telecommunications Standards Institute (ETSI) is officially responsible for standardisation in telecoms, broadcasting and certain aspects of information technology within Europe. As such, it also plays a major role in global standardisation.

ETSI is performing a critical role in the development of the Information Society in Europe, which is the goal of an initiative introduced in 2000 by the European Commission (EC) and the European Free Trade Association (EFTA). eEurope 2002 – An Information Society For All aims to secure equal access to the benefits of the Information Society by all of Europe's citizens, to bring every citizen, every school and every company in Europe online as quickly as possible.

This initiative has already been remarkably successful. Since its launch, Internet penetration in homes has doubled, access prices have fallen and almost all schools and companies are now connected. Building on this success, in June 2002, the initiative was extended into eEurope 2005.

Establishment of the Information Society involves practical action by a wide range of players and, in this situation, standardisation acquires a particularly important role in ensuring interoperability. Standards can also provide guidance and a clear framework for developers who wish to make their products and services accessible to all.

ETSI currently boasts over 900 members from 54 countries worldwide and brings together manufacturers, network operators, administrations, service providers, research bodies and users – in fact, all of the key players in the telecoms arena. Like its 'sister' European standardisation organisations (ESOs) – The European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC) – ETSI is entirely open and thus free from the

pressures of competing commercial interests. It operates through the voluntary consensus of participants, taking full account of the views of all interested parties.

In recognition of this, the EC has asked the ESOs to undertake essential standardisation work to achieve the goals of eEurope. Europe has thus seen a concerted effort over the last few years to develop the 'Action Lines' identified under eEurope as crucial to the Information Society. Wireless communications, especially mobile telecoms, have been one of ETSI's strategic priorities for many years. Within this field are a number of issues that have significant implications for the eEurope Action Lines, including aspects of mobile business and e-security.

### Mobile Telecommunications – ETSI's Contribution to a Global Success

GSM™, the world's most widely deployed and fastest growing digital cellular standard, was defined by ETSI.<sup>1</sup> Today, the development of 3G mobile communications is the responsibility of the Third Generation Partnership Project (3GPP)™, of which ETSI is a founding partner.<sup>2</sup>

Established in 1998, 3GPP brings ETSI and five other regional standardisation organisations in Asia and the US together with market associations and more than 470 individual companies. 3GPP is producing specifications for a 3G mobile system (UMTS™)<sup>3</sup> that employs an innovative radio interface – Universal Terrestrial Radio Access (UTRA) – and an evolution of the core GSM network. In addition to 3G work, 3GPP is responsible for the maintenance and evolution of GSM specifications.

3GPP has achieved remarkable results. Since its creation, in excess of 2,600 3GPP specifications have been approved and placed under Change Control, administered by the Mobile Competence Centre

1. GSM™ is a registered trademark of the GSM Association.

2. 3GPP™ is a trademark of ETSI, registered for the benefit of the 3GPP organisational partners.

3. UMTS™ is a trademark of ETSI, registered for the benefit of its members.

(MCC), a permanent project support group hosted by ETSI, which was established to ensure the efficient day-to-day running of 3GPP.

Three releases have been published by 3GPP, each of which is a full set of technical specifications that define an entire 3G system, each with increased functionality. The initial releases, which contain many hundreds of specifications, enabled the industry to proceed with the development of operational systems.

The latest release (Release 5), published in June 2002, includes high-speed download packet access specifications, which will bring high-speed data delivery to 3G terminals. It will also include the Internet Protocol Multimedia System (IMS), which will offer flexible telecoms with multimedia and Internet access and will exploit the substantial benefits of Internet protocols.

Release 6, which is scheduled for 2003, will address a long list of features including network sharing and digital rights management (DRM). Together, Releases 5 and 6 form part of a strategic plan linked to industry needs and realistic predictions of technological progress, i.e. mobile multimedia access to the Internet.

In spite of some inevitable teething troubles in the introduction of 3G systems, there is no doubt about the high quality of the 3GPP specifications. Reliable and stable, they can truly be called the foundation of 3G. A brisk rollout of 3G networks can be expected in the coming years, although it will be a long time before they reach the scale of GSM deployment. Although the initial technical work is complete, specification work continues to further enhance the technological aspects. It is now the task of the wider business community to introduce the innovative services that will run on these new networks, and change forever the way the world conducts business.

### Mobile Business

Mobile business is expected to be one of the key drivers for the growth of the global Information Society and experts predict that mobile will play an important role in the development of the consumer market for e-commerce.

Among the numerous applications that 3G will support will be many forms of mobile commerce: banking, financial services, security services, shopping, advertising, entertainment, customer care, information provision, etc. These applications will require electronic payment and other financial exchanges. Part of the standardisation effort is therefore directed towards security within 3G systems

and ETSI and CEN are working to meet the global challenge of securing electronic transactions over the mobile and fixed Internet. Their work includes the development of smart cards and electronic signatures. ETSI Project M-Commerce (EP M-Comm) has responsibility within ETSI for defining the requirements for electronic signature and electronic payment to enable m-commerce. EP M-Comm represents diverse interests and brings the telecoms industry into a working relationship with banking and other financial organisations, mainly through representative bodies such as the European Committee for Banking Standards (ECBS) with which ETSI has signed a co-operation agreement.

The EC and EFTA are providing additional funding to support the work of EP M-Comm with the establishment of a specialist task force. This task force commenced work in September 2002 on the development of mobile signatures, which will be used to authenticate the identity of a person doing business using a mobile phone in the same way that a written signature guarantees the identity of a person signing a written contract. Without a standardised system, the use of mobiles for signatures, particularly for sensitive applications such as payments or ticketing, could be severely limited.

This work is being conducted in close co-operation with ETSI's existing signature projects and with the European Electronic Signature Standardization Initiative (EESSI).

In addition, funding has been provided under the eEurope initiative to mount four m-commerce conferences, to be held at different locations in Europe. Two of these will emphasise the financial aspects and two will cover telecommunications.

### Other Wireless Technologies

Mobile telecoms represent only a part of ETSI's standardisation programme. Among the wireless technologies, ETSI is also the home of Digital Enhanced Cordless Telecommunications (DECT)<sup>TM,4</sup> high-performance radio local-area network (HiperLAN), high-performance radio access (HiperACCESS), other wireless local area network (WLAN) solutions, digital audio broadcasting (DAB), digital video broadcasting (DVB), low-power radio devices and satellite and fixed radio links.

#### DECT<sup>TM</sup>

DECT is a radio technology specified by ETSI that has become a worldwide success. It provides low-

4. DECT<sup>TM</sup> is a trademark of ETSI, registered for the benefit of its members.

cost, flexible, digital, cordless communications for use in residential, corporate and public environments. The DECT system offers high-quality multi-cell mobility services for speech and data. It has been adopted in over 110 countries and there are already in excess of 100 million DECT terminals in a growing market.

ETSI Project DECT (EP DECT) has been responding to the call for the support of higher bit-rate data services by adding high bit-rate modes to DECT. In particular, an increase to seven Mbit/s is ready and an increase to 20Mbit/s is planned by 2003 with the introduction of broadband DECT. This capability permits, for example, very fast Internet access including high-quality streaming applications and the creation of WLANs based on DECT, offering combined speech, video and data services.

The International Telecommunication Union (ITU) has adopted DECT as a member of the International Mobile Telecommunications 2000 (IMT-2000) family called Frequency Division Multiple Access/Time Division Multiple Access-IMT-2000. DECT is the only IMT-2000 technology providing unco-ordinated system installation on a common, protected, unlicensed spectrum.

### HiperLAN 2

WLANs are seen as the next big development to bring telecoms users mobility and higher data rates in their business and personal lives. A new flexible radio LAN standard, HiperLAN 2, has been designed to meet the growing demand for broadband wireless in the home environment and mass production components and products implementing HiperLAN 2 wireless features are just beginning to reach the market.

HiperLAN 2 specifications have been developed by ETSI Project Broadband Radio Access Networks (EP BRAN) to provide high-speed access of up to 54Mbit/s to a variety of networks. In addition to better performance, the key features and the strength of HiperLAN 2 consist of providing the quality of service necessary to accommodate audio/video applications for large displays that are needed, for example, for entertainment devices. Simpler applications, such as data and voice, can then be handled easily.

HiperLAN 2 systems can be deployed in offices, homes, hot-spot areas such as exhibition halls, classrooms, factories, airports, coffee shops and, more generally, where local radio transmissions are an efficient alternative or are complementary to wired technologies or even radio transmissions

over wide areas. Future developments will include specifications for access to public networks, especially mobile networks.

### HiperACCESS

HiperACCESS is an interoperable standard tailored to give broadband multimedia fixed-wireless access to both the home and to small and medium-sized enterprises, as well as to provide back-haul for mobile systems (such as UMTS and GPRS). HiperACCESS is a truly broadband system and supports bit-rates of up to around 100Mbit/s. Designed to transport data between an access point to a core telecoms network and a terminal at speeds of around 25Mbit/s, it represents a flexible and competitive alternative to wired-access networks.

ETSI's work on HiperACCESS is being undertaken in EP BRAN and is producing a set of ETSI Technical Specifications for a system that is sufficiently well defined to allow interoperability of equipment from different vendors. Indeed, the primary feature of the HiperACCESS system that distinguishes it from competitive proprietary systems is the level of interoperability offered. This should lead to a much greater acceptance of radio-based broadband access networks than with other systems that are currently being brought to the market.

To accelerate the work so that this standardised system was available to meet market demand, funding was provided under the eEurope initiative for a specialist task force in ETSI and the specifications were finalised in October 2002.

### The Broader Picture

Since it was established in 1988, ETSI has published more than 10,000 deliverables to support an extensive range of work. In 2002 alone, more than 2,500 were published – which corresponds to one published standard about every 45 minutes of the working day.

These standards, reports and guides are crucial to ensuring interoperability and to establishing a framework for technological development. They are thus essential to the success of eEurope. In the field of mobile telecoms, as in all areas of its standardisation work, ETSI is committed to the goals of eEurope and is making a major contribution towards ushering in the Information Society throughout Europe. ■

*ETSI welcomes approaches from companies and organisations interested in collaborating in its work. For more information about ETSI, visit: <http://www.etsi.org>*