



MOBILE COMMUNICATIONS

EUROPE, A STEP AHEAD IN MOBILE COMMUNICATION

There is one gadget more than any other that has defined the past 15 or so years: the mobile phone. We would be lost without them. But their undeniable success owes much to nearly three decades of EU support for research into mobile communications technologies and standards.

The bleep of a text punctuates the quiet of a sunset walk by the river. The sudden jingle of a ring tone blares out on a packed bus. The staccato tapping of a dozen keyboards above the rhythmic clacking of a commuter carriage.

We live in a fast-moving, mobile world. But as we dash between our work and school, from the gym to the supermarket to our holidays in the sun, we expect instant access to all our contacts, our favourite films and all the benefits of online services. We want the digital world in our pocket.

Mobility is a central tenet of European society, enshrined in law and engrained in the psyche of citizens. So it is no surprise that Europe has embraced mobile communication; today citizens expect the very best from the digital services, anytime, anywhere.

Indeed, for more than a quarter of a century European researchers, with finance from the EU, have led the mobile world. They have pioneered new technologies, supported industry standards and driven the commercial development of user-friendly devices and services.

SUCCESS AS STANDARD

Perhaps you remember your first mobile phone. Chances are it was a large clunky device, with a small LCD screen and only good for making calls, perhaps sending the occasional text.

It seems difficult to believe today, but those early devices were revolutionary. And the revolution was spearheaded by EU-backed research. For even in the early 1990s, while mobile phones were the size (and weight) of house bricks, Europe was investing significant sums into developing the next generation (2G) of GSM systems which would turn mobile communication into mainstream technology.

The GSM standard still dominates mobile communication, with perhaps some 4.5 billion users globally. But Europe has not rested on its laurels. A series of EU projects, stemming right back to 1994, brought together all major European industrial players in mobile communications and leading research institutes in this field to develop what is called third-generation (3G) mobile systems.

The European Commission has promoted the UMTS 3G standard which is now the most widely adopted globally and is gradually replacing current GSM systems. Even today's most advanced, so-called 3.5G smart phones, which are capable of live video streaming and real-time 'satnav' applications, use enhanced data transfer mechanisms largely developed within European led research collaborations.





MOBILE COMMUNICATIONS

Through numerous research projects, the European Commission has also supported the development of a family of industry standards (the DVB suite) for broadcasting digital television, not just to domestic set-top boxes, but also mobile handsets. The adoption of mobile TV in Europe is expected to increase dramatically with the widespread take-up of smart phones and other handheld devices like the iPad running 3G mobile services.

Research funded through the Sixth and current Seventh Framework Programmes (FP6 and FP7) continues to feed into the standardisation efforts of the European Telecommunications Standards Institute (ETSI) in the field of mobile and wireless communications.

Today these projects, still very much at the R & D phase, are looking to develop technologies beyond — way beyond — 3G, with data transfer rates that are more than 100 times faster than the best mobile networks today and capable of delivering high-definition TV, 3D content and real-time interactivity to portable devices.

THE FUTURE IS IN OUR HANDS

Alongside the impressive adoption of EU-led mobile standards, the European Commission has also worked to ensure that the capabilities of wireless data transmission are in no way hampered by other technology limitations.

Over the years calls for Framework Programme research proposals have been carefully designed to ensure that the potential of the EU's mobile infrastructure is exploited to the limit.

In the area of microelectronics, for example, the OMI initiative, launched by the EU under the Esprit programme in 1990, led to the commercial development of the so-called RISC family of low-power microchips which today are found in around three-quarters of all mobile devices.

On-going research is breaking new ground and testing new technologies that will transform our mobile experiences — from 3D visual displays to interactive and immersive content and services that will enhance not just the entertainment value of mobile communication, but help to make the digital world more accessible and useful for some of the most excluded citizens.

Several EU-backed projects are even looking at exactly this problem: how mobile devices can be used as the key to our own personal network, giving us direct access to all our online services — anything from remote healthcare monitoring, e-learning or localised information — wherever we are, however we prefer.

Europe continues to mobilise its enormous wealth of research expertise to ensure that it remains at the hub of this fast-moving, connected world. So next time your phone shatters the tranquillity of a sunset stroll, take a second to marvel at your 'me-centric' universe before turning it off and enjoying the view. ■





MOBILE COMMUNICATIONS

PROJECTS IN FOCUS

Europe has been unswerving in its support for new technologies and standards that push the frontiers of borderless communication systems which allow citizens to stay connected and access information and services, no matter where they are or what they are doing.

▲ 'ME-CENTRED' MOBILE WORLD

You probably check it several times an hour, use it to stay in touch with friends, plan your social life, perhaps even do your shopping or watch TV. Our mobile phone — perhaps better described as a handheld devices these days — is becoming our most essential daily tool.

Transforming it from a cordless telephone to a close electronic companion owes a great debt to the EU's continuing investment in R & D in ICT.

Mobile TV perhaps epitomises this change in function, and how mobile devices are changing our behaviours, too. The arrival of 3G networks, smart phones and wireless broadband makes mobile multimedia content a possibility, and a multiple-access concept central to 3G networks was developed in the EU-funded Frames project (1995-99).

Europe promotes DVB initiatives which have led to the development of the almost ubiquitous standards for digital video and TV broadcasting. Several DVB research consortia have received Framework Programme funding.

The Confluent project was instrumental in prototyping groundbreaking DVB-compliant chipsets for mobile devices while the six-year FP6 Instinct project was fundamental in equipping stakeholders in the mobile TV market with tools to aid the production and broadcasting of mobile TV content.

The Maestro project, meanwhile, developed DVB-SH, a specific standard which exploits terrestrial and satellite signals and piggy backs on existing 3G networks to broadcast content to mobile phones — even away from urban areas where coverage is good.

Today, Europe continues to push mobile TV, with projects exploring the possibilities for 3D mobile displays, image capture and content (Mobile3DTV and 3Dphone projects). ■

