

The world goes wireless

Experts discuss the deeper implications of an increasingly wireless world. By **Louise Joselyn.**

The world is going wireless; whether it's home, work or leisure. Market researchers estimate there are currently around 7 billion wireless devices in use in the world, increasing to 15 billion by 2015. Driven initially by the mobile phone, wireless technology is bringing distinct advantages to consumers and improving our way of life. But what's next? What are the challenges and is there a downside?

A panel at the recent Sophia Antipolis Microelectronics Forum considered the question. According to Kevin O'Donovan, strategic marketing manager with Intel EMEA, there are two keys to success in the wireless market: "Is it usable and is it useful?" The iPhone has sparked a user interface revolution, while the fickleness of consumers keeps the industry investing heavily in market research. "A smart fridge, with a screen on the front, may tell you when you are running out of milk and order it for you. But are such features desirable? Are they too intrusive?" O'Donovan asked. Intel is interested in what it calls 'cultural computing'. "We can put 'smarts' in everything, but it is important to know how people use devices and which features they use. What are the effects of technology on culture?"

Intel also believes it can influence consumers and second guess new wireless product directions. Convergence is one such direction, as devices become multifunctional. "The set top box might become the home's central console, controlling temperature and lighting," he said. Yet he sees a multiplicity of devices appearing on the market, aimed at different applications. "These devices need 'enough' performance, ultra low power

consumption and software compatibility across platforms," he added. Pierre Garnier, vice president of Texas Instruments' baseband business unit, concurred. "Convergence is happening; the handset is no longer just a phone," he said. He sees the Web 2.0 concept driving the demand

for higher performance, for video and fast software downloads. "All of which will impact power consumption and demand longer battery life – and battery technology is lagging," he added.

Garnier believes there is a host of wireless applications poised to take off and sees major advances in portable multimedia devices,

as well as GPS driven location handheld instruments. But one sector with vast potential, Garnier reckons, is the ebook. "There is an impact in education, even health. Look at the size of the school bags today's children have to cart around.

The ebook could revolutionise education, but it needs standards and regulatory constraints and, probably, Government incentives," he warned.

Another fast growing wireless market is in the mass transit sector. ASK is a specialist supplier of contactless technology for ticketing, ePassports and e-purse applications. Its transport and banking sector expert is Patrick Sure. "There are lots of benefits to contactless technology, both to users and the service providers. It is low cost, reliable, secure and user friendly."

He emphasised that the adoption of standards, such as Calypso for transport and EPC for longer range access control applications, has helped grow the market. "When you see passengers waving their handbag or briefcase towards the reader on the turnstile and hurrying through, you know that usability is not an issue," he said.

Disposing of waste electronics continues to



GARNIER:

"THE HANDSET IS NO LONGER JUST A PHONE."

be an emotive issue. Intel calculates the carbon impact of its products. O'Donovan said Intel engineers are tasked with 'design for the environment' and 'design for disassembly'. "But we need to get a lot better at it and we need better incentives for firms to grasp the opportunities in the e-waste sector."

Reuse and reprogrammability are options for extending the life of wireless devices. TI sees a growing requirement for this ability. Garnier: "The mindset of replacing a handset every year or two to get new features will change." A major contributory factor, he says, is that operators want to sell more applications and services and spend less on subsidising their customers with new hardware. Garnier also pointed out that device manufacturers may be moving into the service business. "The market is changing to one of leveraging partners."

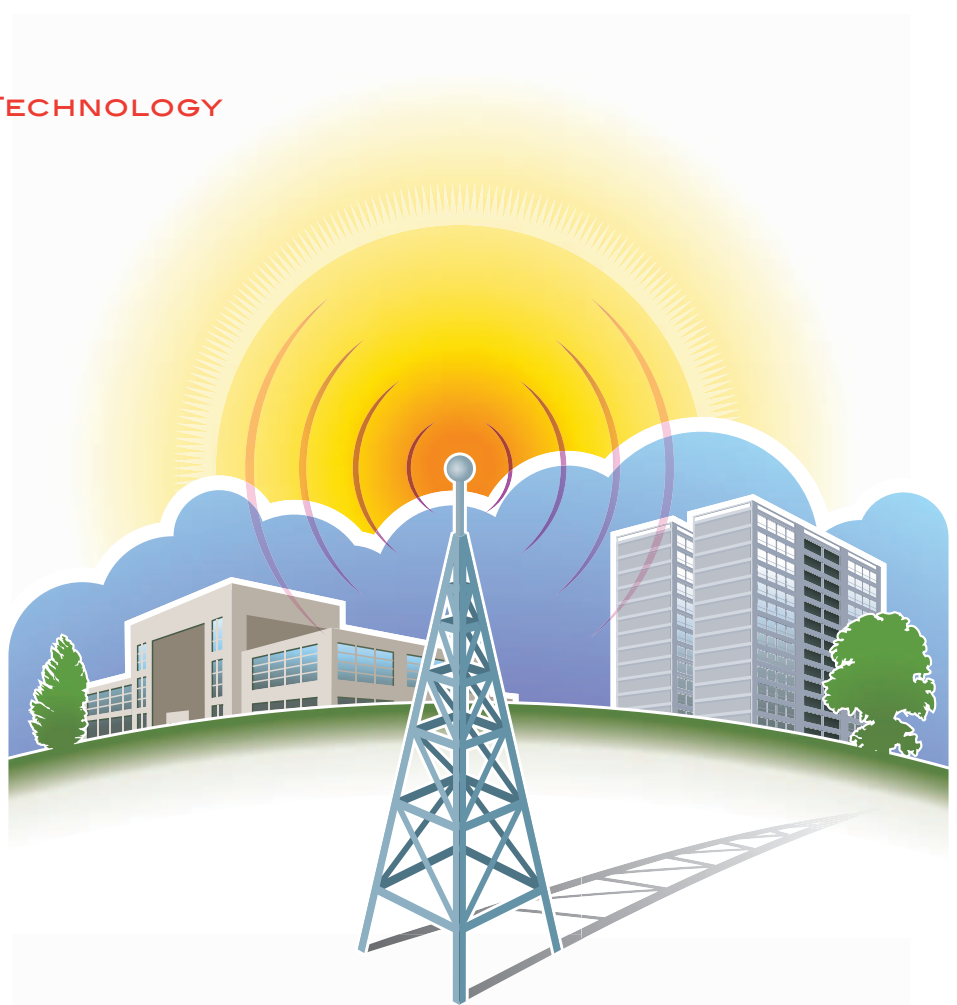
ASK is already partnering. "A key aspect of our work, aside from the technology, is to build relationships with multiple service providers to enable multifunctionality and interoperability," Sure explained.

Sure takes an insightful view of near field communications (NFC) technology, which is rapidly appearing in mobile phones and handsets. "Technically, it can be regarded as a competing technology, but there is a huge opportunity as mobile phones can operate as a reader, opening a wealth of new applications for contactless technology." He envisages smart posters incorporating information that can be captured by suitably equipped mobile phones. Information stands might include 'smart shelf' tags, while art galleries could provide additional information – all captured by a simple wave of the handset, then displayed on screen.

A possible downside of the rise of wireless, said O'Donovan, is the growing need for huge network infrastructures to support our changing use of wireless technology. "There's much more data flying around and that requires more data centres. Energy efficiency is important, but so is minimising ewaste," he said.

Health, safety, [data] security and privacy issues remain, however. In many populated areas, the restriction on masts and basestations reflects concerns about underlying health problems associated with the use of high power rf technology.

Benoit Derat of Field Imaging outlined some



of the issues. "Studies into the effects of emf exposure have been underway for decades, not just since the introduction of the mobile phone," he explained. While Derat said it would be unwise to believe there is no problem, he confirmed there are very high safety margins in place. "There is no absolute cut off in terms of safe and unsafe specific absorption rates," he said. "There is a progressive danger, hence the large safety margins. The World Health Organisation takes this issue very seriously," Derat added. "Check its website if you need reassurance."

In a world awash with wireless products connected by web servers, how secure is the data collected from body area networks, transmitted by mobile phones or data networks to web based servers in 'the cloud'? Medical and biometric data, as well as personal financial

details, are too readily collected and stored electronically, some say. This raises ethical and political issues, as well as cultural and societal discussions. "Finding lost children by tracking them via their mobile phone is regarded as a 'good thing'," O'Donovan commented. Yet catching speeding motorists using the same technology is likely to be regarded as invasion of privacy.

"What's the difference in risk between filling in a medical form and sending it through the post, or filling it in online and sending it by email?" questioned O'Donovan. "There is a huge amount of security built into cloud based services and we have to trust it," Sure added. "Encryption based security can be built in at the silicon level," O'Donovan agreed.

In summary, the panelists agreed there are technology challenges, which are not insurmountable. There are societal and cultural issues around security and privacy that the technology is also addressing. "And remember, these devices can be turned off," O'Donovan concluded.



DERAT: "THERE IS A PROGRESSIVE DANGER, HENCE THE LARGE SAFETY MARGINS."

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