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on

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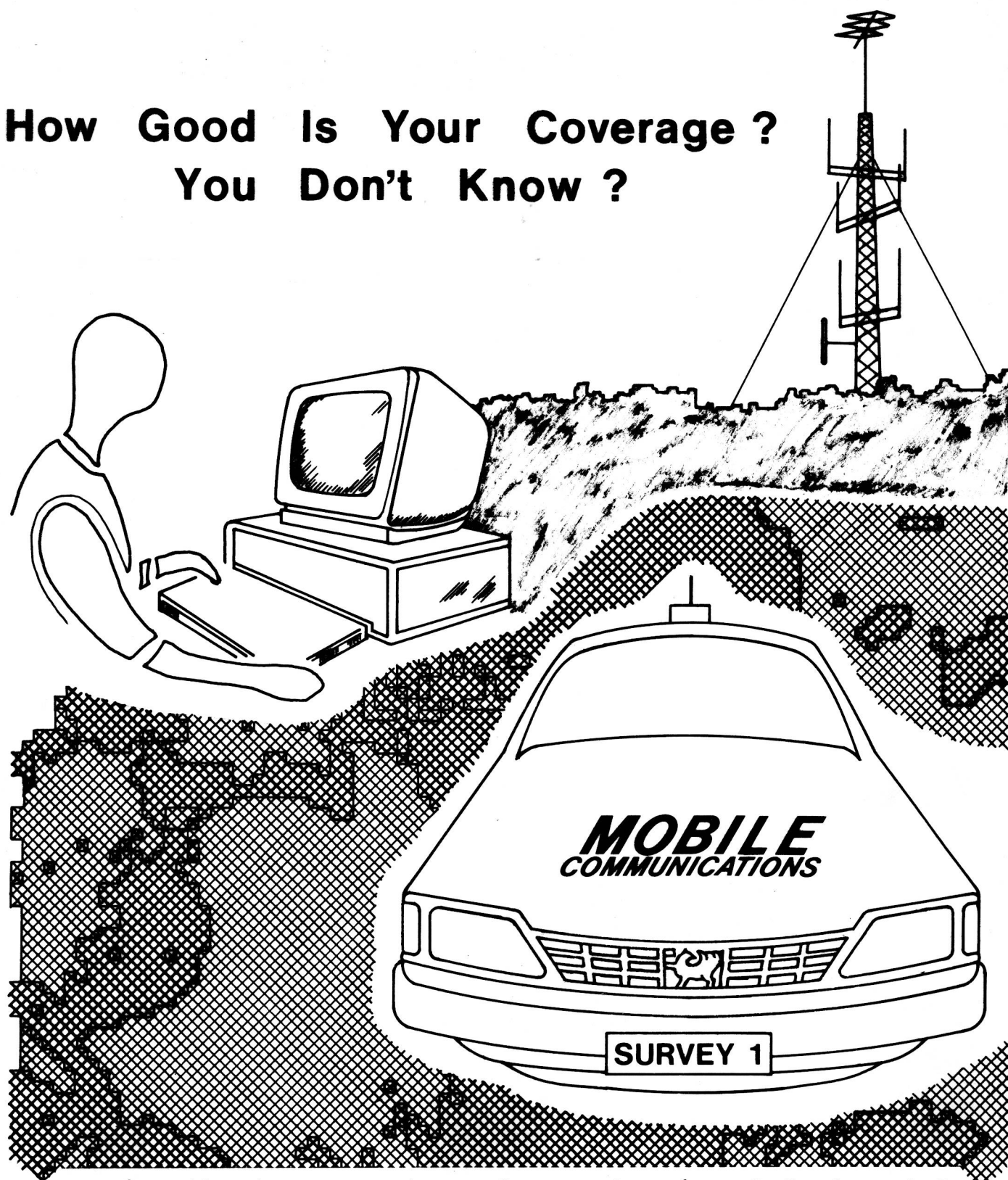
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KEYNOTE

ADDRESS

JOHN CARRINGTON, DIRECTOR, BRITISH TELECOM MOBILE COMMUNICATIONS

1. Introduction

Today, there are 1½ million users of mobile radio services in the UK. By 1992 there will be 3½ million, and there are no signs of this rate of growth slackening through the 1990's. By the year 2000 we can expect to see a UK market for mobile units of over 10 million, some 20% of the population, and a European market of over 50 million. How can this demand be satisfied? I shall argue that the only way that we can create and satisfy these mass markets is by convergence and integration. By moving away from individual Mobile Communications networks and towards a unified Personal Communications service.

2. The Market

The Mobile Communications market is fragmented into differentiated networks and services. There is Cellular Radio providing full voice telephony with some ¼ million customers, there is Private Mobile Radio, providing simplex closed user group voice communications with some 400,000 users, there is Wide-Area Paging providing a one-way messaging service to some ½ million users, and there are around 400,000 users of cordless telephones. Each of these services uses separate networks, different frequencies, and different terminal equipment. Each is directed at a specific user need. If we ask the user what he wants, our market research provides a surprising measure of agreement. Our customers would like a voice terminal because that is the way most of us choose to communicate. They would, however, like it to have a message paging facility for use when they are not available to speak to a caller. They would like it to be capable of providing voice to text and text to voice services. They would like it to be no bigger than a small modern hand-set so that they can conveniently carry it around and they would like it to work anywhere in the UK. Finally, cost. It should be less than £100. In short, the Mr Spock communicator. If we are to create and satisfy the mass market for Mobile Communications, then this is the Personal Communications product we have to create by the year 2000.

3. The Technology

Today most of our Mobile Radio systems are based on analogue radio technologies which are perhaps some 30 years old. They are mature technologies which have served us well, but as the market growth curve gets steeper and steeper they are beginning to run out of steam. For the 1990's we are developing digital technologies. They are in their infancy, but can already compete with analogue technologies on both performance and price. As they mature these technologies have the potential to carry us forward through the 90's to the mass markets of the 2000's. Their advantage comes through the use of digital processing techniques and VLSI technology to produce high performance, low cost units. Because of their micro-processor control such units can be used flexibly to deliver a variety of services, thus opening up the possibility for integrating networks. Just as for the fixed networks, ISDN can deliver a wide variety of services over a single network, so too can digital radio services. During the 1990's I see two principal Personal Communications networks evolving. One will be the GSM Pan European Digital Cellular Radio Network. This is being specified very flexibly so that it will be able to embrace data messaging services and PMR closed user group services as well as a full telephony service. The other will be the digital cordless telephone and its public access variant the Phonepoint together with its business sister the Cordless PBX. Neither of these will be the Personal Communicator, but both will provide a Personal Communications service. By the mid 90's we can expect to buy cellular hand-sets which weigh around 8 ounces. There will be around 2 million digital cellular phones and some 5 million cordless phones in the UK. The technology we currently have under development thus gets us half way to the Spock Communicator. The digital cellular phone works everywhere but is too heavy and too costly while the digital cordless phone is the right size and price but only works locally. What is needed is an integration of these two.

4. The Spock Communicator

If my market forecasts are correct, then the First Generation Digital Cellular Phones and Digital Cordless phones will begin to reach saturation of their potential capacity in the late 1990's. Part of the EEC's RACE programme is examining the development of the technologies required to fuse the functionality of these two networks and produce the true Mr Spock Communicator for the year 2000. British Telecom is participating together with most of the major European Telecommunications manufacturers in a major research programme designed to develop the Second Generation Digital techniques required to realise this dream. More spectrum will be required, probably around 200Mhz at around the 2Ghz frequency. This may be integrated with existing 900Mhz spectrum by using frequency agile receivers. More advanced micro-cellular techniques will be required to provide greater density cells with lower power transmitters. More advanced speech coding and radio transmission techniques will be required possibly using wide-band TDMA, to deliver services flexibly to the customer and integrate with the fixed ISDN, possibly at the 2 Megabit level. All these are practical and realisable objectives within the 5 year timeframe of the RACE programme, enabling a demonstrator to be constructed in the mid 1990's and the full service to open by the year 2000. Such a network will have the capability to serve our Personal Communication needs through the first decades of the 21st century.

5. Conclusion

While the Personal Communications needs of the 1990's will be met by the First Generation Digital Cellular Radio and Digital Cordless systems, these will not be adequate to meet the requirements for both the quantity and range of services required by the year 2000. We need to develop a Second Generation Personal Communications network building on the convergence of these two networks to meet the needs of the 21st century.

Session 1

PERSONAL COMMUNICATIONS

