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Wireless Technologies in a 3G-4G Mobile Environment: exploring new business paradigms

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Introduction

Background

As telecommunications move into an era where the distinction between voice, video and data will be blurred, convergence of communications, information, entertainment, commerce and computing will lay the foundation for the development of an Information Society in Europe.

Over the last ten years there have been a number of significant developments in multimedia computing power, CD-ROM technology, digital television, the Internet/Intranet, and IP-based services and terrestrial and satellite mobile communications, which have a profound impact on our society. These technologies and systems may enable dramatic changes to take place in working practices, entertainment, education and healthcare.

Many organizations within the computing, entertainment, and communications industries are now looking to identify and capitalize on the promise of new market opportunities in multimedia created by these developments. To date, these organizations have worked largely within the fixed network sector. However, demand for multimedia services, should they be successful, is unlikely to be constrained to the fixed network. Greater pressure on time, and the need for flexibility and responsiveness in business, will lead to a growing demand for access to these services anytime, anywhere. It follows that a great opportunity exists for the mobile industry to contribute to the development of the Information Society by its ability to provide easy access to public databases and government services, and to increase the availability of and access to skilled, knowledge-based workers.

In order to meet the evolving needs of customers, and to capture the opportunity which this evolution represents, the worldwide mobile industry is developing a third and fourth generation of mobile technology.

Third generation mobile systems will take the personal communications user into the Information Society by delivering voice, graphics, video and other broadband information direct to the user, regardless of location, network or terminal. These personal communications services will provide both terminal and service mobility on fixed and mobile networks, taking advantage of the convergence of existing and future fixed and mobile networks and the potential synergies that can be derived from such convergence.

The key benefits that third generation promises include improvements in quality and security, incorporating broadband and networked multimedia services, flexibility of future service creation and introduction, and offering ubiquitous service portability.

The aim of this book is to identify the key uncertainties and events associated with the development of the market of mobile multimedia services, which may be delivered by third generation systems, and to quantify the market based on varying outcomes of these uncertain issues and events.

In April 2006 there are 123 commercially launched 3G/UMTS networks based on WCDMA technology around the world (Table 1), and research has commenced on fourth-generation (4G) technologies. These research initiatives encompass a variety of radio interfaces and even entirely new wireless access infrastructure. Better modulation methods and smart antenna technology are two of the main research areas that enable fourth-generation wireless systems to outperform third-generation wireless networks.

The concept of full Internet mobility considered in this book arises from the development of mobile telephony services towards the provision of new data services. Given the importance of the Internet as the central axis on which the information society is to be developed, the success of 2G mobile systems and the need to provide content for the 3G networks, mobile Internet is the fruit of the convergence between the Internet world and mobility.

Mobile Internet is used in a generic sense to allude to the new mobile telephony technologies such as GPRS and UMTS, and WAP applications on 2G.