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ENABLING UMTS / THIRD GENERATION SERVICES AND APPLICATIONS

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0 EXECUTIVE SUMMARY

0.1 General

This report is aimed at an audience that needs to understand the new opportunities that arise from third generation mobile systems and the associated dynamic but complex third generation market that will be created. It addresses the most important enablers and drivers that will ensure that the vision of third generation becomes a reality; this vision is to provide global access and delivery of information services of all possible kinds to the mobile community at large. This report leverages in-depth knowledge of current market developments and forecasts, and highlights key issues that must be addressed for the realisation of the UMTS vision and that are not normally discussed within the world's Standards Development Organisations; such issues arise especially in a cross-sector "converged" environment.

0.2 Expectations

There are two clear trends that can be recognised in the telecommunications market:

- Users have an increasing need to gain access to information in an efficient manner as possible
- Users have an increasing need to be mobile.

To date, these two requirements have been met by two very different solutions, namely the Internet and mobile networks, respectively. The convergence of both solutions is the ultimate goal of third generation systems, and will enable both user requirements to be met through the same platform and through new generations of access devices.

Within this converged world, an important goal of system design for third generation wireless systems is to support applications and services at performance and Quality of Service (QoS) levels equivalent to or better than wire line networks and to enable inter-working with other networks (e.g. 2nd generation GSM). This creates the momentum behind the development of a new breed of wireless systems where the underlying technology will and must be all but irrelevant to the user.

Driven by the Internet, the amount of information accessible through networks is growing exponentially. Digitisation of information from paper, film and tape archives and creation of new multimedia information "content" based on image, video, voice and text all exist today and such information is being delivered electronically on a large scale over the fixed Internet.

The electronic delivery to end-users of services such as entertainment, marketing, advertising and distance learning is nowadays also common practice. Additionally, data collected from networks of specialised embedded systems for applications such as traffic monitoring, earth resource monitoring, energy management, healthcare monitoring and even usage analysis of the networks themselves are other forms of information being sent across networks. All these forms of information will increasingly be transferred over wireless links.

Even though 3G will drive the convergence of services and drive content to be offered over a common platform, it would be a mistake to apply the business models and strategies that have been developed for the fixed Internet on a one-to-one basis to the "mobile Internet". Clearly, the end users' experience of the Internet over mobile networks will be different from their experience over the traditional "wired" Internet. This different experience will be driven by

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new capabilities such as mobility support and restricting factors such as limited battery power and terminal display sizes.

Enhanced features of second generation mobile networks such as SMS, GPRS and WAP enable operators to offer new services aimed at the mass market and assist them to gain experience prior to the launch of third generation systems. However, the rollout of WAP and GPRS services has only just begun. The challenge will be to master a very short learning curve for the successful deployment of third generation networks and to ensure the availability of attractive services, applications and solutions for the user both in public and private networks. In addition, the Internet continues to grow rapidly and networks based on the Internet Protocol will become predominant in the future. The Internet is clearly positioning itself as the single most important channel for delivery of information to the mass-market user.

There is little doubt that the wireless communications industry will drive the Internet into new markets with the introduction of third generation mobile systems. These developments will also influence and change the Internet itself.

The two user requirements identified at the start of this section are indications that end users will be willing to pay for secure, convenient wireless data services. The question is how operators might reconsider the value of their wireless data assets to gain incremental revenues and, more significantly, incremental profit and cash flows, so that that each end user will generate higher revenues, beyond wireless voice services and low speed data.

Since most future third generation services will be implemented over packet-based networks and will show very different traffic patterns to voice, these services could be priced according to network usage or volume of data rather than by the number of minutes that a subscriber is logged onto the network. As such, pricing has the potential to be a function of demand, time of day, bandwidth and delay tolerance. It is obvious that the future potential success of third generation services will very much depend on the implementation of the right pricing of these services in both level and structure.

All these aspects, namely user requirements, applications and services (both public and private), network platforms for the support of these applications and billing aspects are addressed in this report.

0.3 Creating the Environment

The mobile market is changing from an environment dominated by voice to one where mobile Internet and enhanced data services will be equally important. This transition requires new service concepts and an in-depth understanding of the “new” user. New cross-industry partnerships as well as new business models are required in order to address these challenges, accompanied by a re-organisation of the supply chain. The potent mix of the Internet, e-commerce and mobile communications promises huge potential market revenues; however, a number of steps must be implemented before this can be accomplished.

Accurate customer segmentation, focusing on customer value and availability of services at the right price will be key factors to success. Additionally, “content” needs to scale to the various display sizes of different terminals and also requires interoperability in order to ensure wide end-user acceptance.

As the wireless market moves towards multimedia, operators will need to ensure that subscribers using such services are effectively supported wherever they happen to be located. Mobile data applications are commercially viable today but future mobile network

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enhancements will enable operators to offer a broader, more profitable range of (multimedia) services.

Since the wireless Internet is an unprecedented phenomenon and the required business models and strategies are yet untested, market estimates vary widely and entry into this market is often associated with high risks. However, there are also indicators that provide evidence of its potential:

- Current offerings from cellular network operators include information on stock prices, weather forecasts, sports, traffic, and other Internet content for mass markets, all largely delivered by the Wireless Application Protocol (WAP). However, the current offerings have made some major shortcomings apparent, caused mainly by lack of terminals and the circuit-switched nature of the underlying 'bearer' services[1].

- The success of i-mode in Japan has been driven by its early entry into the market as well as by the development of content by more than 3,400 information providers. The rapid growth and current penetration of the service (some 11 million subscribers[2]) has demonstrated the acceptance of data services in future networks.

Mobile commerce has many facets such as B2B (business-to-business) and B2C (business-to-consumer) where consumer behaviour plays a critical part in its acceptance. However, the network operator will initially have to be content with a small transaction margin on new m-commerce business. Clearly, profitability in this case will be strongly dependent on volume, i.e. on the rapid creation of a mass market. Otherwise, network operators would have to decide as to how much a broader and more global scale they want, based on their abilities and organisational structure.

The key enabler for the consumer mass market is the packaging of applications and presentation of content within an easy-to-use terminal device. This captures the imagination of the consumer, in the same way in which the latest generation of mobile handsets and tariffs combined with voice messaging services have driven the wireless voice markets. These enable previously unconscious and undefined, or wholly new, user needs to be identified and satisfied, and this process results in the creation of completely new, previously unknown classes of services.

The next generation of mobile terminals is expected to be multimedia (voice, data, text, image and slow-scan video) and based on a combination of functions seen in the laptop, the palm-sized handheld and mobile phone. This means that for third generation services and applications, a large variety of mobile terminals targeted at various market segments will emerge, with voice as one of the features.

[1] GPRS, which would be much better suited for WAP services, is currently either not available or just being rolled out

[2] 3rd quarter 2000.

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