



CHAIRMAN'S REPORT

Introduction

1. At the invitation of the ITU Secretary-General, a workshop on “Shaping the Future Mobile Information Society” was held in Seoul, Republic of Korea, from 4-5 March 2004. The workshop was organized as part of the Secretary-General’s “New Initiatives” programme.¹ It was preceded by a Symposium on 3 March on “Shaping the Future Broadband Convergence Network”. Some 60 experts participated in the workshop, representing a range of regulatory and policy-making agencies, mobile operators, service providers, academic institutions, futurologists, private firms, and others. Those present at the meeting participated in an individual capacity. Mr Svend Kraemer, Head of Sector within the European Commission’s Information Society Directorate, chaired the meeting.

2. Two background papers were prepared for discussion at the workshop: “Broadband mobile communications towards a converged world” (presented by Mr Ki-Chul Han, ETRI, Korea) and “Social and human considerations for a more mobile world” (prepared by Ms Lara Srivastava, SPU, ITU). In addition, a number of case studies were prepared covering country experiences in Japan, Korea, Morocco and Norway.² The experiences of a number of other economies were presented, including Canada, Hong Kong-China, India, the Philippines, the United Kingdom and the United States.

3. At the end of 2003, there were over 1.35 billion mobile subscribers worldwide, compared with only 1.2 billion fixed-line users. This number is expected to increase, particularly as countries like China and India continue to add new subscribers. Mobile phones had overtaken the number of fixed lines globally by the end of 2002, and this had happened even earlier in the countries selected for the case studies. The number of subscribers continues to grow rapidly, albeit at a slower rate now that many economies are approaching universal coverage. The rise of mobile telephony to overtake fixed has a host of implications, but perhaps the most significant impact is on access, both to basic telecommunication services, and to ICTs, as a tool for economic and social development. It is also noteworthy that the phenomenon of mobile overtaking fixed has occurred largely irrespective of geographic (such as countries, regions, and continents), of socio-demographic (such as gender, income, or age) or of economic criteria (such as GDP per capita or level of development).

4. Based on presentations and discussions at the Symposium on the preceding day, it is important to recognize that mobile will not displace fixed access, despite the small reductions in fixed-line subscribers observed in several markets. Rather, the two modes of access will be complementary. Users will take advantage of the higher data rates and better quality of service offered by fixed access, where it is available and convenient (e.g. in a home or office situation). This also supports the convergence theme of the

¹ For more information on the New Initiatives programme, see www.itu.int/ni/.

² All of the meeting documents are available on the ITU website at: www.itu.int/futuremobile and will be published later as part of the ITU New Initiatives series of publications. Workshop presentations can be downloaded at <http://www.itu.int/osg/spu/ni/futuremobile/presentations/index.html>

Symposium, that is to say the increasing commonality and alignment of the architecture and protocols of the core infrastructures.³

Case studies on the mobile information society

5. The four countries selected for the case studies each represented early adopters of mobile in their regions:

- In the case of the **Republic of Korea**, presented by Taylor Reynolds and Jin-kyu Jeong, mobile is continuing to grow by around 160'000 subscribers per month, but the fixed-line service has started to decline in terms of subscriber numbers. Based on CDMA-1x technologies, Korea is an early market leader in 3G use. As of June 2003, just over 36 per cent of all Korean mobile subscribers were mobile Internet users with usage levels peaking at over 80 per cent among Junior High School students. Particularly popular applications in Korea include karaoke songs and TV soap operas delivered to mobile phones.
- In the case of **Morocco**, presented by Claudia Sarrocco, mobile overtook fixed in August 2000. The critical factors in its growth included the introduction of prepaid cards in late 1999 and the market entry of a second GSM operator in April 2000. As at the end of 2003, mobile user numbers (at around a quarter of the population) now exceed fixed-line subscribers by more than five-fold. But even though fixed-line subscriber numbers are declining, they still account for two-thirds of total revenue.
- In the case of **Norway**, presented by Eric Lie, a head start in the 1980s (with NMT; an analogue mobile service) was followed up with aggressive rollout of GSM in the 1990s. By the time mobile overtook fixed, in mid-2000, penetration of both services was over 70 per 100 inhabitants. The volume of voice traffic has actually fallen since 2000, but the shifts in usage—from fixed to mobile, and from voice to data—have helped to sustain revenue. Use of SMS (short message service), in particular, tripled between 1999 and 2002 and now stands at an average of over 600 per user per year.
- In the case of **Japan**, presented by Lara Srivastava, the switchover from fixed-lines to mobile took place around the end of 2000. Japan's major contribution to a "more mobile world" is possibly its early leadership in mobile data services, initially through *i-mode*, and latterly through the adoption of 3G mobile (IMT-2000). As at December 2003, there were some 13.8 million 3G users of whom over 90 per cent were using CDMA 1-X systems and the remainder using wideband CDMA. Japan's leadership in this field has given it an early insight into the use of video-telephony (real-time) and video-messaging (store and forward) over mobile phones. Vodafone's "Happy Time" is an example of the former while NTT DoCoMo's "*i-motion mail*" is an example of the latter.
- In addition to the formal case studies, the experiences of a number of other countries and economies were presented. The case of **India** was described by Ravindra Nath Prabhakar and Ashok Jhunjunwala. Despite a late start, India has recently started to add new mobile subscribers at a rate of around 2.5 million per month. Key factors in triggering this turnaround have been the introduction of increased competition, a move from receiving party pays (RPP) to calling party pays (CPP) and the introduction of a unified licensing system. The combination of these factors has helped to reduce calling rates to below 2 US cents per minute, making them among the lowest in the world. This would not have been possible in fixed-line networks, or in earlier generations of mobile networks, given the higher capital and operating expenditures that would have been necessary. In such a large economy, the average margin per user (AMPU) can be just as important as the more-commonly quoted average revenue per user (ARPU).
- A comparative study of mobile data users in **Hong Kong SAR and Beijing, China** was presented by Yan Xu (Hong Kong University of Science and Technology). Although the former are more numerous (per 100 inhabitants) and have longer experience of using mobile communications, they

³ See for example, the presentation given at the Symposium by Nortel Networks (available at: <http://www.itu.int/osg/spu/ni/futuremobile/workshop.html>).

are actually less likely to use SMS. Part of the reason is due to the fact that Chinese users have an aversion to talking to machines, and are therefore more likely to use SMS to check that their interlocutor is available, or to substitute for the voice call.

- Developments in the youth markets in the **Philippines** and **the United States** were presented by Janette Toral and by Audrey Selian/Lara Srivastava respectively. In the Philippines, the peak usage of picture messaging is among 17-20 year-olds, ring tone downloading amongst 21-24 year olds, and downloads of news stories among 25-28 year-olds. Under 16s favour horoscopes and jokes. In the United States, young girls are using SMS to extend their social life beyond bedtime.
- Priorities for regulation and public policy in the mobile information society were presented by Willy Jensen (Norway), Yoshiyuki Takeda (Japan) and Ravindra Prabhakar (India). Mr Jensen noted that European countries were moving away from legacy supplier type of regulation of all telecommunications services to a system that puts the consumer in focus. Regulation would only be used to ensure that the market functions effectively. Mr Prabhakar pointed to the benefits of universal service funds for rural areas. Mr. Takeda highlighted the importance of Japan's mid to long term "radio policy vision" towards the realization of a ubiquitous network society through the creation of a wireless broadband environment. The policy involves a dynamic review of frequency allocation and introduces new schemes for frequency reframing and registration.

Mobile market drivers and inhibitors

6. Probably the biggest market driver for mobile phones is "convenience", but there is a cluster of other factors that drive take-up, including security, fashion, social contacts, work requirements, etc. Among mobile data users, the main applications include the download of ring tones, logos and games. Where more bandwidth is available, on 3G networks, the same applications tend to be popular, albeit with higher sophistication (e.g. polyphonic ring tones, high-definition colour logos and games etc). Over time, new services are being developed that benefit from the higher capabilities of 3G networks, such as downloading of songs, m-commerce or location-based services (LBS). Wireless LANs, too, are extending the usefulness of spectrum-based services.

7. Market inhibitors include costs and the ability to control them, health fears and loss of privacy. The North American market and others that have persisted in the use of RPP (receiving party pays) continue to lag behind other economies that have always used CPP (calling party pays) or, like India, have shifted to CPP. Different policy environments have helped or retarded market development in different countries. Information presented in this meeting, notably through the country case studies, could provide helpful for regulatory agencies.

8. In the developing world, the cost of ownership of mobile phones has come down considerably but continues to be a deterrent to wider mobile user in some economies. In Morocco, one feature offered by operators enables contract users to set a voluntary limit on their monthly usage. But contract users form a tiny minority (below five per cent) of the overall market, as the majority are prepaid users. In order to extend mobile usage to families and individuals with lower incomes, Mediatecom, the new market entrant, offers prepaid cards for as little as DAM 20 (US\$ 2.30), equivalent to just three minutes use at peak rate. Surveys of Moroccan users indicate that the ability to receive calls is just as important, if not more important, as the ability to make calls. Elsewhere, cross-subsidies of handset prices by operators have helped to keep down the cost of ownership.

How will our lives change in the mobile information society?

9. The information society may be defined as a world in which "everyone can create, access, utilize and share information and knowledge" (see WSIS Declaration, Para 1⁴). The *mobile* information society is based on realising the so-called 3As (anyone, anytime, anywhere) and facilitating the concepts of always-on and always-available. The generation that has grown up using mobile phones (labelled "GenTXT" in the Philippines) will have different social habits and norms to their parents. Like any technologies, the associated

⁴ The World Summit on the Information Society Declaration and Plan of Action can be found at: <http://www.itu.int/wsis>.

social changes bring benefits but also pose challenges and ethical questions. The workshop generated numerous anecdotes from around the world:

- In Norway, for instance, public policy requires that individual tax returns are publicly available via the Web. This has promoted a Friday night boom in SMS traffic to the tax service as Norwegians meeting friends, business colleagues or potential mates check on their earning potential before deciding whether to take the relationship further.
- In Japan, parents use location-based services to keep a watch over their children. For example, automated e-mail alerts can be generated and sent to parents' mobile phones to inform them when and where to pick up their children after school ("Child Pick-Up Service").
- In Korea, downloading anti-mosquito ring tones helps to making camping a more pleasant experience while traffic alerts delivered to in-car navigation systems help Koreans arrive at the camps-sites in good time.
- In Germany, young men who do not use SMS to reaffirm their love for their partners soon find themselves lonely.
- In the Philippines, Chikka.com enables Filipinos working overseas to stay in touch with their loved ones via instant messages converted to SMS on mobile phones.
- In St. Andrews, Scotland, a network of SMS users co-operatively tracks the movements of Prince William, the heir to the British throne, to ensure he never arrives anywhere without a crowd of admirers.
- In Sweden, mobile gamers ("Botfighters") track and "kill" other users nearby via SMS. When riding the Stockholm subway, SMS can also alert a small group of "fare-jumpers" to the presence of ticket collectors.
- In Morocco, banks send SMS to their customers to tell them of the completion of funds transfers.

As indicated by these anecdotes, social changes seem highly differentiated by age, gender and culture, with the more profound effects of the "Gentxt" generation still to come. These are still early days of the mobile information society. In the future, we will communicate not only with each other but increasingly with machines. Early manifestations of this trend can be found in the development of radio frequency identification tags (RFID), ubiquitous networking, and various trials on human to machine interaction.

Privacy and identity in a more mobile world

10. Mobile phones are shaping the identity of individuals, families and social groupings. They are increasingly viewed as a status symbol by adults and youths alike, and clearly affect the way people interact with each other. An interesting example is the growing trend of "bluejacking" (particularly in Europe), which allows users to send anonymous notes at no charge to others (often strangers), within the range of their bluetooth-enabled phone. In some Asian countries, such as Japan and Korea, services selling interaction with robotic pets or virtual pets are on the rise as is the creation of on-line personalities or "avatars" (a Sanskrit term). Even without creating one actively, it can be said that we now all have a "digital persona" in one form or the other, made up of the wide array of information being collected about us, in the case of mobile users on a daily basis.

11. In a digital environment, protecting one's identity is becoming an increasingly difficult task. One of the new rituals is the conscious concealment or display of the "caller identification" feature on mobile phones. The staggering growth of camera-enabled phones raises concerns about the user of photography for exploitation or invasions of privacy. In order to take full advantage of advances in wireless medical technologies, patient records and information stemming from "body area networks" must be adequately protected. In the alternative, we may not be able to leave identity theft to script writers at Hollywood". And as we start reaching for the next billion users, the need to manage unsolicited messaging (spam), while ensuring that innovative services are developed, will become even more acute.

Mobility and reshaping social values

12. While most if not all speakers—and especially the presenters of the country case studies—addressed, directly or in passing, the issues of change in social behaviour and manners with the advent of mobile telephony, the topic was principally carried by Lara Srivastava in three different presentations and also by Janette Toral. Among the insights expressed is the notion that the highly targeted group communications enabled by mobile voice and SMS messaging would tend to weaken more conventional “face-to-face” community forms while conversely strengthening networks.

- In Japan, one key observation was that, on the whole, mobile usage had graduated from merely “killing time” to purposeful usage. Most usage of mobile data and mobile voice services occurs at home, rather than on the move. Moreover, most users consult different types of media, before they find a specific content site. Therefore, in order to promote content, major content providers focus on developing bridging technologies to various media rather than listing only on official menus. This is slowly leading to the fusion of broadcasting and mobile content, stimulated by the advent of rich mobile multimedia content over 3G networks.
- A survey in the Philippines revealed that 77 per cent of the people were so addicted to their messaging exchanges that they would start checking their telephone service after failing to receive SMS for an unusual duration of time. Regarding the issue of privacy, the same survey indicated that 67 per cent of the respondents were indifferent to anybody intercepting and reading their messages.

13. How have differences in culture and etiquette been reflected in mobile usage and how has the advent of the mobile affected culture and etiquette? The major issue here it seems, is that at first, users experience a liberating and unrestrained tendency to experiment with their new toys. Not surprisingly, mobile phones have become an essential and intimate part of our daily lives. One consequence of this is the rise of a new casualness about space and time constraints, or a loss of our sense of “the here and now”. Another important aspect that was discussed was the role of the mobile in the interplay between public and private spaces, and contexts, of life.

- A 2003 Nokia survey attributes to the use of cell phones the fact that 71 per cent of respondents would tend to arrive late at social events. “Forced eavesdropping’ in trains, buses and public places is far from being agreeable to all.
- In Korea, manners have begun to appear however, notably in the self restraining habits introduced after people in public places began to complain of loud ring tones and even louder voices (“stage phoning” in the words of mobility expert Sadie Plant).
- In Japan, it often happens that people who speak on their mobile in public places cover their mouth with their hand as they would in a face-to-face conversation. Similarly, industry self-regulation has meant that using the mobile phone in restaurants and public transport is subject to some limitations.

14. The development of camera phones broadens the impact of mobile phones as a social phenomenon. “Snap-happiness” rose with the advent of cameras integrated into mobile phones. People can photograph anything in sight and instantly “publish” the results on the Web, a phenomenon known as “moblogging”.

15. Industry occasionally contributes to the manners-setting agenda, as is practised in some public places, by configuring their service in such a way as to allow voice and text communications but not video exchanges. Failing that, it will soon be possible to purchase “camera jammers” that digitally and remotely prevent people from using their mobile cameras effectively. Some countries put severe restrictions on the public use of these private technologies. Saudi Arabia outlaws the use of camera phones anywhere, while some countries such as the United Kingdom, France and Australia have introduced regulation to forbid certain uses of handsets while driving.

16. What are some of the effects of mobile communication on public participation and political mobilization? In this regard, the Philippines may provide a key usage laboratory for mobile telephony and especially SMS messaging. Some 59 per cent of respondents to a survey indicated that they used SMS for political contestation and participation. The so-called “SMS revolution” that brought down the regime of one of the country’s previous presidents (President Joseph Estrada) is a case in point. SMS is credited with effecting a quick mobilization around issues whether to criticize business or government practices.

Opportunities and threats for the youth market

17. Mobile users are getting younger and younger. A technology-savvy segment of society, young people are enthusiastic early adopters of new mobile services. Their use of mobile “txting” (e.g. SMS, e-mail, MMS), mobile Internet services and gaming typically exceeds that of their older counterparts. In Korea, for example, the largest use of the mobile Internet is among junior high school students. In the Philippines, teenagers are the most avid txters. In Japan, the penetration of mobile phones among 18-year-old girls is nearing 100 per cent. Young people use mobiles to create and maintain social networks and to reflect their popularity or position in a peer group. The attitude of young people towards their mobile phones is not purely related to device functionality, but rather to their own individuality or identity. The youth market is an important predictor of how the future mobile information society will develop. Service providers and operators alike are looking at better ways to target this growing market segment. At the same time, one must ensure that young people are protected from, *inter alia*, inappropriate content, invasions of privacy, excessive spending, technological addiction (such as gaming addiction), and any negative health effects (e.g. sedentary lifestyles, cellular radiation). Not only did the workshop raise issues about youth usage, but participants also noted the potential of mobile technologies for the ageing population, in particular with respect to mobile health applications. A presentation on this topic was given by Akihisa Kodate (Waseda University, Japan).

18. In preparation for the workshop, a paper entitled “Mobile phones and youth: A look at the US Student Market” was commissioned. This paper reports on the results of a survey of mobile usage and behaviour among high school and college students.

Mobile technologies for the developing world

19. The mobile technologies in use in developing countries are largely the same as those used in more developed parts of the world, benefiting from the economies of scale that have been achieved globally in the manufacture of handsets and base stations. But applications are often different. Professor Jhunjhunwala presented a number of examples from India of the way in which mobile communications can be used to provide, for instance, low cost automatic teller machines (ATMs), remote education and remote health monitoring services, and open-access Internet Kiosks. Mobile technologies can provide a basis for the possibilities of technological leapfrogging. In this context, it was pointed out that locally-developed technologies often cheaper than imported technologies, providing new growth opportunities for industrial development in developing countries.

20. One promising concept for helping to accelerate the narrowing of the digital divide is the so-called “portable Internet”, which is a new wireless-based technology, which attempts to bridge the gap between short-range wireless LAN technologies and longer-range 3G technologies. In Korea, some 100 MHz has been set aside in the 2.3 GHz band for portable Internet services which will offer up to 1-2 Mbit/s of bandwidth per user for an estimated US\$ 15 per month. Future mobile handsets would work seamlessly with existing wireless infrastructures. Potentially the biggest demand for portable Internet solutions could be in developing markets where new rollout networks are being planned, and where there is a requirement to cover low-density rural populations. It was also argued that concepts of universal service obligations may need to be updated to take account of technological developments, in particular the development of high-speed Internet services.